Draft

Initial Study-Mitigated Negative Declaration

The City of Agoura Hills

The Park at Ladyface Mountain Senior Apartments Project

Rincon Consultants Inc.

April 2016

The Park at Ladyface Mountain Senior Apartments Project

Draft
Initial Study – Mitigated Negative Declaration

Prepared by:

City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
Contact: Doug Hooper
(818) 597-7342

Prepared with the assistance of:

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Ventura, California 93003

April 2016

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TABLE OF CONTENTS

Page

List of Tables

List of Figures

Appendices

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INTRODUCTION

This Initial Study (IS) has been prepared for the Park at Ladyface Mountain Senior Apartments Project ("the project") in compliance with the California Environmental Quality Act (CEQA) Statutes and Guidelines (public Resources Code Section 21000 et. Seq. and California Code of Regulations Title 14, Chapter 3, Section 15000-15387, respectively). The IS addresses the potential environmental effects resulting from the proposed project.

LEGAL AUTHORITY AND FINDINGS

This IS has been prepared in accordance with the *California Environmental Quality Act* (*CEQA) Guidelines* and relevant provisions of CEQA of 1970, as amended. The purposes of an Initial Study are:

(1) To provide the Lead Agency with the necessary information to decide whether to prepare an Environmental Impact Report (EIR) or a Mitigated Negative Declaration;

(2) To enable the Lead Agency to modify a project, mitigating adverse impacts, thus avoiding the need to prepare an EIR; and

(3) To provide sufficient technical analysis of the environmental effects of a project to permit a judgment based on the record as a whole, that the environmental effects of a project have been adequately mitigated.

IMPACT ANALYSIS AND SIGNIFICANCE CLASSIFICATION

The following sections of this IS provide discussions of the possible environmental effects of the proposed project for specific issue areas that have been identified on the CEQA Initial Study Checklist. Potential effects are discussed and evaluated for each issue.

A "significant effect" is defined by Section 15382 of the *CEQA Guidelines* as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." According to the *CEQA Guidelines*, "an economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

Following the evaluation of each environmental effect determined to be potentially significant is a discussion of mitigation measures and the residual effects of level of significance remaining after the implementation of the measures. In cases where a mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect.

USE OF PREVIOUS ENVIRONMENTAL DOCUMENTS IN THIS ANALYSIS

The following environmental analyses and technical studies were used as a basis for this document. These resources are available for public review at Agoura Hills City Hall, located at 30001 Ladyface Court in Agoura Hills:

- *Agoura Hills Senior Housing: Oak Tree Report*, The Oak Collaborative (September 2013).
- *Biological Resources Inventory and Impact Analysis: The Park at Ladyface, City of Agoura Hills, California*, Envicom Corporation (February 2014).
- *City of Agoura Hills, General Plan 2035 EIR* (February 2010).
- *City of Agoura Hills, Ladyface Mountain Specific Plan* (1991).
- *City of Agoura Hills, Ladyface Mountain Specific Plan EIR* (February 1990).
- *Geotechnical Response to City of Agoura Hills Review Sheet Dated April 18, 2014, Senior Housing Community, Vesting Tentative Tract Number 71742 (APN# 2061-001-025), 30800 Agoura Road, Agoura Hills, California*, Gorian & Associates, Inc. (July 2014).
- *Geotechnical Update Study – The Park at Ladyface Mountain, Senior Housing Community, APN# 2061-001-025 and 30800 Block of Agoura Road, Agoura Hills, California*. Gorian & Associates, Inc. (February 2003).
- *Geotechnical Update Study, Senior Housing Community, APN# 2061-001-025, 30800 Agoura Road, Agoura Hills, California.* Gorian & Associates, Inc. (September 2007).
- *Phase I Environmental Site Assessment, APN# 2061-001-025 and 30800 Block of Agoura Road, Agoura Hills, California.* Gorian & Associates, Inc. (October 2000).
- *Preliminary Hydrology & Hydraulics Report for Parcel 2 of Parcel Map No. 15762*. HMK Engineering. (August 2002).
- *Results of Preliminary Geotechnical Investigation, Agoura Hills Project, APN# 2061-001-025 & 30800 Block of Agoura Road, Agoura Hills, California.* Gorian & Associates, Inc. (October 2000).
- *Spring 2014 Rare Plant Survey: The Park at Ladyface Project Site*, Envicom Corporation (May 2014).
- *Standard Urban Stormwater Mitigation Plan (SUSMP) for Tentative Tract Map No. 71742.* Hardy Engineering, Inc. (March 2014).

INITIAL STUDY

PROJECT TITLE

The Park at Ladyface Mountain Senior Apartments Project

LEAD AGENCY AND CONTACT PERSON

City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
Contact: Doug Hooper, Planning Director, (818) 597-7342

PROJECT PROPONENT

Agoura Hills Center Properties, LLC
31280 Oak Crest Drive, Suite 4
Westlake Village, CA 91361

PROJECT SITE CHARACTERISTICS

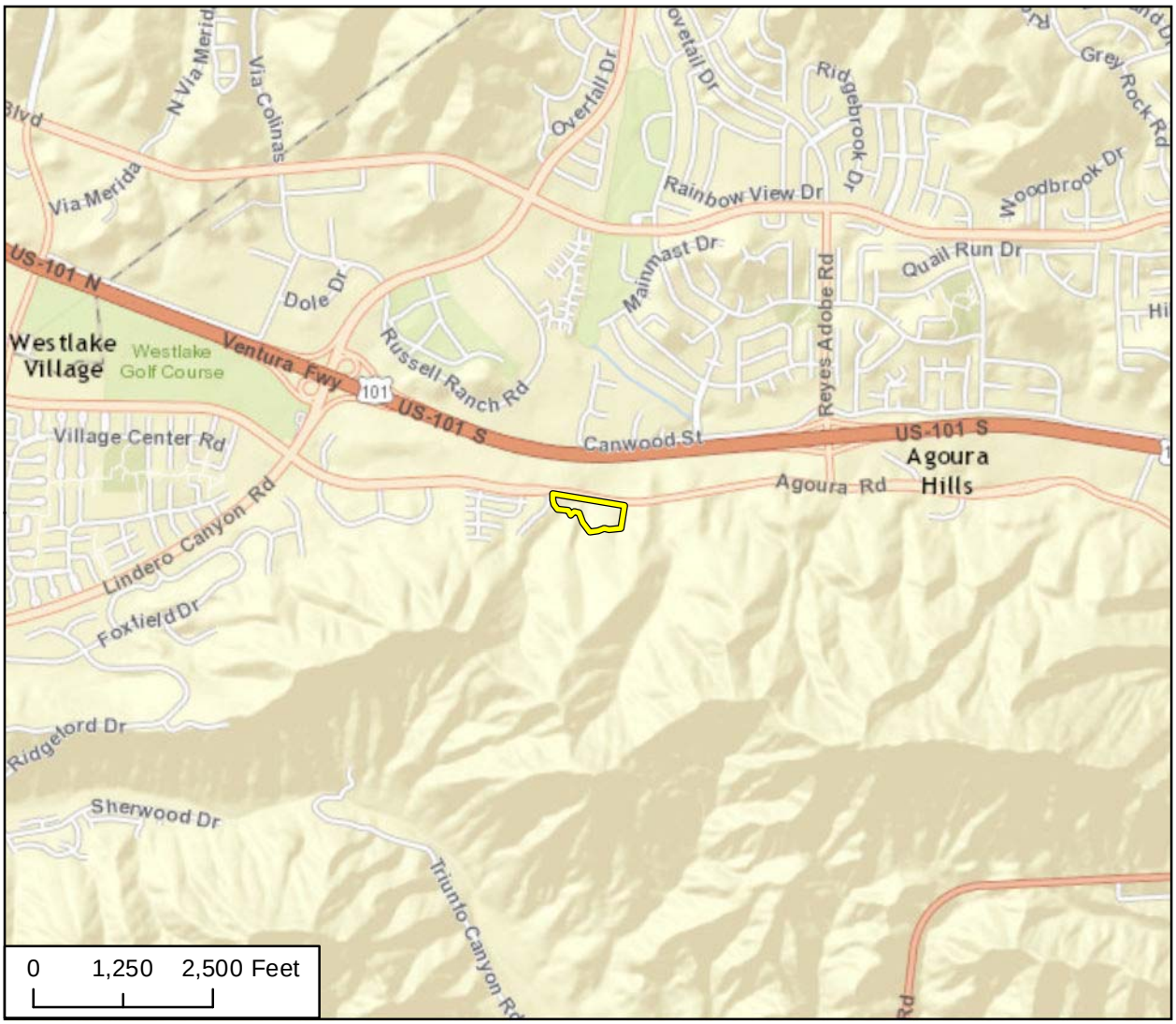
The Park at Ladyface Mountain Senior Apartments project site (project site) is located within the western portion of the Ladyface Mountain Specific Plan area, within the City of Agoura Hills ("City"), between Reyes Adobe Road and the westerly City limits, on the south side of Agoura Road, at 30800 Agoura Road. The City is located in the eastern Conejo Valley between the Simi Hills and Santa Monica Mountains in western Los Angeles County. The site is depicted in Township 1 North, Range 18 West of the U.S. Geographical Survey (USGS) Thousand Oaks 7.5-minute topographic quarangle. Figure 1, *Regional Location,* shows the regional context of the project site. U.S. Highway 101 is located approximately 500 feet north of the project site. Figure 2, *Project Site Location,* shows the location of the project site within the City.

The project site is within a 71-acre vacant parcel (Assessor Parcel Number 2061-001-025). Figure 4, *Site Photographs*, provides photographs of the existing conditions at the project site. An undeveloped parcel is located adjacent and to the east of the project site, with the headquarters of the nonprofit Conrad N. Hilton Foundation to the east of that property. Agroua Road and an office bulding with associated surface parking are located north of the site across Agoura Road. Lexington Apartments is adjacent to the west. Undeveloped open space in the foothills of Ladyface Mountain lies to the south.

Assessor Parcel Numbers: The project site is identified by Assessor's Parcel Number (APN) 2061-001-025.

Existing General Plan Designation: The existing land use designation for the project site in the City's General Plan is Planned Development District (PD).

Existing Zoning: The project site is currently zoned as follows: Planned Development (PD) (Ladyface Mountain Specific Plan).



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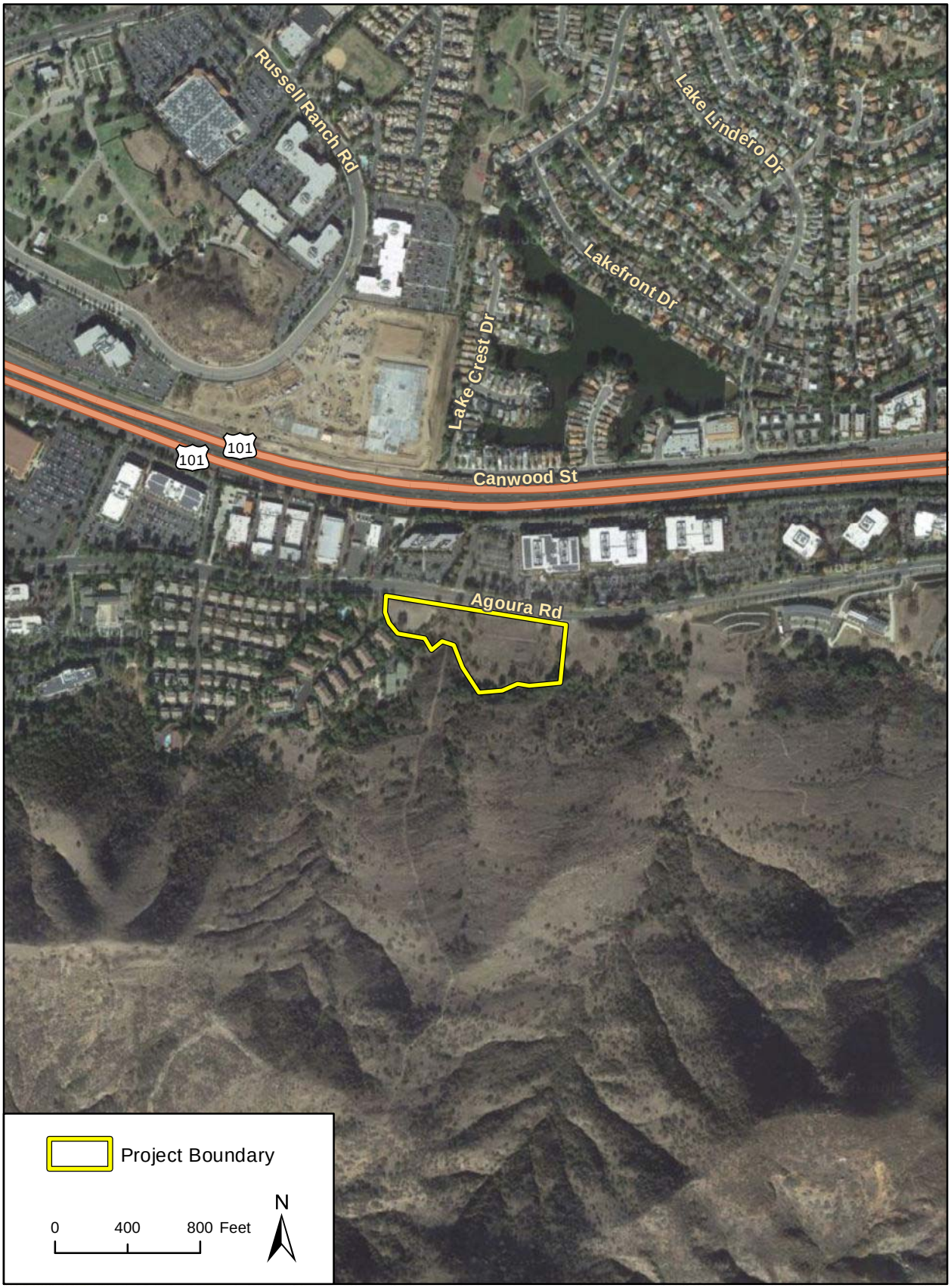
Project Boundary

Regional Location

Figure 1



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Project Site Location

Figure 2

PROJECT DESCRIPTION

Development Components

The proposed project would involve construction of a 71,206 square-foot apartment complex with 46 housing units for senior citizens on an undeveloped 7.1-acre parcel. As shown in the proposed site plan in Figure 3, the apartment complex would consist of Building A on the western portion of the site, Building B on the eastern portion, and a private recreational park between two drainages in the center of the site. These two-story apartment buildings would house a total of 46 units, including 20 in Building A and 26 in Building B. Table 1 shows the characteristics of the proposed project.

Table 1
Project Characteristics

Project Site Size	7.10 acres
Unit Summary	1BD: 14 units 2BD: 32 units Total: 46 units
Building Floor Area	Building A: First Floor: 15,358 square feet Second Floor: 15,358 square feet Total: 30,716 square feet Building B: First Floor: 20,245 square feet Second Floor: 20,245 square feet Total: 40,490 square feet Overall Total: 71,206 square feet
Building Footprint	Building A: approximately 19,300 square feet Building B: approximately 23,700 square feet
Building Height	Building A: 31 feet, 9 inches Building B: 32 feet, 3 inches
Site Density	6.48 dwelling units per acre
Parking Provided	Residents: 92 stalls Visitors: 25 stalls Handicap: 7 stalls Recreational area: 11 stalls Total: 128 stalls
Amenities	Recreational area Spas

The proposed buildings would have a contemporary Craftsman style, with façades that combine stone siding and smooth stucco finish. Other building features include decorative metal railings on balconies, flat tile concrete roofing, and outer patio walls with stone siding.

PROJECT DIRECTORY:

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AGOURA HILLS CENTER PROPERTIES, LLC
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WESTLAKE VILLAGE, CA 91361
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TOPANGA, CA 90290
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(F) 310.455.4284
CONTACT: DON WYNN

PARKING SUMMARY:

PER AGOURA HILLS MUNICIPAL CODE OFF STREET REQUIREMENT
2 COVERED, PLUS 0.50 UNCOVERED PARKING SPACES PER UNIT

BUILDING A

TOTAL 1-BEDROOM UNITS	PARKING (REQ'D.) 2/UNIT	VISITOR PARKING (REQ'D.) 0.5/UNIT
6	12	3

TOTAL 2-BEDROOM UNITS	PARKING (REQ'D.) 2/UNIT	VISITOR PARKING (REQ'D.) 0.5/UNIT
14	28	7

RESIDENT PARKING REQUIRED: 40 STALLS
VISITOR PARKING REQUIRED: 10 STALLS
RESIDENT PARKING PROVIDED: 40 STALLS (2 H.C. STALLS)
SITE VISITOR PARKING PROVIDED: 11 STALLS (2 H.C. STALLS)

TOTAL PARKING REQUIRED: 50 STALLS (4 H.C. STALLS)
TOTAL PARKING PROVIDED: 51 STALLS (4 H.C. STALLS)

BUILDING B

TOTAL 1-BEDROOM UNITS	PARKING (REQ'D.) 2/UNIT	VISITOR PARKING (REQ'D.) 0.5/UNIT
8	16	4

TOTAL 2-BEDROOM UNITS	PARKING (REQ'D.) 2/UNIT	VISITOR PARKING (REQ'D.) 0.5/UNIT
18	36	9

RESIDENT PARKING REQUIRED: 52 STALLS
VISITOR PARKING REQUIRED: 13 STALLS
RESIDENT PARKING PROVIDED: 52 STALLS (3 H.C. STALLS)
SITE VISITOR PARKING PROVIDED: 14 STALLS (2 H.C. STALL)

TOTAL PARKING REQUIRED: 65 (5 H.C. STALLS)
TOTAL PARKING PROVIDED: 66 (5 H.C. STALLS)

RECREATIONAL AREA PARKING PROVIDED: 11 STALLS

PROJECT INFORMATION:

LEGAL DESCRIPTION:
PARCEL 2 OF PARCEL MAP NO.15762 IN THE CITY OF AGOURA HILLS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 175, PAGES 6 AND 7 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

GENERAL NOTES:

ADDRESS: 30500 AGOURA ROAD, AGOURA HILLS, CA
ASSESSOR'S PARCEL MAP #: 2061-0-001-025
THOMAS GUIDE: PAGE 557-G6
EXISTING ZONING: SP
FLOOD ZONE: C

TOTAL SITE AREA: 308,488 S.F. OR 7.10 ACRES

BUILDING A	AREA	# OF UNITS
FIRST FLOOR	15,358 S.F.	10
SECOND FLOOR	15,358 S.F.	10

TOTAL FLOOR AREA FOR BLDG. A 30,716 S.F. 20 UNITS

BUILDING B	AREA	# OF UNITS
FIRST FLOOR	20,245 S.F.	13
SECOND FLOOR	20,245 S.F.	13

TOTAL FLOOR AREA FOR BLDG. B 40,490 S.F. 26 UNITS

TOTAL OVERALL FLOOR AREA 71,206 S.F. 46 UNITS

CONSTRUCTION TYPE:
5A OVER 3A
BUILDING WILL BE FULLY SPRINKLERED
OCCUPANCY R-2

BUILDING SUMMARY:

BUILDING A

MULTI-PURPOSE ROOM - GROUND FLOOR	421 S.F.
MULTI-PURPOSE ROOM - SECOND FLOOR	421 S.F.

GROUND FLOOR UNITS	AREA (S.F.)
101 UNIT A	1,578 S.F.
102 UNIT A	1,572 S.F.
103 UNIT B	1,246 S.F.
104 UNIT C	1,116 S.F.
105 UNIT B	1,246 S.F.
106 UNIT A	1,571 S.F.
107 UNIT A	1,586 S.F.
108 UNIT D	940 S.F.
109 UNIT D	940 S.F.
110 UNIT D	940 S.F.

SECOND FLOOR UNITS	AREA (S.F.)
201 UNIT A	1,578 S.F.
202 UNIT B	1,572 S.F.
203 UNIT C	1,246 S.F.
204 UNIT B	1,116 S.F.
205 UNIT A	1,246 S.F.
206 UNIT A	1,571 S.F.
207 UNIT D	1,586 S.F.
208 UNIT D	940 S.F.
209 UNIT D	940 S.F.
210 UNIT D	940 S.F.
TOTAL	25,678 S.F.

BUILDING B

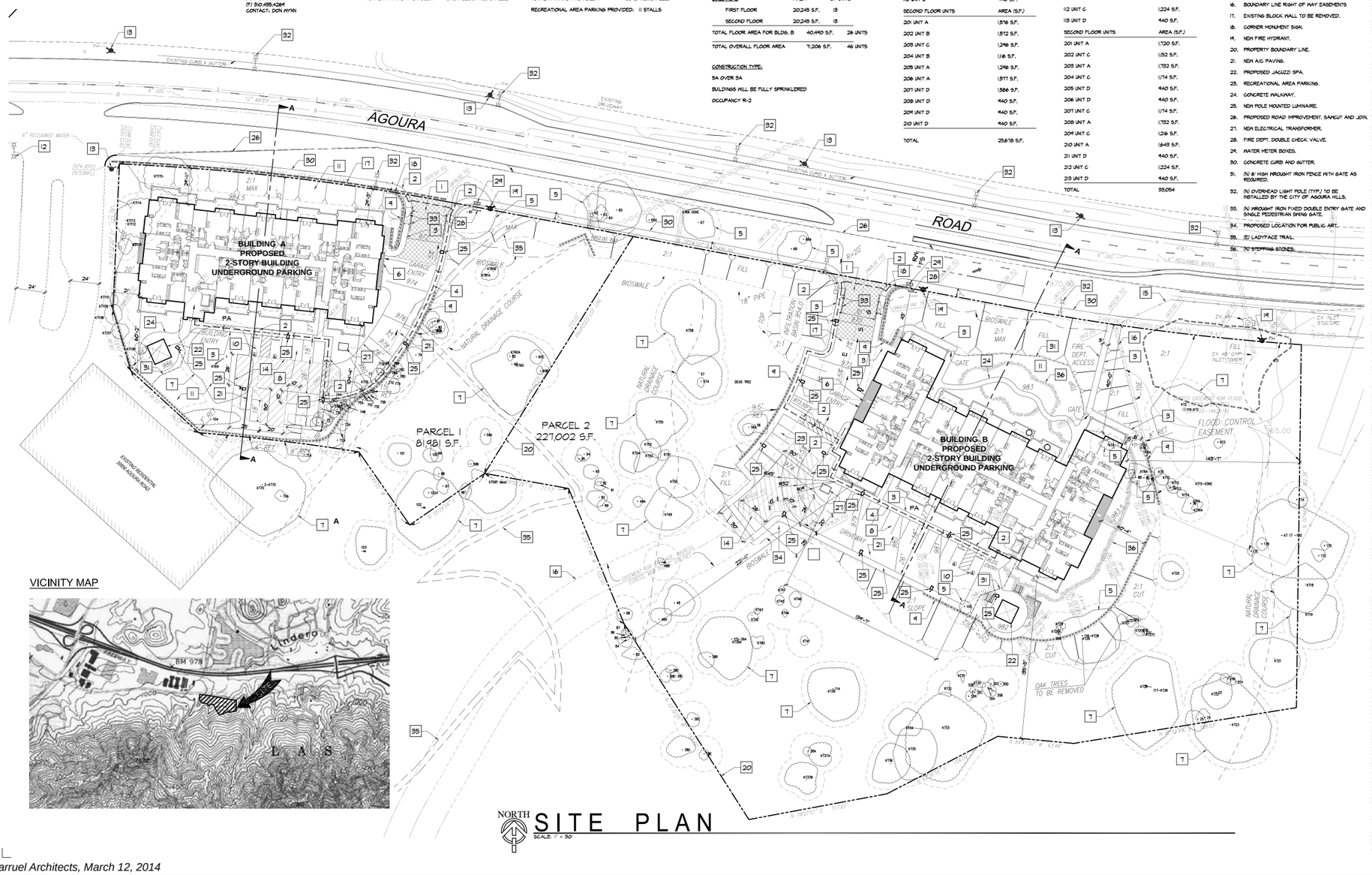
MULTI-PURPOSE ROOM - GROUND FLOOR	604 S.F.
MULTI-PURPOSE ROOM - SECOND FLOOR	604 S.F.

GROUND FLOOR UNITS	AREA (S.F.)
101 UNIT A	1,720 S.F.
102 UNIT C	1,152 S.F.
103 UNIT A	1,732 S.F.
104 UNIT C	1,174 S.F.
105 UNIT D	940 S.F.
106 UNIT D	940 S.F.
107 UNIT C	1,174 S.F.
108 UNIT A	1,732 S.F.
109 UNIT A	1,216 S.F.
110 UNIT A	1,643 S.F.
111 UNIT D	940 S.F.
112 UNIT C	1,224 S.F.
113 UNIT D	940 S.F.

SECOND FLOOR UNITS	AREA (S.F.)
201 UNIT A	1,720 S.F.
202 UNIT C	1,152 S.F.
203 UNIT A	1,732 S.F.
204 UNIT C	1,174 S.F.
205 UNIT D	940 S.F.
206 UNIT D	940 S.F.
207 UNIT C	1,174 S.F.
208 UNIT A	1,732 S.F.
209 UNIT C	1,216 S.F.
210 UNIT A	1,643 S.F.
211 UNIT D	940 S.F.
212 UNIT C	1,224 S.F.
213 UNIT D	940 S.F.
TOTAL	33,054

KEYNOTES:

1. SCORED AND COLORED CONCRETE PAVING.
2. NEW ACCESSIBLE CURB RAMP.
3. 5' WIDE CONCRETE WALKWAY.
4. ACCESSIBLE PATH OF TRAVEL.
5. TREES TO BE REMOVED, SEE CIVIL, TYP.
6. DRIVEWAY TO UNDERGROUND PARKING.
7. EXISTING OAK TREE WITH 5' DRIPLINE, SEE CIVIL.
8. SITE GUEST PARKING.
9. RETAINING WALL, SEE CIVIL.
10. NEW ACCESSIBLE PARKING.
11. NEW PLANTING AREA, SEE LANDSCAPING.
12. EXISTING LIGHT POLE.
13. EXISTING FIRE HYDRANTS.
14. FIRE DEPT. TURN AROUND STANDARD PUMPER.
15. EXISTING FENCE TO BE REMOVED.
16. BOUNDARY LINE RIGHT OF WAY EASEMENTS
17. EXISTING BLOCK WALL TO BE REMOVED.
18. CORNER MONUMENT SIGN.
19. NEW FIRE HYDRANT.
20. PROPERTY BOUNDARY LINE.
21. NEW A/C PAVING.
22. PROPOSED JACUZZI SPA.
23. RECREATIONAL AREA PARKING.
24. CONCRETE WALKWAY.
25. NEW POLE MOUNTED LUMINAIRE.
26. PROPOSED ROAD IMPROVEMENT, SAWCUT AND JOIN.
27. NEW ELECTRICAL TRANSFORMER.
28. FIRE DEPT. DOUBLE CHECK VALVE.
29. WATER METER BOXES.
30. CONCRETE CURB AND GUTTER.
31. (N) 6' HIGH WROUGHT IRON FENCE WITH GATE AS REQUIRED.
32. (N) OVERHEAD LIGHT POLE (TYP.) TO BE INSTALLED BY THE CITY OF AGOURA HILLS.
33. (N) WROUGHT IRON FIXED DOUBLE ENTRY GATE AND SINGLE PEDESTRIAN SWING GATE.
34. PROPOSED LOCATION FOR PUBLIC ART.
35. (E) LADYFACE TRAIL.
36. (N) STEPPING STONES.



VICINITY MAP

NORTH
SITE PLAN
SCALE: 1" = 30'

SITE PLAN
NEW APARTMENT
AGOURA HILLS CENTER PROPERTIES
STEVE RICE & CARLOS KHANTZIS
PROJECT ADDRESS
AGOURA HILLS, CA 91301

DATE: 11/18/15
DRAWN: CEA
CHKD: AV
PM: AV
JOB NO. 13-01

A1.0
SHEET NO. OF -

DATE:
REVISIONS:

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Proposed Site Plan

Source: Villarruel Architects, March 12, 2014

Figure 3

The private recreational park between Buildings A and B would accommodate a connection to the existing trail system at Ladyface Mountain.

Circulation and Parking

Consistent with the City's Agoura Road Widening Project, the project would involve the following improvements to the site's frontage along Agoura Road: the removal of eight existing trees and a chain-link fence from the public right-of-way adjacent to the northern property line, and the construction of a concrete curb and gutter adjacent to eastbound Agoura Road. Two driveways would provide internal site circulation, leading from Agoura Road to parking at Buildings A and B. As shown in Table 1, the project would provide 92 parking stalls for residents, 25 stalls for visitors, and 11 stalls for the recreational area for a total of 128 stalls. Nine of these stalls would serve persons with disabilities. Single-level basement garages at each building would provide the majority of on-site parking, although at-grade parking also would be available.

Landscaping

Existing undeveloped open space around drainages would retain natural vegetation, including oak trees. Preserved natural vegetation would cover 148,600 square feet, or 48 percent of the entire site. The proposed project would add landscaping with a combination of native and nonnative ornamental species on 63,115 square feet, or 20 percent of the site. Proposed landscaping would be planted around Buildings A and B and the at-grade parking lots. Fifty-six existing oak trees would be removed. A native hydroseed mix would be spread to stabilize slopes. For the purpose of reducing the risk of wildland fires to on-site structures, fuel modification would occur within 200 feet of proposed buildings, based on requirements of the Los Angeles County Fire Department (LACoFD).

Drainage Facilities

The project site includes three main existing drainages: two are roughly parallel and flow northward near the center of the site, and a third borders the eastern property line. A Los Angeles County Flood Control District easement is located in an existing debris basin on the northeastern corner of the site. Runoff from the developed areas of the site would be routed to a proposed infiltration basin at the northwest side of Building B and to several bioswales around the apartment buildings.

Construction Grading

The City of Agoura Hills has specific requirements for grading design and implementation in the Ladyface Mountain Specific Plan area. Construction of the proposed project is expected to take place over 14 months, including two months for grading. Grading of the site would consist of a cut/fill operation to create level building pads and at-grade parking lots. The primary proposed fill areas are the lower-lying slopes that would underlie developed areas on the northern part of the site. Erosion control measures would be included during grading and prior to the completion and construction of permanent drainage controls.

Retaining Walls

Four decorative retaining walls would be constructed to protect the developed areas around Building A (primarily on the southern side) and Building B (mainly on the southeastern and northwestern sides). One retaining wall would be located along the western and southern

property line, adjacent to Building A. This wall would generally have a height of three feet and would rise to a maximum height of 15 feet behind the southwest corner of Building A. A retaining wall, 0.5 to 11.4 feet in height, would be located between the proposed recreational park and parking stalls to the west of Building B. A third retaining wall would be placed on the south side of the surface parking area to the south of Building B. This wall would gradually rise from a height of one foot to a maximum height of 23.5 feet at the southwest corner of Building B. The fourth retaining wall, eight feet in height, would be located east of Building B, along the boundary of an existing flood control easement.

The approvals requested from the City include:

- *Conditional Use Permit;*
- *General Plan Amendment to accommodate multi-family housing for seniors on the project site;*
- *Ladyface Mountain Specific Plan Amendment to allow for a 71,206 square foot (sf) multi-family housing project for seniors on the project site;*
- *Vesting Tentative Tract Map for apartment units;*
- *Oak Tree Permit to remove 56 oak trees and encroach within the protected zone of 25 oak trees; and*
- *Variance for retaining wall heights in excess of 6 feet and yard setbacks of less than 64 feet.*

PUBLIC AGENCIES WHOSE APPROVAL MAY BE REQUIRED FOR SUBSEQUENT ACTIONS (E.G., PERMITS, FINANCING APPROVAL, OR PARTICIPATION AGREEMENT)

The City of Agoura Hills is the Lead Agency for the proposed project under CEQA. Project implementation could require the following approvals:

- *City of Agoura Hills: Building Permit, Grading Permit and possible Encroachment Permit;*
- *California Department of Fish and Wildlife: Section 1602 Permit (Streambed Alteration Agreement);*
- *U.S. Army Corps of Engineers: Section 404 Permit;*
- *Los Angeles Regional Water Quality Control Board: Section 401 Water Quality Certification and State Waste Discharge Requirements Permit; and*
- *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges associated with Construction and Disturbance Activities.*

ENVIRONMENTAL FACTORS AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that will require further discussion in an EIR, or could be reduced to a less-than-significant level through incorporation of mitigation.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffi	☐ Utilities / Service Systems	☒ Mandatory Findings o Significance

DETERMINATION

On the basis of this initial evaluation:

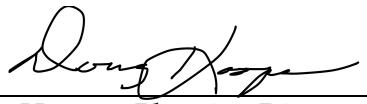
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

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



Doug Hooper, Planning Director
City of Agoura Hills

03/29/16
Date

EVALUATION OF ENVIRONMENTAL IMPACTS

I. Aesthetics Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

The project site is located within the western portion of the Ladyface Mountain Specific Plan Area, within the City of Agoura Hills, between Reyes Adobe Road and the westerly City limits, on the south side of Agoura Road. The City is located in the eastern Conejo Valley between the Simi Hills and Santa Monica Mountains in western Los Angeles County. The site is located in the northern foothills of Ladyface Mountain. The areas directly south and east of the site are vacant. Agoura Road runs along the northern boundary of the site. The site includes riparian, grassland, and oak woodland vegetation.

a, b) The project site is located approximately 500 feet south of U.S. Highway 101 (U.S.) 101. U.S. 101 is eligible for designation as a State scenic highway, but has not been designated as such. In any case, the City of Agoura Hills General Plan Natural Resources Chapter recognizes Agoura Road as a "valuable scenic resource" that provides scenic views of Ladyface Mountain. As shown in the site photographs in Figure 4, the project site is characterized by views of rolling grassland, mature oak trees, and woodland riparian corridors from the perspective of Agoura Road. The Specific Plan states that existing oak trees contribute to the natural beauty of the setting of Ladyface Mountain (Agoura Hills, 1991). Views of natural open space on the northwestern slopes of Ladyface Mountain are available in the background behind the project site. The project also is located approximately 500 feet south of U.S. 101, which is eligible for State designation as a scenic highway in western Los Angeles County (Caltrans, 2013). However, existing business park development and vegetation on the north side of Agoura Road obstruct southward views from U.S. 101 toward the project site.

The proposed project would alter the foreground of existing southward views from Agoura Road by introducing a 71,206 square-foot senior apartment complex with a pair of two-story buildings. (Refer to the photo simulations in Appendix A for southward views of the proposed

Photo 1: View from the northwestern corner of the project site toward the southeast, including riparian woodland and valley oak trees in the foreground and foothills in the background.

Photo 2: View from the northeastern portion of the project site toward the southeast, including rolling grassland and oak woodland.

Site Photographs Figure 4

project from Agoura Road.) Grading in the vicinity of Buildings A and B (for building pads, surface parking, and driveways) would level out the existing sloping topography on the portion of the site that is proposed for development. Furthermore, the proposed two-story apartment buildings, situated adjacent to Agoura Road, would be prominent from the perspective of roadway users and would introduce urban development to the site. In the vicinity of the proposed buildings and along Agoura Road, scenic resources such as mature oak trees would be removed or otherwise altered.

While the proposed project would alter foreground views of the project site, it would preserve existing scenic views of Ladyface Mountain from the perspective of Agoura Road. As a means of avoiding substantial impacts to scenic views of Ladyface Mountain from U.S. 101, the Specific Plan limited development to lowland areas and set aside land higher than 1,100 feet above mean sea level (msl) as natural open space (Agoura Hills, 1991). The photo simulations in Appendix A demonstrate that the proposed project would preserve the view trajectory from Agoura Road toward natural open space on the shoulders of Ladyface Mountain, by limiting the apartment buildings to two stories in height and setting them back appropriately from the roadway. Therefore, the proposed project would not impair scenic background views from Agoura Road.

Furthermore, the footprint of development would be restricted to preserve views of riparian woodland on the project site. Although the Specific Plan allows a maximum area of 2.42 acres for building pads on-site, the proposed apartment buildings would occupy a one-acre area. Scenic riparian vegetation along drainages that traverse the site would be preserved. The proposed two-story apartment buildings also would be visually compatible with existing two-story buildings at the Archstone Agoura Hills Apartments property adjacent to the west.

Because the proposed project would preserve existing scenic views of Ladyface Mountain from Agoura Road and U.S. 101, would preserve scenic riparian vegetation on the project site, and would be visually compatible with surrounding land uses, impacts related to scenic vistas and resources would be **less than significant**.

c) The existing 7.1-acre project site is undeveloped and consists of rolling foothills at the base of Ladyface Mountain. As shown in the site photos in Figure 4, the landscape is primarily grassland dotted with oak trees and woodland riparian corridors. The project site has an average topographic slope of 16 to 20 percent, rising from an elevation of approximately 950 feet above mean sea level (msl) at the northern property line to about 1,015 feet above msl at the southern property line (Agoura Hills, January 2014). Gradually steepening foothills on the northwestern side of Ladyface Mountain are visible through the project site to the south.

The proposed project would substantially alter the visual character of the undeveloped project site by introducing a 71,206 square-foot senior apartment complex with 46 housing units, including a two-story building on the northwest portion of the site and another two-story building on the northeast portion. The façades of the proposed buildings would be a combination of stone siding and smooth stucco finish, with decorative metal railings at balconies. Flat concrete tiles would cover the buildings' roofs. During construction of these buildings and associated parking, grading would flatten the existing rolling topography on-site.

As discussed above under Items A and B, however, the proposed two-story apartment buildings would be compatible in form, height, and use with the two-story multi-family apartment buildings adjacent and to the west of the project site. Furthermore, the scale of proposed development would be similar to that anticipated in the Specific Plan. As stated in the Specific Plan, vacant parcels on the south side of Agoura Road from Reyes Adobe Road to the western City limits "are expected to be developed in the future pursuant to the Ladyface Mountain Specific Plan." The proposed floor area of the apartment buildings (71,206 square feet) is greater than the maximum of 34,000 square feet that the Specific Plan calls for on the project site. However, the one-acre area for building pads would be below the maximum allowable 2.42 acres for the site, reducing the footprint of the developed area (Agoura Hills, January 2014). The proposed project also would preserve existing riparian woodland vegetation and portions of oak woodland while introducing landscaping compatible with surrounding areas. The existing landscape including oak trees would be protected on 148,600 square feet (48 percent of the site), while native and nonnative vegetation would be introduced on 63,115 square feet (20 percent of the site) surrounding the proposed buildings. Landscaping and the proposed buildings would limit views of the proposed retaining walls from the vantage point of Agoura Road. As indicated by the photo simulations, the proposed landscaping along Agoura Road, once grown to maturity, would partially obstruct views of Buildings A and B from Agoura Road and soften the appearance of these structures. The proposed planting plan also calls for the installation of the following native tree and shrub species, and hybrids derived from native species, adjacent to Agoura Road, consistent with the Specific Plan's plant palette: *Heteromeles arbutifolia* (toyon), *Quercus lobata* (valley oak), *Ceanothus 'Concha'*, *Rhus ovata* (sugar bush), and *Ceanothus 'Yankee Point'*. By planting these native species and native hybrids on the site's frontage with Agoura Road, the proposed project would be consistent with development standards to "use materials and colors compatible with the surrounding natural environment" in the Specific Plan area (Agoura Hills, 1991). Therefore, impacts on visual character would be **less than significant**.

d) The proposed project would introduce lighting in an undeveloped area where no sources of nighttime lighting currently exist. The project would include exterior building lights and lights on surface parking lots and driveways that would incrementally increase lighting within the City and in an area adjacent to open space (see Appendix B for a copy of the photometric plan). In addition, windows on the exterior elevations of the proposed apartment buildings and on vehicles parked on the project site could generate glare from reflected sunlight during certain times of the day. However, the project would be required to comply with the following development standards in the Specific Plan and City lighting guidelines for exterior lighting and glare:

- Exterior building lights (floodlights) shall be concealed in landscaping. Spot lighting shall be avoided; accent lighting of exterior building walls is encouraged;
- On-site driveway/parking lot lights shall consist of "high cut off" type of light fixtures with adjustable reflectors to direct light downward, avoid light spillover, and minimize glare. The design of the fixtures shall be compatible with the design of the building and is subject to approval by the Architectural Review Board;
- Pedestrian pathways (bollard lights);
- Pedestrian plaza/courtyards (bollard lights);
- Signage lighting (self-contained or concealed in landscaping);

- Shielded parking lot light fixtures; and footcandle illumination levels not exceeding one footcandle measured at ground-level at property lines.

Implementation of the lighting requirements in Mitigation Measure BIO-7 would also reduce the amount and intensity of nighttime light pollution in open space areas adjacent to the project site. Although the proposed project would generate new sources of light, implementation of the development standards for exterior lighting and glare and of Mitigation Measure BIO-7 would avoid the generation of significant lighting impacts. The proposed apartment buildings and landscaping also would obstruct glare associated with vehicles on the project site, from the perspective of Agoura Road and adjacent properties. Impacts related to lighting and glare would be **less than significant**.

Mitigation Measures

Because there would be no adverse impacts to aesthetics, no mitigation measures are required.

II. Agriculture and Forestry Resources	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

II. Agriculture and Forestry Resources	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
Would the project:				
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))??	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

The site is located within the western end of the Ladyface Mountain Specific Plan area of the City of Agoura Hills, on the south side of Agoura Road, in the foothills of Ladyface Mountain. The vacant site has not been used for agricultural or farmland purposes and does not contain forest lands.

a) The project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared by the Farmland Mapping and Monitoring Program (California Department of Conservation, 2014). Therefore, **no impact** would occur.

b, e) The project site is not zoned for agricultural use. Additionally, the City does not have agricultural zoning or Williamson Act contracts. Therefore, there would be no conflict with zoning for agricultural use or with a Williamson Act contract, and the project would not result in the conversion of agricultural lands to non-agricultural uses. Because the project site does not contain forest lands, the proposed project would not result in the conversion of forest land. **No impact** would occur.

c) The project site is zoned Planned Development (PD) (Ladyface Mountain Specific Plan). Permitted land uses, as identified in the Specific Plan, are similar to those allowed within the Business Park-Office Retail (BP-OR) zoning district, unless otherwise prohibited in the Specific Plan. The proposed project will require amending the Specific Plan to allow for residential use of the site. However, the project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. **No impact** would occur.

d) The project site does not contain forest lands. Therefore, the project would not convert forest lands and **no impact** would occur.

Mitigation Measures

Because there would be no adverse impacts to agriculture and forestry resources, no mitigation measures are required.

III. Air Quality	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion

The following discussion and analysis of emissions associated with the proposed project are based on outputs from the California Emissions Estimator Model (CalEEMod) (See Appendix C for air quality modeling assumptions and results).

The project site is within the South Coast Air Basin (the Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." The South Coast Air Basin is in nonattainment for both the federal and state standards for ozone and nitrogen dioxide as well as the state standard for PM_{10} (SCAQMD, 2013). Thus, the Basin currently exceeds several state and federal ambient air quality standards and is required to implement strategies to reduce pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, including the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local air shed to eliminate pollutants from the air, and the number, type, and density of emission sources within the South Coast Air Basin. The health effects associated with criteria pollutants are described in Table 2.

Table 2
Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	(1) Aggravation of angina pectoris and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO_2)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO_2)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[a]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]

Source: EPA 2008c.

[a] *More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment, Particulate Matter Health Effects and Standard Recommendations, www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may, May 9, 2002; and EPA, Air Quality Criteria for Particulate Matter, October 2004.*

The SCAQMD has adopted an Air Quality Management Plan (AQMP) that provides a strategy for the attainment of state and federal air quality standards. The SCAQMD has adopted the following thresholds for temporary construction-related pollutant emissions:

- 75 pounds per day of reactive organic compounds (ROG)
- 100 pounds per day nitrogen oxides (NO_x)
- 550 pounds per day carbon monoxide (CO)
- 150 pounds per day of sulfur oxides (SO_x)
- 150 pounds per day of particulate matter less than 10 microns in diameter (PM_{10})
- 55 pounds per day of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

The SCAQMD also has established the following significance thresholds for project operations within the South Coast Air Basin:

- 55 pounds per day of ROG
- 55 pounds per day of NO_x
- 550 pounds per day of CO
- 150 pounds per day of SO_x
- 150 pounds per day of PM_{10}
- 55 pounds per day of $PM_{2.5}$

In addition to the thresholds shown above, the SCAQMD has developed Localized Significance Thresholds (LSTs). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, distance to the sensitive receptor, etc. However, LSTs only apply to emissions within a fixed stationary location, including idling emissions during both project construction and operation. LSTs have been developed for NO_X, CO, PM_{10} and $PM_{2.5}$. LSTs are not applicable to mobile sources such as cars on a roadway (SCAQMD, 2003). As such, LSTs for operational emissions do not apply to onsite development as the majority of emissions would be generated by vehicle traffic on area roadways. In addition, the use of LSTs is voluntary, to be implemented at the discretion of local agencies.

LSTs have been developed for emissions within areas up to five acres in size, with air pollutant modeling recommended for activity within larger areas. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The proposed project involves approximately 1.6 acres of on-site grading and construction. SCAQMD's Sample Construction Scenarios for Projects Less than 5 Acres in Size contains methodology for determining the thresholds for projects that are not exactly one, two, or five acres in size. This methodology was implemented to determine the thresholds for the proposed project. The project site is located in Source Receptor Area 6 (SRA-6, West San Fernando Valley). LSTs are provided for sensitive receptors at a distance of 82 to 1,640 feet from the project site boundary. Sensitive receptors typically include residences, schools, hospitals and the elderly. The closest sensitive receptors to the project site are the residential uses approximately 40 feet west of the project site at the Lexington Apartments. LSTs for construction on a 1.6-acre site in SRA-6 are shown in Table 3.

Table 3
SCAQMD LSTs for Construction

Pollutant	Allowable emissions[1] (lbs/day)
Gradual conversion of NO_X to NO_2	129
CO	557
PM_{10}	5
$PM_{2.5}$	4

[1] Allowable emissions from site involving 1.6 acres of grading in SRA-6 for a receptor 50 meters away.
Source: SCAQMD, Appendix C – Mass Rate LST Look-up Table. Accessed November 2014.

a) According to SCAQMD Guidelines, to be consistent with the Air Quality Management Plan (AQMP), a project must conform to the local General Plan and must not result in or contribute to an exceedance of the City's forecasted future population. Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. A project may be inconsistent with the AQMP if it would generate population, housing or employment growth exceeding the forecasts used in the development of the AQMP.

Currently, the City of Agoura Hills' population is approximately 20,625 people (California Department of Finance, 2014). Conservatively assuming that the proposed project serves two seniors per housing unit, it would generate an increase of 92 people in the city's population, resulting in an overall population of 20,717. Because existing zoning, which formed the basis for the AQMP emissions inventory, calls for business park development on the project site, the estimated 92 residents living in senior apartments on-site would be additional to the population anticipated under buildout of the Specific Plan. Furthermore, an overall population of 20,717 would represent an exceedance of the City's near-term forecasted population of 20,400 for the year 2020, as reported by the Southern California Association of Governments (SCAG) in April 2012 (SCAG, 2012).

However, the with-project population in Agoura Hills would not surpass the City's long-term forecasted population of 21,400 for the year 2035 (SCAG, 2012). The City's existing population already exceeds the SCAG's population forecast for 2020 by 225 people, which indicates that the near-term forecast does not correspond to current conditions in Agoura Hills and should not be relied upon as a benchmark for environmental impacts. Furthermore, as demonstrated in the quantitative analysis below, the vehicle use and energy consumption associated with additional residents on the project site would result in less than significant physical impacts on air quality. Therefore, the project would be consistent with the intent of the AQMP. Impacts would be **less than significant**.

b-d) Emissions generated by the proposed project would include temporary emissions during construction and long-term operational emissions.

Construction Emissions

Construction of the proposed project would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to reactive organic gases (ROGs) that would be released during the drying phase upon application of architectural coatings. For the proposed senior apartments, construction would generally consist of site preparation, grading, erection of the proposed buildings, paving, and architectural coating.

Temporary emissions from construction of the specified street and infrastructure improvements were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2 (refer to Appendix C for air quality modeling assumptions and results). During site preparation, the soils that underlie portions of the site could be turned over and pushed around, exposing the soil to wind erosion and dust entrainment by onsite operating equipment. The majority of emissions associated with construction activities on site come from off-road construction equipment, but some emissions are also associated with construction worker trips. For the purposes of modeling, it was assumed that the project would comply with SCAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located within the South Coast Air Basin. Therefore, consistent with SCAQMD Rule 403, the modeling of air pollutants associated with construction assumed watering of exposed portions of the site three times per day.

Table 4 summarizes the estimated maximum daily emissions of pollutants during each year of construction. Construction emissions would not exceed SCAQMD regional thresholds related to ROG, NO_X, CO and SO_X. With adherence to SCAQMD Rule 403 to reduce fugitive dust during the grading phase of construction, maximum daily emissions of fugitive dust (PM_{10} and $PM_{2.5}$) would not exceed applicable regional thresholds. In addition, the non-attainment basin status and the cumulative impact of all construction suggests that all reasonably available control measures for diesel exhaust shall be implemented even if individual thresholds are not exceeded. Implementation of SCAQMD rules would reduce construction impacts to air quality to a **less than significant** level.

Long-Term Emissions

Long-term emissions associated with project operation, as shown in Table 5, would include emissions from vehicle trips (Mobile), natural gas and electricity use (Energy), and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (Area). Overall emissions would not exceed SCAQMD thresholds for any of the criteria pollutants. Consequently, the project's regional air quality impacts under thresholds b, c, and d would be **less than significant**.

Table 4
Estimated Construction Emissions

	Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Maximum Daily Construction Emissions	61.9	48.6	38.2	5.6	4.0	0.1
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*55*	*150*
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum Daily On-Site Emissions	58.0	26.8	15.0	3.6	2.5	0.0
Localized Significance Thresholds[1]	*N/A*	*129*	*557*	*5*	*4*	*N/A*
Exceed LST?	**N/A**	**No**	**No**	**No**	**No**	**N/A**

[1] *See Table 3*

Source: CalEEMod v 2013.2.2. Please see Appendix C for complete modeling results. Winter construction and operational emissions were modeled and reported for a conservative estimate of project emissions, since emission estimates are typically higher in the winter months compared to the summer months. Winter emission estimates report the most conservative pounds-per-day of emissions associated with the project, which are then compared to the SCAQMD thresholds measured in pounds-per-day.

Table 5
Estimated Maximum Daily Operational Emissions

	Estimated Emissions (lbs/day)					
Sources	**ROG**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**
Area	2.2	<0.1	3.8	<0.1	<0.1	<0.1
Energy	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Mobile	1.1	3.2	12.5	2.0	0.6	<0.1
Total Emissions (lbs/day)	**3.3**	**3.4**	**16.4**	**2.0**	**0.6**	<0.1
SCAQMD Thresholds	55	55	550	150	55	N/A
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**N/A**

See Appendix C for CalEEMod winter output, included here because it represents the "worst-case" scenario.

e) Figure 5-5, *Land Uses Associated with Odor Complaints,* of the 1993 SCAQMD CEQA Air Quality Handbook identifies the following land uses associated with odor complaints: Agriculture, Wastewater Treatment Plants, Food Processing Plants, Chemical Plants, Composting, Refineries, Landfills, Dairies, and Fiberglass Molding Plants. Residential uses are not identified in this list and are unlikely to generate objectionable odors affecting a substantial number of people. Therefore, the proposed project would have **no impact** associated with odors**.**

Mitigation Measures

Because there would be no adverse impacts to air quality would occur, no mitigation measures are required.

IV. Biological Resources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

In February 2014, Envicom Corporation conducted a Biological Resources Inventory and Impact Analysis, including field investigations on the project site and literature review. In May 2014, Envicom conducted a supplemental survey for rare plant species. Additionally, The Oak Collaborative prepared an Oak Tree Report for the project site in September 2013. The following summarizes the findings of these technical studies.

A five-mile radius from the project site was queried using the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Data Base (CNDDB) (CDFW, 2014a), to determine special-status species tracked by CDFW in the project vicinity. The potential for special-status species to occur on-site is based on the proximity of the site to tracked occurrences, known geographic ranges, surrounding land uses, and on-site habitat suitability. A

total of 27 special-status species (meeting the definition of special-status for CEQA analysis), including 13 plants and 14 animals, are tracked within the five-mile radius of the project site. Literature review also included a search of California Native Plant Society Inventory of Rare and Endangered Plants of California (CNPS, 2014), List of Special Vascular Plants, Bryophytes, and Lichens (CDFW, 2014b), and the Special Animals List (CDFW, 2014c).

On-site habitat includes (but is not limited to) the following vegetation types:

- Annual Grasslands dominated by non-native grasses and forbs, with scattered native species, covers the majority of the site.
- Valley Oak Woodland, generally along the southern portion of the site and the drainage adjacent and to the west of the proposed Building B.
- Coast live oak woodland in the southern portion of the site.
- Willow riparian woodland (*Salix* spp.) surrounding the most prominent on-site drainage (i.e., the blue-line stream).
- Coastal sage scrub and shrubland patches dominated by California sagebrush (*Artemesia californica*) and/or California buckwheat (*Eriogonum fasciculatum*) within and along the southern property line.

The vegetation is described in more detail under Section IV.b (below).

a) Special-status species as defined herein are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the United State Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern," "Fully Protected" by the CDFW; and those species on the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW July, 2014). This latter document includes species from the CNPS Inventory of Rare and Endangered Vascular Plants of California (2014). Those plants with a California Rare Plant Rank (CRPR) of 1 and 2 are "special-status" species, per the CNPS code definitions:

- **CRPR 1A** = Plants presumed extinct in California;
- **CRPR 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- **CRPR 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened);
- **CRPR 1B.3** = Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened or no current threats known);
- **CRPR 2** = Rare, threatened or endangered in California, but more common elsewhere;
- **CRPR 3** = Plants needing more information (most are species that are taxonomically unresolved; some species on this list meet the definitions of rarity under CNPS and CESA);
- **CRPR 4.2** = Plants of limited distribution (watch list), fairly endangered in California (20-80% occurrences threatened); and
- **CRPR 4.3** = Plants of limited distribution (watch list), not very endangered in California (<20% occurrences threatened or no current threats known).

As indicated above, the CNPS also includes Lists 3 and 4. Per the CDFW (2009), these plants typically do not warrant consideration under the *CEQA Guidelines* §15380 unless the specific circumstances relevant to local distributions make them of potential scientific interest. Similarly, local agencies may also consider and list additional plants to be of "local concern" because of local or regional scarcity as determined by that agency (per the *CEQA Guidelines* §15380). The City of Agoura Hills does not have such a list.

Special-status Plant Species

A total of 130 vascular plant species were identified during surveys of the site. Eighty-seven of the plants observed were naturally occurring native species and 43 were non-native or introduced, representing moderate diversity of native species and a significant proportion of non-natives. Most special-status plant species known to occur in the region are precluded from occurring at the site due to lack of suitable habitat. Also, given the intensity and correct timing of the 2014 rare plant survey and 2013 springtime field survey, as well as the negative results of prior surveys of the site by in November 2010, October 2010, and June 2006, most potentially occurring species can be confirmed as absent or their potential for occurrence is much reduced. Table 6 includes 13 special-status plants that meet the CEQA analysis criteria above and are recorded in CNDDB within five miles of the project site (project vicinity), or have a low to high potential to occur but are not recorded in the project vicinity (Envicom, 2014).

Table 6
Special-Status Plant Species Tracked by CNDDB in the Project Vicinity

Scientific Name / Common Name	Status Fed / State ESA[1] CRPR[2] G-Rank / S-Rank	Required Habitat	Potential for Occurrence / Rationale for Conclusion
Astragalus brauntonii Braunton's milk-vetch	FE / -- 1B.1 G2/S2	Perennial herb. Blooms Jan-Aug. Closed-cone coniferous forest, chaparral, coast scrub, valley and foothill grassland. Recent burns or disturbed areas; in saline, somewhat alkaline soils high in Ca, Mg, with some K. Soil specialist; requires shallow soils to defeat pocket gophers and open areas, preferably on hilltops, saddles or bowls between hills. 200-650m (655-2130ft).	**None**. Carbonate soils required for this species are not present. Species not observed during 2014, 2013, 2010, and 2006 surveys.
Baccharis malibuensis Malibu baccharis	-- / -- 1B.1 G1/S1	Perennial deciduous shrub. Blooms August. Coastal scrub, chaparral, cismontane woodland. In Conejo volcanic substrates, often on exposed roadcuts. Sometimes occupies oak woodland habitat. 150-260m (490-855ft).	**None**. This conspicuous perennial species was not observed during 2014, 2013, 2010, and 2006 surveys, and would have been easily recognized if present.
California macrophylla Round-leaved filaree	-- / -- 1B.1 G2 / S2	Annual herb. Blooms Mar-May. Cismontane woodland, valley and foothill grassland. Clay soils. 15-1200m (50-3935ft).	**Low**. Suitable habitat, including clay soil, is present, but species was not detected during 2014, 2013, 2010, and 2006 surveys conducted in the appropriate blooming period. Not observed during surveys on adjacent properties.

Table 6
Special-Status Plant Species Tracked by CNDDB in the Project Vicinity

Scientific Name / Common Name	Status Fed / State ESA[1] CRPR[2] G-Rank / S-Rank	Required Habitat	Potential for Occurrence / Rationale for Conclusion
Calochortus catalinae Catalina mariposa-lily	-- / -- 4.2 G3 / S3.2	Perennial bulbiferous herb. Blooms Feb-Jun. Valley and foothill grassland, chaparral, coastal scrub, cismontane woodland. In heavy soils, open slopes, openings in brush. 30-700m (100-2295ft).	**Moderate**. No Project Vicinity CNDDB records. Suitable habitat present. Not detected during 2014, 2013, 2010, and 2006 surveys conducted in the appropriate blooming period. CRPR 4 not evaluated under CEQA.
Calochortus clavatus var. *gracilis* Slender mariposa-lily	--/ -- 1B.2 G4T2/S2	Perennial bulbiferous herb. Blooms Mar-Jun. Chaparral, coastal scrub. Shaded foothill canyons; often on grassy slopes within other habitat. 420-760m (1380-2495ft).	**Low**. Not detected in during surveys in 2014, 2013, 2010, and 2006. Blossoms are conspicuous and would have been recognized if present during spring surveys. Fruits are also distinctive and were not detected in fall 2010.
Deinandra (*Hemizonia*) *minthorni*i Santa Susana tarplant	-- / SR 1B.2 G2/S2.2	Perennial deciduous shrub. Blooms Jul-Nov. Chaparral, coastal scrub. On sandstone outcrops and crevices, in shrubland. 280-760m (1920-2495ft).	**None**. No sandstone outcroppings on-site. Species not observed during 2014, 2013, 2010, and 2006 surveys.
Delphinium parryi ssp. *blochmaniae* Dune larkspur	-- / -- 1B.2 G4T2/S2	Perennial herb. Blooms Apr-Jun. Chaparral, coastal dunes (maritime). On rocky areas and dunes. 0-200m (0-655ft).	**None**. No suitable substrate (near shore sandy habitat) present.
Dudleya cymosa ssp. *agourensis* Agoura Hills dudleya	FT / -- 1B.2 G5T1/S2	Perennial herb. Blooms May-Jun. Chaparral, cismontane woodland. Rocky, volcanic breccia. 200-500m (655-1640ft).	**None**. Observed on the parcel to the north (Hilton Property) 850 feet north of the project site. The project site is generally not rocky enough for this species and lacks volcanic soils. The small amount of rocky habitat present is in shaded riparian areas, and not appropriate for this species.
Dudleya cymosa ssp. *marcescens* Marcescent dudleya	FT / SR 1B.2 G5T2/S2	Perennial herb. Blooms Apr-Jul. Chaparral. On sheer rock surfaces and rocky volcanic cliffs. 150-520m (490-1705ft).	**None**. The project site is generally not rocky enough for this species. The small amount of rocky habitat present is in shaded riparian areas, and not appropriate for this species.
Eriogonum crocatum Conejo buckwheat	-- / SR 1B.2 G2/S2.1	Perennial herb. Blooms Apr-Jul. Chaparral, coastal scrub, valley and foothill grassland. Conejo volcanic outcrops; rocky sites. 50-580m (165-1900ft).	**None**. The site contains no Conejo volcanic outcrops, and all known occurrences are west of the site, near Camarillo and Thousand Oaks.
Navarretia ojaiensis Ojai navarretia	--/ -- 1B.1 G1/S1	Present. Annual herb. Blooms May-Jul. Chaparral, coastal scrub, valley and foothill grassland. Openings in shrublands or grasslands. 275-620m (900-2035ft).	**Present**. Positively identified during 2014 rare plant surveys.

Table 6
Special-Status Plant Species Tracked by CNDDB in the Project Vicinity

Scientific Name / Common Name	Status Fed / State ESA[1] CRPR[2] G-Rank / S-Rank	Required Habitat	Potential for Occurrence / Rationale for Conclusion
Nolina cismontana Chaparral nolina	--/ -- 1B.2 G2/S2	Perennial evergreen shrub. Blooms Mar-Jul. Chaparral, coastal scrub. Primarily on sandstone and shale substrates; also known from gabbro. 140-1275m (460-4185ft).	**None**. This conspicuous species was not observed during, and 2014, 2013, 2010, and 2006 surveys, and would have been recognized if present.
Monardella hypoleuca ssp. *hypoleuca* White-veined monardella	-- / -- 1B.3 G4T2T3/S2S3	Herb. Blooms Apr-Dec. Chaparral, cismontane woodland. Dry slopes. 50-1525m (165-5005ft).	**None**. This conspicuous species observed during 2014, 2013, 2010, and 2006 surveys, and would have been easily recognized if present.
Pentachaeta lyonii Lyon's pentachaeta	FE/ SE 1B.1 G2/S2	Annual herb. Blooms Mar-Aug. Chaparral, valley and foothill grassland, coastal scrub. Edges of clearing in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks. 30-630m (100-2065ft).	**Low**. Observed 1.8 miles east at the intersection of Agora Road and Kanan Road, on the east flank of Ladyface Mountain, and westward to Triunfo Canyon Road at Lindero Road. Typically occurs at sparse vegetated low competition sites in heavy rocky or volcanic clay soils. Marginal habitat present and species not observed during 2014, 2013, 2010, and 2006 surveys.
Senecio aphanactis Chaparral ragwort	-- / -- 2B.2 G3? / S2	Annual herb. Blooms Jan-Apr. Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 15-800m (50-2625ft).	**Low**. No Project Vicinity CNDDB records. Suitable on-site habitat. Known in the hills near Newbury park and Cornejo grade. Species not observed during 2014, 2013, 2010, and 2006 surveys.
Triquetrella californica Coastal triquetrella	-- / -- 1B.2 G1 / S1	Moss. Coastal bluff scrub, coastal scrub valley and foothill grasslands. Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. 10-100m (30-330ft).	**Low**. No Project Vicinity CNDDB records. Suitable habitat, but outside elevation range. Species not observed during 2014, 2013, 2010, and 2006 surveys.
Tortula californica California screw moss	-- / -- 1B.2 G2? / S2	Moss. Chenopod scrub, valley and foothill grassland. Moss growing on sandy soil. 10-1460m (30-4790ft).	**None**. Species was not detected in 2014, 2013, 2010, and 2006 surveys. Small areas of rocky habitats along drainages on-site did not appear to harbor any moss species.

[1]Federal Status: FT = Threatened, FE= Endangered. State Status: ST= Threatened, SE = State Endangered.
[2]CNPS CRPR: 1B=Rare, Threatened, or Endangered in California and elsewhere; 2=Rare, Threatened, or Endangered in California, but more common elsewhere; 3=Need more information (a Review List); 4=Plants of Limited Distribution (a Watch List).

Ojai Navarretia
Ojai navarretia is a low and spreading annual species in the Phlox family (Polemoniaceae) that occurs on dry, clay soils in grassland habitats within openings and along the margins of coastal scrub, chaparral, and oak woodlands. At the project site, the species occurs in non-native and native grassland as well as along the margin of California buckwheat scrub within and in the vicinity of old roadbeds and trails, usually where the vegetative cover of other species is relatively low. Species commonly associated with the Ojai navarretia at the site include non-native herbs such as slender wild oat *(Avena barbata),* soft chess *(Bromus hordaceous),* rip-gut brome *(Bromus diandrus),* tocolote *(Centaurea melitensis),* and native herbs such as slender tarplant *(Deinandra fasciculata)* and foothill plaintain *(Plantago erecta).*

Rare plant surveys conducted in 2014 detected seven individual Ojai navarretia plants within the proposed grading footprint, 40 individuals within the 200-foot fuel modification zones, and a 134 individual plants outside of the grading footprint and fuel modification zones. The soils in area likely contain Ojai navarretia seed in the seed bank, and the number above ground plants is anticipated to vary each season depending on growing conditions.

Most special-status plant species known to occur in the region are precluded from occurring at the site due to lack of suitable habitat. Other than the Ojai navarretia, no other special-status plant species are known to occur or are expected to occur at the project site, based on a potential for occurrence analysis and the negative results of spring botanical surveys of the project site conducted in 2014, 2013 and 2006. Project-specific and cumulative direct and indirect impacts to sensitive plant species would be less than significant with mitigation requiring pre-construction botanical surveys (MM BIO-1) and a Habitat Mitigation/Restoration Plan (MM BIO-2).

Special-status Wildlife Species
The analysis below considers wildlife that are listed, proposed for listing; or that meet the criteria for listing as Endangered or Threatened under the FESA or CESA; and those with a designation of SSC (California Species of Special Concern) or CFP (California Fully Protected), as mandatory special consideration and/or protection of these species is required pursuant to the Federal Endangered Species Act, the State Endangered Species Act, and/or the California Environmental Quality Act (CEQA). No wildlife species listed as Endangered, Threatened, California Fully-Protected, or as a California Species of Special Concern have been observed during surveys of the site.[1] The 14 special-status animals that meet the CEQA analysis criteria above and are recorded in CNDDB within five miles of the project site (project vicinity) are included in Table 7. The potential for each species to occur ranges from none to moderate.

[1] Three species were observed during surveys, but with a designation outside the scope of CEQA analysis (i.e., USFS Sensitive, USFWS Birds of Conservation Concern) and include the oak titmouse *(Baeolophus inornatus)*, Nuttall's woodpecker *(Picoides nuttallii)*, and San Bernardino ringneck snake *(Diadophis punctatus modestus)*.

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
Invertebrates			
Danaus plexippus Monarch butterfly	-- / -- -- G5 / S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**None** (roosting). All records for this species in the region are from within groves of trees at or very near to the immediate coast, over five miles south of the project site.
Trimerotropis occidentiloides Santa Monica grasshopper	-- / -- -- G1G2 / S1S2	Known only form the Santa Monica Mountains. Found on bare hillsides and along dirt trails in chaparral.	**None**. Although this species is poorly documented, the two CNDDB records for this species within the project region are both from habitats near Mulholland Highway and Decker Road, in chaparral areas dominated by *Ceanothus* and *Adenostoma* species, neither of which is present on the project site. Not likely present based on a lack of suitable habitat.
Fish			
Gila orcutti Arroyo chub	-- / -- SSC G2 / S2	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mohave and San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	**None**. Stream habitat is not present.
Reptiles			
Emys marmorata Western pond turtle	-- / -- SSC G3G4 / S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**None**. Stream habitat is not present.
Anniella pulchra pulchra Silvery legless lizard	-- / -- SSC G3G4T3T4Q /S3	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	**Moderate**. No Project vicinity CNDDB records. Sandy areas within other habitats, also in litter under live oaks. Litter accumulation under oak trees on property.

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
Phrynosoma blainvillii Coast horned lizard (=Blainvilli's)	-- / -- SSC G3G4 / S3S4	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**Moderate**. Suitable habitat is present within open scrub habitats in the southern portion of the site, outside of the proposed development envelope. Annual grassland habitat on-site is generally too dense to provide suitable habitat for this species.
Salvadora hexalepis virgultea Coast patch-nosed snake	-- / -- SSC G5T4 / S2S3	Brushy or shrubby vegetation in coastal southern California. Require small mammal burrows for refuge and overwintering sites.	**Moderate**. No Project Vicinity CNDDB records. Reported from Malibu Canyon and Westlake.
Thamnophis hammondii Two-striped garter snake	-- / -- SSC G4 / S2	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**Low**. May periodically utilize the wetland habitat on-site, but not expected while surface water is not present.
Birds			
Ammodramus savannarum Grasshopper sparrow	-- / -- SSC G5 / S2	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	**Low** (foraging and nesting). No Project Vicinity CNDDB records. Reported as casual in winter, uncommon spring and summer, and rare in fall in the Santa Monica Mountains.
Asio flammeus Short-eared owl	-- / -- SSC G5 / S3	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	**Low** (winter foraging only). No Project Vicinity CNDDB records. Uncommon and local winter visitant along the coast. Wintering locations include Point Mugu and Sepulveda Basin.
Asio otus Long-eared owl	-- / -- SSC G5 / S3	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	**Low** (foraging only). No Project Vicinity CNDDB records. Very rare transient and winter visitant along the coast.
Athene cunicularia Burrowing owl	-- / -- SSC G4 / S2	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Low** (winter foraging only). No Project Vicinity CNDDB records. Occasional winter resident in open areas of the lowlands throughout much of the region.

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
Aquila chrysaetos Golden eagle	-- / -- FP G5 / S3	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Low** (foraging only). No suitable on-site nesting and wintering habitat.
Chaetura vauxi Vaux's swift	-- / -- SSC G5 / S3	Redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	**Low** (foraging only). No Project Vicinity CNDDB records. Fairly common spring and fall transient in southern California, and rare and irregular winter visitant, primarily along the coast.
Circus cyaneus Northern harrier	-- / -- SSC G5 / S3	Coastal salt and freshwater marsh. Nests and forages in grasslands, from salt grass in desert to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Low** (winter foraging only). No Project Vicinity CNDDB records. Common winter visitor to the region.
Cypseloides niger Black swift	-- / -- SSC G4 / S2	Coastal belt of Santa Cruz and Monterey Co; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	**Low** (foraging only). No Project Vicinity CNDDB records. Rare and irregular transient through coastal district.
Dendroica petechia brewsteri Yellow warbler	-- / -- SSC G5T3? / S2	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.	**Low** (foraging and nesting). No Project Vicinity CNDDB records. Common transient throughout region, and uncommon to locally common summer resident in lowland and foothill riparian woodlands, remaining rarely but regularly in lowlands in winter. Breeds in tall riparian growth of cottonwoods, alders, willows, etc.
Elanus leucurus White-tailed kite	-- / -- FP G5 / S3	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low**. No Project Vicinity CNDDB records. Uncommon to locally fairly common resident in coastal regions of southern California. Expected to forage occasionally on-site.

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
Falco peregrinus anatum American Peregrine falcon	FD / SD FP G4T4 / S2	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**Low** (foraging only). Suitable nesting and wintering habitat is not present on-site.
Icteria virens Yellow-breasted chat	-- / -- SSC G5 / S3	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	**Low** (foraging only). No Project Vicinity CNDDB records Uncommon and local summer resident in riparian thickets and brushy tangles of the lowlands and lower portions of foothill canyons.
Lanius ludovicianus Loggerhead shrike	-- / -- SSC G4 / S4	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oasis, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Low** (foraging and nesting). No Project Vicinity CNDDB records. Fairly common resident in open areas throughout the region.
Riparia riparia Bank swallow	-- /ST -- G5 / S2S3	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Low** (foraging only). Steep sided banks suitable for this species are not present on-site.
Piranga rubra Summer tanager	-- / -- SSC G5 / S2	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts. Requires cottonwood-willow riparian for nesting and foraging; prefers older, dense stands along streams.	**Low** (foraging only). No Project Vicinity CNDDB records. Rare, but regular in fall, winter, and late spring along the coast. Frequents cottonwood-willow associations of riparian habitats for breeding, feeding, cover, and other activities.
Progne subis Purple martin	-- / -- SSC G5 / S3	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	**Low** (foraging and nesting). No Project Vicinity CNDDB records. Rather rare and very local summer resident in woodlands of the foothill portions of coastal district; also a rare spring transient.
Vireo bellii pusillus Least Bell's vireo	FE / SE -- G5T2 / S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually	**Low** (foraging and migration only). No Project Vicinity CNDDB records. A rare and local summer resident in lowland riparian woodlands, breeding in willow thickets

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
		willow, Baccharis, mesquite.	and other dense, low riparian growth in lowlands and the lower portions of the canyons, generally along permanent or semi-permanent streams. Casual in winter. No suitable on-site nesting habitat.
Mammals			
Antrozous pallidus Pallid bat	-- / -- SSC G5 / S3	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Low** (foraging only). Suitable roost habitat is not present on-site.
Euderma macaulatum Spotted bat	-- / -- SSC G4 / S2S3	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	**Low** (foraging only). No suitable on-site cave of cliff roost habitat.
Lasiurus blossevillii Western red bat	-- / -- SSC G5 / S3?	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**Low** Suitable on-site tree roosting habitat.
Nyctinomops macrotis Big free-tailed bat	-- / -- SSC G4 / S2	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**Low** (foraging only). No Project Vicinity CNDDB records. No suitable cliff or rocky roosting habitat on-site.
Myotis velifer Cave myotis	-- / -- SSC G5 / S1	Lowlands of the Colorado River and adjacent mountain ranges. Require caves or mines for roosting.	**Low** (foraging only). No Project Vicinity CNDDB records. Project site is at the edge of geographic extent. No suitable on-site cave or mine roosting habitat.
Choeronycteris mexicana Mexican long-tongued bat	-- / -- SSC G4 / S1	Occasionally found in San Diego Co., which is on the periphery of their range. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	**Low** (foraging only). No Project Vicinity CNDDB records. Project site is at the edge of geographic extent. No suitable on-site cave roosting habitat.

Table 7
Special-Status Wildlife Species Tracked by CNDDB in the Project Vicinity

***Scientific Name* / Common Name**	**Status Fed / State ESA[1] CDFW[2] G-Rank / S-Rank**	**Required Habitat**	**Potential to Occur**
Corynorhinus townsendii Townsend's big-eared bat	-- / -- SSC G3G4 / S2S3	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low** (foraging only). No Project Vicinity CNDDB records. No suitable on-site roosting habitat.
Eumops perotis californicus Western mastiff bat	-- / -- SSC G5T4 / S3?	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**Low**. No Project Vicinity CNDDB records. Suitable on-site tree roosting habitat present.
Lepus californicus bennettii San Diego black-tailed jackrabbit	-- / -- SSC G5T3? / S3?	Intermediate canopy stages of shrub habitats and open shrub/herbaceous and tree/herbaceous edges. Coastal sage scrub habitats in Southern California.	**Low**. No Project Vicinity CNDDB records. Suitable on-site shrub habitat present.
Neotoma bryanti intermedi *(Neotoma lepida intermedia)* San Diego desert woodrat	-- / -- SSC G5T3? / S3?	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	**Moderate**. No Project Vicinity CNDDB records. Woodrat nest structures (unknown species) observed on-site.
Taxidea taxus American badger	-- / -- SSC G5 / S4	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Moderate** (foraging only). Suitable burrows were not detected on-site, but this species may occasionally traverse the site during foraging or dispersal movements.

[1] Federal Status: FT = Threatened, FE= Endangered. State Status: ST= Threatened, SE = State Endangered.
[2] CDFW Status: FP= Fully Protected Species, SSC = California Species of Special Concern.

Use of the site by the above-listed special-status wildlife species is expected to be limited primarily to species of reptiles, birds, and mammals listed as California Fully Protected or Species of Special Concern by the State of California. Many of the special-status wildlife species with potential to occur on-site likely would occur only rarely or occasionally. These species include residents, migrants, winter, and other rare and uncommon visitors that may occasionally forage and/or roost on the site, such as the least Bell's vireo, bank swallow, northern harrier, golden eagle, long-eared owl, short-eared owl, black swift, Vaux's swift, olive-side flycatcher, purple martin, summer tanager, yellow warbler, yellow-breasted chat, and sensitive bat species. The potential for occurrence of some of the species in this category is low, but are not excluded because their temporary presence at the site cannot be completely discounted. Several other special-status species on the above list with potential to occur on-site may be wintering or year-round resident individuals that have all or part of their home ranges

or territories on the site and may use all or a portion of the site to meet their life history requirements for refuge, breeding and foraging. These species include the coast homed lizard, silvery legless lizard, coast patch-nosed snake, and two striped garter snake, burrowing owl, white-tailed kite, loggerhead shrike, grasshopper sparrow, San Diego black-tailed jackrabbit, San Diego desert woodrat, and the American badger. For example, species with small home ranges or territories such as the coast horned lizard may spend their entire life within the confines of the project site while other species such as the white-tailed kite or American badger may use the site for only a portion of their foraging habitat. Only a few of these species would have the potential for their entire home range or territory to be within the site; most likely, the coast horned lizard or silvery legless lizard. Other potentially occurring special-status species would also use adjacent off-site habitat within the surrounding area as resident and foraging habitat. Impacts to individual ground dwelling special-status wildlife species with the potential to occur on-site would be potentially significant.

No bird nests were observed during the biological resources assessment. However, the Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus),* and other native birds were observed foraging on the project site during the site survey and are capable of using the trees, bushes, and ornamental vegetation on-site for nesting and breeding during this breeding season (generally February 1 through August 31). Most native birds are protected under the California Fish and Game (CFG) Code Section 3503 (any bird nest) and Section 3503.5 (birds of-prey), or Section 3511 (Fully Protected birds). Project-related impacts to birds protected by the MTBA, CFG Codes, and federal and state endangered species acts would occur during the breeding season, because unlike adult birds, eggs and chicks are unable to escape impacts. Impacts to nesting avian species could include direct disturbance of active nesting sites during proposed project implementation by the operation of construction equipment during the clearing of proposed project disturbance areas, or by indirect disturbance due to noise impacts from human presence and use of construction equipment. Impacts to nesting birds would be significant but mitigable.

Project-specific and cumulative direct and indirect impacts to special-status species would be **less than significant with mitigation** requiring pre-construction botanical and wildlife surveys (BIO-1 and BIO-3), preparation of a Habitat Mitigation/Restoration Plan (BIO-2), and compliance with the Migratory Bird Species Act (BIO-4).

b) Nine native and two non-native plant communities occur at the site, as shown in Table 8 (below). Plant communities were correlated with those plant communities included in the *Vegetation Classification of the Santa Monica Mountains Natural Recreation Area and Environs in Ventura and Los Angeles Counties, California* (CDFW/CNPS, 2006) and/or the *List of Vegetation Alliances and Associations (Natural Communities List)* (CDFW, 2010). These documents provide comprehensive lists of officially recognized plant communities occurring in the Santa Monica Mountains and environs and in the State of California, respectively. In these documents, each plant community is assigned a conservation status rank (also known as "rarity rank"), which is used to determine the sensitivity of the plant community. Plant communities with global or state status ranks of GI through G3, or S1 through S3, respectively, are considered sensitive, and are referred to as "natural communities of special concern." Plant communities are classified based on plant species composition and abundance, as well as the underlying abiotic conditions

of the stand, such as slope, aspect, or soil type. The acreage and conservation status rank of plant communities occurring at the site are provided in Table 8.

Table 8
Vegetation Communities

Habitat Class	Plant Community Alliance	Conservation Status Rank	Size (acres)
Woodland	Coast Live Oak / Toyon – Poison Oak Woodland Association (*Quercus agrifolia / Heteromeles arbutifolia – Toxicodendron diversilobum*)	G5S4	0.18
	Valley Oak Woodland Alliance (*Quercus lobata*)*	G3S3	1.46
	Red Willow – Arroyo Willow / Mulefat Riparian Woodland Association (*Salix laevigata – Salix lasiolepis / Baccharis salicifolia*)*	G3S3	0.35
	Tree-of-Heaven Stand (*Ailanthus altissima*)	Not ranked	0.06
Shrubland	California Sagebrush – California Buckwheat Alliance (*Artemisia californica – Eriogonum fasciculatum*)	G4S4	0.09
	California Buckwheat Shrubland Association (*Eriogonum fasciculatum*)	G5S5	0.28
	Coyote Brush Shrubland Alliance (*Baccharis pilularis*)	G5S5	0.04
	Mulefat Riparian Shrubland Association (*Baccharis salicifolia*)	G5S4	0.03
Native Herbaceous	Purple Needlegrass Grassland (*Stipa pulchra*)*	G4S3?	0.01
Non-Native Herbaceous	Non-Native Grasses and Forbs Mapping Unit	Not ranked	4.18
Seasonal Wetland	Pale Spike Rush Seasonal Marsh (*Eleocharis macrostachya*)	G4S4	0.12
Other Landcover	Landscaping (may contain native oak trees)	n/a	0.09
	Flood Control Infrastructure	n/a	0.001
Total Acreage			**7.10**

***** *CDFW Natural Community of Special Concern (Sensitive Plant Community)*

"?" Denotes an inexact numeric rank due to insufficient samples over the full, expected range of the vegetation type, but existing information points to the rank given.

A review of CNDDB identified the following special-status habitat as occurring within five-miles of the project site:[2]

- California Walnut Woodland
- Southern Coast Live Oak Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Valley Oak Woodland
- Valley Needlegrass Grassland

Of the communities above, only Valley Oak Woodland and Valley Needlegrass Grassland, referred to herein as Purple Needlegrass Grassland, occur at the project site. Purple Needlegrass Grassland is not tracked by CNDDB on-site, but was identified during surveys.

[2]CNDDB descriptions are based on the Holland (1986) classification system. Table 8 provides description consistent with the California Manual of Vegetation (Sawyer, et al, 2010) as required by CDFW.

The majority of the site is non-native grassland, and the areas where physical development (e.g., grading and structures) is proposed is primarily non-native annual grassland. Most of the on-site woodlands and coastal sage scrub is located in the fuel modification zone. Fuel modification activities can include removal, partial or total replacement of existing plants with adequately spaced drought-tolerant and fire-resistant species, and thinning of existing native or ornamental species. The Los Angeles County required fuel modification area that is a 200-foot buffer around structures, which can be divided into various Fuel Modification Zones depending on on-site and off-site factors.

The following three plant communities at the site are considered to be rare or sensitive by CDFW, and are discussed in detail below: Valley Oak Woodland Alliance, Red Willow – Arroyo Willow / Mulefat Riparian Woodland Association, Purple Needlegrass Grassland.

Purple Needlegrass Grassland
One 0.01-acre patch of purple needlegrass grassland is present at the southern boundary of at the project site. The small patch is of relatively low value, is colonized a formerly disturbed site along with non-native soft chess, red brome (*Bromus rubens*), wild oat, and tocalote (*Centaurea melitensis*). Native California plaintain was also identified. The small patch is outside of the proposed grading footprint and fuel modification zone; therefore, not direct impacts are anticipated. Based on the small size and low habitat value, indirect impacts to purple needlegrass grassland would be less than significant.

Valley Oak Woodland
This community is characterized by valley oaks in the tree layer, with a largely disturbed non-native herbaceous understory. It also occurs in association with coast live oak. The majority of the 1.49 acres of sensitive Valley Oak Woodland on-site are within the 200-foot fuel modification zone. Required fuel modification activities within oak woodland areas are limited to removal of deadwood from the canopy of the oak trees and thinning of laddered fuels in the understory (Los Angeles County, 2012). The fuel modification activities within 200 feet of structures are not anticipated to substantially change or further remove the Valley Oak Woodlands. Given the limited amount of this alliance to be directly removed (less than 10,000 square feet) and the reduced habitat value of the degraded understory, impacts are not anticipated to threaten or eliminate the community on-site or in the region. Oak trees in themselves are important on an individual basis as wildlife habitat, and impacts to the individual oak trees are discussed below under Section IV.e.

Red Willow – Arroyo Willow / Mulefat Riparian Woodland Association
This riparian plant community is characterized by dominance of red willow *(Salix laevigata)* in the tree layer with arroyo willow *(Salix lasiolepis)* and mulefat *(Baccharis salicifolia)* in the understory. There are several coast live oaks along the margins of the riparian zone. There is a significant amount of deadwood and a few dead willows indicating a reduction in moisture availability may be changing the composition of this stand. The shrub layer contains dense mulefat along the southern 2/3 of the drainage as well as poison oak and California wild-rose *(Rosa californica).* The herbaceous layer consists predominately of Italian thistle and brome grasses such as soft chess and rip-gut brome *(Bromus diandrus).* This community surrounds the westernmost drainage at the site, which is referred to herein as Drainage 1, and extends from the southern property boundary to a culvert at Agoura Road. The individual oak trees are protected under the City's Oak Tree Ordinance, as discussed under a separate heading below.

Because the proposed landscaping plan includes native species and non-invasive exotic species, consistent with the Specific Plan's plant palette, indirect impacts to this riparian community as result of the introduction on invasive species would be less than significant.

Based on the discussion above, project-specific and cumulative direct and indirect impacts to riparian habitat or sensitive natural communities would be **less than significant**.

c) The potential onsite jurisdictional areas at the site include three natural drainages (Drainages 1, 2, and 3), a man-induced or man-made drainage (Drainage 4), and a man-induced seasonal wetland. Only Drainage I, which is identified as a "blue-line" stream on the 7.5' USGS Thousand Oaks quadrangle map, contains significant riparian habitat. The project limits of disturbance affecting jurisdictional areas are based on the location of the proposed grading, and include 200 feet of fuel modification from proposed structures, based on standard Los Angeles County Fire Department requirements. The project would impact riparian habitat identified by the CDFW and federally protected wetlands as defined by Section 404 of the Clean Water Act. Permanent impacts to USACE "wetland" and "non-wetland" Waters of the United States and CDFW jurisdictional habitat would be significant, as summarized in Table 9 and detailed below.

Table 9
USACE and CDFW Jurisdictional Areas On-Site

	USACE Waters of U.S. (Acres / Linear Feet)		CDFW Streambed & Riparian Habitat (Acres / Linear feet)
	Wetland	Non-wetlands	
Drainage 1	0/0	0.05/280	0.35/280
Drainage 2	0/0	0/0	0.22/338
Drainage 3	0/0	0.03/315	0.20/315
Drainage 4	0/0	0.01/78	0.02/78
Seasonal Wetland	0.08/ 142	0.03/136	0.11/207
Total Jurisdictional Area	**0.08/142**	**0.12/809**	**0.09/1,218**

Drainage 1

Drainage 1 originates on the slopes of Ladyface Mountain and flows to a detention basin at the edge of the neighboring residential development. The delineated reach of Drainage 1 extends from the southern property boundary to the property boundary next to Agoura Road. Within the project site, this drainage occurs to the east of the proposed Building A. Drainage 1 then discharges off-site to the City's stormwater system, which eventually discharges to Lindero Creek. Despite the presence of willow woodland and the stream's "blue-line" designation, flows within the delineated reach are likely ephemeral. The channel is covered with a substantial amount of vegetative litter and channel patterns are not distinct at some locations. Dead wood and dead trees suggest a possible change in the hydrological regime (trending drier), which may have changed or be changing the composition of the riparian habitat in the drainage. The riparian habitat currently consists of red willow and mulefat with a few arroyo willows (upstream from the property) and several coast live oak trees along the riparian woodland margin. Drainage 1 is a non-navigable ephemeral tributary that is not relatively permanent with a connection to traditional navigable waters (Pacific Ocean). The drainage has a bed, bank, and

channel, and substantial riparian vegetation along this length. The delineated reach of Drainage 1 contains USACE "non-wetland" Waters of the U.S., but fails to meet all three criteria of wetland hydrology, hydric soils, and hydrophytic vegetation necessary for determination as "wetland" Waters of the United States. The extent of CDFW jurisdictional habitat was determined to be from the top of bank to top of bank and to the outward extent of riparian vegetation, inclusive of the red willow and mulefat growing with the streambanks and the coast live oak trees growing along the margins of the willow woodland.

Drainage 2

Drainage 2 originates on the slopes of Ladyface Mountain to the south of the subject property and flows, ephemerally, in a northerly direction passing through California sagebrush and California buckwheat scrub, oak woodland, and grassland habitats. This drainage is located adjacent and to the west of the proposed Building B. The bed and banks of the stream are obvious as it passes through the southern portion of the subject property; however, at the base of the hill slope near Agoura Road, the channel becomes gradually less distinct until Drainage 2 no longer exhibits an obvious bed and banks. Drainage 2 lacks a connection to downstream traditional navigable waters and is not subject to the jurisdiction of the USACE. The extent of CDFW jurisdictional habitat is from the top of bank to top of bank and to the outward extent of the canopies of shrubs and coast live oak and valley oak trees growing within the stream banks.

Drainage 3

Drainage 3 originates on the slopes of Ladyface to the south of the subject property and flows, ephemerally, in a northerly direction near the eastern property line, passing through oak woodland and annual grassland habitats to a detention basin in the northeast comer of the site near Agoura Road. The drainage enters a culvert beneath Agoura Road and enters the City's stormwater system, which eventually connects to Lindero Creek. Drainage 3 is a non-navigable ephemeral tributary that is not relatively permanent with a connection to traditional navigable waters (Pacific Ocean). The drainage has a bed and bank, but no riparian vegetation along its length. The delineated reach of Drainage 3 contains USACE as "non-wetland" Waters of the U.S., but fails to meet all three criteria of wetland hydrology, hydric soils, and hydrophytic vegetation necessary for determination as "wetland" Waters of the United States. The drainage contains upland plant species. The extent of CDFW jurisdictional habitat was determined to be from the top of bank to top of bank and to the outward extent of the canopies of shrubs and coast live oak and valley oak trees growing within the stream banks.

Drainage 4

Drainage 4 is a man-induced and perhaps a man-made drainage feature that is tributary to Drainage 1 near the northern boundary of the project site. Drainage 4 receives concentrated runoff from Agoura Road via a roadside storm drain, which then flows generally east to west before discharging to Drainage 1 near the culvert where Drainage 1 enters the City's storm water system. Mulefat, which is now mostly decadent, grows within the channel along with various upland annual weeds, and patches of saltgrass (*Distichlis spicata*) grow alongside the banks of the drainage. The species composition of this drainage is described under the Vegetation heading, earlier in this document. Drainage 4 is a non-navigable ephemeral tributary that is not relatively permanent with a connection to traditional navigable waters (Pacific Ocean). The drainage has a bed, bank, and channel and riparian vegetation (albeit mostly dead) along its length. The delineated reach of Drainage 4 contains "non-wetland" Waters of the U.S.,

but fails to meet all three criteria of wetland hydrology, hydric soils, and hydrophytic vegetation necessary for determination as "wetland" Waters of the United States. The extent of CDFW jurisdictional habitat was determined to be from the top of bank to top of bank and to the outward extent of the canopies of living mulefat growing within the streambanks.

Seasonal Wetland

The seasonal wetland is under the jurisdiction of the USACE, as the wetland is "adjacent" to Drainage 4, which is a USACE jurisdictional tributary to traditional navigable waters. The seasonal wetland contains 0.08 acres/142 linear feet of "wetland" Waters of the U.S. and 0.03 acres/136 linear feet of "non-wetland" Waters of the U.S. the seasonal wetland meets all three criteria necessary to be USACE "wetland."

Development of the project and fuel modification would not result in impacts to USACE Waters of the U.S. Fuel modification would impact CDFW jurisdictional habitat within Drainage 1, Drainage 2, and Drainage 3, based on standard LACFD setbacks from structures, but would not impact Drainage 4 or the seasonal wetland, as these jurisdictional features would be removed by project grading. It is anticipated that LACFD will limit fuel modification to the removal of deadwood within CDFW jurisdictional habitats at the site. Therefore, potential impacts of fuel modification on CDFW jurisdictional habitat would be **less than significant with mitigation measures** BIO-5 and BIO-6 detailed below.

d) Wildlife must be able to access suitable habitat for water, foraging, breeding and cover. Examples of barriers or impediments to movement include: housing and other development, roads, fencing, unsuitable habitat, or open areas with little vegetative cover. Wildlife movement corridors are physical connections that allow wildlife to move between areas of suitable habitat in both undisturbed and fragmented landscapes. These can be critical at both the local and regional level. Wildlife movement corridors are necessary not only to access essential resources, but for dispersal and migration, to ensure the mixing of genes between populations, and so wildlife can respond and adapt to environmental stress, and thus necessary to maintain healthy ecological and evolutionary processes. The term habitat linkage typically refers to larger corridors or regions of connectivity that are important for movement of multiple species and maintenance of ecological processes at a regional scale. The Santa Monica-Sierra Madre Connection encompasses habitats between the Santa Monica Mountains National Recreation Area and Los Padres National Forest. The project site is located more than three miles east, and is not essential for the Santa Monica Mountains-Sierra Madre Mountains Connection regional wildlife corridor (Penrod, et. al, 2006). Also, development of the project would not impede wildlife movement through the area, given the amount of intact habitat that would remain as open space areas in the vicinity of the site, particularly along the southern border. Substantial suitable habitat for movement will continue to exist within undeveloped lands in the surrounding areas, including those adjacent to the southern boundary of the project site.

Direct Impacts

Although a diversity of wildlife species could potentially move through the project site, as it contains vegetative cover and suitable habitat for many species, the site is not of particular importance to wildlife for movement. For example, the site is not situated within a bottleneck of habitat between larger areas of core suitable habitat and it is not necessary for wildlife to pass through the site to access essential resources for water, foraging, breeding, or cover. The

drainages onsite are not important wildlife movement corridors, as at the northern end of the property the drainages either terminate or enter the City's stormwater system, eventually converging with a subterranean reach of Lindero Creek. This permanently flooded, subterranean reach of Lindero Creek is expected to be impassible to most wildlife species. While development project would reduce wildlife habitat, it would not directly fragment existing habitat because the site adjacent to existing urban areas adjacent existing wildlife barriers (e.g., U.S. 101). The project site is situated at the edge of urban development and therefore would not fragment existing natural habitats.

Indirect Impacts

Indirect impacts to wildlife movement could occur from increased noise and lighting. Noise levels at the site are primarily influenced by traffic on the U.S. 101 Freeway and Agoura Road. The noise level in open space areas on the site would not be substantially increased by traffic or normal activities. Wildlife species that currently use the site are likely adapted to the level of noise at the site, and those that do not would have likely already left the area. Impacts to wildlife due to increased noise during the operational period would be less than significant. Exterior night lighting could potentially disrupt normal behavior and breeding for some wildlife species, and cause some species to avoid the residual natural habitats remaining on-site or directly adjacent to the site. This would potentially increase the extent of impacts on the adjacent habitats and would contribute to a potentially significant impact on general habitat availability. Impacts would be less than significant with implementation of a mitigation measure regulating lighting.

Project-specific and cumulative direct and indirect impacts to wildlife movement would be **less than significant with mitigation measure** BIO-7 detailed below.

e) The City's General Plan provides the framework for evaluating potential biological impacts with respect to local concerns. The Conservation Element as well as other elements of the General Plan includes policies to protect biological resources. The City of Agoura Hills Oak Tree Preservation Guidelines provides for protection and replacement of oak trees that are disturbed or removed by development. This code requires the preservation of oak trees and scrub oaks (genus *Quercus)* in recognition of their historical, aesthetic, and environmental value to the citizens of Agoura Hills. The policy applies to the removal, cutting, pruning, or encroachment into the root protection zone of an oak species. To qualify, oak trees must have a trunk diameter greater than two inches at 3.5 feet above grade.

A total of 175 oak trees protected under the City's Oak Tree Preservation Guidelines are present on-site (and off-site within 250 feet of the development footprint), including 103 valley oaks and 72 coast live oaks, as well as a many smaller saplings and seedlings that do not meet criteria for protection under the ordinance. Grading and construction of the proposed project would require the removal of 56 oak trees. Development will encroach upon the canopy and protected root zone of the 25 additional protected oak trees. Fuel modification activities would be limited to removal of deadwood in the canopies and would not substantially impact protected oak trees within fuel modification zones (LA County, 2012).

Impacts from conflicts local policies or ordinances, including tree protection, would be **less than significant with mitigation measures** BIO-8 and BIO-9 requiring oak tree protection replacement and preservation.

f) The project site is located within an urban area that is not subject to an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. **No impact** would occur.

Mitigation Measures

BIO-1 **Pre-construction Botanical Survey.** Prior to construction, spring and summer seasonal botanical surveys for special-status plants, including Ojai navarretia, shall be conducted within the impact area development footprint (grading footprint and fuel modification zone) by a qualified botanist. Botanical surveys shall be valid for one year. If any special-status plant species are observed, avoidance, minimization and mitigation (described in Measure BIO-2) will be performed to reduce effects. If the species cannot be fully avoided, then the applicant will draft a restoration/revegetation plan to offset impacts to the species as discussed below.

BIO-2 **Special-status Plant Species Mitigation/Restoration Plan.** The applicant shall offset the loss of individual Ojai navarretia plants (approximately seven within the proposed grading footprint, and 40 within the 200-foot fuel modification zone) at a 2:1 ratio by on-site restoration (salvage and replanting), off-site preservation, off-site enhancement, or another method approved by the City of Agoura Hills Planning Director. A Mitigation/Restoration Plan (Plan) shall be submitted to the City of Agoura Hills and CDFW that identifies the location and methodology for satisfying the required offset ratio. On-site restoration is preferred, with off-site preservation permitted only if the applicant demonstrates that on-site preservation is either not feasible or not as likely to be successful.

On-site Restoration (Salvage and Replanting). On-site restoration would involve the collection of seed from within the development footprint (grading enveloped and fuel modification zone) and replanting the seed in a suitable area outside the development footprint. If the applicant proposes to undertake on-site restoration, the Plan, prepared by a qualified plant ecologist, shall detail the approach and timing associated with seed salvage, propagation, planting, irrigation, maintenance, coverage requirements, monitoring requirements, and contingency planning to achieve the performance standard of a 2:1 replacement. The Plan shall identify several on-site locations for replanting (in the event that one area does not achieve specified success criteria work). The applicant shall maintain and monitor the plants for a minimum of five years. Prior to issuance of the grading permit, the applicant shall obtain approval for the Plan from the City of Agoura

Hills, and secure a bond for an amount equal to the cost of the restoration effort. The bond shall be released by the City upon satisfaction of the approved performance criteria.

Off-Site Preservation. Off-site preservation would consist of locating a population of Ojai Navarretia containing at least two-times the number of individuals and a seed bank by the project and preserving the population in perpetuity via placement of a conservation easement or purchase of the land and dedication to the City or an approved conservation organization. The preserved population should be located on an area of sufficient size to create a preserve core and be located at least 350 feet away from existing or proposed development, paved roads, v-ditches and irrigated areas. Additional the preserve population should exhibit connectivity to other protected open space or hillside areas (preferably, a minimum of 25 percent of the preserved habitat should connect directly to natural habitat areas. If the applicant proposes to mitigate via off-site preservation of the species, the Plan shall include a Preservation Plan that identifies the number of individual preserved, ownership of the land, parties involved, and the preservation methodology (i.e., conservation easement or dedication to an approved conservation organization). The applicant shall implement the approved off-site preservation and monitor the population for a minimum of five years. Under the preservation approach, the applicant shall obtain approval for the Preservation Plan from the City of Agoura Hills and shall complete the transaction, prior to issuance of the grading permit.

Off-Site Enhancement. Off-site enhancement would consist of locating disturbed poor quality population of Ojai navarretia containing at least two-times the number of individuals and occupied habitat impacted by the project and enhancing the conditions of the habitat to prevent further disturbance and/or promote the long-term viability of the population. The applicant shall submit an Enhancement Plan, prepared by a qualified ecologist, which identifies the location of the population and the need for enhancement, as well as the enhancement methodology that details the approach and timing associated with enhancement, maintenance, monitoring requirements, and contingency planning in order to achieve the 2:1 offset ratio performance standard. The applicant shall implement the approved enhancement plan and monitor the enhanced population for a minimum of five years. If the population proposed for enhancement were to be located on land owned by a public agency, or a conservation organization approved by the City of Agoura Hills, the applicant may enter into an in-lieu fee agreement with the conservation organization to implement and monitor the approved Enhancement Plan. Prior to issuance of the grading permit, the applicant shall obtain approval for the Enhancement Plan from the City of Agoura Hills, and secure a bond for an amount equal to the cost of the enhancement effort. The bond shall be released by the City upon satisfaction of the approved performance

criteria. If the Enhancement Plan is to be accomplished via an in-lieu fee agreement, the agreement must be executed and fees conveyed prior to issuance of the grading permit. The performance bond shall not be required if the mitigation is accomplished via an in-lieu fee agreement.

BIO-3 **Pre-Construction Sensitive Wildlife Survey and Impact Avoidance.** Not more than two weeks prior to ground disturbing construction for Phase 1 and Phase 2, as well as ground disturbing construction during any project phase that would remove native landscaping planted on previously graded areas, a preconstruction survey for sensitive wildlife species shall be conducted by a qualified biologist and submitted to the City Planning Department prior to beginning construction and/or commencement of any disturbance. If a sensitive species is found, avoidance is the preferred mitigation option. If avoidance is not feasible, the species, shall be captured, when possible, and transferred to adjacent appropriate habitat within the open space on-site or directly adjacent to the project site. This shall be performed only by a qualified biologist. The CDFW and City of Agoura Hills shall be formally notified and consulted regarding the presence of any sensitive species on-site. If a federally listed species is found prior to grading of the site, the USFWS shall also be notified and appropriate "take" permits acquired prior to any relocation activity.

BIO-4 **Bird Nesting Surveys and Nest Avoidance.** No earlier than 3 days prior to construction or site preparation activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February 1 through August 31), the applicant shall have a field survey conducted by a qualified biologist to determine if active nests of any bird species protected by the state or federal Endangered Species Acts, Migratory Bird Treaty Act, and/or the California Fish and Wildlife Code Sections 3503, 3503.5, or 3511 are present in the construction zone or within 300 feet of the construction zone. If active nests are found within the survey area, construction activities shall stop until consultation with the City, CDFW, and USFWS (when applicable) is conducted and an appropriate setback can be established commensurate with the species involved (25 feet for urban-adapted species such as Anna's hummingbird and California towhee and up to 300 feet for certain raptors). A temporary construction fence barrier shall be erected around the buffer and clearing and construction within the fenced area shall be postponed or halted, at the discretion of a biological monitor, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. The applicant should record the results of the recommended protective measures described above to document compliance with applicable State and federal laws pertaining to the protection of native birds.

BIO-5 **Agency Consultation.** If impacts to drainages and the ephemeral stream cannot be avoided, the applicant shall consult with CDFW, USACE, and the RWQCB and obtain applicable permits for the proposed impacts to jurisdictional waters, or obtain confirmation that permits are not needed. This includes a Clean Water Act Section 404 permit from the USACE for the discharge of fill to any of USACE non-wetland waters of the U. S. onsite, a Section 401 water quality certification or Waste Discharge Requirements from the RWQCB, and a Streambed Alteration Agreement from CDFW. These permits typically require mitigation to reduce impacts to water quality and quantity, vegetation, and wildlife. The project applicant shall demonstrate to the City of Agoura Hills that the requirements of agencies with jurisdiction over waters onsite can be met prior to obtaining grading permits. This will include, but not be limited to, consultation with those agencies, securing the appropriate permits, waivers or agreements, and arrangements with a local or regional mitigation bank including in lieu fees, as needed.

BIO-6 **Habitat Mitigation and Monitoring Program**. The applicant shall implement the requirements of a final approved Habitat Mitigation and Monitoring Program, which shall mitigate for permanent impacts to 0.19 acres (500 linear feet) of CDFW jurisdictional habitat, 0.08 acres (142 linear feet) of USACE "wetland" Waters of the United States, and 0.05 acres (270 linear feet) of USACE "non- wetland" Waters of the United States at a minimum 2:1 ratio. Due to the overlap of the jurisdictional areas that would be permanently impacted, a total of 0.19 acres (500 linear feet) consisting of 0.08 acres of "wetland" Waters of the United States/CDFW jurisdictional habitat and 0.05 acres of "non-wetland" Waters of the United States/CDFW jurisdictional habitat, and 0.06 acres of CDFW jurisdictional habitat shall be mitigated.

The Habitat Mitigation and Monitoring Program shall mitigate for permanent impacts to jurisdictional areas by the on-site or off-site restoration of degraded in-kind wetland and riparian habitats, or by a contribution to an in-lieu fee program approved by the City's Planning and Community Development Department, USACE, RWQCB, and the CDFW. Restoration should be implemented only where suitable conditions exist to support viable wetland and riparian habitat. At the discretion of the USACE, RWQCB, and CDFW, the proposed bio-swales shall provide 316 square feet (632 linear feet) of the required compensatory mitigation for the loss of Waters of the U.S. and 1,264 square feet (632 linear feet) of compensatory mitigation for the loss of CDFW jurisdictional habitat. Due to the overlap of jurisdictional area that would be created by the bio-swales, this shall consist of 316 square feet of "wetland" Waters of the United States/CDFW jurisdictional habitat and 948 square feet that are solely under the jurisdiction of the CDFW. Bio-swales shall be planted with locally indigenous natives.

The final Habitat Mitigation and Monitoring Program shall be developed by a qualified biologist, restoration ecologist or resource specialist and approved by the Planning and Community Development Department in consultation with USACE, RWQCB, and CDFW, in compliance with Clean Water Act Sections 401 and 404 and California Fish and Game Code 1602 and supporting regulations, prior to issuance of a grading permit. The Program shall be based on the USACE Final Mitigation Guidelines and Monitoring (April 19, 2004, or most recent) and the Los Angeles District's Recommended Outline for Draft an Final Compensatory Mitigation and Monitoring Plans. In broad terms this Program shall at a minimum include:

- Description of the project/impact and mitigation sites;
- Specific objectives;
- Success criteria;
- Plant palette;
- Implementation plan;
- Maintenance activities;
- Monitoring plan; and
- Contingency measures.

Success criteria shall at a minimum be evaluated based on appropriate survival rates and percent cover of planted native species, as well as eradication and control of invasive plant and animal species within the restoration area. The target species and native plant palette, as well as the specific methods for evaluating whether the project has been successful at meeting the above-mentioned success criteria shall be determined by the qualified biologist, restoration ecologist, or resource specialist and included in the mitigation program.

To the extent possible, the mitigation project or in-lieu fee contribution shall be initiated prior to development of the project. The mitigation project shall be implemented over a five-year period and shall incorporate an iterative process of annual monitoring and evaluation of progress and allow for adjustments to the program, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring and management of the mitigation project, and shall be submitted to the Planning Department, USACE, and the CDFW. Five years after project start, a final report shall be submitted to the Planning and Community Development Department, USACE, and CDFW, which shall at a minimum discuss the implementation, monitoring and management of the mitigation project over the five-year period, and indicate whether the mitigation project has, in part, or in whole, been successful based on established success criteria. The annual reports and the final report shall include as-built plans submitted as an appendix to the report. The project shall be extended if success criteria have not been met at the end of the five-year

period to the satisfaction of the Planning and Community Development Department, in consultation with USACE and the CDFW.

BIO-7 **Lighting Requirements.** The project shall incorporate lighting design features to the extent possible that will reduce the amount and intensity of night lighting in open space areas adjacent to the development. This would involve using lighting only to the extent necessary, using low intensity lights, placing lighting close to the ground when possible, using shields to reduce glare and direct lighting downward, and pointing lights away from open space areas. Security lighting from the site shall not exceed one (1) foot-candle at the edge of the fuel modification zone.

BIO-8 **Oak Tree Replacement.** Oak Tree Replacement mitigation for impacts to the sensitive Valley Oak Woodland Alliance shall consist of the protection of oak trees during construction and replacement of oak trees removed for development pursuant to the City of Agoura Hills' oak tree protection ordinance. Mitigation shall either be on-site or an in-lieu fee may be paid to the City to be used to acquire land and/or install oak trees on another site, preferably in as close proximity to the area of removal as possible. The trees shall be planted in an area to be preserved as permanent open space. Trees planted for mitigation shall be clustered and planted at an appropriate site such that the trees planted will provide natural habitat and replace the oak woodland habitat removed by the project. Oak trees shall be planted according to species-specific habitat requirements: valley oaks at lower elevations in alluvial soils and coast live oaks on mesic north-facing slope locations. Oak tree planting shall not cause the removal or destruction of existing native vegetation without replacement in the same locations. Oak trees were removed along the property street frontage for the Agoura Road Widening Project. New oaks trees were planted as mitigation. If removal of any of these oaks is required, they must be replaced on a one to one basis, with planting to be in close proximity to their original planting space.

BIO-9 **Oak Tree Preservation Program.** The project applicant shall submit an Oak Tree Preservation Program, for review and approval by the Agoura Hills Planning Department oak tree consultant prior to the granting of a grading permit. The project shall be developed and operated in compliance with the approved Oak Tree Preservation Program and any other conditions determined to be necessary by the City oak tree consultant. This program will be developed to control impacts to each tree and to protect them from any unnecessary and unscheduled damage. An "***Oak Tree Protection Zone***" will be delineated for each tree present within 50 feet of the construction zone.

The program shall include but not be limited to the following components:

Tree Protection

- All construction activities shall follow the established "Oak Tree Preservation Program."
- Before any site construction commences, all on-site trees shall be protected with a minimum 5' high chain link fence. To minimize damage that might occur due to equipment storage, debris dumping, parking, etc. within oak tree protection zones. This fence shall remain during all phases of construction and shall not be moved or removed without the approval of the City of Agoura Hills Planning and Community Development Department (Planning Dept.)
- Fence posts shall be no closer than 15' from any oak tree trunk as well and no closer than 15' on-center within any dripline. Postholes being dug shall not impact any oak tree roots longer than 2 inches.
- Signs of a minimum size of 2'4' shall be installed on the fence equidistant from each other around each tree. Signs shall be posted 50' apart on a grove of trees, where fencing cannot be placed around a single tree. The sign must read:

  WARNING-THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE CITY OF AGOURA HILLS PLANNING & COMMUNITY DEVELOPMENT DEPARTMENT.

- Any brush clearance within the dripline of the tree areas shall be completed by hand only.

Pruning and Dead Wood Removal (not anticipated)

- A certified arborist shall perform all pruning cuts according to the International Society of Arborists' Best Management Practices: Tree Pruning and according to American National Standards Institute (ANSI) A300 pruning standard. Work shall be performed in accordance with the ANSI Z133.1 safety standard.

Water & Fertilization

- Watering should not be done during the months of June, July, and August unless the root system has been compromised by damage done to some of the roots. If recommended by an arborist, water should be applied no more than once or twice a week and allowed to drain thoroughly before more water is applied.
- Fertilization of these native oak trees is not ordinarily recommended and should not be done unless approved by the City arborist.

Diseases and Pests

- Prior to construction, the vigor of the saved trees shall be assessed. Any trees in a weakened condition shall be treated, as deemed necessary by the City arborist to invigorate them.
- During all phases of construction, the health of the trees shall be monitored for signs of disease. These problems, if determined to exist, shall be addressed in order to remedy them.

Grading Within the Protected Zone

- Exploratory trenching shall be done by hand or with great care by digging equipment under the observation of the consulting arborist for all trees proposed to be encroached by this project. This shall be done in order to minimize the damage to the root system by digging and to allow the proper pruning of the roots that are found. If any roots 2 inches or larger are encountered, they shall be saved (except in a grading cut situation) and covered with a layer of plastic cloth until backfilled.

Other Considerations

- Grade stakes should not be nailed to trees; nothing that causes damages to the tree should be attached the trees
- No planting, irrigation, or utilities should be installed within 15' of any native oak tree trunk unless approved by the Planning Dept.
- Chemicals or herbicides should not be applied within 100' of the dripline of any native oak tree.
- Dust accumulation onto the tree's foliage from construction shall be hosed off periodically during construction under the recommendation on the consulting arborist.
- Copies of the oak tree report and the oak tress permit and the City approved site plan, as well as landscape and irrigation plans, shall be kept on-site during all site construction for reference.
- A certification letter should be submitted to the City's Planning Department upon completion of all work to the oak trees. This letter shall be submitted within five (5) working days of project completion.

V. Cultural Resources Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

The following discussion in based on the Phase I Archaeological Survey, prepared W & S Consultants, dated August 2000. The study involved background studies of the prehistory, ethnography and history of the area; an archival records search of relevant maps, site forms and documents; and an on-foot survey of the subject property.

a) Although the project site is currently undeveloped, historic aerial photographs show that several small rural dwellings were previously present on the northwestern portion of the site (Gorian & Associates, 2000). A 1903 aerial photograph shows one dwelling in this location, and subsequent photographs show that additional dwellings were added over time. However, aerial photographs from 1989 indicate that these dwellings had been removed from the site and their area graded. Because the dwellings have been removed from the site, the proposed project would not affect any extant historic structures.

The nearest designated historic resource to the project site, the Reyes Adobe, is located approximately 0.7 miles northeast of the project site and would not be affected by the proposed project as no development is planned adjacent to the Reyes Adobe. Therefore, impacts would be **less than significant** with regard to historical resources.

b-d) As documented in the survey completed for the project by W & S Consultants, a previous study in 1961 recorded a prehistoric quarry and chipping station (CA-LAN-42) on a portion of the project site. Although a field survey did not identify evidence of this prehistoric site, the Phase I Archaeological Survey found that a subsurface component of the recorded site could be present on the project site. To investigate the matter, a Phase II Archaeological Test Excavation was conducted in January 2001. However, a systematic surface collection and the test excavation of two 1x1 meter pits in the recorded location of CA-LAN-42 failed to result in the recovery of archaeological remains of any kind (W & S Consultants, 2001). Therefore, the Phase II report concluded that the prehistoric site does not extend into the project site, and that development of the site does not have the potential to result in adverse effects to archaeological sites. Nevertheless, the grading of the site would have the potential to disturb or damage unknown

subsurface cultural resources. Impacts would be **less than significant with mitigation incorporated** to protect unknown archaeological and paleontological resources and human remains.

Mitigation Measures

The following measures are required to reduce potential impacts to cultural resources to a less than significant level.

CR-1 **Archaeological/Paleontological Monitoring.** Monitoring of all project related ground disturbing activities of sediments that appear to be in a primary context shall be conducted by a qualified archaeologist and/or paleontologist [and Native American monitor qualified to identify Chumash and Gabrieleno resources] 1 , as approved by the City Planning Department. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983). Paleontological monitoring shall be performed by a paleontologist meeting the Society of Vertebrate Paleontology's Paleontological Resource Monitor (SVP 2010). A cross trained monitor meeting both of these requirements may also be used. Archaeological monitoring is required until excavation is complete or until a soil change to a culturally sterile formation is achieved, to be determined by the archaeologist. The archaeologist and/or paleontologist may reduce or stop monitoring depending on observed conditions. Paleontological monitoring is required until excavation is complete or until ground disturbance is no longer occurring within the Topanga or Monterey Formations, to be determined by the paleontologist. If archaeological/paleontological resources are encountered during ground-disturbing activities, the City Planning Department shall be notified immediately, and work shall stop within a 100-foot radius until the archaeologist and/or paleontologist has assessed the nature, extent, and potential significance of any remains pursuant to the California Environmental Quality Act (CEQA). In the event such resources are determined to be significant, appropriate actions are to be determined by a qualified archaeologist/paleontologist consistent with CEQA (PRC Section 21083.2) and the City General Plan, in consultation with the City Planning Department.

CR-2 **Unanticipated Discovery of Human Remains.** The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the City Planning Director and the Los Angeles County Coroner must be

notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendent (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and will then help determine what course of action should be taken in dealing with the remains.

VI. Geology and Soils	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion

The following information and assessment is primarily sources from Gorian & Associates geotechnical reports (October 2000, February 2003, and September 2007), prepared in support of the preliminary design of the proposed project. These reports are included in Appendix D of this document.

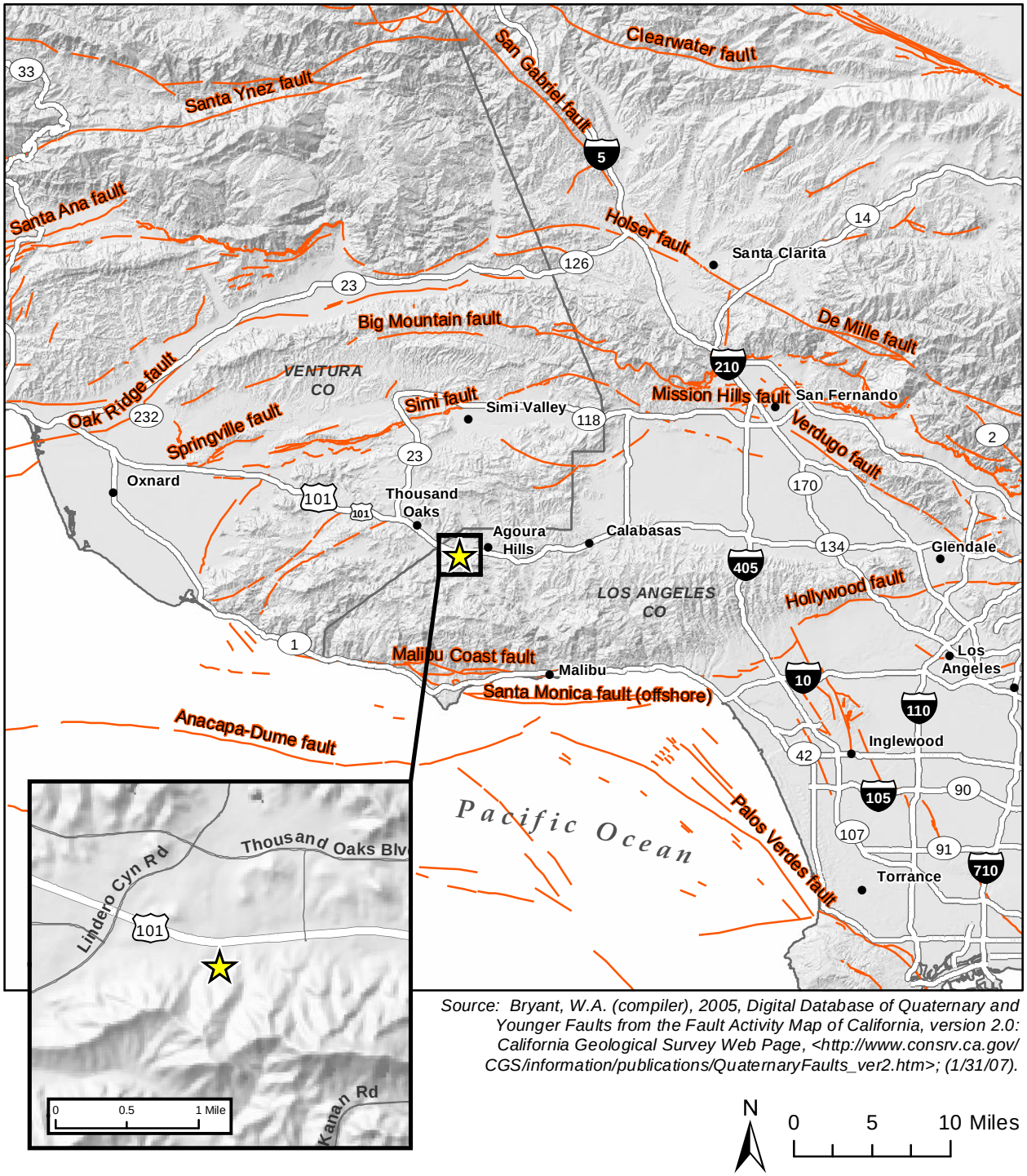
a (i) As shown in the regional fault map in Figure 5, no active faults occur in the City of Agoura Hills (Las Virgenes-Malibu Council of Governments, 2012). Furthermore, the USGS Thousand Oaks Quadrangle, which includes the project site, does not have any Alquist-Priolo Earthquake Hazard Zones (Dibblee, 1993). The nearest active fault to the project site is the Malibu Coast fault, located about seven miles to the south (Gorian & Associates, 2000). A northeast-trending fault might cross the western part of the site, but a geotechnical investigation of the site identifies this potential fault as a minor local feature. In addition, the contact between two bedrock units in the vicinity of the project site (Conejo Volcanics and Calabasas Formation) may be a fault, although this contact appears to be located outside of the proposed area of ground disturbance and probably occurs south of the site. Therefore, the potential for fault rupture within the project site is **less than significant**.

a (ii) The project site is subject to seismic groundshaking from faults in the region. The project site is situated in the seismically active Transverse Ranges Geomorphic province. Like any other area in the region, the project site would experience ground motion from earthquakes generated on regional faults, including the Malibu, San Fernando, Northridge, San Andreas, Newport-Inglewood and Malibu Coast Faults. The hazard of groundshaking is expressed as the Peak Ground Acceleration (PGA), which is a percentage (or fraction) of acceleration due to gravity (%g) from ground motion that has a 10 percent probability of being exceeded in 50 years. PGA on the project site is estimated at 40 to 50 percent of *g* (where g is acceleration due to gravity) (Gorian & Associates, 2000).

Pursuant to Section 8100 of the City of Agoura Hills Municipal Code, which adopts the 2013 California Building Code (CBC) by reference, the proposed apartment buildings would be designed and engineered to withstand the expected ground acceleration that may occur at the site. Modifications of seismic requirements in the CBC, as set in Section 8204(d) of the Municipal Code, also would apply to the proposed buildings. With adherence to local requirements and the CBC, impacts would be **less than significant**.

a (iii) Liquefaction describes the phenomenon in which groundshaking works cohesionless soil particles into a tighter packing which induces excess pore pressure. These soils may acquire a high degree of mobility and lead to structurally damaging deformations. Liquefaction begins below the water table, but after liquefaction has developed, the groundwater table will rise and cause the overlying soil to mobilize. Liquefaction typically occurs in areas where groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated fine to medium sand. According to the Department of Conservation Seismic Hazard Zones Map for the Thousand Oaks Quadrangle, the project site and its vicinity are not located within a "Zone of Required Investigation" for liquefaction (California Department of Conservation, 2000). Furthermore, the clayey and dense surficial soils in the vicinity of the project site are not susceptible to liquefaction (Gorian & Associates, 2000). The potential for adverse effects related to liquefaction would be **less than significant**.

a (iv) The geologic character of an area determines its potential for landslides. Steep slopes, the extent of erosion, and the rock composition of a hillside all contribute to the potential for slope failure and landslide events. In order to fail, unstable slopes need to be disturbed; common triggering mechanisms of slope failure include undercutting slopes by erosion or grading, saturation of marginally stable slopes by rainfall or irrigation; and, shaking of marginally stable



Source: Bryant, W.A. (compiler), 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0: California Geological Survey Web Page, <http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.htm>; (1/31/07).

Regional Fault Map

Figure 5

slopes during earthquakes. As shown in the Department of Conservation Seismic Hazard Zones Map for the Thousand Oaks Quadrangle, the project site and its vicinity are not located within a "Zone of Required Investigation" for earthquake-induced landslides. The Specific Plan also reports that landslides are uncommon on the Conejo Volcanics formation, which forms the bedrock under the slopes in the southern portion of the project site, although deep-seated and surficial landslides are known to occur (Agoura Hills, 1991; Gorian & Associates, 2000). A geotechnical field survey found no evidence of landslides on the project site, nor does regional geologic literature indicate the existence of landslides on-site (Gorian & Associates, 2000). Impacts from landslides would be **less than significant.**

b) Construction activities have the potential to expose surficial soils to wind and water erosion. However, as noted in Section II, *Air Quality,* the proposed project would have to comply with SCAQMD Rule 403 by incorporating measures to reduce fugitive dust, which would also help reduce the potential for construction-related erosion. SCAQMD Rule 403, Table 1, provides measures for construction activities to reduce fugitive dust. This includes measures for the application of water or stabilizing agents to prevent generation of dust plumes, pre-watering materials prior to use, use of tarps to enclose haul trucks, stabilizing sloping surfaces using soil binders until vegetation or ground cover effectively stabilize slopes, hydroseed prior to rain, washing mud and soils from equipment at the conclusion of trenching activities. Water erosion will be also be prevented during construction activities through the City's standard erosion control practices required pursuant to the California Building Code and the National Pollution Discharge Elimination System (NPDES), such as silt fencing or sandbags. Construction activities would be required to comply with the General Construction Activities Stormwater Permit (GCASP) approved by the State Water Resources Control Board by Water Quality Order 99-08-DWQ and the proposed project would be required to develop a Stormwater Pollution Prevention Plan (SWPPP). These standard requirements and project components would serve to reduce the potential for soil loss on the project site due to erosion.

Nevertheless, manufactured slopes from proposed cut and fill on the project site could be subject to erosion, unless such slopes are maintained properly. Recommendations in the 2000 *Preliminary Geotechnical Investigation* conducted by Gorian & Associates include landscaping with of slopes with dense, deep-rooting plants and limited irrigation. Impacts from soil erosion or loss of topsoil are **less than significant with mitigation incorporated.**

c) The presence of unstable geologic units or soils can result in surficial instability from landslides, lateral spreading, subsidence, liquefaction, or collapse. As discussed in Item A, the proposed apartment buildings would be subject to less than significant impacts from landslides and liquefaction. Lateral spreading is the horizontal movement or spreading of soil toward an open face. Lateral spreading may occur when soils liquefy during an earthquake event, and the liquefied soils with overlying soils move laterally to unconfined spaces. Because the clayey and dense surficial soils in the vicinity of the project site are not susceptible to liquefaction (Gorian & Associates, 2000), the potential for lateral spreading also is low (Gorian & Associates, 2000). Subsidence is the sudden sinking or gradual downward settling of the earth's surface with little or no horizontal movement. Subsidence is typically associated with regional changes in ground surface elevation associated with withdrawal of groundwater, pumping of oil and gas from underground, the collapse of underground mines, liquefaction, or hydrocompaction. The 2007 *Geotechnical Update Study* by Gorian & Associates found no evidence of susceptibility to surficial instability on natural slopes (Gorian & Associates, 2007). Other slope and soil instabilities can

result from manufactured features (undercutting natural slopes, improper construction of cut or fill slopes). However, with implementation of Mitigation Measure GEO-1 to protect manufactured slopes and with the proper installation of retaining walls, impacts relating to slope stability hazards would be **less than significant**.

d) Soil tests indicate that the upper soil profile and bedrock on the project site are moderately to severely expansive (Gorian & Associates, 2000). However, the proposed project is required to comply with CBC requirements relating to expansive soils. Therefore, the potential for impacts from expansive soils is considered low and impacts would be **less than significant**.

e) The proposed project would be connected to the City's sewer system and would not use a septic system. **No impact** would occur.

Mitigation Measures

The following measures are required to reduce geology and soils impacts to less than significant levels.

GEO-1 **Erosion Control Measures.** Prior to issuance of a building permit, the applicant shall comply with the recommendations included in the *Preliminary Geotechnical Investigation* for the project to reduce the risk of erosion from manufactured slopes. These recommendations include the following:

- The manufactured slopes shall be planted with dense, deep-rooting, drought-resistant groundcover with shrubs and trees, in accordance with City of Agoura Hills guidelines.
- A reliable irrigation system shall be installed, adjusted so that overwatering does not occur, and periodically checked for leakage.
- The slopes shall be irrigated such that only sufficient water is applied to the slopes to maintain the vegetation. In addition, prudent irrigation practices shall not allow the slopes to dry out or become overly wet.
- The landscape architect shall select the appropriate slope cover and determine the frequency of watering that will be dependent on plant type and seasonal variations. The slopes shall not be overwater and shall not be watered before forecasted rain.
- All drainage structures shall be kept in clean condition and remain unobstructed.

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Greenhouse gases (GHGs) are emitted by both natural processes and human activities. Of these gases, carbon dioxide (CO_2) and methane (CH_4) are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Different types of GHGs have varying global warming potentials. The global warming potential of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its global warming potential.

According to the CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). While these potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general, scientific modeling tools are currently unable to precisely predict what impacts would occur locally.

The City of Agoura Hills is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD has not adopted GHG emissions thresholds that apply to land use projects where the SCAQMD is not the lead agency and the City has not adopted any specific GHG emissions reduction plan or GHG emissions thresholds. Therefore, the currently proposed project (private road, drainage, utilities, trails) and potential future residential development are evaluated based on the SCAQMD's recommended/preferred option threshold for all land use types of 3,000 metric tons CO_2E per year (SCAQMD, 2010), which has been used in past CEQA analyses prepared for projects in the City of Agoura Hills.

a) GHG emissions associated with short-term construction and long-term operation of the project were estimated using the California Emissions Estimator Model (CalEEMod) (see Appendix C for forecast assumptions and results). The estimates assume construction of the proposed 46 apartment units.

Construction Emissions

Based on the CalEEMod results, construction activity for the proposed project would result in an estimated 339.4 metric tons of CO_2E. Because climate change represents a long-term cumulative impact, emissions associated with construction activity are generally amortized over a 30-year period (the anticipated life of the project) in order to more accurately compare them to the annual threshold. Therefore, the project would result in approximately 11.3 metric tons of CO_2E per year.

Energy Use

Operation of the proposed project would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent, N_2O and CH_4. Electricity and natural gas consumption would generate approximately 81.7 metric tons of CO_2E per year.

Area Sources

Area sources of GHG emissions include consumer products, landscape maintenance, and architectural coating. Area sources would result in approximately 0.8 metric tons of CO_2E per year.

Solid Waste

The proposed project would generate solid waste that would result in approximately 4.0 metric tons of CO_2E per year according to the CalEEMod output, which uses current waste disposal rates provided by CalRecycle.

Water Use

Based on the CalEEMod estimate, water transportation to serve on-site development would generate approximately 21.0 metric tons of CO_2E per year.

Transportation

Mobile source GHG emissions were estimated using trip rates in the Institute of Transportation Engineers' Trip Generation manual (9th Edition) for residential condominiums/townhouses, consistent with the methodology of the revised traffic impact study for the proposed project, prepared by Crain & Associates in September 2014. As discussed in Section XVI, *Transportation/Traffic*, these trip rates produce a conservative estimate of trip generation because it is expected that the proposed senior apartment units would result in fewer trips that the average condominium units. Based on the CalEEMod model estimate, mobile emissions resulting from on site development would generate an estimated 415.2 metric tons CO_2E per year.

Combined Construction, Stationary and Mobile Source Emissions

Table 10 combines the construction, operational (energy use, area source, solid waste, and water use emissions), and mobile GHG emissions associated with the proposed project.

Table 10
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO_2E)
Construction	11.3 metric tons
Operational	
Energy	81.7 metric tons
Area Sources	0.8 metric tons
Solid Waste	4.0 metric tons
Water	21.0 metric tons
Mobile	
CO_2 and CH_4	415.2 metric tons
NO_X	19.9 metric tons
Total	553.9 metric tons

Sources: See Appendix C for CalEEMod annual output.

The combined annual emissions would total approximately 554 metric tons CO_2E per year. This emissions estimate indicates that the majority of the project's GHG emissions are associated with vehicular travel (79 percent). Based on the 3,000 metric tons CO_2E per year threshold, the project's emissions of approximately 554 metric tons of CO_2E per year would have a **less than significant impact**.

b) CalEPA's Climate Action Team (CAT) published the 2006 CAT Report, which includes GHG emissions reduction strategies intended for projects emitting less than 10,000 tons CO2E/year. In addition, the California Attorney General's Office has developed Global Warming Measures (2010) and the State Office of Planning and Research's (OPR) 2008 technical advisory CEQA and Climate Change document includes GHG reduction measures intended to reduce GHG emissions in order to achieve statewide emissions reduction goals. These measures aim to curb the GHG emissions through suggestions pertaining to land use, transportation, renewable energy, and energy efficiency. Several of these actions are already required by California regulations, such as:

- *AB 1493 (Pavley) requires the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks.*
- *In 2004, the California Air Resources Board (ARB) adopted a measure to limit diesel-fueled commercial motor vehicle idling.*
- *The Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989) established a 50% waste diversion mandate for California.*
- *Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).*
- *California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 33 percent of retail electricity sales from renewable energy sources by 2020, within certain cost constraints.*

- *Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.*

In June 2005, the Governor issued Executive Order (EO) S-3-05, setting a GHG emission reduction target of 1990 levels by 2020. Similarly, Assembly Bill 32, the "California Global Warming Solutions Act of 2006," required achievement of a statewide GHG emissions limit equivalent to 1990 emissions by 2020 (essentially a 25% reduction below 2005 emission levels). Both the California Environmental Protection Agency (CalEPA) and California Attorney General have published documents identifying methods and strategies to reduce GHG emissions at the state and local levels in response to these targets (CalEPA 2006; Office of the California Attorney General 2008). The proposed project would be consistent with the GHG reduction strategies set forth by both CalEPA and the California Attorney General's Office through compliance with City standards. For example, the City enforces the 2013 California Green Building Standards Code on new development. In addition, curbside recycling and green waste services are provided to residential developments in the City. Based on current diversion rates in Agoura Hills, it is assumed that 58 percent of solid waste produced by residents on the project site would be diverted from landfills. Landscaping with native, drought–tolerant, and low water-consuming plants, consistent with the Specific Plan, would minimize water use and associated GHG emissions from transporting water to the site.

The City of Agoura Hills General Plan 2035 (2010) identifies goals and policies generally related to greenhouse gases. The project would be consistent with these items, including Policy LU-1.2, Development Locations (allowing for growth on the immediate periphery of existing development in limited areas); Policy LU-2.5, Sustainable Land Development Practices (concentrating development to protect open spaces); and Policy LU-4.9, Integration of Open Space Areas with Developing (providing open space within walking distance).

As noted above, the proposed project would be consistent with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs and would be consistent with the objectives of AB 32, AB 1493, and the City of Agoura Hills General Plan. Impacts would be **less than significant.**

VIII. Hazards and Hazardous Materials	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

VIII. Hazards and Hazardous Materials Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

Information used in this analysis relies upon a Phase I Environmental Site Assessment (ESA) prepared by Gorian & Associates in October 2000, available for public review at Agoura Hills City Hall.

a, b) Ongoing operation of the proposed apartment complex project would not involve the routine transport, use or disposal of hazardous substances. No releases of hazardous materials or substances are expected to occur as a result of the implementation of the proposed project. Construction of the project would involve the use of minor amounts of hazardous materials, such as fuels, other petroleum products and solvents associated with the use of heavy machinery at the site, and minor amounts typically used for residential maintenance and cleaning products. Therefore, impacts would be **less than significant**.

c) As stated above, there would be no hazardous substances associated with the proposed project other than those typically used for construction and routine maintenance. Although the

nearest school to the project site, the Montessori of the Village, is located approximately one-quarter mile northwest of the project site across the U.S. 101, the proposed project would not result in the risk of releasing hazardous materials to nearby sensitive receptors. Therefore, **no impact** would occur with respect to the release of hazardous materials within ¼ mile of a school.

d) The Phase I ESA prepared for the project site reports that no known sites contaminated with hazardous materials are located near the site (Gorian & Associates, 2000). No Superfund sites occur within one mile of the project site, and no properties that contain potential or recognized contamination with hazardous materials are located within one-quarter mile of the site. Furthermore, no underground or aboveground storage tanks observed on-site. To validate these results from 2000, the following databases were consulted in November 2014 for known hazardous materials contamination near the project site:

- *Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database;*
- *State Water Resources Control Board's GeoTracker database;*
- *Department of Toxic Substances Control's EnviroStor database; and*
- *California Environmental Protection Agency's Cortese list.*

Consistent with the findings of the Phase I ESA, no listed sites on these databases occur within one-quarter mile of the project site. Therefore, the project site is not subject to contamination from hazardous materials. **No impact** would occur.

e, f) The closest airport is the Van Nuys Airport, located about 17.5 miles away. There are no airports or airstrips located within the project vicinity. The project site is not within an area covered by an airport land use plan, nor is it located in the vicinity of a private air strip. Therefore, **no impact** would occur in relation to aircraft related hazards.

g) The project would be required to comply with the City's policies associated with emergency preparedness. Additionally, Agoura Road was recently widened along the northern property line of the project site, which would facilitate circulation on one of Agoura Hills' evacuation routes. These improvements to Agoura Road would benefit the City's evacuation plan. Therefore, **no impact** would occur.

h) The City of Agoura Hills is susceptible to the hazard of wildland fires from the native vegetation that surrounds the developed portion of Agoura Hills (Agoura Hills, February 2010). Wildland fires are also a major concern due to the hilly, mountainous, and undeveloped character of much of the surrounding area. As shown in Figure 6, the project site is located within a Very High Fire Hazard Severity Zone, as determined by the California Department of Forestry and Fire Protection (CAL FIRE). Section 8200(a) of the Municipal Code designates the entire City of Agoura Hills as subject to very high fire hazard (Agoura Hills, October 2014). However, the proposed project would be subject to design standards in the California Building Code (CBC) to prevent loss during a wildland fire (as modified in Section 8200 of the Municipal Code). Furthermore, the Los Angeles County Fire Department's requirement for brush clearance to reduce fire risks to structures – that all brush within 200 feet of the northern boundary and 100 feet of the southern boundary of any structure be removed – would apply to the proposed apartment buildings. Compliance with the provisions and building standards

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Fire Hazard Severity Zones

Figure 6

required by the City of Agoura Hills, Los Angeles County Fire Code, and the CBC would reduce potential impacts to **less than significant** levels.

IX. Hydrology and Water Quality	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐

IX. Hydrology and Water Quality	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a, e, f) The proposed project would introduce impervious surfaces to the project site, and so would reduce the amount of water that percolates into the ground and increase the amount of stormwater runoff. In addition, construction activities and operation of the project could result in an increase in pollutants in runoff during storm events. If large amounts of bare soil are exposed during the rainy season, or in the event of a storm, finely grained soils could be entrained, eroded from the site, and transported to drainages. The amount of material that could potentially erode from the site during temporary construction activities would be greater than under existing conditions due to the loss of vegetation and movement of soils. Further, replacing natural vegetated cover with pavement would increase pollutant loads. Natural vegetated ground cover can both absorb water and filter out pollutants. In contrast, paved surfaces accumulate pollutants such as deposits of oil, grease, and other vehicle fluids and hydrocarbons. Traces of heavy metals deposited on the proposed driveways and surface parking areas from auto operation and/or fall out of airborne contaminants are could be transported during storm events into drainage systems by surface runoff. In addition to motor vehicle-related contaminants, the project would introduce landscaping and associated maintenance chemicals such as fertilizers, pesticides, and herbicides. Irrigation and storms could wash some of these landscape chemicals into and through local drainage systems and into the watershed.

Regulations under the federal Clean Water Act require that a National Pollutant Discharge Elimination System (NPDES) storm water permit be obtained for projects that would disturb greater than one acre during construction. The developer would be required to obtain a NPDES General Permit for Stormwater Discharges associated with Construction and Disturbance Activities (Order No. 2009-0009-DWQ) (State Water Resources Control Board) (City of Agoura Hills Ordinance No. 97-272), which requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP) that addresses potential pollutants during construction, and a Standard Urban Storm Water Mitigation Plan (SUSMP) to address pollutants during the life of the project.

A Preliminary SWPPP was prepared for the proposed project in 2011. This report describes Best Management Practices (BMPs) for erosion control and sediment control during construction; post-construction stormwater management; and maintenance, inspection, and repair of BMPs. The final SWPPP would identify all pollutant sources during construction, waste discharges, and BMPs to reduce or eliminate stormwater and authorized waste discharges, in addition to prescribing a maintenance schedule for BMPs installed during construction. To address post-construction water pollutants, Hardy Engineering prepared a *Hydrology Study* for the proposed project in December 2014. The *Hydrology Study* estimates the proportion of impervious surface on-site after construction of the proposed apartments and the required size of infiltration basins and bioswales to process anticipated volumes of stormwater runoff. Based on hydrological calculations, the project would require 4,958 cubic feet of treatment volume for stormwater runoff (Hardy Engineering, 2014). The proposed project includes a total infiltration basin volume of 7,212 cubic feet, which exceeds the total volume required. A combination of infiltration basins and bioswales would treat runoff before discharge to the natural drainages on-site. Compliance with the required NPDES permit, including installation of the proposed infiltration basins and bioswales, would reduce impacts to a **less than significant** level.

b) As discussed in Section XVII, *Utilities and Service Systems,* the proposed project would receive its water supply from the Las Virgenes Municipal Water District (LVMWD). LVMWD's potable water is provided almost entirely through wholesale purchases from Metropolitan Water District of Southern California (MWDSC), which imports water from the State Water Project (SWP) and the Colorado River. Groundwater underlying LVMWD's service area is of poor quality and is not currently used for the potable water supply system (LVMWD, 2011). The proposed project would not affect groundwater supply.

Groundwater recharge is dependent on the amount of area and water available for infiltration. As discussed above, development of the proposed project would introduce impervious surfaces. However, the detention of stormwater runoff in infiltration basins and bioswales would ensure infiltration on the project site. Therefore, development of the proposed project would not affect groundwater supplies or groundwater recharge. Impacts related to groundwater would be **less than significant**.

c, d) The project would alter the course of three drainages on the site. See Section IV, *Biological Resources,* for a discussion of the drainage areas that would be affected. The proposed project would alter the drainage pattern of the project site by introducing impervious surfaces and altering flow paths. Any increases in runoff over existing conditions could result in increased channel erosion, and sediment transport downstream, which could result in greater siltation in downstream catchments. However, as discussed above, adherence to NPDES permit requirements to capture and treat stormwater runoff would reduce the quantity and level of pollutants within runoff leaving the site. Therefore, impacts related to erosion, siltation, and flooding would be **less than significant**.

g-i) The Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the project site (FIRM Map ID # 06037C1243F, published in September 2008) indicates that the entire project site is outside of a 100-year flood zone. Therefore, the proposed residences on-site would be at minimal risk of flooding. Impacts related to flooding would be **less than significant**.

j) Seismic events can induce oscillations, called seiches, of the surface of an inland body of water that varies in period from a few minutes to several hours. Tsunamis are large sea waves produced by submarine earthquakes or volcanic eruptions. Although the project site is located near Lake Lindero, an inland body of water 0.18 miles to the north, U.S. 101 serves as a physical barrier in between, and the site is at least 30 feet higher in elevation than the lake. The project site also is not located close to the ocean and is at an elevation sufficiently above sea level to be outside the zone of a tsunami. Therefore, **no impact** would occur.

X. Land Use and Planning Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) The proposed senior apartments would be constructed on an undeveloped piece of land adjacent to duplex housing to the west, commercial office uses across Agoura Road to the north, and undeveloped open space within the Specific Plan area to the east and south. The project would be similar to the adjacent residential uses on Agoura Road. The project does not propose any new roadways or structures that would cut off existing neighborhoods. Therefore, impacts would be **less than significant**.

b) The project site has a land use designation of Planned Development District under the City's General Plan and is located within the Ladyface Mountain Specific Plan area (see Figure 7). During development of the Specific Plan, a Final Ladyface Mountain Citizen's Advisory Committee was formed to recommend a land use scenario for the Specific Plan area (Agoura Hills, 1991). The Advisory Committee considered a less intensive land use plan (Scenario 1) and a relatively more intensive land use plan (Scenario 2), which would involve the extensive use of retaining walls. Under either scenario, the primary permitted land uses would be commercial, business park, and open space uses, with an additional residential component. In approving the final Specific Plan, the City Council selected land use Scenario 1-A (a modified version of Scenario 1), which removed residences from the set of allowable uses. The project is consistent with the City General Plan, including the following policies, which stress site development reflective of its natural setting, and specifically implements Housing Element Goal H-3 and Policy H-3.1, and Policies LU-23.3, LU-23.4 and LU-23.5:

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Zoning

Figure 7

- **Goal H-3 Provide Adequate Sites to Achieve a Diversity of Housing.** Provide opportunities for a range of housing types suites to residents of varying lifestyle needs and income levels.
- **Policy H-3.1 Variety of Housing Choices.** Provide site opportunities for a full range of housing types, locations, and densities to address the diverse needs of Agoura Hills' residents.
- **Policy LU-23.3 Development Clustering and Location.** Require that buildings be clustered to minimize grading and modifications of the natural topography, with development located below the 1,100-foot elevation. (Imp LU-15)
- **Policy LU-23.4 Landscapes.** Require that landscapes incorporated into development projects respond and transition with those of surrounding natural open spaces. (Imp LU-15, LU-29)
- **Policy LU-23.5 Trail Connectivity.** Require that developers provide pedestrian linkages to trails in the Ladyface Mountain Specific Plan area, as prescribed by the Citywide Trails and Parkways Master Plan. (Imp CS-21, CS-24)

To be consistent with the final Specific Plan's permitted uses, the project would require an amendment to the City General Plan and the Specific Plan to allow residential uses on-site and a Conditional Use Permit (CUP) to permit development within the Specific Plan area.

The adopted Specific Plan permits development of the project site as a business park use with up to 34,000 square feet of floor area, a maximum building pad area of 2.42 acres, a maximum of 90 peak-hour vehicle trips from the site (Agoura Hills, 1991). The proposed floor area of the apartment buildings (71,206 square feet) is greater than the maximum of 34,000 square feet that the Specific Plan calls for on the project site. However, the one-acre area for building pads would be below the maximum allowable 2.42 acres for the site, reducing the footprint of the developed area (Agoura Hills, January 2014). As discussed in Section XVI, *Transportation/Traffic*, the project would generate an estimated 20 A.M. peak-hour trips and 24 P.M. peak-hour trips, which would be less than the maximum of 90 peak-hour trips. Therefore, the project would be consistent with Specific Plan requirements pertaining development intensity and trip generation.

Pursuant to Section 9654.6 (Parking Allocation) of the Municipal Code, residential developments must provide 1.5 covered parking spaces plus 1.0 uncovered spaces per one-bedroom apartment, and 2.0 covered plus 0.50 uncovered spaces per two-bedroom unit. With 14 proposed one-bedroom units and 32 two-bedroom units, the project would be required to provide a total of 85 covered parking spaces and 30 uncovered spaces. The project would include 92 covered spaces in underground garages and 36 uncovered spaces at surface level. This provision of parking would exceed City requirements.

Grading design guidelines for development in the Specific Plan area also state that retaining walls are allowed only if necessary to preserve oaks or enhance the appearance of buildings (Agoura Hills, 1991). The maximum exposed height of retaining walls is six feet. Because four proposed retaining walls around Buildings A and B would exceed six feet in exposed height, the project would require a variance for retaining walls.

In addition, the Specific Plan includes requirements for front, side, and rear yard setbacks. The required setback for front yards from the street right-of-way is equal to twice the proposed building's height. Using this formula, the proposed project would be required to establish front yard setbacks of 64 feet. However, Building A would be located approximately 29 feet away from the Agoura Road right-of-way at its closest, with first-story porches about 20 feet away. Furthermore, Building B would be located as close as 43 feet from the roadway right-of-way.

Variances would be required for reduced front, side, and rear yard setbacks for Building A and reduced front yard setbacks for Building B.

Consistency with the City's policies for the preservation of oak trees addressed in Section IV, *Biological Resources*. As discussed therein, the applicant would be required to obtain and comply with an Oak Tree Permit, pursuant to Section 9657.5 of the City's Municipal Code, for the removal of 58 oak trees and encroachment within the protected zone of 25 oak trees.

With City approval of an amendment to the Specific Plan and CUP to allow residential development, variances for reduced setbacks and retaining walls with more than six feet of exposed height, and an Oak Tree Permit for removal and encroachment of oak trees, the proposed project would be consistent with applicable land use plans and policies. Impacts would be **less than significant**.

c) The project site is not subject to an adopted habitat conservation plan (HCP) or natural community conservation plan (NCCP). There would be **no impact** in this regard.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XI. Mineral Resources Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a, b) According to the California Division of Mines and Geology (DMG), no significant mineral deposits are present within the City of Agoura Hills (Agoura Hills General Plan 2035, March 2010). The majority of the City north of Agoura Road is classified as MRZ-1, with the remaining areas, including Ladyface Mountain and the project site being classified as MRZ-3. MRZ-3 identifies areas where the significance of mineral deposits cannot be evaluated from available

data. The proposed project is not located within or in proximity to an area classified as MRZ-1 and there has been no known mining in the area of the project site. Therefore, the proposed project would not affect the availability of mineral resources and **no impact** would occur.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XII. Noise Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). For the most sensitive uses, such as single-family residential, 60 dBA Day-Night average level (Ldn) is the maximum normally acceptable exterior level. Ldn is the time average of all A-weighted levels for a 24-hour period, with a 10 dBA upward adjustment added to those noise levels occurring between 10:00 p.m. and 7:00 a.m. to account for the general increased sensitivity of people to nighttime noise levels. The Community Noise Equivalent Level (CNEL) is similar to the Ldn except that it adds five additional dBA to evening noise

levels (7:00 p.m. to 10:00 p.m.). The City of Agoura Hills utilizes the CNEL for measuring noise levels.

a, c) Based on the General Plan noise contours, the northwestern and north-central portions of the project site are currently subject to noise levels between 65 and 70 dBA CNEL, due to their relative proximity to U.S. 101; the remainder of the site is subject to noise levels between 60 and 65 dBA CNEL (Agoura Hills, General Plan Figure N-1, 2010). Note that these contours represent line-of-sight attenuation, and do not account for additional attenuation from topography and other barriers. Table N-1 of the General Plan indicates that a CNEL of 60-70 dBA is considered "normally compatible" for locating multiple-family residences, a category which would include senior apartments.

Two 15-minute ambient noise measurements were taken on the project site during a weekday afternoon on October 22, 2014, using an ANSI Type II integrating sound level meter in accordance with standard protocols. Figure 8 shows the locations of these measurements on-site. These locations were selected to represent the northern edge of proposed Buildings A and B on the site, facing Agoura Road and U.S. 101. Table 11 shows the results of the noise measurements.

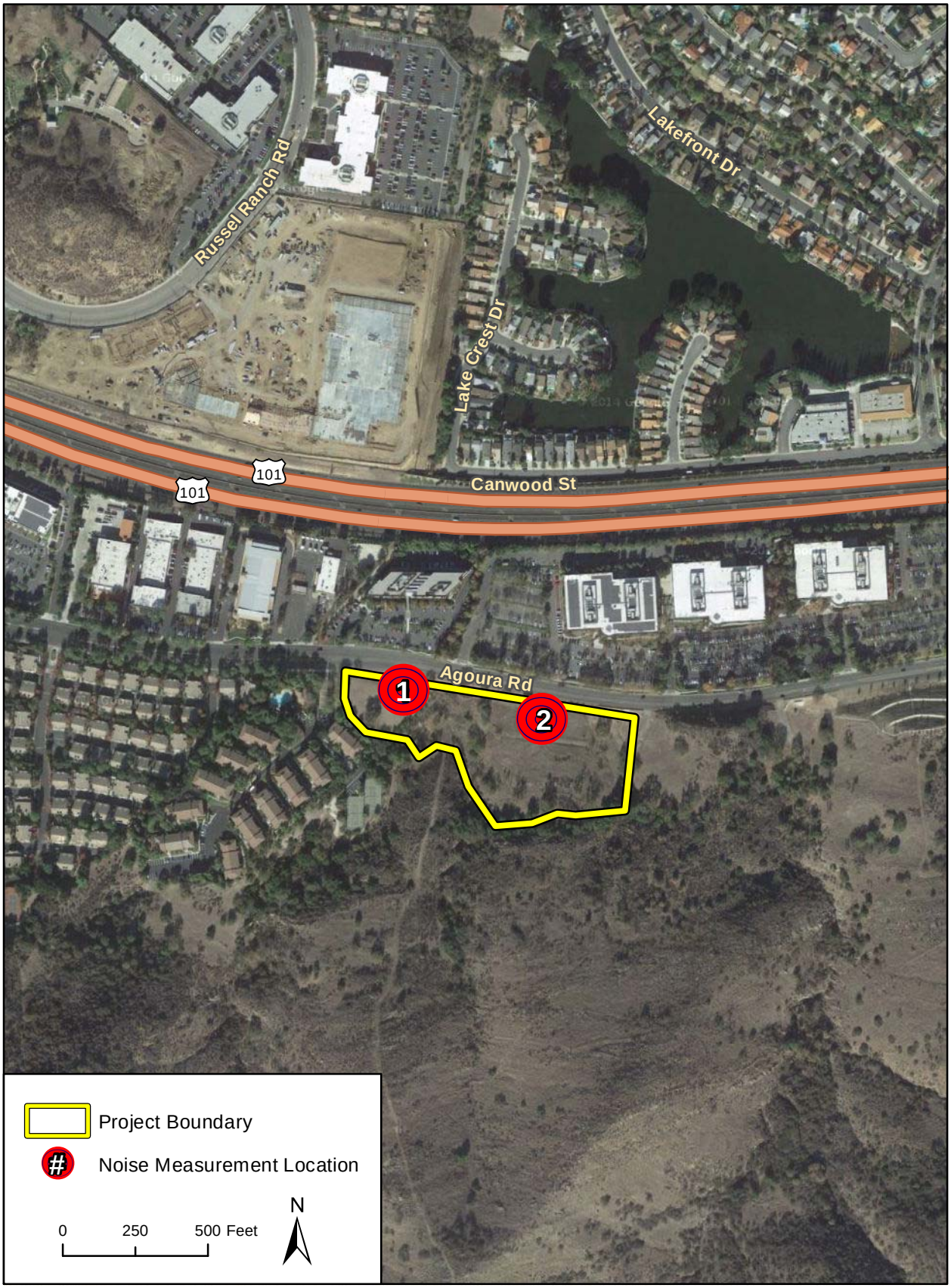
Table 11
Noise Measurement Results

Measurement Number	Measurement Location	Primary Noise Source	Leq (dBA)
1	Northwest portion of site	Traffic	62.5
2	Northeast portion of site	Traffic	54.9

Source: Rincon Consultants, Inc. Recorded during field visit on October 22, 2014, using ANSI Type II Integrating sound level meter.

As shown in Table 11, these measurements indicated ambient noise levels of 62.5 dBA in the northwest portion of the site and 54.9 dBA in the northeast portion. Thus, actual noise levels in the area proposed for residential development are considerably lower than shown in the Agoura Hills General Plan, due primarily to the presence of intervening topography between U.S. 101 and the project site.

Operation of the proposed project also would contribute to the ambient noise environment, including periodic noise from the activities of people on the project site and traffic noise from motor vehicle trips associated with the project. Noise events that are associated with senior residential developments may include conversations, music, doors slamming, beeping from the locking and unlocking of motor vehicles, and tire and engine noise from the movement of vehicles on driveways. On-site operations are also expected to involve noise associated with rooftop ventilation, heating systems, and trash hauling. However, noise levels associated with operation of the proposed project are not expected to generate high levels of noise, and on-site noise would be comparable to that of existing residential uses adjacent and west of the project site.



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Noise Measurement Locations

Figure 8

Traffic generated during operation of the proposed project also would contribute to noise from Agoura Road. As discussed in Section XVI, *Transportation/Traffic*, the project would generate approximately 267 ADT, including 20 A.M. peak hour trips and 24 P.M. peak hour trips. This trip generation would increase daily traffic on the segment of Agoura Road in the vicinity of the project site by 3.0 percent (267 ADT/8,960 daily trips). Peak-hour traffic would increase by 2.8 percent (24 trips/843 peak-hour trips). Ambient noise at the northern edge of the proposed Building A was modeled using the Federal Highway Administration's Traffic Noise Model (TNM) Version 2.5, under existing traffic levels on Agoura Road and with the addition of project-generated traffic on Agoura Road. The noise modeling results are summarized in Table 12 and attached in complete form in Appendix E.

Table 12
Operational Roadway Noise Exposure

Roadway	Projected Noise Level (dBA Leq)		Change In Noise Level (dBA Leq)
	Existing	Existing + Project	
Agoura Road adjacent to the project site	61.7	61.8	0.1

Leq is the equivalent noise level over a period of time, typically one hour.

Estimates of noise generated by traffic from the centerlines of eastbound and westbound lanes on Agoura Road in the PM peak hour (the peak hour with the highest project-related traffic).

Refer to Appendix E for full noise model output.

Source: Federal Highway Administration Traffic Noise Model Version 2.5.

The modeled existing noise level from traffic on Agoura Road, as shown in Table 12, is within 1.0 dBA of the measurement noise level at that location (62.5 dBA), which validates the modeling results. With the addition of project-generated traffic, ambient noise levels during P.M. peak hours would increase by 0.1 dBA.

Project-generated traffic noise would have a significant impact if it would expose sensitive receptors to increases in noise exceeding the allowable standards in the City's Noise Ordinance or the Federal Transit Administration (FTA) standards shown in Table 13. The FTA's recommendations in its May 2006 *Transit Noise and Vibration Impact Assessment* were used to determine whether or not increases in roadway noise would be considered significant. The allowable noise exposure increase changes with increasing noise exposure, such that lower ambient noise levels have a higher allowable noise exposure increase.

Table 13
Significance of Changes in Operational Roadway Noise Exposure

Ldn or Leq in dBA	
Existing Noise Exposure	**Allowable Noise Exposure Increase**
45-50	7
50-55	5
55-60	3
60-65	2
65-75	1
75+	0

Source: Federal Transit Administration (FTA), May 2006

With an existing noise level between 60 and 65 dBA Leq, the FTA standards would allow up to a 2 dBA increase in noise. Because project-generated traffic would only increase traffic noise from Agoura Road by 0.1 dBA, as shown in Table 12, it would not add substantially to existing traffic noise on local roadways.

Based on the above, the project would not expose residential land uses to noise exceeding the City's noise standards or otherwise contribute to a long-term increase in noise in the project vicinity. Impacts would be **less than significant**.

b) The project site is not located in an area of excessive groundborne vibration and would not expose people to excessive levels of groundborne vibration. Because construction of the proposed apartment buildings is not expected to involve pile driving or other activities that generate high levels of vibration, substantial groundborne vibration is not anticipated. Based on the distance from the proposed graded area on-site to the nearest sensitive receivers (about 40 feet to the nearest residence at the Archstone Agoura Hills Apartments), maximum vibration levels associated with equipment expected to be used during construction (bulldozers, trucks, jackhammers) would range from about 53 to 83 vibration decibels (VdB) (Federal Railroad Administration, 2012).

Table 14
Vibration Source Levels for Construction Equipment

	Approximate VdB	
Equipment	**At 25 Feet**	**At 40 Feet**
Large Bulldozer	87	72
Loaded Trucks	86	71
Jackhammer	79	64
Small Bulldozer	58	43

Source: Federal Transit Administration, 2012.

As shown in Table 14, the maximum vibration levels at a distance of 40 feet from large bulldozers and loaded trucks could exceed the groundborne velocity threshold level of 80 VdB

established by the Federal Railroad Administration for sensitive buildings, residences, and institutional land uses where people normally sleep, but would not approach the 100 VdB, level, which is the general threshold where minor damage can occur in fragile buildings. Consequently, vibration would not be expected to cause any structural damage and mandatory compliance with the City's construction noise ordinance, which limits the days and hours of construction to between 7:00 AM and 7:00 PM, Monday through Saturday, would eliminate the potential for disturbance during nighttime hours when people normally sleep. Impacts related to construction-related groundborne noise and vibration would therefore be **less than significant**.

d) Grading and construction of the project would generate a temporary increase in noise that would be audible to sensitive receptors in the site vicinity. Sensitive noise receptors include residential units, child care centers, libraries, hospitals, and nursing homes. The sensitive receptors closest to the project site are multi-family residences as close as 40 feet away from proposed grading activities at the neighboring Lexington Apartments. Duplex houses at Westlake Colony in Westlake Village are as close as approximately 325 feet from the limits of grading on the project site. As shown in Table 15, maximum noise levels relating to construction range from 80-90 decibels (dB) at a distance of 40 feet, which corresponds to the closest distance between grading activities on the project site and residences at the neighboring Lexington Apartments (U.S. EPA, 1971).

Table 15
Typical Noise Levels at Construction Sites

Construction Phase	Average Noise Level at 40 Feet	
	Minimum Required Equipment On-Site	All Pertinent Equipment On-Site
Clearing	86 dBA	86 dBA
Excavation	80 dBA	90 dBA
Foundation/Conditioning	90 dBA	90 dBA
Laying Subbase, Paving	80 dBA	81 dBA
Finishing and Cleanup	86 dBA	86 dBA

Source: U.S. EPA, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," 1971.

Construction noise generally attenuates by about 6 dBA per doubling of distance. Due to the proximity to the project site boundary, the nearest existing single-family residences could experience periodic maximum noise levels as high as about 90 dBA. Noise levels at the pre-school/kindergarten and Montessori school would be lower due to the greater distance from the project site and would be expected to be no greater than 72 dBA.

Grading and construction activity could cause periodic disturbance to adjacent residences. However, grading and construction would be required to comply with Article IV, Chapter 1, of the City's Municipal Code, which limits the use of construction equipment that generates noise in excess of 60 dBA to between the hours of 7:00 AM and 7:00 PM, Monday through Saturday. No construction activity is permitted between 7:00 PM and 7:00 AM that generates noise in

excess of the 50 dBA nighttime standard, and no construction activity is permitted on Sundays or legal holidays. With conformance to Article IV, Chapter 1, the City's Municipal Code, temporary construction noise impacts would be **less than significant**.

e, f) The project site is not located within the vicinity of an airport or private airstrip. The closest airport is the Van Nuys Airport, about 17.5 miles east of the site. Therefore, **no impact** would occur.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XIII. Population and Housing Would the project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) The development of 46 residential units on the on the project site would cause a direct increase in the City's population. Assuming that an average of two people occupy each senior housing unit, the addition of 46 dwelling units would generate a resident population of 92 persons (46 units x 2 persons/unit). The current City population is approximately 20,625, according to the most recent (May 2014) estimate by the California Department of Finance. Therefore, the proposed project would result in a citywide population of approximately 20,717 persons (20,625 + 92). The Southern California Association of Governments (SCAG) projects that the population of Agoura Hills will be 21,400 by 2035 (SCAG, 2012). The level of population increase associated with the proposed project is within the population forecast and the physical environmental impacts associated with this increased population growth have been addressed in the individual resources sections of this Initial Study. As the project would not substantially increase population, and the physical environmental impacts associated with the project have been addressed in the individual resources sections of this Initial Study, impacts relating to population growth would be **less than significant**.

b, c) The project site is currently undeveloped land that includes no residential units. Therefore, the proposed project would not displace people or residences. Therefore, **no impact** would occur.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XIV. Public Services	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Discussion

a.i) The City of Agoura Hills has secured fire protection and emergency services for residents through a contract with the Los Angeles County Fire Department (LACoFD). Agoura Hills is served by the LACoFD Fire Station #89, located at 29575 Canwood Street, about 1.25 miles to the east of the project site and across U.S. 101. This station is staffed with a three-person engine company (one Fire Caption, one Fire Fighter Specialist, and 1 Fire Fighter/Paramedic) and a two-person paramedic squad (2 fire fighter/paramedics) (Bagwell, LACoFD, Personal Communication, October 22, 2014). According to LACoFD, it appears that the proposed project would not result in an increased demand or a special need for services that could not be met by existing staffing and equipment among the local fire stations. Therefore, no new or expanded facilities would be required to serve to project. In addition the proposed project would have to comply with requirements pertaining to building construction, site access, adequacy of flows, and fire hydrants, as dictated by the LACoFD Prevention Bureau. To ensure adequate fire flow, LACoFD Regulation No. 8 requires that the fire district have a fire flow of 5,000 gallons per minute for five hours. Currently, the Las Virgenes Municipal Water District (LVMWD) is constructing a five million-gallon tank in Westlake Village, which would provide adequate water storage to meet fire flow requirements in Agoura Hills (LVMWD, 2014). Therefore, project impacts would be **less than significant.**

a.ii) The City of Agoura Hills receives police protection from the Los Angeles County Sheriff's Department (LASD). The proposed project would be served by the LASD's Malibu/Lost Hills Station, which is located at 27050 Agoura Road in the City of Calabasas. The station patrols the

cities of Agoura Hills, Calabasas, Hidden Hills, Westlake Village, and Malibu, as well as the adjacent unincorporated area. The Malibu/Lost Hills Station participates in a reciprocal aid agreement with the nearby communities of Westlake and Calabasas, which enables these stations be called upon for assistance, if necessary. Although development of the proposed apartment complex would incrementally increase the need for law enforcement services on the project site, the LASD has adequate capacity to serve the project (Deputy Robert DeSantis, LASD, Personal Communication, October 16, 2014). Therefore, the proposed project would not require expansion of existing facilities or construction of new facilities. Impacts would be **less than significant**.

a.iii) Although the proposed project would generate an increase in population, by providing housing for seniors, it would not accommodate students who would attend local k-12 schools. Therefore, no direct increase in students or impacts relating to school capacity would occur. Nevertheless, the applicant for the proposed senior citizen housing project would be required to pay state-mandated school impact fees, as per Section 65995.1(a) of the California Government Code (Senate Bill 50, chaptered August 27, 1998). Pursuant to Section 65995 (3)(h) of the California Government Code, the payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." Therefore, impacts would be **less than significant.**

a.iv) The proposed project would allow for access to trails and a private recreational area between the two natural drainage courses in the center of the site, which would accommodate demand for recreational facilities from the addition of 46 residents. With the provision of a recreational park on-site, the project would not substantially increase the city's overall need for new or physically altered park facilities. See Section XIV, *Recreation*, for further discussion. Impacts would be **less than significant**.

a.v) The proposed project would contribute incrementally toward impacts to the City's public services and facilities such as storm drain usage (discussed in Section IX, *Hydrology and Water Quality*), public parks (discussed above in this section), solid waste disposal (discussed in Section XVII, *Utilities and Service Systems*), and water usage and wastewater disposal (discussed in more detail in Section XVII, *Utilities and Service Systems*). The project's contribution would be offset through payment of fees that are used to fund storm drain improvements, school facility expansions, etc., as well as by the project-specific features described in the individual resource section analyses described in this Initial Study. The project's contribution, taking into account existing capacities and assuming compliance with existing ordinances, would be **less than significant**.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XV. Recreation	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion

a) Currently, the City of Agoura Hills operates six active parks encompassing 47 acres (Agoura Hills, February 2010). Including two open space areas totaling 26.3 acres within city limits, the City owns and operates 73.5 acres of parkland and open space. In addition, approximately 107 acres of parkland/active recreation space are located within the City but owned and operated by the State of California. Accounting for the above amenities, the City provides 180.5 acres of parkland and open space. Agoura Hills also has an estimated 1,378.2 acres of protected open space within its borders, which is owned by the City, Santa Monica Mountains and Recreation and Conservation Authority or Homeowners Associations (HOA).

Policy CS-1.1 in the General Plan recommends a standard of eight acres of park and open space land per 1,000 residents. This standard is further broken down into three acres of local park and recreation space per 1,000 persons and five acres of open space per 1,000 persons. Based on a projected population of 20,717 residents in the City after development of the proposed project, and the current local inventory of 180.5 acres of parkland, the currently maintains 8.71 acres of parkland per 1,000 persons. This provision of parkland would exceed the City's standard of three acres of local park and recreation space per 1,000 persons. Furthermore, with an estimated 1,378.2 acres of protected open space, the City would have 66.5 acres of open space per 1,000 persons, which would greatly exceed the City's standard of five acres of open space per 1,000 person.

Furthermore, the proposed project would provide for access to trails and a private recreational area in between the natural drainage courses in the center of the site, which would reduce the need for senior residents and/or visitors to seek off-site amenities. Given the adequate amount of parkland and open space in the city, and the provision of recreational space on-site, the project's demand on recreational facilities is not expected to result in substantial physical deterioration of parks and recreational facilities. Impacts on existing recreational facilities in Agoura Hills would be **less than significant**.

b) The proposed project would include a recreational area between the natural drainage courses in the center of the site. However, as shown in the site plan in Figure 3, the project does not propose any structural improvements as part of this recreational area. A gazebo/spa also is

proposed outside of each apartment building. The construction and operation of these recreational facilities would result in **less than significant** environmental impacts.

Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

XVI. Transportation/Traffic	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion

a) The following analysis is based on a revised traffic impact study for the proposed project, prepared by Crain & Associates in September 2014. The complete study is contained in Appendix F.

In the vicinity of the project site, Agoura Road currently has two through-lanes eastbound, two through-lanes westbound, a two-way left turn lane, and bike lane in each direction. Crain & Associates conducted a 24-hour machine count of motor vehicle trips on Agoura Road near the project site on Tuesday, August 26, 2014, when local schools in the Las Virgenes Unified School District were in session. This count measured a daily volume of 8,960 vehicles, with 3,995 vehicles (45 percent) traveling eastbound and 4,965 vehicles (55 percent) moving westbound. The highest peak-hour traffic volumes were 393 eastbound vehicles and 450 westbound vehicles.

Based on a roadway capacity of 1,100 vehicles per hour per lane, as adapted from the Highway Capacity Manual, Agoura Road has directional capacities of 2,200 vehicles eastbound and 2,200 vehicles westbound. Using the preceding directional peak-hour volumes, the existing volume-to-capacity (V/C) ratios are 0.357 eastbound and 0.205 westbound, which correspond to a Level of Service (LOS) A during peak hour traffic on Agoura Road. LOS, a qualitative measure used to describe the condition of traffic flow, ranges from A to F, where LOS A would be excellent conditions and LOS F would be overload conditions.

To estimate trip generation from the proposed project, the traffic impact study relied on trip rates for the condominiums/townhouses, drawn from Land Use code 230 in the Trip Generation manual (9th Edition) published by the Institute of Transportation Engineers (ITE). These trip rates produce a conservative estimate of trip generation because it is expected that the proposed senior apartment units would result in fewer trips that the average condominium units. Table 16 shows the estimated trip generation from the proposed project, with 267 trips per day, including 20 trips during the A.M. peak hour and 24 trips during the P.M. peak hour.

Table 16
Project-Generated Trips

ITE Code	Land Use	Size	ADT		AM Peak Hour		PM Peak Hour	
			Rate	Trips	Rate	Trips	Rate	Trips
230	Residential Condominium/ Townhouse	46 units	5.81 trips/unit	267	0.44 trips/unit	20	0.52 trips/unit	24

Source: Crain & Associates, Revised Traffic and Parking Assessment, September 2014. See Appendix F.

Table 17 shows the effect of project-generated traffic on V/C ratios and LOS on Agoura Road.

Table 17
Peak-Hour Existing and With-Project Traffic Impacts

Road Segment	Existing V/C	Existing LOS	With-Project V/C	With-Project LOS
Agoura Road, eastbound	0.357	A	0.364	A
Agoura Road, westbound	0.205	A	0.209	A

Source: Crain & Associates, Revised Traffic and Parking Assessment, September 2014. See Appendix F.

As shown in Table 17, the addition of project-generated traffic would have a minor impact on Agoura Road, with traffic conditions remaining at LOS A. Furthermore, the City's Agoura Road Widening Project increased the capacity of Agoura Road by providing a second through-lane in the eastbound direction, including along the project site's frontage. The analysis shown above

was completed prior to the completion of this project. Additional capacity from this roadway widening would reduce with-project eastbound V/C during the PM peak hour from 0.364 to 0.182, resulting in even better LOS A conditions. Therefore, impacts from project-generated traffic would be **less than significant**.

b) The Los Angeles County Congestion Management Program (CMP) requires a regional traffic impact analysis (TIA) for:

- *All CMP arterial monitoring intersections where a proposed project would add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.*
- *All CMP mainline freeway monitoring locations where the proposed project would add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.*

As discussed above, it is estimated that the proposed project would generate 20 vehicle trips during A.M. peak hours and 24 trips during P.M. peak hours, which would not trigger an analysis of effects on CMP facilities. Impacts would be **less than significant**.

c) As discussed in Section VIII, *Hazards and Hazardous Materials*, and Section XII, *Noise,* given the fact that the project site is located approximately 17.5 miles from the nearest airport (Van Nuys Airport in the City of Los Angeles) and that the two-story height of proposed apartments would be consistent with surrounding development, the project would not present any impediments to air traffic, and would not affect air traffic patterns. Therefore, **no impact** would occur.

d) The proposed project would not introduce any design features such as sharp curves or incompatible uses to the project site that would substantially increase hazards at the site. Two proposed driveways from Agoura Road, both approximately 30 feet wide, would serve the site. The layout of the driveways and internal roadways would be straightforward and unconstrained, and would adequately serve the intended traffic. Impacts from design features or incompatible uses would be **less than significant**.

e) The project would not result in inadequate emergency access because it would be subject to LACoFD review of site plans, site construction, and the actual structures prior to occupancy to ensure that required fire protection safety features, including building sprinklers and emergency access, are implemented. The LASD also would review the proposed ingress and egress to ensure that site access is adequate for police protection (Deputy Robert DeSantis, LASD, Personal Communication, October 16, 2014). The impact would be **less than significant**.

f) The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities. The proposed project is required to be constructed according to City and LACoFD regulations pertaining to ingress and egress, which would prevent hazardous conditions conflicting with alternative modes of transportation. With completion of the widening of Agoura Road, west of Reyes Adobe Road, future residents on-site also would be served by sidewalks and dedicated bike lanes in both directions of Agoura Road (Agoura Hills, Agoura Hills Widening Project, 2014).

The project would have a **less than significant impact** on adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, and would not otherwise substantially decrease the performance or safety of such facilities.

Mitigation

Because there would be no adverse impacts, no mitigation measures are required.

XVII. Utilities and Service Systems Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

a,b,e) Wastewater generated in the Agoura Hills area is treated at the Tapia Water Reclamation Facility (TWRF), operated by LVMWD. The TWRF has a capacity of 16 million gallons per day (mgd) and currently treats an average of 9.5 mgd (LVMWD, 2013). Therefore, there is currently a surplus capacity of 6.5 mgd. The project's wastewater generation was calculated from wastewater generation factors cited in the City's General Plan Final EIR for residential uses. As

shown in Table 18, the proposed project would generate an estimated 15,180 gallons per day (gpd) of wastewater.

Table 18
Projected Wastewater Generation

Land Use	Size	Generation Factor	Flow
Condominiums	46 units	330 gpd[a]/unit	15,180 gpd[a]

[a] *gpd = gallons per day*

Source: Agoura Hills, General Plan Final EIR, 2010.

The 15,180 gallons per day of wastewater generated by the proposed project would represent about 0.23% of the TWRF's current 6.5 mgd excess capacity. Because projected generation is within the projected future surplus capacity, impacts to wastewater treatment systems would be **less than significant**.

c) As discussed in Section IX, *Hydrology and Water Quality,* the project site is currently undeveloped and covered with a vegetated, permeable surface, but the proposed project would introduce impervious surfaces at Buildings A and B and associated surface parking and driveways. Nonetheless, the proposed infiltration basins and bioswales would pre-treat runoff before discharge into the natural drainage courses running through the site. During storm events, these basins would detain stormwater runoff from the project site, decreasing flow into the existing drainages. Given these measures to reduce stormwater runoff, impacts to storm water conveyance facilities would be **less than significant.**

d) The Las Virgenes Municipal Water District (LVMWD) supplies potable water in the City of Agoura Hills. The LVMWD obtains potable water from four sources: treated, potable water imported from Metropolitan Water District of Southern California (MWD), which in turn receives water from the State Water Project; recycled water from the TWRF; groundwater from the Russell Valley Basin (which is only used to supplement the TWRF); and surface runoff into Las Virgenes Reservoir (LVWMD, 2011).

The LVMWD's 2010 Urban Water Management Plan (UWMP) provides scenarios for water supply in the District. These scenarios include a "multiple dry year" scenario in which drought conditions exist for consecutive years and water supply is diminished. As shown in Table 19, LVMWD's total surplus water supply is anticipated to be 147 acre-feet per year (AFY) in 2017 during the multiple dry year scenario, and is anticipated to increase to 2,755 AFY in 2022 and increase to 2,823 AFY in 2027, followed by smaller surpluses in 2032 and 2037.

In its 2010 Regional UWMP, MWD has found that its existing water supplies, when managed according to its water resource plans, will be sufficient to meet projected demand through 2035 (MWD, 2010).

Table 19
LVMWD Water Supply and Demand – Multiple Dry Year

Water Sources	2017	2022	2027	2032	2037
Imported – MWD (AFY)	27,474	29,081	30,020	29,465	29,037
Recycled (AFY)	6,366	7,907	9,488	10,496	10,808
Groundwater	0	0	0	0	0
Total Water Supply (AFY)	*33,839*	*36,988*	*39,468*	*39,961*	*39,864*
Total Water Demand"(AFY)	*33,639*	*34,233*	*36,645*	*38,523*	*39,653*
Difference	**147**	**2,755**	**2,823**	**1,438**	**192**

Source: 2010 Urban Water Management Plan, LVMWD, 2011.

Table 20 shows the estimated water demand from operation of the proposed apartment complex, based on water demand rates used in the City's General Plan Final EIR.

Table 20
Projected Potable Water Demand

Land Use	Size	Generation Factor *	Flow	Demand
Residential	46 units	532 gpd/unit[a]	24,472 gpd	27.4 AFY

Notes: gpd = gallons per day
AFY = Acre feet per year
*:*Based on water demand rates cited in Table 4.14-3 of the City's General Plan EIR.*

As shown in Table 20, the water demand anticipated from the proposed 46 condominium units would be 27.4 AFY, which would represent approximately 18.6 percent of the total 2017 regional surplus water supply. The demand from the residences as a percentage of overall 2017 supply would be approximately 0.8 percent.

The anticipated demand of 27.4 AFY from the proposed 46 housing units would not exceed available water supplies shown in Table 19. Therefore, impacts related to water supply would be **less than significant**.

f, g) There are two landfills at which waste from the proposed project and the potential future fifteen residences could be disposed. The Calabasas Sanitary Landfill, operated by the Los Angeles County Sanitation Districts, is located at 5300 Lost Hills Road in Calabasas. The Simi Valley Landfill, privately operated, is located at 2801 Madera Road in Simi Valley. Both landfills serve the City of Agoura Hills, as well as other communities. The total remaining capacity of the Calabasas Sanitary Landfill is 15.6 million cubic yards, or 7 million tons (Gwen Tantoco, Personal Communication, February 2013). The facility is permitted to accept up to 3,500 tons per day. The average daily tonnage of waste received during 2013 was 741 tons per day (CalRecycle, 2013 Landfill Summary Tonnage Report, 2014). The expected remaining life of the landfill is to 2048. The Simi Valley Landfill is permitted to accept up to 6,000 tons per day of refuse. It received about 1,834 tons per day during 2013. The landfill has a remaining capacity of

120 million cubic yards (Mike Smith, Personal Communication, February 2013), and a remaining life of an estimated 50 years.

According to Table 4.14-5 of the City's General Plan Final EIR (2010), a residential dwelling unit generates approximately ten pounds of solid waste per household per day. Therefore, assuming no recycling of refuse, the proposed 46 housing units would generate an estimated 0.23 tons of solid waste per day during the operational phase of the project. This is approximately 0.0068 percent of the daily capacity (3,500 tons) permitted at the Calabasas Sanitary Landfill and 0.0038 percent of the daily capacity (6,000 tons) at the Simi Valley Landfill. Based on a diversion rate of 58 percent (recycling of waste not including construction and demolition debris), which the City achieved for the year 2012 (the latest year for which data is available) through various programs and policies, the solid waste would equate to 0.0028 percent of the allowed tonnage per day at the Calabasas Landfill, and 0.0016 percent of the allowed daily tonnage at the Simi Valley Landfill. Furthermore, although the construction phase of the proposed project could generate waste, compliance with the requirements of the City's Construction and Demolition Debris Recycling Program would reduce the amount of waste entering the landfills from this phase of the project. As both landfills have sufficient capacity for the next 35-50 years, solid waste generated by the project would have a **less than significant** impact on the permitted remaining capacity of either landfill.

Mitigation

Because there would be no adverse impacts, no mitigation measures are required.

XVIII. Mandatory Findings of Significance	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) As discussed in Section IV, *Biological Resources*, the proposed project has the potential to reduce the number or restrict the range of a rare or endangered plant or animal. However, impacts on special-status species would be reduced to a less than significant level with implementation of mitigation measures requiring pre-construction botanical and wildlife surveys (BIO-1 and BIO-3), preparation of a Habitat Mitigation/Restoration Plan (BIO-2), and compliance with the Migratory Bird Species Act (BIO-4). Impacts to wildlife movement would be less than significant with implementation of a mitigation measure regulating night lighting adjacent to open areas (MM BIO-7). Finally, implementation of mitigation measures BIO-8 and BIO-9 would protect and replace oak trees on the project site.

Furthermore, as discussed in Section V, *Cultural Resources*, the proposed project would not impair or eliminate any known prehistoric or historic resources. Impacts on unanticipated cultural resources would be less than significant with implementation of mitigation measures CR-1 and CR-2, requiring adherence to existing local, state and federal regulations related to the discovery of any unanticipated cultural resources during construction activity. Therefore, impacts would be **less than significant with mitigation incorporated**.

b) All potential environmental impacts of the project have been determined in this Initial Study to have either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. Cumulative impacts in the following resource areas have been addressed in the individual resource sections above: Air Quality, Biological Resources, and Greenhouse Gases. As discussed in Section III, *Air Quality*, and Section VII, *Greenhouse Gas Emissions*, the project would not exceed state or regional thresholds for the emission of criteria air pollutants or greenhouse gases. With the implementation of mitigation measures BIO-1 through BIO-9, cumulative impacts to biological resources would be reduced to a less than significant level. Some of the other resource areas were determined to have no impact and therefore would not contribute to cumulative impacts and did not warrant further analysis, such as Mineral Resources and Agricultural Resources. Therefore, in connection with the effects of any past projects, current projects, and probable future projects, the proposed project would have **less than significant** cumulative impacts (i.e., impacts would not be cumulatively considerable).

c) In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. Impacts related to air quality, hazards, and noise would be reduced to less than significant with mitigation listed above. Impacts would be **less than significant with mitigation incorporated**.

REFERENCES

Agoura Road, City of. *Agoura Road Widening Project*. 2014. Available online at: http://www.ci.agoura-hills.ca.us/home/showdocument?id=14316

Agoura Hills, City of. City of Agoura Hills Municipal Code. Updated October 31, 2014. Accessed November 2014. Available online at: https://www.municode.com/library/ca/agoura_hills/codes/code_of_ordinances

Agoura Hills, City of. *Conduct a Pre-Screen Review and Provide Direction Regarding an Amendment to the Ladyface Mountain Specific Plan to Allow Senior Apartments on Assessor's Parcel No. 2061-001-025, within the Ladyface Mountain Specific Plan Area (Case No. 13-PSR-002).* January 2014. Available online at: http://www.ci.agoura-hills.ca.us/home/showdocument?id=13426

Agoura Hills, City of. City of Agoura Hills General Plan 2035. March 2010. Available online at: http://www.ci.agoura-hills.ca.us/government/departments/planning-community-development/general-plan

Agoura Hills, City of. *General Plan 2035 EIR*. February 2010.

Agoura Hills, City of. *Ladyface Mountain Specific Plan*. September 1991.

Agoura Hills, City of. *Ladyface Mountain Specific Plan EIR*. February 1990.

[CalEPA] California Environmental Protection Agency. *2010 Climate Action Team Biennial Report.* April 2010.

CalEPA. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. March 2006. Available online at: http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.PDF.

CalEPA. Cortese List. Accessed November 2014. Available online at: http://www.calepa.ca.gov/SiteCleanup/CorteseList/

California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. California Important Farmland Finder. 2014. Available online at: http://maps.conservation.ca.gov/ciff/ciff.html

California Department of Conservation. *State of California Seismic Hazard Zones: Thousand Oaks Quadrangle*. November 2000. Available online at: http://gmw.consrv.ca.gov/shmp/download/quad/THOUSAND_OAKS/maps/ozn_toaks.pdf

California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011-2014, with 2010 Benchmark.* May 2014. Available online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php

California Department of Toxic Substances Control. EnviroStor Database. Accessed November 2014. Available online at: http://www.envirostor.dtsc.ca.gov/public/

[Caltrans] California Department of Transportation, Scenic Highway Program. *Eligible (E) and Official Designated (OD) Routes.* December 2013. Available online at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

CalRecycle. *2013 Landfill Summary Tonnage Report*. 2014. Available online at: http://www.calrecycle.ca.gov/SWFacilities/Landfills/Tonnages/

[CDFW] California Department of Fish and Wildlife. 2014a. California Natural Diversity Database. Updated November 1, 2014. Biogeographic Data Branch. Sacramento, California.

CDFW. 2014b. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. October, 2014

CDFW. 2014 c. Special Vascular Plants, Bryophytes, and Lichens. Biogeographic Data Branch, California Natural Diversity Database. October, 2014.

CDFW. September 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program. Sacramento, California.

CDFW. 2006. Vegetation Classification of the Santa Monica Mountains Natural Recreation Area and Environs in Ventura and Los Angeles Counties, California.

[CNPS] California Native Plant Society, Rare Plant Program. 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Retrieved from http://www.rareplants.cnps.org [accessed November, 2014].

Crain & Associates. *Revised Traffic and Parking Assessment for The Park at Ladyface Project, City of Agoura Hills.* September 2014.

Dibblee Jr., Thomas W. *Geologic Map of the Thousand Oaks Quadrangle*. 1993. Available online at: http://ngmdb.usgs.gov/Prodesc/proddesc_186.htm

Envicom Corporation. *Biological Resources Inventory and Impact Analysis: The Park at Ladyface, City of Agoura Hills, California*. February 2014.

Envicom Corporation. *Spring 2014 Rare Plant Survey: The Park at Ladyface Project Site*. May 2014.

Federal Emergency Management Agency (FEMA). *FIRM Map ID # 06037C1243F*. September 2008. Available online at: https://msc.fema.gov/portal

Federal Railroad Administration. *High-Speed Ground Transportation Noise and Vibration Impact Assessment*. September 2012. Available online at: http://www.fra.dot.gov/eLib/Details/L04090

Federal Transit Administration. (FTA). *Transit Noise and Vibration Impact Assessment.* May 2006. Available online at: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

Gorian & Associates. *Geotechnical Response to City of Agoura Hills Review Sheet Dated April 18, 2014, Senior Housing Community, Vesting Tentative Tract Number 71742 (APN# 2061-001-025), 30800 Agoura Road, Agoura Hills, California*. July 2014.

Gorian & Associates. *Geotechnical Update Study – The Park at Ladyface Mountain, Senior Housing Community, APN# 2061-001-025 and 30800 Block of Agoura Road, Agoura Hills, California.* February 2003.

Gorian & Associates. *Geotechnical Update Study, Senior Housing Community, APN# 2061-001-025, 30800 Agoura Road, Agoura Hills, California.* September 2007.

Gorian & Associates. *Phase I Environmental Site Assessment, APN# 2061-001-025 and 30800 Block of Agoura Road, Agoura Hills, California.* October 2000.

Gorian & Associates. *Results of Preliminary Geotechnical Investigation, Agoura Hills Project, APN# 2061-001-025 & 30800 Block of Agoura Road, Agoura Hills, California. October 2000.*

Hardy Engineering, Inc. Standard Urban Stormwater Mitigation Plan (SUSMP) for Tentative Tract Map No. 71742. March 2014.

HMK Engineering. *Preliminary Hydrology & Hydraulics Report for Parcel 2 of Parcel Map No. 15762*. August 2002.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California.

Institute of Transportation Engineers (ITE). *Trip Generation Manual, 9th Edition*. 2012.

Las Virgenes-Malibu Council of Governments. *Las Virgenes-Malibu Council of Governments Multi-Jurisdictional Hazard Mitigation Plan.* March 2012. Available online at: http://www.ci.agoura-hills.ca.us/government/emergency-services/las-virgenes-malibu-council-of-governments-multi-jurisdictional-hazardous-mitigation-plan

[LVMWD]. *2010 Urban Water Management Plan*. June 2011. Available online at: http://www.lvmwd.com/home/showdocument?id=1390

LVMWD. *Las Virgenes Reservoir Five Million Gallon Tank*. February 2014. Available online at: http://www.lvmwd.com/home/showdocument?id=3896

LVMWD. *Tapia Water Reclamation Facility*. 2013. Available online at: http://www.lvmwd.com/your-water/wastewater-services/tapia-water-reclamation-facility

Los Angeles, County of. Fuel Modification Guidelines, Fire Code 317.10. 2012.

Los Angeles County, Sanitation Districts. Table 1: Loadings for Each Class of Land Use. Accessed November 2014. Available online at: http://www.lacsd.org/civica/filebank/blobdload.asp?BlobID=3531.

McKenna et al. Phase I Cultural Resources Investigation, January 2008.

[MWD] Metropolitan Water District of Southern California. *2010 Regional Urban Water Management Plan*. November 2010. Available online at: http://www.mwdh2o.com/mwdh2o/pages/yourwater/RUWMP/RUWMP_2010.pdf

Oak Collaborative, The. *Agoura Hills Senior Housing: Oak Tree Report*. September 2013.

Penrod, et. al. 2006. South Coast Missing Linkages Project: A linkage Design for the Santa Monica Mountains-Sierra Madre Mountains Connection.

Preliminary Storm Water Pollution Prevention Requirements for Parcel 2 of Parcel Map No. 15762. 2011.

Sawyer, J.O., T. Keeler-Wolf and J.M. Evens. 2009. A Manual of California Vegetation (2nd Ed.). California Native Plant Society. Sacramento, California.

[SCAG] Southern California Association of Governments. 2012-2035 Regional Transportation Plan-Sustainable Communities Strategy. April 2012. Accessed November 2014. Available online at: http://www.scagrtp.net/

[SCAQMD] South Coast Air Quality Management District. Appendix C – Mass Rate LST Look-up Table. Accessed November 2014. Available online at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2

SCAQMD. Final 2012 Air Quality Management Plan. February 2013. Available online at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan

SCAQMD. *Final Localized Significance Threshold Methodology.* June 2003.

SCAQMD. *CEQA Air Quality Handbook*. 1993.

SCAQMD. *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15*. September 2010.

State Water Resources Control Board. GeoTracker. 2014. Accessed November 2014. Available online at: http://geotracker.waterboards.ca.gov/

[U.S. EPA] U.S. Environmental Protection Agency. CERCLIS Public Access Database. November 2013. Accessed November 2014. Available online at: http://cumulis.epa.gov/supercpad/cursites/srchsites.cfm

U.S. EPA. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. 1971.* Available online at: http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9101NN3I.TXT

W & S Consultants. *Phase I Archaeological Survey of the Lot 2061-1 Study Area, City of Agoura Hills, Los Angeles County, California.* August 2000.

W & S Consultants. *Phase II Archaeological Test Excavation on Lot 2061-1, City of Agoura Hills, Los Angeles County, California.* January 2001.

PERSONS CONTACTED

Bagwell, Loretta. Planning Analyst, Los Angeles County Fire Department. October 22, 2014.

DeSantis, Robert. Deputy, Liaison to City of Agoura Hills, Los Angeles County Sheriff's Department. October 16, 2014.

Smith, Mike. Waste Management/GI. February 2013.

Tantoco, Gwen. Sanitation Districts of Los Angeles County, February 2013.

Appendix A

Photosimulations

Appendix B

Photometric Plan

GENERAL NOTES:

1. ALL PROPOSED SITE LIGHTING TYPES S1, S2 & S3 CONSIST OF POLE MOUNTED LUMINAIRES INSTALLED AT A HEIGHT TO ACHEIVE A VERTICAL DISTANCE FROM GROUND SURFACE TO BOTTOM OF LUMINAIRE OF 16 FEET.
2. ALL LUMINAIRES SHALL BE EQUIPPED WITH A MOTION SENSOR AND 0-10V DC DIMMING DRIVER TO MEET THE CALIFORNIA ENERGY CODE MANDATORY OUTDOOR LIGHTING CONTROLS REQUIREMENTS
3.

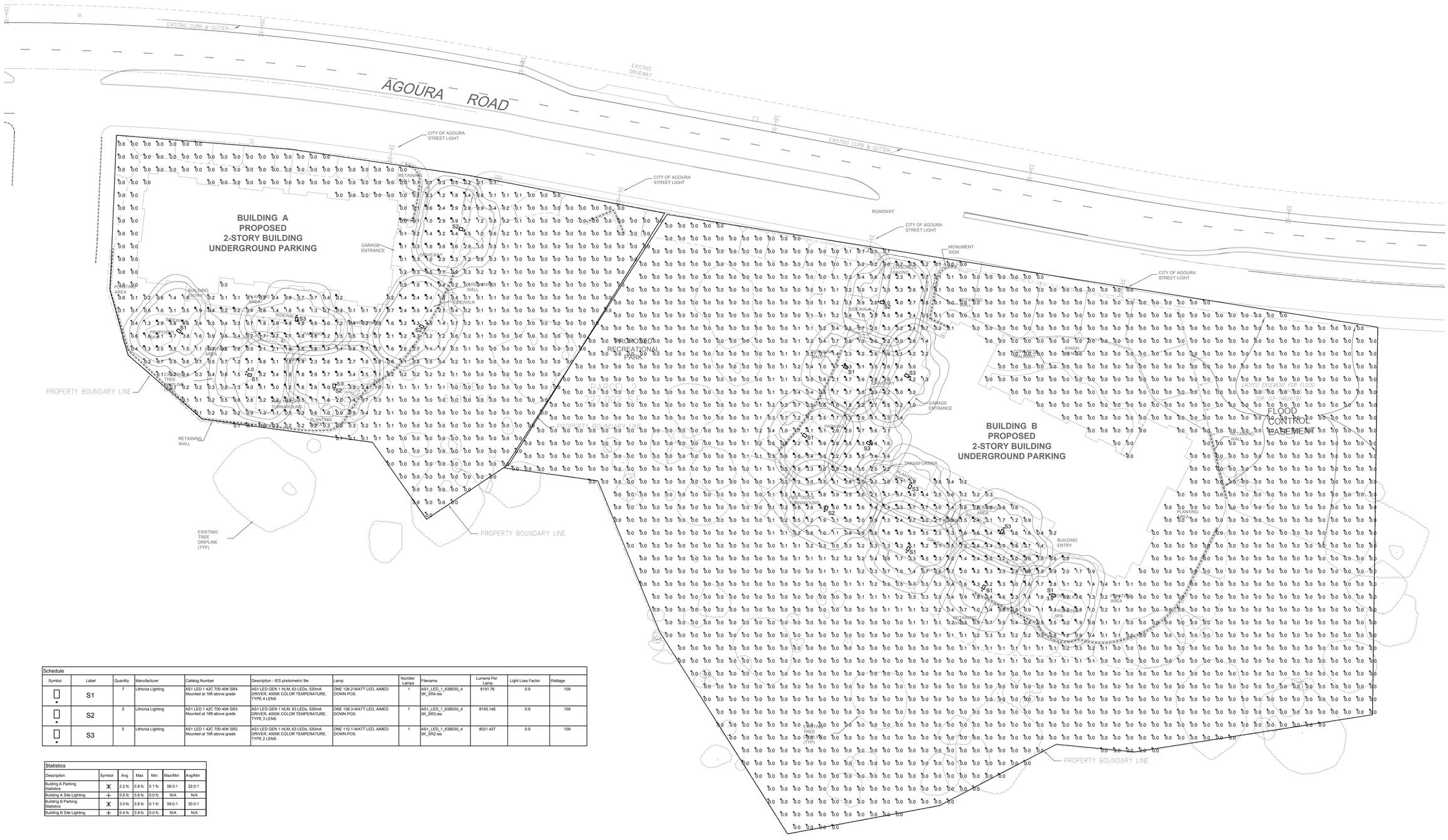
PROJECT INFORMATION:

LEGAL DESCRIPTION:

PARCEL 2 OF PARCEL MAP NO.15762 IN THE CITY OF AGOURA HILLS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 175, PAGES 6 AND 7 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

GENERAL NOTES:

ADDRESS	30800 AGOURA ROAD, AGOURA HILLS, CA
ASSESSOR'S PARCEL MAP #	2061-0-001-025
THOMAS GUIDE	PAGE 557-G6
EXISTING ZONING	SP
FLOOD ZONE	C



Schedule										
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description - IES photometric file	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
□	S1	7	Lithonia Lighting	AS1 LED 1 42C 700 40K SR4 Mounted at 16ft above grade	AS1 LED GEN 1 HLM, 63 LEDs, 530mA DRIVER, 4000K COLOR TEMPERATURE, TYPE 4 LENS	ONE 108.2-WATT LED, AIMED DOWN POS.	1	AS1_LED_1_63B530_40K_SR4.ies	8191.76	0.9	109
□	S2	5	Lithonia Lighting	AS1 LED 1 42C 700 40K SR3 Mounted at 16ft above grade	AS1 LED GEN 1 HLM, 63 LEDs, 530mA DRIVER, 4000K COLOR TEMPERATURE, TYPE 3 LENS	ONE 108.3-WATT LED, AIMED DOWN POS.	1	AS1_LED_1_63B530_40K_SR3.ies	8193.146	0.9	109
□	S3	5	Lithonia Lighting	AS1 LED 1 42C 700 40K SR2 Mounted at 16ft above grade	AS1 LED GEN 1 HLM, 63 LEDs, 530mA DRIVER, 4000K COLOR TEMPERATURE, TYPE 2 LENS	ONE 110.1-WATT LED, AIMED DOWN POS.	1	AS1_LED_1_63B530_40K_SR2.ies	8021.437	0.9	109

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Building A Parking Statistics	+	2.2 fc	5.8 fc	0.1 fc	58.0:1	22.0:1
Building A Site Lighting	+	0.6 fc	5.8 fc	0.0 fc	N/A	N/A
Building B Parking Statistics	+	3.0 fc	5.9 fc	0.1 fc	59.0:1	30.0:1
Building B Site Lighting	+	0.4 fc	5.9 fc	0.0 fc	N/A	N/A

NORTH

SITE LIGHTING PHOTOMETRIC PLAN

SCALE: 1" = 30'

VILLARRUEL ARCHITECTS
ARCHITECTURE + PLANNING + INTERIORS
16140 VALERO ST. SUITE B, VAN NUYS, CA 91406 818.755.0425 FAX 818.782.4116 ANTONIO VILLARRUEL, A.I.A. - PRINCIPAL
WEB SITE - WWW.AV-ARCH.COM

REVISIONS:	DATE:

RICHARDSON ENGINEERING
ELECTRICAL ENGINEERS
345 JACOBSON ROAD
SANDPOINT, ID 83864
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REGISTERED PROFESSIONAL ENGINEER
MICHAEL J RICHARDSON
E12417
Exp. 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

SITE LIGHTING PHOTOMETRIC PLAN

NEW APARTMENT

AGOURA HILLS CENTER PROPERTIES

STEVE RICE & CARLOS KHANTZIS

PROJECT ADDRESS
AGOURA HILLS, CA 91301

DATE:	8/6/2015
DRAWN:	JR/MR
CHKD:	MR
PM:	--
JOB NO.	13-01

E1.0

SHEET NO. OF -

Appendix C

Air Quality Modeling Results

Park at Ladyface Mountain

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.63	Acre	0.63	27,442.80	0
Apartments Low Rise	46.00	Dwelling Unit	1.00	71,206.00	92

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total building footprint = 1 acre.
Building square footage = 71,206 square feet.
Acreage of paved surface (parking lot + driveways) assumed to be 0.63 acres.

Construction Phase - Overall construction schedule anticipated to be 14 months, including 2 months for grading.

Trips and VMT - Hauling length for grading = 6 miles to Calabasas Landfill

Grading - 1,910 cubic yards of materials to be exported from site during grading

Woodstoves - Assumed no wood stoves or fireplaces.

Waste Mitigation - Diversion rate of 58%.

Vehicle Trips - Trip rate: ITE Code 230 = 5.81 trips/day

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	220.00
tblConstructionPhase	NumDays	4.00	60.00
tblConstructionPhase	NumDays	2.00	5.00
tblFireplaces	NumberGas	39.10	0.00
tblFireplaces	NumberNoFireplace	4.60	0.00
tblFireplaces	NumberWood	2.30	0.00
tblGrading	AcresOfGrading	22.50	1.50
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	MaterialExported	0.00	1,910.00
tblLandUse	LandUseSquareFeet	46,000.00	71,206.00
tblLandUse	LotAcreage	2.88	1.00
tblLandUse	Population	132.00	92.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	6.00
tblVehicleTrips	ST_TR	7.16	5.81
tblVehicleTrips	SU_TR	6.07	5.81
tblVehicleTrips	WD_TR	6.59	5.81
tblWoodstoves	NumberCatalytic	2.30	0.00
tblWoodstoves	NumberNoncatalytic	2.30	0.00

2.0 Emissions Summary

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					
2015	0.4542	2.9768	2.4134	3.4900e-003	0.2073	0.1873	0.3946	0.0972	0.1790	0.2762	0.0000	299.1309	299.1309	0.0586	0.0000	300.3623
2016	0.3404	0.3385	0.2874	4.6000e-004	7.7900e-003	0.0216	0.0294	2.0800e-003	0.0207	0.0228	0.0000	38.8676	38.8676	7.3000e-003	0.0000	39.0209
Total	**0.7947**	**3.3153**	**2.7008**	**3.9500e-003**	**0.2151**	**0.2089**	**0.4240**	**0.0993**	**0.1997**	**0.2990**	**0.0000**	**337.9985**	**337.9985**	**0.0659**	**0.0000**	**339.3831**

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					
2015	0.4542	2.9768	2.4134	3.4900e-003	0.1157	0.1873	0.3030	0.0472	0.1790	0.2262	0.0000	299.1306	299.1306	0.0586	0.0000	300.3620
2016	0.3404	0.3385	0.2874	4.6000e-004	7.7900e-003	0.0216	0.0294	2.0800e-003	0.0207	0.0228	0.0000	38.8676	38.8676	7.3000e-003	0.0000	39.0209
Total	**0.7947**	**3.3153**	**2.7008**	**3.9500e-003**	**0.1235**	**0.2089**	**0.3324**	**0.0493**	**0.1997**	**0.2490**	**0.0000**	**337.9982**	**337.9982**	**0.0659**	**0.0000**	**339.3828**

	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**	**42.57**	**0.00**	**21.59**	**50.31**	**0.00**	**16.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.4004	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915
Energy	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	81.3543	81.3543	3.0100e-003	1.0100e-003	81.7314
Mobile	0.1906	0.5976	2.2895	5.1800e-003	0.3461	8.1900e-003	0.3542	0.0927	7.5300e-003	0.1002	0.0000	414.8209	414.8209	0.0177	0.0000	415.1932
Waste						0.0000	0.0000		0.0000	0.0000	4.2953	0.0000	4.2953	0.2538	0.0000	9.6260
Water						0.0000	0.0000		0.0000	0.0000	0.9508	17.1749	18.1257	0.0985	2.4700e-003	20.9587
Total	**0.5938**	**0.6266**	**2.7804**	**5.3600e-003**	**0.3461**	**0.0127**	**0.3587**	**0.0927**	**0.0120**	**0.1047**	**5.2461**	**514.1250**	**519.3711**	**0.3738**	**3.4800e-003**	**528.3008**

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	0.4004	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915
Energy	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	81.3543	81.3543	3.0100e-003	1.0100e-003	81.7314
Mobile	0.1906	0.5976	2.2895	5.1800e-003	0.3461	8.1900e-003	0.3542	0.0927	7.5300e-003	0.1002	0.0000	414.8209	414.8209	0.0177	0.0000	415.1932
Waste						0.0000	0.0000		0.0000	0.0000	1.8040	0.0000	1.8040	0.1066	0.0000	4.0429
Water						0.0000	0.0000		0.0000	0.0000	0.9508	17.1749	18.1257	0.0984	2.4700e-003	20.9571
Total	**0.5938**	**0.6266**	**2.7804**	**5.3600e-003**	**0.3461**	**0.0127**	**0.3587**	**0.0927**	**0.0120**	**0.1047**	**2.7549**	**514.1250**	**516.8798**	**0.2266**	**3.4800e-003**	**522.7162**

	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**	**47.49**	**0.00**	**0.48**	**39.39**	**0.00**	**1.06**

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	1/1/2015	1/7/2015	5	5	
2	Grading	Grading	1/8/2015	4/1/2015	5	60	
3	Building Construction	Building Construction	4/2/2015	2/3/2016	5	220	
4	Paving	Paving	2/4/2016	2/17/2016	5	10	
5	Architectural Coating	Architectural Coating	2/18/2016	3/2/2016	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 144,192; Residential Outdoor: 48,064; Non-Residential Indoor: 1,235; Non-Residential Outdoor: 412 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	239.00	14.70	6.90	6.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	45.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2015

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					0.0137	0.0000	0.0137	7.3000e-003	0.0000	7.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3400e-003	0.0672	0.0425	4.0000e-005		3.6700e-003	3.6700e-003		3.3700e-003	3.3700e-003	0.0000	4.0863	4.0863	1.2200e-003	0.0000	4.1119
Total	**6.3400e-003**	**0.0672**	**0.0425**	**4.0000e-005**	**0.0137**	**3.6700e-003**	**0.0174**	**7.3000e-003**	**3.3700e-003**	**0.0107**	**0.0000**	**4.0863**	**4.0863**	**1.2200e-003**	**0.0000**	**4.1119**

3.2 Site Preparation - 2015

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-004	1.4000e-004	1.4700e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2212	0.2212	1.0000e-005	0.0000	0.2215
Total	**1.0000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2212**	**0.2212**	**1.0000e-005**	**0.0000**	**0.2215**

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					5.3400e-003	0.0000	5.3400e-003	2.8500e-003	0.0000	2.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3400e-003	0.0672	0.0425	4.0000e-005		3.6700e-003	3.6700e-003		3.3700e-003	3.3700e-003	0.0000	4.0863	4.0863	1.2200e-003	0.0000	4.1119
Total	**6.3400e-003**	**0.0672**	**0.0425**	**4.0000e-005**	**5.3400e-003**	**3.6700e-003**	**9.0100e-003**	**2.8500e-003**	**3.3700e-003**	**6.2200e-003**	**0.0000**	**4.0863**	**4.0863**	**1.2200e-003**	**0.0000**	**4.1119**

3.2 Site Preparation - 2015

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-004	1.4000e-004	1.4700e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2212	0.2212	1.0000e-005	0.0000	0.2215
Total	**1.0000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2212**	**0.2212**	**1.0000e-005**	**0.0000**	**0.2215**

3.3 Grading - 2015

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					0.1364	0.0000	0.1364	0.0746	0.0000	0.0746	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0620	0.6583	0.4227	4.2000e-004		0.0359	0.0359		0.0330	0.0330	0.0000	40.2736	40.2736	0.0120	0.0000	40.5261
Total	**0.0620**	**0.6583**	**0.4227**	**4.2000e-004**	**0.1364**	**0.0359**	**0.1723**	**0.0746**	**0.0330**	**0.1076**	**0.0000**	**40.2736**	**40.2736**	**0.0120**	**0.0000**	**40.5261**

3.3 Grading - 2015

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	1.4100e-003	0.0138	0.0212	3.0000e-005	6.2000e-004	1.9000e-004	8.1000e-004	1.7000e-004	1.8000e-004	3.5000e-004	0.0000	2.6070	2.6070	2.0000e-005	0.0000	2.6075
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	1.1600e-003	1.6900e-003	0.0176	3.0000e-005	2.6300e-003	3.0000e-005	2.6600e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.6549	2.6549	1.6000e-004	0.0000	2.6582
Total	**2.5700e-003**	**0.0155**	**0.0388**	**6.0000e-005**	**3.2500e-003**	**2.2000e-004**	**3.4700e-003**	**8.7000e-004**	**2.0000e-004**	**1.0700e-003**	**0.0000**	**5.2619**	**5.2619**	**1.8000e-004**	**0.0000**	**5.2658**

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					0.0532	0.0000	0.0532	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0620	0.6583	0.4227	4.2000e-004		0.0359	0.0359		0.0330	0.0330	0.0000	40.2735	40.2735	0.0120	0.0000	40.5260
Total	**0.0620**	**0.6583**	**0.4227**	**4.2000e-004**	**0.0532**	**0.0359**	**0.0891**	**0.0291**	**0.0330**	**0.0621**	**0.0000**	**40.2735**	**40.2735**	**0.0120**	**0.0000**	**40.5260**

3.3 Grading - 2015

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	1.4100e-003	0.0138	0.0212	3.0000e-005	6.2000e-004	1.9000e-004	8.1000e-004	1.7000e-004	1.8000e-004	3.5000e-004	0.0000	2.6070	2.6070	2.0000e-005	0.0000	2.6075
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	1.1600e-003	1.6900e-003	0.0176	3.0000e-005	2.6300e-003	3.0000e-005	2.6600e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.6549	2.6549	1.6000e-004	0.0000	2.6582
Total	**2.5700e-003**	**0.0155**	**0.0388**	**6.0000e-005**	**3.2500e-003**	**2.2000e-004**	**3.4700e-003**	**8.7000e-004**	**2.0000e-004**	**1.0700e-003**	**0.0000**	**5.2619**	**5.2619**	**1.8000e-004**	**0.0000**	**5.2658**

3.4 Building Construction - 2015

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	0.3528	2.1133	1.4704	2.1500e-003		0.1455	0.1455		0.1406	0.1406	0.0000	182.7535	182.7535	0.0422	0.0000	183.6387
Total	**0.3528**	**2.1133**	**1.4704**	**2.1500e-003**		**0.1455**	**0.1455**		**0.1406**	**0.1406**	**0.0000**	**182.7535**	**182.7535**	**0.0422**	**0.0000**	**183.6387**

3.4 Building Construction - 2015

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	9.0300e-003	0.0912	0.1133	1.9000e-004	5.4100e-003	1.4700e-003	6.8800e-003	1.5400e-003	1.3500e-003	2.8900e-003	0.0000	17.7507	17.7507	1.4000e-004	0.0000	17.7537
Worker	0.0214	0.0311	0.3242	6.1000e-004	0.0483	4.9000e-004	0.0488	0.0128	4.5000e-004	0.0133	0.0000	48.7837	48.7837	2.9000e-003	0.0000	48.8446
Total	**0.0304**	**0.1224**	**0.4374**	**8.0000e-004**	**0.0537**	**1.9600e-003**	**0.0557**	**0.0144**	**1.8000e-003**	**0.0162**	**0.0000**	**66.5344**	**66.5344**	**3.0400e-003**	**0.0000**	**66.5984**

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	0.3528	2.1133	1.4704	2.1500e-003		0.1455	0.1455		0.1406	0.1406	0.0000	182.7533	182.7533	0.0422	0.0000	183.6384
Total	**0.3528**	**2.1133**	**1.4704**	**2.1500e-003**		**0.1455**	**0.1455**		**0.1406**	**0.1406**	**0.0000**	**182.7533**	**182.7533**	**0.0422**	**0.0000**	**183.6384**

3.4 Building Construction - 2015

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	9.0300e-003	0.0912	0.1133	1.9000e-004	5.4100e-003	1.4700e-003	6.8800e-003	1.5400e-003	1.3500e-003	2.8900e-003	0.0000	17.7507	17.7507	1.4000e-004	0.0000	17.7537
Worker	0.0214	0.0311	0.3242	6.1000e-004	0.0483	4.9000e-004	0.0488	0.0128	4.5000e-004	0.0133	0.0000	48.7837	48.7837	2.9000e-003	0.0000	48.8446
Total	**0.0304**	**0.1224**	**0.4374**	**8.0000e-004**	**0.0537**	**1.9600e-003**	**0.0557**	**0.0144**	**1.8000e-003**	**0.0162**	**0.0000**	**66.5344**	**66.5344**	**3.0400e-003**	**0.0000**	**66.5984**

3.4 Building Construction - 2016

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	0.0395	0.2466	0.1765	2.6000e-004		0.0164	0.0164		0.0158	0.0158	0.0000	22.2835	22.2835	4.9000e-003	0.0000	22.3863
Total	**0.0395**	**0.2466**	**0.1765**	**2.6000e-004**		**0.0164**	**0.0164**		**0.0158**	**0.0158**	**0.0000**	**22.2835**	**22.2835**	**4.9000e-003**	**0.0000**	**22.3863**

3.4 Building Construction - 2016

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	9.7000e-004	9.8800e-003	0.0128	2.0000e-005	6.6000e-004	1.5000e-004	8.1000e-004	1.9000e-004	1.4000e-004	3.3000e-004	0.0000	2.1501	2.1501	2.0000e-005	0.0000	2.1504
Worker	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	**3.3300e-003**	**0.0133**	**0.0488**	**1.0000e-004**	**6.5800e-003**	**2.1000e-004**	**6.7800e-003**	**1.7600e-003**	**1.9000e-004**	**1.9500e-003**	**0.0000**	**7.9242**	**7.9242**	**3.5000e-004**	**0.0000**	**7.9314**

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	0.0395	0.2466	0.1765	2.6000e-004		0.0164	0.0164		0.0158	0.0158	0.0000	22.2834	22.2834	4.9000e-003	0.0000	22.3863
Total	**0.0395**	**0.2466**	**0.1765**	**2.6000e-004**		**0.0164**	**0.0164**		**0.0158**	**0.0158**	**0.0000**	**22.2834**	**22.2834**	**4.9000e-003**	**0.0000**	**22.3863**

3.4 Building Construction - 2016

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	9.7000e-004	9.8800e-003	0.0128	2.0000e-005	6.6000e-004	1.5000e-004	8.1000e-004	1.9000e-004	1.4000e-004	3.3000e-004	0.0000	2.1501	2.1501	2.0000e-005	0.0000	2.1504
Worker	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	**3.3300e-003**	**0.0133**	**0.0488**	**1.0000e-004**	**6.5800e-003**	**2.1000e-004**	**6.7800e-003**	**1.7600e-003**	**1.9000e-004**	**1.9500e-003**	**0.0000**	**7.9242**	**7.9242**	**3.5000e-004**	**0.0000**	**7.9314**

3.5 Paving - 2016

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	6.4400e-003	0.0660	0.0454	7.0000e-005		4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003	0.0000	6.2071	6.2071	1.8400e-003	0.0000	6.2457
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.2700e-003**	**0.0660**	**0.0454**	**7.0000e-005**		**4.0400e-003**	**4.0400e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**6.2071**	**6.2071**	**1.8400e-003**	**0.0000**	**6.2457**

3.5 Paving - 2016

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	2.8000e-004	4.1000e-004	4.3200e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6950	0.6950	4.0000e-005	0.0000	0.6959
Total	**2.8000e-004**	**4.1000e-004**	**4.3200e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6950**	**0.6950**	**4.0000e-005**	**0.0000**	**0.6959**

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	6.4400e-003	0.0660	0.0454	7.0000e-005		4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003	0.0000	6.2071	6.2071	1.8400e-003	0.0000	6.2457
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.2700e-003**	**0.0660**	**0.0454**	**7.0000e-005**		**4.0400e-003**	**4.0400e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**6.2071**	**6.2071**	**1.8400e-003**	**0.0000**	**6.2457**

3.5 Paving - 2016

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	2.8000e-004	4.1000e-004	4.3200e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6950	0.6950	4.0000e-005	0.0000	0.6959
Total	**2.8000e-004**	**4.1000e-004**	**4.3200e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6950**	**0.6950**	**4.0000e-005**	**0.0000**	**0.6959**

3.6 Architectural Coating - 2016

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	0.2880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0119	9.4200e-003	1.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	1.2766	1.2766	1.5000e-004	0.0000	1.2798
Total	**0.2899**	**0.0119**	**9.4200e-003**	**1.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.5000e-004**	**0.0000**	**1.2798**

3.6 Architectural Coating - 2016

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	2.0000e-004	2.9000e-004	2.9900e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4812	0.4812	3.0000e-005	0.0000	0.4818
Total	**2.0000e-004**	**2.9000e-004**	**2.9900e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4812**	**0.4812**	**3.0000e-005**	**0.0000**	**0.4818**

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	0.2880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0119	9.4200e-003	1.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	1.2766	1.2766	1.5000e-004	0.0000	1.2798
Total	**0.2899**	**0.0119**	**9.4200e-003**	**1.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.5000e-004**	**0.0000**	**1.2798**

3.6 Architectural Coating - 2016

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	2.0000e-004	2.9000e-004	2.9900e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4812	0.4812	3.0000e-005	0.0000	0.4818
Total	**2.0000e-004**	**2.9000e-004**	**2.9900e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4812**	**0.4812**	**3.0000e-005**	**0.0000**	**0.4818**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1906	0.5976	2.2895	5.1800e-003	0.3461	8.1900e-003	0.3542	0.0927	7.5300e-003	0.1002	0.0000	414.8209	414.8209	0.0177	0.0000	415.1932
Unmitigated	0.1906	0.5976	2.2895	5.1800e-003	0.3461	8.1900e-003	0.3542	0.0927	7.5300e-003	0.1002	0.0000	414.8209	414.8209	0.0177	0.0000	415.1932

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	267.26	267.26	267.26	913,268	913,268
Parking Lot	0.00	0.00	0.00		
Total	267.26	267.26	267.26	913,268	913,268

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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	54.3121	54.3121	2.5000e-003	5.2000e-004	54.5246
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	54.3121	54.3121	2.5000e-003	5.2000e-004	54.5246
NaturalGas Mitigated	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	27.0423	27.0423	5.2000e-004	5.0000e-004	27.2068
NaturalGas Unmitigated	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	27.0423	27.0423	5.2000e-004	5.0000e-004	27.2068

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					
Apartments Low Rise	506753	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	27.0423	27.0423	5.2000e-004	5.0000e-004	27.2068
Parking Lot	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		**2.7300e-003**	**0.0234**	**9.9400e-003**	**1.5000e-004**		**1.8900e-003**	**1.8900e-003**		**1.8900e-003**	**1.8900e-003**	**0.0000**	**27.0423**	**27.0423**	**5.2000e-004**	**5.0000e-004**	**27.2068**

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					
Apartments Low Rise	506753	2.7300e-003	0.0234	9.9400e-003	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	27.0423	27.0423	5.2000e-004	5.0000e-004	27.2068
Parking Lot	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		**2.7300e-003**	**0.0234**	**9.9400e-003**	**1.5000e-004**		**1.8900e-003**	**1.8900e-003**		**1.8900e-003**	**1.8900e-003**	**0.0000**	**27.0423**	**27.0423**	**5.2000e-004**	**5.0000e-004**	**27.2068**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	165642	47.4012	2.1800e-003	4.5000e-004	47.5867
Parking Lot	24149.7	6.9108	3.2000e-004	7.0000e-005	6.9379
Total		**54.3121**	**2.5000e-003**	**5.2000e-004**	**54.5246**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	165642	47.4012	2.1800e-003	4.5000e-004	47.5867
Parking Lot	24149.7	6.9108	3.2000e-004	7.0000e-005	6.9379
Total		**54.3121**	**2.5000e-003**	**5.2000e-004**	**54.5246**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4004	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915
Unmitigated	0.4004	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915

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	0.0288					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3565					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	0.0152	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915
Total	**0.4004**	**5.6300e-003**	**0.4810**	**3.0000e-005**		**2.5900e-003**	**2.5900e-003**		**2.5900e-003**	**2.5900e-003**	**0.0000**	**0.7749**	**0.7749**	**7.9000e-004**	**0.0000**	**0.7915**

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	0.0288					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3565					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	0.0152	5.6300e-003	0.4810	3.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7749	0.7749	7.9000e-004	0.0000	0.7915
Total	**0.4004**	**5.6300e-003**	**0.4810**	**3.0000e-005**		**2.5900e-003**	**2.5900e-003**		**2.5900e-003**	**2.5900e-003**	**0.0000**	**0.7749**	**0.7749**	**7.9000e-004**	**0.0000**	**0.7915**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.1257	0.0984	2.4700e-003	20.9571
Unmitigated	18.1257	0.0985	2.4700e-003	20.9587

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.99709 / 1.88947	18.1257	0.0985	2.4700e-003	20.9587
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**18.1257**	**0.0985**	**2.4700e-003**	**20.9587**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.99709 / 1.88947	18.1257	0.0984	2.4700e-003	20.9571
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**18.1257**	**0.0984**	**2.4700e-003**	**20.9571**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.8040	0.1066	0.0000	4.0429
Unmitigated	4.2953	0.2538	0.0000	9.6260

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	21.16	4.2953	0.2538	0.0000	9.6260
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.2953**	**0.2538**	**0.0000**	**9.6260**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	8.8872	1.8040	0.1066	0.0000	4.0429
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.8040**	**0.1066**	**0.0000**	**4.0429**

9.0 Operational Offroad

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

10.0 Vegetation

Park at Ladyface Mountain

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.63	Acre	0.63	27,442.80	0
Apartments Low Rise	46.00	Dwelling Unit	1.00	71,206.00	92

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total building footprint = 1 acre.
Building square footage = 71,206 square feet.
Acreage of paved surface (parking lot + driveways) assumed to be 0.63 acres.

Construction Phase - Overall construction schedule anticipated to be 14 months, including 2 months for grading.

Trips and VMT - Hauling length for grading = 6 miles to Calabasas Landfill

Grading - 1,910 cubic yards of materials to be exported from site during grading

Woodstoves - Assumed no wood stoves or fireplaces.

Waste Mitigation - Diversion rate of 58%.

Vehicle Trips - Trip rate: ITE Code 230 = 5.81 trips/day

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	220.00
tblConstructionPhase	NumDays	4.00	60.00
tblConstructionPhase	NumDays	2.00	5.00
tblFireplaces	NumberGas	39.10	0.00
tblFireplaces	NumberNoFireplace	4.60	0.00
tblFireplaces	NumberWood	2.30	0.00
tblGrading	AcresOfGrading	22.50	1.50
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	MaterialExported	0.00	1,910.00
tblLandUse	LandUseSquareFeet	46,000.00	71,206.00
tblLandUse	LotAcreage	2.88	1.00
tblLandUse	Population	132.00	92.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	6.00
tblVehicleTrips	ST_TR	7.16	5.81
tblVehicleTrips	SU_TR	6.07	5.81
tblVehicleTrips	WD_TR	6.59	5.81
tblWoodstoves	NumberCatalytic	2.30	0.00
tblWoodstoves	NumberNoncatalytic	2.30	0.00

2.0 Emissions Summary

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					
2015	3.9267	26.9436	19.4468	0.0301	5.5709	1.5052	7.0388	2.9431	1.4529	4.2936	0.0000	2,794.3736	2,794.3736	0.5437	0.0000	2,805.7913
2016	58.0128	21.6329	18.7526	0.0301	0.5591	1.3828	1.9420	0.1494	1.3334	1.4827	0.0000	2,765.5101	2,765.5101	0.4815	0.0000	2,775.6219
Total	**61.9395**	**48.5765**	**38.1994**	**0.0602**	**6.1300**	**2.8880**	**8.9807**	**3.0924**	**2.7862**	**5.7763**	**0.0000**	**5,559.8838**	**5,559.8838**	**1.0252**	**0.0000**	**5,581.4132**

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					
2015	3.9267	26.9436	19.4468	0.0301	2.2272	1.5052	3.6951	1.1623	1.4529	2.5128	0.0000	2,794.3736	2,794.3736	0.5437	0.0000	2,805.7913
2016	58.0128	21.6329	18.7526	0.0301	0.5591	1.3828	1.9420	0.1494	1.3334	1.4827	0.0000	2,765.5101	2,765.5101	0.4815	0.0000	2,775.6219
Total	**61.9395**	**48.5765**	**38.1994**	**0.0602**	**2.7863**	**2.8880**	**5.6371**	**1.3116**	**2.7862**	**3.9955**	**0.0000**	**5,559.8837**	**5,559.8837**	**1.0252**	**0.0000**	**5,581.4132**

	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**	**54.55**	**0.00**	**37.23**	**57.59**	**0.00**	**30.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	2.2323	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208	0.0000	6.8335	6.8335	6.9600e-003	0.0000	6.9798
Energy	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309
Mobile	1.1017	3.2213	12.5094	0.0282	1.9389	0.0452	1.9840	0.5184	0.0415	0.5599		2,483.8222	2,483.8222	0.1076		2,486.0811
Total	**3.3489**	**3.3942**	**16.4118**	**0.0292**	**1.9389**	**0.0763**	**2.0151**	**0.5184**	**0.0726**	**0.5910**	**0.0000**	**2,653.9926**	**2,653.9926**	**0.1177**	**2.9900e-003**	**2,657.3918**

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	2.2323	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208	0.0000	6.8335	6.8335	6.9600e-003	0.0000	6.9798
Energy	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309
Mobile	1.1017	3.2213	12.5094	0.0282	1.9389	0.0452	1.9840	0.5184	0.0415	0.5599		2,483.8222	2,483.8222	0.1076		2,486.0811
Total	**3.3489**	**3.3942**	**16.4118**	**0.0292**	**1.9389**	**0.0763**	**2.0151**	**0.5184**	**0.0726**	**0.5910**	**0.0000**	**2,653.9926**	**2,653.9926**	**0.1177**	**2.9900e-003**	**2,657.3918**

	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**

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	1/1/2015	1/7/2015	5	5	
2	Grading	Grading	1/8/2015	4/1/2015	5	60	
3	Building Construction	Building Construction	4/2/2015	2/3/2016	5	220	
4	Paving	Paving	2/4/2016	2/17/2016	5	10	
5	Architectural Coating	Architectural Coating	2/18/2016	3/2/2016	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 144,192; Residential Outdoor: 48,064; Non-Residential Indoor: 1,235; Non-Residential Outdoor: 412 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	239.00	14.70	6.90	6.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	45.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2015

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					5.4814	0.0000	5.4814	2.9194	0.0000	2.9194			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.4814**	**1.4671**	**6.9485**	**2.9194**	**1.3497**	**4.2690**		**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

3.2 Site Preparation - 2015

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
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
Worker	0.0411	0.0550	0.5764	1.1000e-003	0.0894	8.9000e-004	0.0903	0.0237	8.2000e-004	0.0245		96.0086	96.0086	5.8000e-003		96.1305
Total	**0.0411**	**0.0550**	**0.5764**	**1.1000e-003**	**0.0894**	**8.9000e-004**	**0.0903**	**0.0237**	**8.2000e-004**	**0.0245**		**96.0086**	**96.0086**	**5.8000e-003**		**96.1305**

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					2.1378	0.0000	2.1378	1.1386	0.0000	1.1386			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**2.1378**	**1.4671**	**3.6048**	**1.1386**	**1.3497**	**2.4882**	**0.0000**	**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

3.2 Site Preparation - 2015

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
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
Worker	0.0411	0.0550	0.5764	1.1000e-003	0.0894	8.9000e-004	0.0903	0.0237	8.2000e-004	0.0245		96.0086	96.0086	5.8000e-003		96.1305
Total	**0.0411**	**0.0550**	**0.5764**	**1.1000e-003**	**0.0894**	**8.9000e-004**	**0.0903**	**0.0237**	**8.2000e-004**	**0.0245**		**96.0086**	**96.0086**	**5.8000e-003**		**96.1305**

3.3 Grading - 2015

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					4.5467	0.0000	4.5467	2.4861	0.0000	2.4861			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5467**	**1.1968**	**5.7435**	**2.4861**	**1.1011**	**3.5871**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.3 Grading - 2015

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	0.0488	0.4522	0.7340	9.4000e-004	0.0209	6.5300e-003	0.0274	5.7200e-003	6.0100e-003	0.0117		95.3801	95.3801	9.2000e-004		95.3994
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
Worker	0.0411	0.0550	0.5764	1.1000e-003	0.0894	8.9000e-004	0.0903	0.0237	8.2000e-004	0.0245		96.0086	96.0086	5.8000e-003		96.1305
Total	**0.0899**	**0.5072**	**1.3104**	**2.0400e-003**	**0.1103**	**7.4200e-003**	**0.1177**	**0.0294**	**6.8300e-003**	**0.0363**		**191.3887**	**191.3887**	**6.7200e-003**		**191.5299**

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					1.7732	0.0000	1.7732	0.9696	0.0000	0.9696			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**1.7732**	**1.1968**	**2.9700**	**0.9696**	**1.1011**	**2.0706**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.3 Grading - 2015

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	0.0488	0.4522	0.7340	9.4000e-004	0.0209	6.5300e-003	0.0274	5.7200e-003	6.0100e-003	0.0117		95.3801	95.3801	9.2000e-004		95.3994
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
Worker	0.0411	0.0550	0.5764	1.1000e-003	0.0894	8.9000e-004	0.0903	0.0237	8.2000e-004	0.0245		96.0086	96.0086	5.8000e-003		96.1305
Total	**0.0899**	**0.5072**	**1.3104**	**2.0400e-003**	**0.1103**	**7.4200e-003**	**0.1177**	**0.0294**	**6.8300e-003**	**0.0363**		**191.3887**	**191.3887**	**6.7200e-003**		**191.5299**

3.4 Building Construction - 2015

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	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

3.4 Building Construction - 2015

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
Vendor	0.0954	0.9129	1.2006	1.9700e-003	0.0561	0.0151	0.0712	0.0160	0.0139	0.0299		198.7006	198.7006	1.6500e-003		198.7353
Worker	0.2313	0.3094	3.2421	6.1800e-003	0.5030	5.0300e-003	0.5080	0.1334	4.6000e-003	0.1380		540.0484	540.0484	0.0327		540.7341
Total	**0.3267**	**1.2222**	**4.4427**	**8.1500e-003**	**0.5591**	**0.0201**	**0.5792**	**0.1494**	**0.0185**	**0.1679**		**738.7490**	**738.7490**	**0.0343**		**739.4694**

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	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

3.4 Building Construction - 2015

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
Vendor	0.0954	0.9129	1.2006	1.9700e-003	0.0561	0.0151	0.0712	0.0160	0.0139	0.0299		198.7006	198.7006	1.6500e-003		198.7353
Worker	0.2313	0.3094	3.2421	6.1800e-003	0.5030	5.0300e-003	0.5080	0.1334	4.6000e-003	0.1380		540.0484	540.0484	0.0327		540.7341
Total	**0.3267**	**1.2222**	**4.4427**	**8.1500e-003**	**0.5591**	**0.0201**	**0.5792**	**0.1494**	**0.0185**	**0.1679**		**738.7490**	**738.7490**	**0.0343**		**739.4694**

3.4 Building Construction - 2016

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	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176		2,046.9432	2,046.9432	0.4499		2,056.3913
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**		**2,046.9432**	**2,046.9432**	**0.4499**		**2,056.3913**

3.4 Building Construction - 2016

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
Vendor	0.0837	0.8074	1.1140	1.9600e-003	0.0561	0.0124	0.0686	0.0160	0.0114	0.0274		196.5529	196.5529	1.5000e-003		196.5843
Worker	0.2085	0.2797	2.9312	6.1700e-003	0.5030	4.7600e-003	0.5078	0.1334	4.3700e-003	0.1378		522.0140	522.0140	0.0301		522.6462
Total	**0.2922**	**1.0871**	**4.0452**	**8.1300e-003**	**0.5591**	**0.0172**	**0.5763**	**0.1494**	**0.0158**	**0.1652**		**718.5669**	**718.5669**	**0.0316**		**719.2306**

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	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176	0.0000	2,046.9432	2,046.9432	0.4499		2,056.3913
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**	**0.0000**	**2,046.9432**	**2,046.9432**	**0.4499**		**2,056.3913**

3.4 Building Construction - 2016

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
Vendor	0.0837	0.8074	1.1140	1.9600e-003	0.0561	0.0124	0.0686	0.0160	0.0114	0.0274		196.5529	196.5529	1.5000e-003		196.5843
Worker	0.2085	0.2797	2.9312	6.1700e-003	0.5030	4.7600e-003	0.5078	0.1334	4.3700e-003	0.1378		522.0140	522.0140	0.0301		522.6462
Total	**0.2922**	**1.0871**	**4.0452**	**8.1300e-003**	**0.5591**	**0.0172**	**0.5763**	**0.1494**	**0.0158**	**0.1652**		**718.5669**	**718.5669**	**0.0316**		**719.2306**

3.5 Paving - 2016

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	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438		1,368.4366	1,368.4366	0.4053		1,376.9473
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4523**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**		**1,368.4366**	**1,368.4366**	**0.4053**		**1,376.9473**

3.5 Paving - 2016

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
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
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	**0.0602**	**0.0808**	**0.8468**	**1.7800e-003**	**0.1453**	**1.3700e-003**	**0.1467**	**0.0385**	**1.2600e-003**	**0.0398**		**150.8040**	**150.8040**	**8.7000e-003**		**150.9867**

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	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438	0.0000	1,368.4366	1,368.4366	0.4053		1,376.9473
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4523**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**	**0.0000**	**1,368.4366**	**1,368.4366**	**0.4053**		**1,376.9473**

3.5 Paving - 2016

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
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
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	**0.0602**	**0.0808**	**0.8468**	**1.7800e-003**	**0.1453**	**1.3700e-003**	**0.1467**	**0.0385**	**1.2600e-003**	**0.0398**		**150.8040**	**150.8040**	**8.7000e-003**		**150.9867**

3.6 Architectural Coating - 2016

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	57.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**57.9711**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

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
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
Worker	0.0417	0.0559	0.5862	1.2300e-003	0.1006	9.5000e-004	0.1016	0.0267	8.7000e-004	0.0276		104.4028	104.4028	6.0200e-003		104.5293
Total	**0.0417**	**0.0559**	**0.5862**	**1.2300e-003**	**0.1006**	**9.5000e-004**	**0.1016**	**0.0267**	**8.7000e-004**	**0.0276**		**104.4028**	**104.4028**	**6.0200e-003**		**104.5293**

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	57.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**57.9711**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

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
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
Worker	0.0417	0.0559	0.5862	1.2300e-003	0.1006	9.5000e-004	0.1016	0.0267	8.7000e-004	0.0276		104.4028	104.4028	6.0200e-003		104.5293
Total	**0.0417**	**0.0559**	**0.5862**	**1.2300e-003**	**0.1006**	**9.5000e-004**	**0.1016**	**0.0267**	**8.7000e-004**	**0.0276**		**104.4028**	**104.4028**	**6.0200e-003**		**104.5293**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1017	3.2213	12.5094	0.0282	1.9389	0.0452	1.9840	0.5184	0.0415	0.5599		2,483.8222	2,483.8222	0.1076		2,486.0811
Unmitigated	1.1017	3.2213	12.5094	0.0282	1.9389	0.0452	1.9840	0.5184	0.0415	0.5599		2,483.8222	2,483.8222	0.1076		2,486.0811

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	267.26	267.26	267.26	913,268	913,268
Parking Lot	0.00	0.00	0.00		
Total	267.26	267.26	267.26	913,268	913,268

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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309
NaturalGas Unmitigated	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309

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					
Apartments Low Rise	1388.36	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309
Parking Lot	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		**0.0150**	**0.1280**	**0.0545**	**8.2000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**163.3368**	**163.3368**	**3.1300e-003**	**2.9900e-003**	**164.3309**

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					
Apartments Low Rise	1.38836	0.0150	0.1280	0.0545	8.2000e-004		0.0103	0.0103		0.0103	0.0103		163.3368	163.3368	3.1300e-003	2.9900e-003	164.3309
Parking Lot	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		**0.0150**	**0.1280**	**0.0545**	**8.2000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**163.3368**	**163.3368**	**3.1300e-003**	**2.9900e-003**	**164.3309**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2323	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208	0.0000	6.8335	6.8335	6.9600e-003	0.0000	6.9798
Unmitigated	2.2323	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208	0.0000	6.8335	6.8335	6.9600e-003	0.0000	6.9798

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	0.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.9533					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	0.1212	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208		6.8335	6.8335	6.9600e-003		6.9798
Total	**2.2323**	**0.0450**	**3.8480**	**2.0000e-004**		**0.0208**	**0.0208**		**0.0208**	**0.0208**	**0.0000**	**6.8335**	**6.8335**	**6.9600e-003**	**0.0000**	**6.9798**

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	0.1578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.9533					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	0.1212	0.0450	3.8480	2.0000e-004		0.0208	0.0208		0.0208	0.0208		6.8335	6.8335	6.9600e-003		6.9798
Total	**2.2323**	**0.0450**	**3.8480**	**2.0000e-004**		**0.0208**	**0.0208**		**0.0208**	**0.0208**	**0.0000**	**6.8335**	**6.8335**	**6.9600e-003**	**0.0000**	**6.9798**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Greenhouse Gas Emission Worksheet

N20 Mobile Emissions Park at Ladyface Senior Apartments Project

From URBEMIS 2007 Vehicle Fleet Mix Output:

Annual VMT: 913,268

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	46.0%	0.04	0.0184	0.04	0.0184
Light Truck < 3750 lbs	10.3%	0.05	0.00515	0.06	0.00618
Light Truck 3751-5750 lbs	23.2%	0.05	0.0116	0.06	0.01392
Med Truck 5751-8500 lbs	12.2%	0.12	0.01464	0.2	0.0244
Lite-Heavy Truck 8501-10,000 lbs	2.1%	0.12	0.00252	0.2	0.0042
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.00045	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	1.0%	0.06	0.0006	0.05	0.0005
Heavy-Heavy Truck 33,001-60,000 lbs	2.9%	0.06	0.00174	0.05	0.00145
Other Bus	0.1%	0.06	0.00006	0.05	0.00005
Urban Bus	0.1%	0.06	0.00006	0.05	0.00005
Motorcycle	1.1%	0.09	0.00099	0.01	0.00011
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.4%	0.09	0.00036	0.125	0.0005
Total	**100.0%**		**0.05663**		**0.070435**

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4	21	GWP
N2O	310	GWP
1 ton (short, US) =	0.90718474	metric ton

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
N20 Emissions:	0.0643	metric tons N2O	**19.94**	metric tons CO2e
		Project Total:	***19.94***	***metric tons CO2e***

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

*** From URBEMIS 2007 results for mobile sources

Appendix D

Geotechnical Reports

RESULTS OF PRELIMINARY GEOTECHNICAL INVESTIGATION
AGOURA HILLS PROJECT
APN# 2061-001-025 & 30800 BLOCK OF AGOURA ROAD
AGOURA HILLS, CALIFORNIA

Prepared For

Mr. Carlos Khantzis
31280 Oak Crest Drive, #4
Westlake Village, CA 91361

October 12, 2000
Work Order: 2272-1-0-11
Log Number: 20524

GORIAN & ASSOCIATES, INC.

Table of Contents

Table of Contents (cont.)

Attachments: References
Figure 4: Typical Fill Over Natural Slope Detail
Figure 5: Typical Subdrain Detail
Geotechnical Map (Plate 1)
Geotechnical Cross Sections (Plate 2)
Logs of Subsurface Data (Appendix A)
Laboratory Test Results (Appendix B)
Results of Slope Stability Analyses (Appendix C)

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October 12, 2000

Mr. Carlos Khantzis
31280 Oak Crest Drive, #4
Westlake Village, CA 91361

Work Order: 2272-1-0-11
Log Number: 20524

Subject: **RESULTS OF PRELIMINARY GEOTECHNICAL INVESTIGATION, AGOURA HILLS PROJECT, APN# 2061-001-025 & 30800 BLOCK OF AGOURA ROAD, AGOURA HILLS, CALIFORNIA**

1 INTRODUCTION

Presented herein are the results of our geotechnical investigation of the site referred to as APN# 2061-001-025 in the 30800 block of Agoura Road in the city of Agoura Hills. The work addressed herein was performed per our proposal dated May 11, 2000. Construction of the office building addressed herein is considered feasible from a geotechnical standpoint. Our conclusions and geotechnical recommendations regarding design and construction of the proposed office building and associated infrastructure are contained in this report. This report also contains a compilation of the previous work and current investigation including field exploration, laboratory testing, and engineering analyses performed for the current investigation.

2 PROPOSED DEVELOPMENT

The site will be developed using cut and fill grading and retaining walls for a 28,000 square foot office building and parking areas. The building will be a two-story structure, stair stepped into the hillside. Access to the parking areas will be via a paved driveway off Agoura Road. Our present understanding of the proposed site development is based upon conversations with Mr. Carlos Khantzis and Mr. John Grounds, Project Architect with Ware & Malcomb Architects, Inc., and a preliminary site concept plan supplied by Mr. Grounds.

3 SCOPE OF SERVICES

The following scope of services was conducted by or under the direct supervision of a State registered geotechnical engineer and certified engineering geologist.

Archival Research - Regional geologic maps and the referenced geologic reports addressing the site and vicinity were reviewed and utilized in the analyses of the proposed project.

Geologic Mapping - Detailed geologic mapping of existing surficial exposures was performed to supplement the existing regional geologic maps. Geologic mapping was extended as needed off-site to the crest of the ridgeline for consideration of gross slope stability analyses.

Shallow Seismic Refraction Traverse Surveys – Three shallow seismic refraction traverse surveys were performed to evaluate rock hardness and rippability in areas of possible deep cuts.

Subsurface Exploration and Sampling - Six (6) borings were drilled to depths ranging from 46 feet (B-1) to 16 feet (B-5 and B-6) below the existing ground surface. The borings were excavated with a subcontractor supplied and operated bucket auger drill rig equipped with a 24-inch bucket. Geologists from this office logged the borings from the surface. Bulk and relatively undisturbed drive samples were obtained from each boring during the drilling operations for geotechnical laboratory testing. The geologists entered selected borings for detailed observation of encountered geologic structure and stratigraphy.

Each exploratory excavation was backfilled at the completion of the logging and sampling operations with spoils from the excavations. The backfill was tamped with the drill rig equipment to densify the soil during placement in the exploratory borings, however, the backfill material may settle. Therefore, the site owner or representative should periodically inspect the locations to determine if the backfill has settled and to fill any depressions.

Laboratory Testing - A program of laboratory testing was performed to evaluate the geotechnical properties of the samples obtained during the drilling operations. The laboratory testing program included evaluation of: in situ moisture and density, compaction characteristics (maximum density/optimum moisture), shear strength, expansion, and consolidation potential.

Geologic Analyses - The results of the archival research, geologic mapping, and subsurface exploration are presented on the attached geotechnical map (Plate 1) depicting the approximate distribution of earth units on the site and cross sections. Cross sections were constructed to illustrate geologic structure and relationships between geologic structure, geologic units, and anticipated proposed grades. Geotechnical input for design in accordance with the 1997 Uniform Building Code minimums are provided.

Geotechnical Analyses – The field and laboratory test results were used to evaluate removal depths, shrinkage and subsidence, and slope stability. Grading and geotechnical foundation design recommendations were formulated based on our evaluation. Preliminary recommendations for structural sections (pavement) were also developed.

Report – This report was prepared which summarizes our findings, conclusions, and recommendations based on the previous and recent site investigations. Discussions of the geologic setting, ground water conditions, faulting and seismicity, earth material properties evaluated from laboratory testing, and stability analyses are provided. The report is completed with presentation of a geotechnical map and geologic cross section as well as appendices containing logs of the subsurface exploration, laboratory test methods and results, stability analyses, and preliminary construction details.

4 SITE DESCRIPTION

The approximately 7.1 acre parcel (hereafter referred to as site) is south and adjacent to Agoura Road, south of the Ventura Freeway (U.S. 101), between the Lindero Canyon Road and Reyes Adobe Road exits (Figure 1). Situated in the western part of the city of Agoura Hills, the site is east of the Oak Ridge Apartments (located at 30856 Agoura Road) and across the street from the Teradyne campus (located at 30801 Agoura Road).

The hillside site is along the north base of Ladyface ridge, in the central Santa Monica Mountains, between an elevation of approximately 955 and 1030 feet above sea level. Low gradient areas characterize the northern part of the site with slopes less than 5:1 (horizontal to vertical). Slopes are steeper in the southern part of the property. Here slopes are typically 3:1 (horizontal to vertical) or less, but limited areas along the southern property line are as steep as 1½:1.

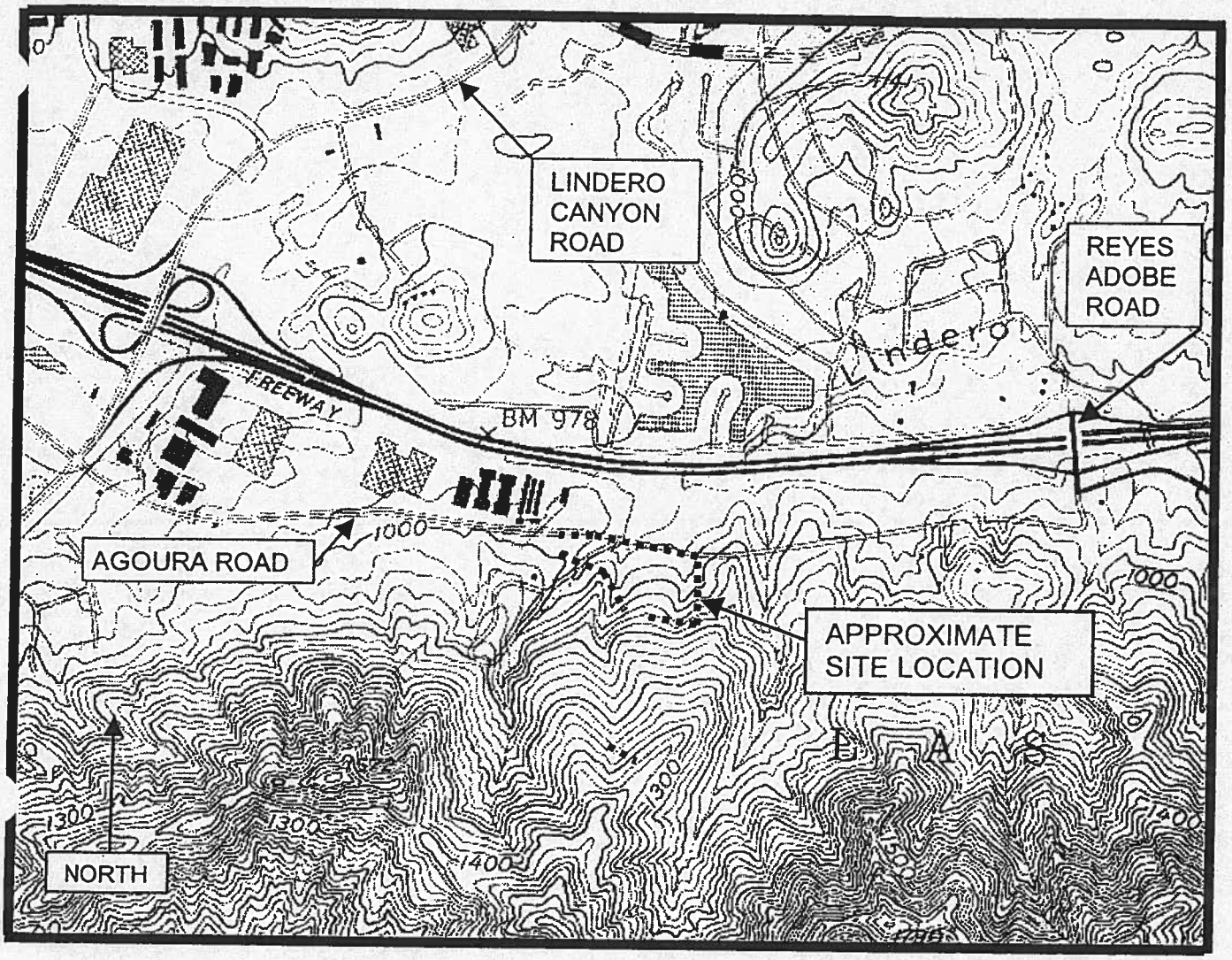


Figure 1. Portion of Thousand Oaks Quadrangle (7.5-minute series topographic) illustrating the approximate location of the site. Scale 1" ≈ 3,100 ft. (use quadrangle map for accurate scale).

Three drainage courses flow northerly across the site. The western drainage course is shown as a "blueline" stream on the U.S.G.S. quadrangle map (Figure 1). The stream courses drain to inlets along Agoura Road, which is on a fill berm along much of the site's northern property line. These drainages are tributary to Lindero Canyon creek.

Vegetation in the northern, lower gradient part of the site consists largely of annual grasses, herbaceous plants, and some scrub brush. Valley Oaks are relatively common in this area. In the canyons and steeper slopes of the southern part of the site, coastal live oaks, scrub brush, and chaparral plants are present. Willow and a cottonwood line the stream in the western part of the site.

Maps and aerial photographs in our files indicate that a residence was previously present in the western part of the site. In addition, two ancillary structures and graded roads were present. Debris is present in the western part of the site that appears to be the remnants of the previous structures.

5 REGIONAL GEOLOGIC SETTING

The site is in the Santa Monica Mountains that is an east-west trending mountain range along the southern edge of the Transverse Ranges geomorphic province. This geomorphic province is dominated by active compressional tectonics and is characterized by roughly east-west trending ranges and ridges with intervening canyons and valleys. The Santa Monica Mountains consist of a west plunging anticline (a convex upward-shaped fold) and the site is on the northern limb of this anticline along the northern base of Ladyface ridge. This anticline of the Santa Monica Mountains generally consists of Cretaceous and Tertiary rocks with a core of Jurassic metasediments and Cretaceous granitic rocks.

Ladyface ridge is a hogback composed of an interlayered sequence of volcanic and volcaniclastic rocks that are grouped in the Conejo Volcanics, which are of Miocene age. The layers of rock dip to the north at moderate angle (~40 to 60 degrees). North of Ladyface, is an area of low relief and rolling hills composed of marine sedimentary rocks and volcanic rocks. These rocks are complexly folded and faulted. Figure 2 is a portion of a portion of a geologic map by Weber (1984) that includes the area of the site.

6 SITE GEOLOGY

Based on our archival review, surficial mapping, and subsurface exploration programs, the area of the proposed development is mainly underlain by a relatively thick sequence of older alluvial soils. Marine sedimentary rocks assigned to the Calabasas formation underlie the Older Alluvium and in low gradient areas of the site residual soils and colluvial / younger alluvial soils mantle the Older Alluvium. Along the south easternmost site boundary and the steeper hillside to the south, hard volcanic bedrock of the Conejo Volcanics formation is exposed. General descriptions of these earth units are presented in the following sections. The areal distribution and spatial relationships of these earth units (except for topsoil / colluvium) are shown on the attached Geotechnical Map, Plate 1 and Cross Section, Plate 2.

.1 CONEJO VOLCANICS (Tcv)

Representing the oldest bedrock unit exposed on and adjacent the site, the Miocene–age Conejo Volcanics underlies the southernmost edge of the site and adjacent steeper hillside ascending Ladyface ridge. As observed in outcrop, the bedrock generally consists of andesitic agglomerate that dips at a moderate angle (27-55 degrees) to the north. Typically, this volcanic bedrock is indurated and considered stable.

6.2 CALABASAS FORMATION (Tc)

The Miocene-age Calabasas Formation underlies the major portion of the property. Although not exposed in outcrop, (being mantled by the surficial Older / Younger Alluvial deposits) this bedrock formation was encountered in all of our recent exploratory borings, except B-5, at depths ranging from 42.5 feet (B-1) to 10 feet (B-4) below the existing ground surface. As observed in our exploratory borings, the Calabasas Formation generally consist of pale olive to light olive gray to light olive brown silty claystone to claystone occasionally interbedded with very pale brown clayey siltstone and fine grained sandstone. Bedding within the Calabasas Formation bedrock is commonly massive to poorly defined and non-fissile. At depth, the Calabasas Formation becomes dark gray to black in color. The bedrock is typically tightly fractured with manganese and iron oxide staining yet is in a hard and moist condition.

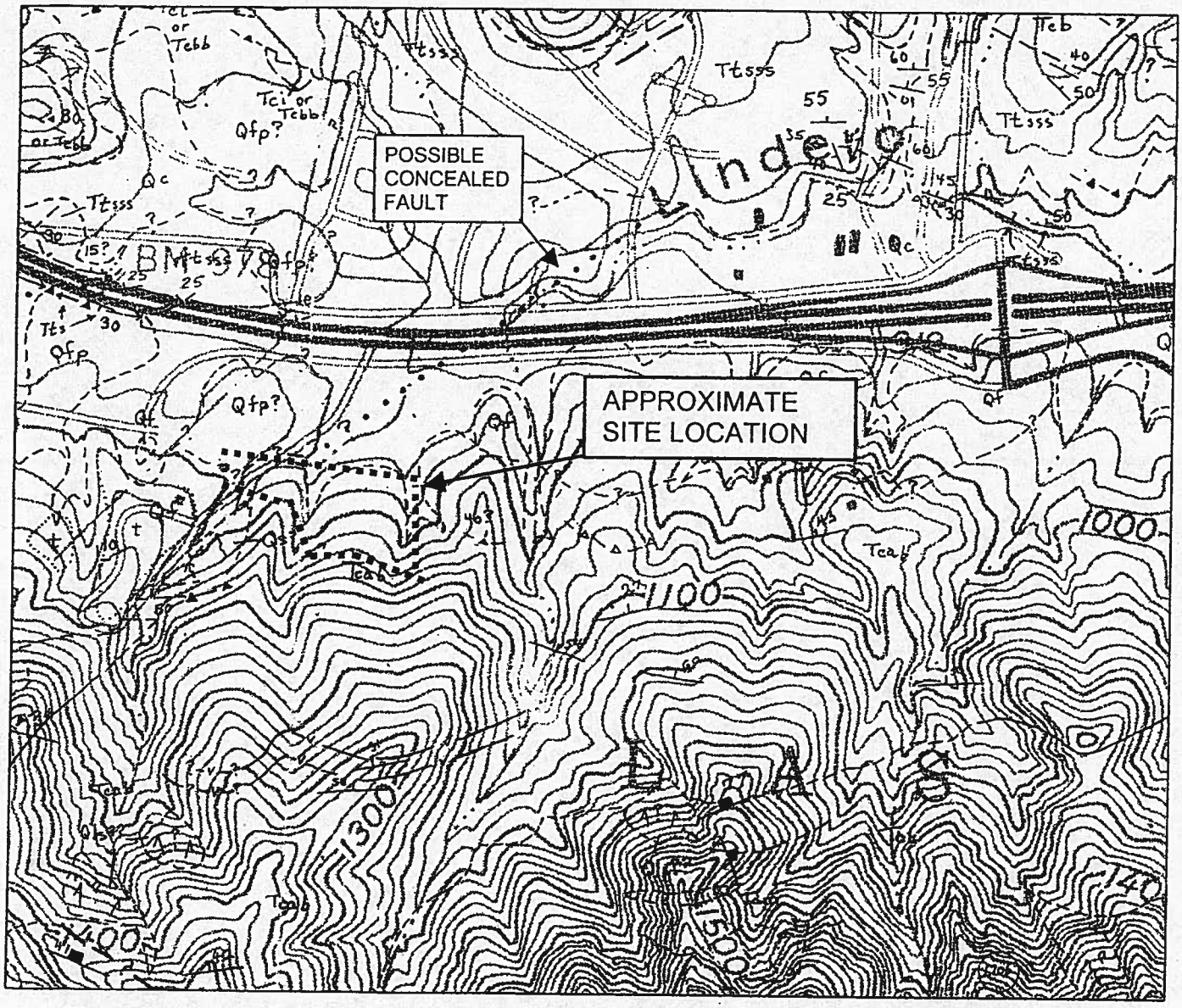


Figure 2. Portion of the geologic map of S½, Thousand Oaks Quadrangle, Ventura and Los Angeles counties, California by Weber and Blackerby (Weber, 1984). Symbols are as follows: Tcab, andesite to dacite flow breccia and agglomerate; Tcb, basalt; Tcbb, basaltic breccia; Tts, siltstone and shale; Ttsss, interlayered siltstone, sandstone, and shale; Qf, fanglomerate; Qfp, flood plain deposits; Qc, colluvium, Qs, bedrock slide.

Structurally, the Calabasas Formation in this area is plastically deformed with complexly folded, multi-directionally oriented bedding. Bedding orientations noted during downhole logging in boring B-2 were inclined to the northwest at low angles (10 to 12 degrees) and to the southeast at steep angles (37 degrees). Bedding observed in boring B-3 were inclined to the southwest at moderate to steep angles (24 to 88 degrees) before becoming vertical at 34.5 feet below the ground surface.

6.3 OLDER ALLUVIUM (Qoal)

As mentioned previously, Quaternary-age older alluvium mantles the underlying Calabasas Formation over most of the site, (refer to Plate 1). This relatively thick sequence of older alluvial soils forms the

ridge east of the site (being well exposed on the Agoura Road cut) and is expected to cap the spur (minor ridge) in the western part of the site.

As observed in our exploratory borings the thickness of the older alluvium varies from 35.5 feet (B-1) to 6 feet (B-6). The older alluvium generally consists of brownish yellow silty clay interbedded with silty fine to coarse sand and clayey fine sand grading downward to pale brown silty clay and clayey fine to coarse sand. This deposit is typically in a hard to dense and moist condition. The base of the older alluvium is generally denoted with fine to coarse sand and gravel with some cobbles of volcanic rock.

The contact with the underlying bedrock is abrupt with an irregular and undulatory to planar surface. In boring B-3, the contact with the underlying bedrock was inclined at 13 degrees to the northeast.

6.4 TOPSOIL / COLLUVIUM AND YOUNGER ALLUVIUM (Qal)

Low gradient areas of the northern part of the site are mantled by residual soils and colluvial soils while minor alluvial deposits are present were the canyon stream courses runout onto the low gradient areas of the northern part of the site. As encountered in the borings the topsoil / colluvium mantling the older alluvium varies in thickness from 7 feet (B-1) to 2.5 feet (B-3). The colluvium generally consists of very dark grayish brown to grayish brown sandy silty clay to silt with subangular to subrounded gravel to cobbles sized clasts of volcanic rock in a hard and damp to moist condition. Typically, the upper portion of these materials is porous with scattered roots. The Younger Alluvial deposits consist of unconsolidated sand, silts, and clays with scattered to locally abundant gravel to cobble size volcanic clasts.

6.5 ARTIFICIAL FILL

Mechanically placed fill is locally present that is associated with graded roads and with the previous building pads. A fill berm was constructed for Agoura Road along the northern edge of the property with the southern slope extending onto the site. Near surface soils are disturbed in the northern part of the site as a result of plowing for "weed abatement". Artificial fill, 1 foot in thickness, was encountered in boring B-5 mantling the colluvium. As encountered, the artificial fill generally consists of dark grayish brown very silty clay with roots and some rock. Additional areas of concealed deeper fill deposits may exist on the property and will need to be removed to underlying suitable materials within the limits of the proposed construction.

6.6 LANDSLIDES

No landslides were evident in our reconnaissance of the site nor are any shown to exist on-site in the regional geologic literature. However, we are aware that a landslide occurred along Agoura Road northeast of the site. A significant rotational failure occurred near the contact between clayey siltstone and the overlying saturated older alluvial deposits. A landslide has been "mapped" by Weber and Blackerby (Weber, 1984) southwest of the site in terrain underlain by volcanic bedrock (see Figure 2). Landslides are relatively uncommon in areas underlain by Conejo Volcanics and generally, irregular topographic expressions due to resistant rocks have been misinterpreted as landslides. Bedrock of the Conejo Volcanics is generally the most stable rock unit within the area.

6.7 GROUNDWATER

Groundwater was encountered in boring B-1 at 24 feet below the ground surface in a silty fine to coarse sand layer within the older alluvium and as seepage in boring B-3 from 15.3 feet to 16.9 feet below the ground surface. The seepage was observed just above the contact with the underlying bedrock.

7 FAULTING AND SEISMICITY

The site is within a seismically active region that will experience occasional damaging earthquakes. The destructive power of earthquakes can be grouped into fault-rupture, ground shaking (strong motion), and secondary effects of ground shaking (such as tsunami, liquefaction, settlement, landslides).

The hazard of fault-rupture is generally thought to be associated with a relatively narrow zone along well-defined pre-existing active or potentially active faults. No active faults are known to cross the site and the project site is not within an Alquist-Priolo Earthquake Fault Zone as defined by the State Geologist (Hart and Bryant, 1997). The Malibu Coast fault is the nearest active fault; it is located about 7 miles south of the site (Figure 3). As depicted on the geologic map, Figure 2, by Weber (1984), a northeast trending fault is interpreted to cross the western part of the site. This fault, if indeed present, is a minor local feature. Some geologists have suggested that the contact between the Conejo Volcanics and Calabasas Formation in this area may be a fault contact. While this may account for the complex folding (plastic deformation) observed in the Calabasas Formation on site, this relationship has not been demonstrated. It appears that the contact between theses two bedrock units is beyond the area of proposed construction; probably south of site, past borings B-2 and B-3.

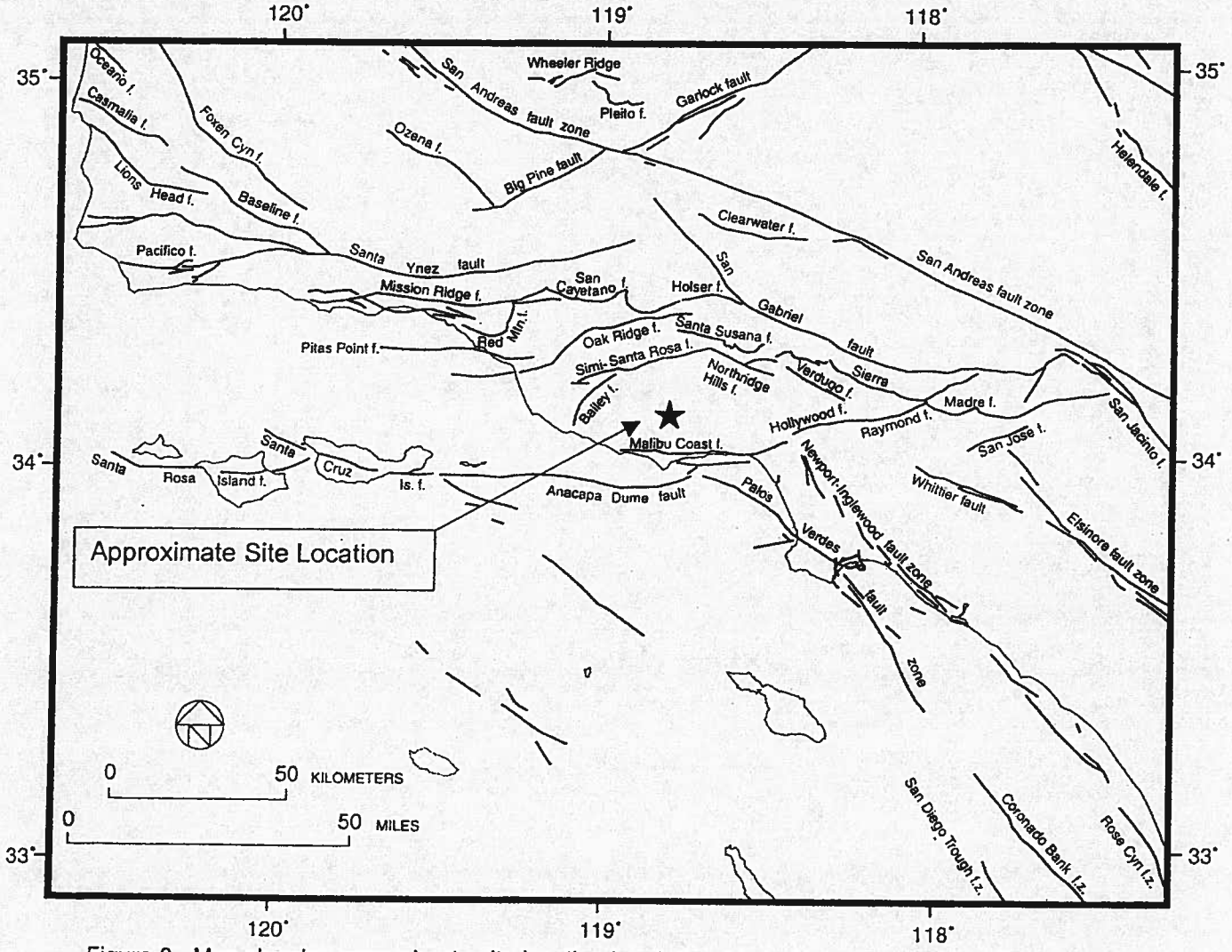


Figure 3. Map showing approximate site location in relationship to Holocene and late Quaternary faults of the Los Angeles region after Jennings (1992).

The site will be subjected to ground motion from occasional earthquakes in the region. Based on Petersen et al. (1996), the ground motion exceeded once, on the average, every 475 years (10% probability in 50 years) at the site is 40 to 50 percent gravity.

The secondary effects of strong ground motion include tsunami, seiche, liquefaction, settlement, landslides, etc. Tsunami (seismic sea wave) and seiche (standing wave) are not hazards inherent to the site. Generally, surficial soils in this area are clayey and dense and not susceptible to seismic settlement or liquefaction.

8 ROCK HARDNESS

Three shallow seismic refraction traverse surveys were preformed to provide data for the evaluation of rock hardness and rippability of the areas of the deepest proposed cuts. The locations of our traverses are shown on the attached Geotechnical Map, Plate 1.

The excavation characteristics of rock material are a function of lithology, seismic velocity, geologic structure, ripping equipment capacity, and operation. Shallow seismic refraction survey traverses can provide data to compute compressional wave velocities (p-wave) traveling through the underlying earth materials. These velocities can be roughly correlated with the rippability of these materials by conventional grading equipment. These correlations are not precise but rather, are intended to represent a generalized means of indicating relative excavation characteristics.

Based on our experience with full-scale rippability tests at other sites in the area, thick to massively bedded Conejo Volcanics Formation bedrock materials can be ripped to a maximum compression wave velocity of approximately 7500 to 9500 feet per second (ft/sec). The rippability tests were performed utilizing a D9R Caterpillar tractor or equivalent bulldozer in good condition with a single shank, variable pitch ripper. Although rippable, oversized rock (i.e., rock greater than 8" diameter) can be generated in materials above 5000 ft/sec. Other tests with a Caterpillar D-10N bulldozer equipped with a single shank variable pitch ripper indicated that the D-10N was able to rip bedrock at production rates to within the 8,500 to 10,500 ft/sec range. At higher velocities, however, very difficult ripping was encountered and considerable quantities of oversized rock was generated.

The average (and rounded) results of our (two direction) shallow seismic refraction survey traverse is presented in Table 1. Comments regarding rock rippability reflect usage of Caterpillar D9R bulldozer or equivalent, and are based on local experience and on rippability curves published by Caterpillar, Inc. (1995).

TABLE 1
SHALLOW SEISMIC REFRACTION TRAVERSE SURVEY RESULTS

Traverse Number	Layer	Depth (ft)	Average Velocity (ft/sec)	Comments
ST-1	1	surface to 5	1550	Easy ripping
	2	5 to at least 32	2150	Moderate ripping
	3	>32	7000*	Possible blasting
ST-2	1	surface to 6½	1310	Easy ripping
	2	6 ½ to at least 43	2690	Moderate ripping
	3	>43	7000*	Possible blasting
ST-3	1	surface to 5	1520	Easy ripping
	2	5 to at least 38	2520	Moderate ripping
	3	>38	7000*	Possible blasting

*Assumed velocity of layer 3 (used to calculate depth to layer 3)

The seismic traverse indicates that the surficial soil is easily rippable. At a depth of about 5 feet below ground surface (bgs) the earth material is moderately rippable to at least 32 feet. Consequently, the proposed design grades should be able to be obtained without blasting or difficult ripping. The results suggest that the material underlying the site in the area of the proposed cuts is not composed of hard rock and may not be underlain in the shallow subsurface by volcanic rock as depicted on regional geologic map.

As a matter of completeness, we quote from the *Caterpillar Performance Handbook*, edition 26, pg.1-73:

"*Use of Seismic Velocity Charts*

The charts of ripper performance estimated by seismic wave velocities have been developed from field tests conducted in a variety of materials. Considering the extreme variations among materials and even among rocks of a specific classification, the charts must be recognized as being at best only one indicator of rippability.

Accordingly, consider the following precautions when evaluating the feasibility of ripping a given formation:

-- *Tooth penetration is often the key to ripping success, regardless of seismic velocity. This is particularly true in homogeneous materials such as mudstone and claystone and the fine-grained caliches. It is also true in tightly cemented formations such as conglomerate, some glacial tills and caliches containing rock fragments.*

-- *Low seismic velocities of sedimentaries can indicate probable rippability. However, if the fractures and bedding joints do not allow tooth penetration, the material may not be ripped effectively.*

-- *Pre-blasting or "popping" may induce sufficient fracturing to permit tooth entry, particularly in the caliches, conglomerates and some other rock; but the economics should be checked carefully when considering popping in the higher grades of sandstones, limestones and granites.*

Ripping is still more art than science, and much will depend on the skill and experience of the tractor operator. Ripping for scraper loading may call for different techniques than if the same material is to be dozed away. If cross-ripping is called for, it, too, requires a change in approach. The number of shanks used, length and depth of shank and tooth angle, direction, throttle position--all must be adjusted according to field conditions encountered. Ripping success may well depend on the operator finding the proper combination for those conditions."

9 SLOPE STABILITY

9.1 GENERAL

Manufactured slopes will be constructed at a maximum gradient of 2(h):1(v) or flatter within the proposed development area. Cross section A-A' has been drawn to depict the proposed stepped building design with the natural ascending slope above. Stability analyses were conducted using this cross section to evaluate the gross stability of the lower proposed development and the natural slope above. Surficial stability of the existing slope was also evaluated. Based on the geology observed, no continuous adversely oriented bedding planes or other structural elements are anticipated within the Conejo Volcanics or Calabasas Formation.

The computer program GSTABL7 that utilizes Bishop's simplified method of slices for rotational failures was used to evaluate gross slope stability of the proposed slopes discussed above. The results of the gross and surficial stability analyses are presented in Appendix D.

9.2 Shear Strength Parameters

The shear strength parameters used in the slope stability analyses were derived from a series of direct shear test results conducted on samples from the recent investigation. Shear strength parameters for Conejo Volcanics bedrock were derived from direct shear testing conducted on relatively undisturbed bedrock samples from a nearby site with bedrock of the same formation (Gorian, 1979). The resulting shear strength parameters are as follows:

SOIL TYPE	UNIT WEIGHT	COHESION	FRICTION ANGLE
Engineered Fill	125 pcf	400 psf	21.5°
Older Alluvium	125 pcf	200 psf	35°
Calabasas Formation	125 pcf	560 psf	27.5°
Conejo Volcanics	125 pcf	1000 psf	26°

9.3 Ground water

In the analyses, two types of water input were used to model the conditions at the site. In general, a piezometric ground water surface was input and applied to the Older Alluvium and Calabasas Formation. The surface was modeled at the contact between the Older Alluvium and artificial fill placed for Agoura Road near the base of the section transitioning to the contact between the Older Alluvium and Calabasas Formation beneath the proposed building. The transition was modeled to account for the drainage that will be installed at the toes of proposed retaining walls. In addition to the piezometric surface, a constant pore pressure of 312 psf was applied to the Conejo Volcanics to account for possible seeps that may occur within this formation. This value is equivalent to having a water level 5 feet above each failure plane evaluated within the Conejo Volcanics.

9.4 Global Analyses

Global static and pseudostatic stability analyses were conducted to evaluate the stability of both the entire slope and the lower portion that is being affected by the proposed development. Rotational failure paths were evaluated with varying toe and exit paths to find the critical failure surface. Pseudostatic analyses were conducted using a horizontal acceleration coefficient of 0.15g. The results of the

analyses indicate that the proposed development has satisfactory factors of safety against global rotational failures. The output and plot files from the stability analyses are contained in Appendix C, herein.

9.5 Surficial Stability

The proposed 2(h):1(v) cut and fill slopes have a minimum factor of safety of 1.5 as demonstrated by the surficial stability calculations presented in Appendix C.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 GENERAL

The site was found to be suitable for the proposed development from a geotechnical standpoint. Geotechnical recommendations for site development and foundation design are presented below. The conclusions and recommendations should be reviewed if development plans or site conditions change. All aspects of grading including site preparation, excavation and fill placement should be performed per the city of Agoura Hills grading ordinances.

10.2 SEISMIC DESIGN

The site may be designed per the minimum seismic design presented in 1997 Uniform Building Code (UBC), Chapter 16 with the understanding that the site acceleration could be higher than that addressed by code values. The purpose of the UBC earthquake provisions is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain function. Therefore, cracking of walls and possible structural damage should be anticipated in a significant seismic event.

UBC – CHAPTER 16 TABLE NO.	SEISMIC PARAMETER	VALUE PER1997 UNIFORM BUILDING CODE
16 - I	Seismic Zone Factor Z	0.40
16 - J	Soil Profile Type	S_D
16 – Q	Seismic Coefficient (C_a)	$0.44N_a$
16 – R	Seismic Coefficient (C_v)	$0.64N_v$
16 - S	Near-Source Acceleration Factor, N_a	1.0
16 – T	Near-Source Velocity Factor, N_v	1.06
16 - U	Seismic Source Type	B
Map L-32	closest distance to known seismic source (Malibu Coast Fault)	8.4 km

Secondary effects of strong ground motion include such phenomena as tsunami, seiche, liquefaction, seismic settlement, mass wasting, and flooding from dam failure. Tsunami, seiche, and seismically induced mass wasting are not hazards inherent to the site. The site is not considered susceptible to liquefaction and seismic settlement.

10.3 SITE PREPARATION AND GRADING

10.3.1 Site Cleanup

Deleterious surface materials, including trash, debris, vegetation, and organic materials present on-site at the time of grading should be removed.

10.3.2 Soil Removal

All non-engineered fill, recent alluvium and colluvium within the site should be removed from areas of construction and a minimum of five feet beyond. Additionally, older alluvial soil removals should extend to competent soil having a minimum relative compaction of 85% or bedrock, whichever is less. However, within the building area and five feet beyond, the soil removal should extend to in-place soils having a

minimum relative compaction of 90% or competent bedrock, whichever is the lesser removal. Alluvial removals should be on the order of 3 to 10 feet and 7 to 15 feet in parking areas and the building pad, respectively. The bottoms of removal areas should be observed by a representative of this office to evaluate if local areas exist where deeper removals are necessary.

10.3.3 Relative Compaction

Relative compaction is the ratio of the in-place dry density to the maximum dry density as determined in general conformance with ASTM test method D 1557.

10.3.4 Building Area Undercuts

In addition to the soil removals discussed in the *Soil Removal* section above, the cut portion of the building pad area should be undercut. The undercut should extend to a minimum depth of three feet below the bottom of the footings and five feet beyond the building's perimeter. The undercut should extend to five feet behind interior retaining wall footings. A construction level foundation plan will be necessary to provide the foundation depths and locations.

10.3.5 Over Excavation in Bedrock Areas Behind Retaining Walls

Although not anticipated, if retaining wall backcuts penetrate into the Calabasas Formation, an equipment width stabilization fill should be constructed to remediate possible localized adverse elements of the complexly folded bedding. The project geotechnical consultant should observe all retaining wall backcut excavations.

10.3.6 Preparation of Fill Areas

All areas to receive fill should be processed before placing fill. Processing should consist of surface scarification to a minimum depth of 8 inches, moisture conditioning to approximately 2% over the optimum moisture content, and recompaction to a minimum of 90% relative compaction.

10.3.7 Keying and Benching

All fills placed on slopes steeper than 5(h):1(v) should be keyed and benched (horizontal benches) into firm competent in-place soil or bedrock (after all required removals are made). All keyways should be a minimum of 15 feet wide measured from the design toe of slope and cut a minimum depth of 2 feet at the toe into firm competent in-place soil or bedrock. Keyways should be tilted into the slope and should be at least 3 feet deep at the heel (measured from below the slope toe elevation). A representative of this office should observe the keyways before placing any fill. Horizontal benches should be a minimum of 5 feet wide, i.e. a minimum 5 feet of competent material. A representative of this office should observe benching before placing any fill soils. A Typical Fill Over Natural Slope Detail is presented herein, Figure 4.

10.3.8 Fill Placement

Fill soils should be cleaned of deleterious materials including trash, debris, organic matter, and rocks larger than 12 inches. Fill soils should be placed in thin uniform lifts, brought to 3% over the optimum moisture content, and compacted to a minimum of 90% relative compaction.

Soils excavated on-site may be used as fill. However, clayey soils having expansion indices greater than 130 should not be placed within the building footprint and five feet beyond or within 10 feet of the slope faces. Very highly expansive clays were found to be located within the older alluvium units during the subsurface investigation. Therefore, selected grading will be necessary within the building and slope areas. The expansion potential of the very highly expansive on-site soils (EI > 130) could possibly be reduced by blending very highly expansive soils with the more granular soils. If the soils are blended, the soils should be disked to provide thorough mixing. Frequent expansion index tests should be performed during grading to determine if the resulting expansion indices are below 130 within the building and slope

areas. Additionally, select grading will be required within a 1(h):1(v) wedge, projected up from the toe, hind retaining walls and within 10 feet of any fill slopes.

The very highly expansive on-site soils (EI > 130) whenever possible should be placed at the base of the proposed fills in the parking and drive areas. Near the parking and drive finished grades, the expansive clayey soils may be used if lime treated. Parking and drive subgrade soils may be lime treated using 4% to 5% lime, measured by weight, to a minimum depth of 8 inches. Subgrade preparation, lime spreading, mixing, and compacting should be completed per the Greenbook 2000 specifications.

If import fill is required, the project geotechnical consultant should approve the sources of the fill. The shear strength parameters and the expansion indices of the fill soils should be determined by this office prior to importing to the site.

10.3.9 Subdrains

Subdrains should be placed in the two drainage swales crossed by the proposed access road as shown on the geotechnical map. The subdrains should be constructed as described below and shown on the attached Typical Subdrain Detail, Figure 5. The drain should be installed in a backhoe trench cut into competent native soils or bedrock. No portion of the drain should be constructed in engineered compacted fill.

The 3-foot wide by 3-foot deep subdrain should be encased in 9 cubic feet of drain material per lineal foot of pipe. The drain material should consist of 3/4 to 1-inch clean coarse aggregate or equivalent wrapped with filter fabric having an equivalent screen opening size of 70± to 100 (such as Supac 4NP, Mirafi 140S or equivalent). The pipe should be a minimum 6-inch diameter perforated PVC (Schedule 40) pipe or equivalent (such as ABS-SDR 35). Perforations should be no more than ½ inch diameter and placed down. The last 10 feet of drainpipe prior to the outlet should be non-perforated. A concrete cutoff wall should be constructed at the transition from perforated to non-perforated pipe.

The subdrain locations and installation should be observed by an engineering geologist from this office. The subdrain outlet should be located and maintained to allow unrestricted flow through the subdrain system. The end of the subdrain outlet pipe should be covered with a slotted cap. The locations of the subdrains should located by the project surveyor.

10.3.10 Temporary Excavations

Temporary slopes should conform to the requirements of CAL/OSHA. Surcharge loads should be setback a distance at least equal to the depth of the cut or trench from the tops of temporary excavations or 5 feet, whichever is more

10.3.11 Utility Trenches

Backfill of all utility trenches within building, parking, and drive areas should be compacted to a minimum of 90% relative compaction.

10.3.12 Shrinkage and Subsidence

Shrinkage or bulking is the volume loss or gain respectively of soils excavated and recompacted. Shrinkage of the recent alluvium and artificial fill is expected to range from 5 to 15 percent. Colluvium and older alluvial soils are expected to shrink on the order of 5 to 10 percent and shrinkage of bedrock that is removed and recompacted should range from 0 to 5 percent. For example, 1 cubic yard of cut in older alluvium will yield approximately 0.9 to 0.95 cubic yards of engineered compacted fill. In addition to the shrinkage/bulking values presented above, subsidence or a loss of 0.1 to 0.2 feet should be considered for stripping of vegetation and densification of the surface soils.

10.4 SLOPE CONSTRUCTION

10.4.1 General

Manufactured fill and cut slopes may be constructed at maximum gradients of 2(h):1(v). Select grading will be required when constructing fill slopes since highly expansive soils should not be placed within the slope faces.

10.4.2 Fill Slopes

The proposed fill slopes should be keyed and benched into competent native soil or bedrock materials, as previously recommended. Select grading will be required when placing fill materials within 10 feet of permanent slope faces as described above in the fill placement section. In addition, fill soils near slope faces should have at least 250 psf cohesive shear strength. Where possible, the outer slope faces should be overfilled and trimmed back to provide for firm, well-compacted surfaces. The slope faces should be compacted with a sheepsfoot and/or grid roller if the slopes are not trimmed back. The slope faces should be tested and reworked as necessary to achieve the required compaction.

Fill slopes over 10 feet high should be constructed with a backdrain constructed at the heel of the slope keyway. The drain should consist of a four inch diameter perforated PVC (Schedule 40) or equivalent (such as ABS-SDR 35) drainpipe. The pipe should be placed with perforations down approximately 1 to 2 inches from the bottom of the excavation and contained in a minimum 2 square feet of ¾ ± inch crushed rock. The rock within the drain should be wrapped in filter fabric having an equivalent screen opening size of 70± to 100 (such as Supac 4NP, Mirafi 140S or equivalent) with all joints overlapped a minimum of 12 inches. Outlet pipes should be installed at roughly 100-foot intervals with a minimum of two outlets per slope. A concrete cutoff wall should be installed at the transition from perforated to non-perforated pipe. The backdrain excavation should be observed by a representative of this office prior to backfilling.

10.4.3 Cut Slopes

Cut slopes may be made at gradients of 2(h):1(v) or less. Adverse geologic conditions are not anticipated in the cut slopes however; all slopes should be evaluated by this office during grading.

10.4.4 Berms

Compacted earthen berms should be constructed on pads adjacent descending slopes to direct water away from the slope and the pads should be graded to provide drainage away from the tops of slopes.

10.4.5 Slope Maintenance

All slopes constructed within the site will require maintenance or protection to reduce the risk of erosion and degradation with time due to natural or man-made conditions. The manufactured slopes should be appropriately planted with dense, deep rooting, drought resistant groundcover with shrubs and trees per the appropriate city of Agoura Hills guidelines. A reliable irrigation system should be installed, adjusted so that over watering does not occur, and periodically checked for leakage. The slopes should be irrigated in a prudent manner where only sufficient water is applied to the slopes to maintain the vegetation. In addition, prudent irrigation practices would not allow the slopes to dry out or become overly wet. The landscape architect should select the appropriate slope cover and determine the frequency of watering that will be dependent on plant type and seasonal variations. The slopes should not be over watered and should not be watered before forecasted rain. All drainage structures should be kept in good condition and clean. Burrowing animals (e.g., ground squirrels) can destroy slopes; therefore, where present, immediate measures should be taken to eliminate them.

10.5 SOIL EXPANSIVENESS

Expansion tests performed on representative samples of the upper soil profile and bedrock resulted in expansion indexes of 80 and 177, which are in the moderately and critically high range, respectively.

The recommended grading is intended to reduce the expansion potential within the building area to a soil expansion of less than 130. However, due to the proposed grading, additional expansion tests should be performed within the finished pads to determine the appropriate final expansion to be used for final foundation design. For planning purposes, foundation design recommendations for two expected expansion ranges are presented in the foundation section of this report.

Expansive soils contain clay minerals that change in volume (shrink or swell) due to variations in soil moisture content. The amount of volume change depends upon soil swell potential, availability of water, and soil restraining pressure. Geotechnical recommendations presented herein are generally consistent with the standard level of practice in this area. However, these recommendations are not intended to eliminate the effects of expansive soils. Additional recommendations can be provided to further reduce the potential for expansive soil action and inherent risk; these recommendations are generally beyond standard practice for the area and may be of substantial cost. In addition to the foundation recommendations presented in the following section, the following drainage and watering recommendations should be followed to help mitigate the effects of expansive soils.

a) Positive drainage should be continually provided and maintained away from structures and should not be changed creating an adverse drainage condition. Ponding or trapping of water adjacent foundations can cause differential moisture levels in subsurface soils. Plumbing leaks should be immediately repaired so the subgrade soils underlying the structure do not become saturated.

b) Initial landscaping should be undertaken in unpaved areas adjacent to structures. However, trees and shrubbery should not be planted where roots can grow under foundations and hardscape when they mature.

c) Landscape watering should be held to a minimum; however, landscaped areas should be maintained in a uniformly moist condition and not allowed to dry out.

10.6 FOUNDATION DESIGN

10.6.1 General

The foundations and slabs-on-grade should be designed by a structural engineer in accordance with the current applicable building code and following recommendations. A final expansion test(s) should be performed at the conclusion of the proposed rough grading to determine the expansions of the finished building pad. The following foundation recommendations are considered to be within the standard of practice within the area and comply with the city of Agoura Hills Building Code.

10.6.2 Conventional Footings

The proposed construction may be supported on continuous and spread footings embedded in properly compacted fill. Continuous and isolated footings, a minimum of 12 and 24 inches wide respectively, may be designed to impose an allowable net bearing pressure of 2000 pounds per square foot (psf). This value may be increased by 250 psf for each foot of increased footing width. The bearing value may also be increased by one third for temporary wind and seismic loading.

Embedment depth for expansive soils of EI 51-90 and EI 91-130 should be a minimum of 30 and 36 inches respectively. Soils with an EI of greater than 130 should not be placed within the building footprint or 5 feet beyond. The embedment for exterior perimeter footings should be measured from the lowest adjacent rough grade or permanent lowest grade, whichever is deeper. Interior footing embedment may be measured from the top of the interior slab-on-grade. The footing reinforcement should be per the structural engineer's design. However, continuous footings should be reinforced with a minimum of two #5 bars in the top and bottom (total of four bars).

10.6.3 Settlements

Maximum foundation settlement due to static loading should not exceed 1/2 inch based on anticipated wall loads of approximately 3 kips/linear foot and isolated footing loads of approximately 15 to 20 kips. Settlement is also based on the remedial grading as recommended herein. Differential settlement between similarly loaded footings is expected to be less than ¼ inch. Settlements are expected to occur rapidly as loads are applied. After construction is completed, no long-term settlements are anticipated. However, footing movement could occur due to expansive soil movement if extreme moisture changes are allowed to occur under the foundations.

10.6.4 Lateral Soil Resistance

Lateral forces on foundations may be resisted by lateral passive earth pressure and base friction. Passive earth pressure may be assumed equal to an equivalent fluid pressure of 300 pounds per cubic foot for level ground, however should not exceed 2,000 pounds per square foot. This allowable passive pressure may be used adjacent a descending slope provided the footing has a setback to slope face distance equal to that required by Figure 18-1-I of the Uniform Building Code. Footings adjacent to descending slopes and requiring passive pressure should be deepened to meet the setback requirements. A coefficient of friction of 0.30 may be assumed along the base of concrete elements cast directly against the subgrade. Passive earth pressure and friction may be combined with no reductions.

10.6.5 Conventional Slabs

Conventional concrete slabs-on-grade should be a minimum of 5 inches thick and reinforced at mid-height with #4 bars placed on 18 inch centers each way for soils with an EI of less than 130. The slab reinforcement should be extended into the footings to within 3 inches from the footing bottom. The slab subgrade soils should be recompacted before placing sand subbase, if soils were disturbed during footing construction or utility installation.

10.6.6 Moisture Penetration

Subgrade soils underlying footings and slabs-on-grade should be moistened to a minimum of 3% over the optimum moisture content to a minimum depth of 24 inches. Subgrade soil premoistening should be achieved and maintained at least two days before pouring concrete. Moisture penetration testing should be performed by this office before pouring concrete. Soils silted into footing or deepened edge excavations during the premoistening operations should be removed before pouring the concrete.

10.6.7 Moisture Barrier

Slabs-on-grade should be underlain by a minimum of 6-inch thick clean sand layer. A minimum 10-mil thick polyethylene membrane should be placed mid-height in the sand. The membrane should be sealed around plumbing pipes.

10.6.8 Concrete Placement

Concrete shrinks as it cures resulting in shrinkage tension within the concrete mass. The development of tension results in cracks within the concrete since concrete is weak in tension. Therefore, the concrete should be placed using procedures to minimize shrinkage and cracking within the slab. Shrinkage cracks can become excessive if water is added to the concrete above the allowable limit and proper finishing and curing practices are not followed. Concrete mixing, placement, finishing, and curing should be performed per the American Concrete Institute Guide for Concrete Floor and Slab Construction (ACI 302.1R-89). The concrete slump should be per the structural engineer's specifications for concrete slabs-on-grade. Where shrinkage cracks would be unsightly, concrete slabs on grade should be provided with tooled crack control joints at 10-15 foot centers or as specified by the structural engineer.

10.6.9 Floor Covering

Tile flooring can crack, reflecting cracks in the concrete slab below. Therefore, the slab designer should consider additional slab reinforcement where tile will be placed. The tile installer also should consider using approved materials and techniques recommended by the Tile Council of America/Ceramic Tile Institute. A vinyl crack isolation membrane placed between the tile and concrete slab-on-grade is one method to reduce possible cracking of tile. The concrete slab-on-grade should be tested for moisture where organic floor covering will be used such as wool carpet or wood flooring. Slab sealers should be used if necessary per the flooring manufacturer.

10.6.10 Footing and Beam Excavations

All footings should be cut square and level and cleaned of all loose slough and soils silted into the excavations during the premoistening operations. Soil excavated from the footing trenches should not be spread over any areas of construction unless properly compacted. The footing excavations should be observed by a representative of this office before placing reinforcing steel. The footings should be cast as soon as possible to avoid deep desiccation of the footing sub-soils.

10.6.11 Footings on or Near Adjacent Slopes

Footings located on or near the top or toe of slopes should be deepened or setback to provide footing support and to reduce the impact of changes that can occur on slope faces. The setbacks presented in Chapter 18 of the 1997 Uniform Building Code should be used as a minimum with the following revision. Because of the possible presence of critically high expansive soil, the minimum setback from a descending slope should be increased to 10 feet. Setbacks or footings deepened to meet the setbacks should be used for all buildings and accessory structures that are sensitive to differential movement adjacent to a descending slope.

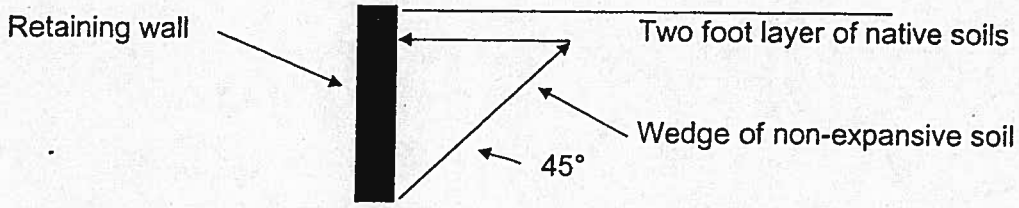
10.7 RETAINING WALL DESIGN

0.7.1 Foundations

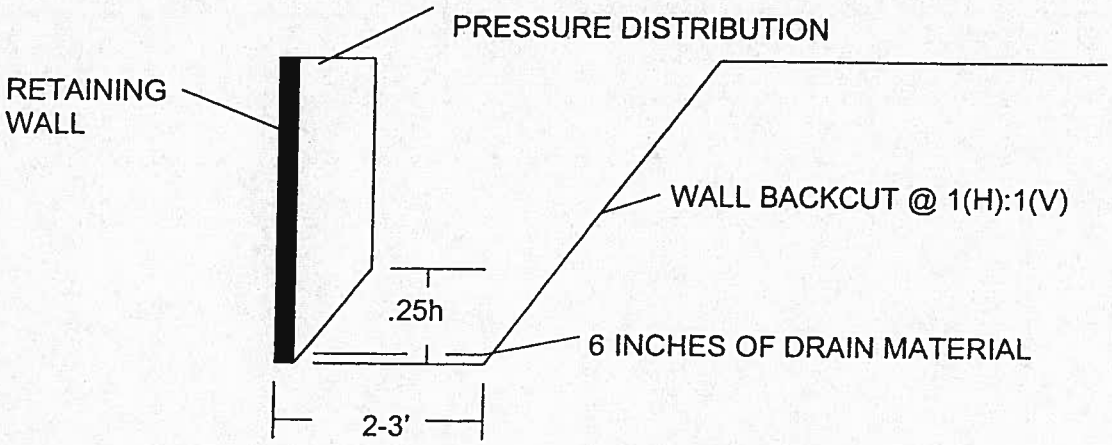
Continuous footings for exterior retaining walls founded below level ground may be designed to impose a uniform allowable soil bearing pressure of 2,000 psf. The bearing value may be increased by 250 psf for each one foot of increased footing width. However, the bearing value should reduced to 1500 psf where the footing is adjacent to a descending slope. The maximum pressure under the toe should not exceed the allowable bearing pressure. The resultant of the retaining wall footing pressure should pass within the middle third of the width of the footing. The footings (outside the proposed buildings) should be embedded a minimum of 30 inches into firm soils having an EI of less than 130 and have a minimum width of 24 inches. Footing reinforcement should be per the structural engineer's recommendations. Footings adjacent to descending slopes should be deepened as described above in *Footings on or Near Adjacent Slopes* section above.

10.7.2 Active Pressures

Retaining walls should be designed to resist an active pressure exerted by compacted backfill or retained soil/bedrock. Retaining walls that may yield at the top may be designed for an equivalent fluid pressure equal to 40 and 55 psf for a level or 2(h):1(v) sloped backfill, respectively. The backfill placed behind the walls should have an expansion of less than 20. The non-expansive backfill should (where feasible) extend up from the bottom of the wall at a minimum 45-degree angle from the back of the wall. The backfill should be benched in to any backcut. The upper two feet of the backfill should consist of soils similar to the adjacent grade or backcut.



Braced retaining walls should be designed for a pressure of 40H(psf) where H is the height of the retained soil. The pressure distribution should be over the area shown below. The backcut should be overcut at least 2-3 feet from the face of the wall and the cut should be sloped at a maximum 1(h):1(v) gradient. The above pressure may be reduced to 25H providing the backcut is filled using gravel or soil having an expansion index of less than 20. The backdrain should be designed as recommended herein or a filter cloth covered drainage board may be used directly along the back of the wall. The invert of the drainpipe should be a minimum of 6 inches below the surface of the interior slab. In addition a minimum 6 inches of drain material should be laid over the entire surface of the base of the overcut.



NOT TO SCALE

The footing embedment for retaining walls within the building may be measured from the top of the interior slab or from the exterior grade, whichever is deeper. An engineering geologist from this office should observe retaining wall backcuts in bedrock for adverse geologic conditions.

10.7.3 Seismic Pressures

Since the site is located in an active seismic area, retaining walls are expected to experience additional surcharge pressure due to backfill inertia during a seismic event. Walls greater than 10 feet in height should be designed for a seismic lateral pressure taken as in inverted triangular pressure of 20 pcf. The resultant of the seismic pressure should be considered to act at 0.67H from the base of the wall, where H is the height of the wall measured from the base of the footing to the top of the backfill.

10.7.4 Lateral Soil Resistance

Lateral forces on foundations may be resisted by lateral passive earth pressure and base friction. Passive earth pressure may be assumed equal to an equivalent fluid pressure of 300 pounds per cubic foot for level ground, however should not exceed 2,000 pounds per square foot. A coefficient of friction of 0.30 may be assumed along the base of concrete elements cast directly against the subgrade. Passive earth pressure and friction may be combined with no reductions. However, the passive pressure should reduced to 250 pcf where the retaining wall footing is adjacent to a descending slope. Footings

adjacent to descending slopes should be deepened as specified above in the *Footings on or Near Adjacent Slopes* section.

10.7.5 Retaining Wall Drainage and Backfill

Retaining walls should be constructed with a backdrain consisting of a manufactured composite drain board or a section of aggregate drain material. An aggregate drain should consist of a minimum one-foot wide continuous section of No. 4 rock (or pea gravel) and sand at a 1:1 ratio or equivalent. The aggregate drain material should extend from the base of the wall to the top of the wall for interior walls or to within 2 feet of the top of exterior walls. The upper 2 feet of exterior wall backfill should consist of compacted native soils. A layer of filter cloth should be placed between the drain material (including non-expansive backfill) and 2 foot soil cap to minimize the migration of fines into the drain material. The filter cloth should have an equivalent screen opening size of 70± to 100 (such as Supac 4NP, Mirafi 140S or equivalent). The composite drain board or aggregate section should be drained by a four inch diameter perforated Schedule 40 PVC or equivalent drainpipe (perforations ½± inch or smaller, perforations down) located in the lower portion of the drain. The invert of the drainpipe should be at least 6 inches below any adjacent slab-on-grade. The drainpipe may be laid flat along the top of the footing at the back of the wall. Drainpipes outside the retaining wall backdrain should be sloped at a minimum one percent gradient. The outlet pipes should be surveyed and recorded to aid future relocation. Retaining walls should be waterproofed to reduce the risk of moisture infiltration through the wall. Walls at the toe of slopes should have a concrete drainage swale placed behind the wall at the toe of slope to collect surface run off from the slope face. All wall backfill should be compacted to a minimum of 90% of the maximum soil density using light equipment.

10.8 SITE DRAINAGE

Positive drainage should be provided away from structures and retaining walls during and after construction. Planters near a structure should be constructed so irrigation water will not saturate footing nd slab subgrade soils. The pad should be graded at a minimum gradient of 2 percent for landscaped areas away from all structures to an approved drainage course. Drainage water should not be allowed to gather or pond against foundations.

10.9 GUTTERS AND DOWNSPOUTS

Gutters and downspouts should be installed to collect roof water that may otherwise infiltrate the soils adjacent the structures. The downspouts should be directly connected to solid PVC collector pipes (or other positive drainage) that will carry water away from buildings.

10.10 EXTERIOR SLABS AND WALKWAYS

All exterior concrete hardscape (slabs-on-grade) and walkways should be a minimum of 4 inches thick and underlain by a minimum of 6 inches of sand or sand-gravel base. Concrete slabs (excluding sidewalks) should be reinforced with a minimum #4 bars at a spacing of 24 or 18 inches or less in both directions, respectively for the 51-90 and 91-130 soil expansion ranges. In either case, reinforcement should be placed at mid-depth of the slab. The recommendations for slab design should be revised if the underlying soils have an EI of greater than 130. Reinforced (1- #4 bar top and bottom) deepened edges of 18 inches should be constructed on all exterior (non-auto traffic) slabs that are adjacent to landscape areas to prevent water from entering the sand base.

The slab and sidewalk subgrade soils should be premoistened to a minimum of 3% over the optimum moisture content to a depth of 18 inches. All planter areas should be constructed so excess water drains onto, rather than beneath, adjacent concrete hardscape.

Concrete slabs on grade should be provided with tooled crack control joints at 10-15 foot centers or as ›ecified by the structural engineer. Sidewalks should be scored (tooled crack control joints) into square

panels (a 5-foot wide sidewalk should be scored every 5 feet). Concrete placement should be performed per the recommendations provided in the *Concrete Placement* section of this report.

10.11 PRELIMINARY PAVEMENT DESIGN

For preliminary planning, based on an estimated "R" Value of 5 and a Traffic Index of 5, assume 3 inches of A/C over 10 inches of aggregate base for drive areas and 3 inches of A/C over 7 inches of aggregate base for parking stalls. The structural sections should be confirmed after conclusion of grading. The upper 6 inches of subgrade, and the base material, should be compacted to at least 90 and 95% relative compaction, respectively, just prior to placing the asphalt.

Concrete pavement should be considered in driveways that will receive high abrasion loads, and in areas subject to repeated heavy truck loads, such as trash pickup areas. The concrete pavement in these areas should be a minimum 7-inch thick with No. 3 bars at 18 inches on center in both directions or per the structural engineer's design. The slab should be underlain by 4 inches of Class 2 aggregate base compacted to a minimum 95% relative compaction. Concrete should have a minimum 28-day compressive strength of 3500 psi. Concrete pavement subgrade soils should be premoistened to a minimum of 3% above the optimum moisture content for a minimum depth of 18 inches.

Planter areas should be graded and constructed so that excess water is either collected by an area drain system or is drained onto and not beneath the adjacent AC pavement. Consideration should be given to deepening the curbs adjacent to planters so that water is prevented from entering the pavement base and saturating the pavement subgrade. Concrete curbs near the top of descending slopes should be embedded so the bottom of the curb has a setback of at least 5 feet to the slope face.

10.12 PLAN REVIEW

As detailed grading plans, building location and foundation plans become available, this office should review them before completing the plans. The grading plan should be reviewed and signed by this office.

11 CLOSURE

This report was prepared under the direction of a registered geotechnical engineer and certified engineering geologist. No warranty, express or implied, is made as to conclusions and professional advice included in this report. Gorian and Associates, Inc., disclaims responsibility and liability for problems that may occur if recommendations presented herein are not followed.

This report was prepared for Mr. Carlos Khantzis and his design consultants solely for design and construction of the project described herein. It may not contain sufficient information for other uses or the purposes of other parties. These recommendations should not be extrapolated to other areas or used for other facilities without consulting Gorian and Associates, Inc.

Recommendations herein are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions that can vary horizontally and vertically across the site. Therefore, persons using this report for bidding or construction purposes should perform such independent investigation(s), as they deem necessary.

Grading and foundation work at the site should be performed per the current City of Agoura Hills Building Code. Due to possible subsurface variations, the project geotechnical consultant should observe all aspects of field construction addressed in this report. Services of the geotechnical consultant should not be construed to relieve the owner of contractors of their responsibilities or liabilities.

oOo

We have prepared this geotechnical report based upon our understanding of your project and needs at this time. Please do not hesitate to call if you have any questions or comments regarding this report.

Respectfully submitted,

GORIAN AND ASSOCIATES, INC.

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Distribution: Addressee (3)
Ware & Malcomb Architects, Inc. (3)
Attention: John Grounds

REFERENCES

aterpillar, Inc., 1995, Caterpillar performance handbook, edition 26, Caterpillar Inc., Peoria, Illinois.

Gorian and Associates, Inc., October 15, 1979, Geologic and Soil Engineering Investigation, Agoura Parcel, Reyes Adobe and Agoura Roads, County of Los Angeles. Work Order: 1069-1-10, Log Number: 5901R.

Gorian and Associates, Inc., November 30, 1999, Cursory Geologic Feasibility Evaluation, Khantzis/Agoura Hills Project, 29903 Agoura Road, Agoura Hills, California. Ware & Malcomb Project No. 993-025.00. Work Order: 2272-0-0-10, Log Number 19926.

Gorian and Associates, Inc., June 19, 2000, Geologic and Geotechnical Engineering Evaluation, Agoura Hills Project, 29903 Agoura Road, Agoura Hills, California. Work Order: 2272-1-0-11, Log Number 20349.

Hart, E.W. and Bryant, W.A., 1997, Fault rupture hazard zones in California. California Division of Mines and Geology Special Publication 42.

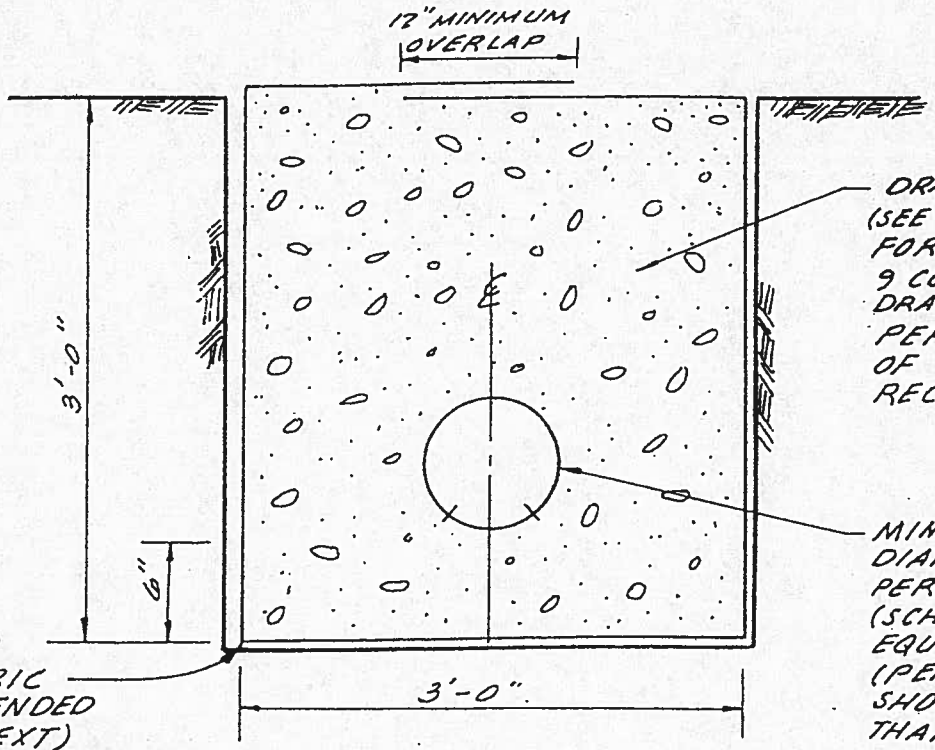
Jennings, C.W., 1992, Preliminary fault activity map of California. California Division of Mines and Geology Open-file Report 92-02.

Petersen, M.D., Bryant., W.A., Cramer, C.H., Cao, T., Reicle, M.S. , Frankel, A.D., Lienkaemper, J.J., McCrory, P.A., and Schwartz, D.P., 1996, Probabilistic seismic hazard assessment for the state of California. California Division of Mines and Geology Open-File Report 96-08.

Weber, F.H. 1984, Geology of the Calabasas-Agoura-eastern Thousand Oaks area, Los Angeles and Ventura counties, California, California Division of Mines and Geology Open-File Report 84-1 LA.

TYPICAL
SUBDRAIN DETAIL

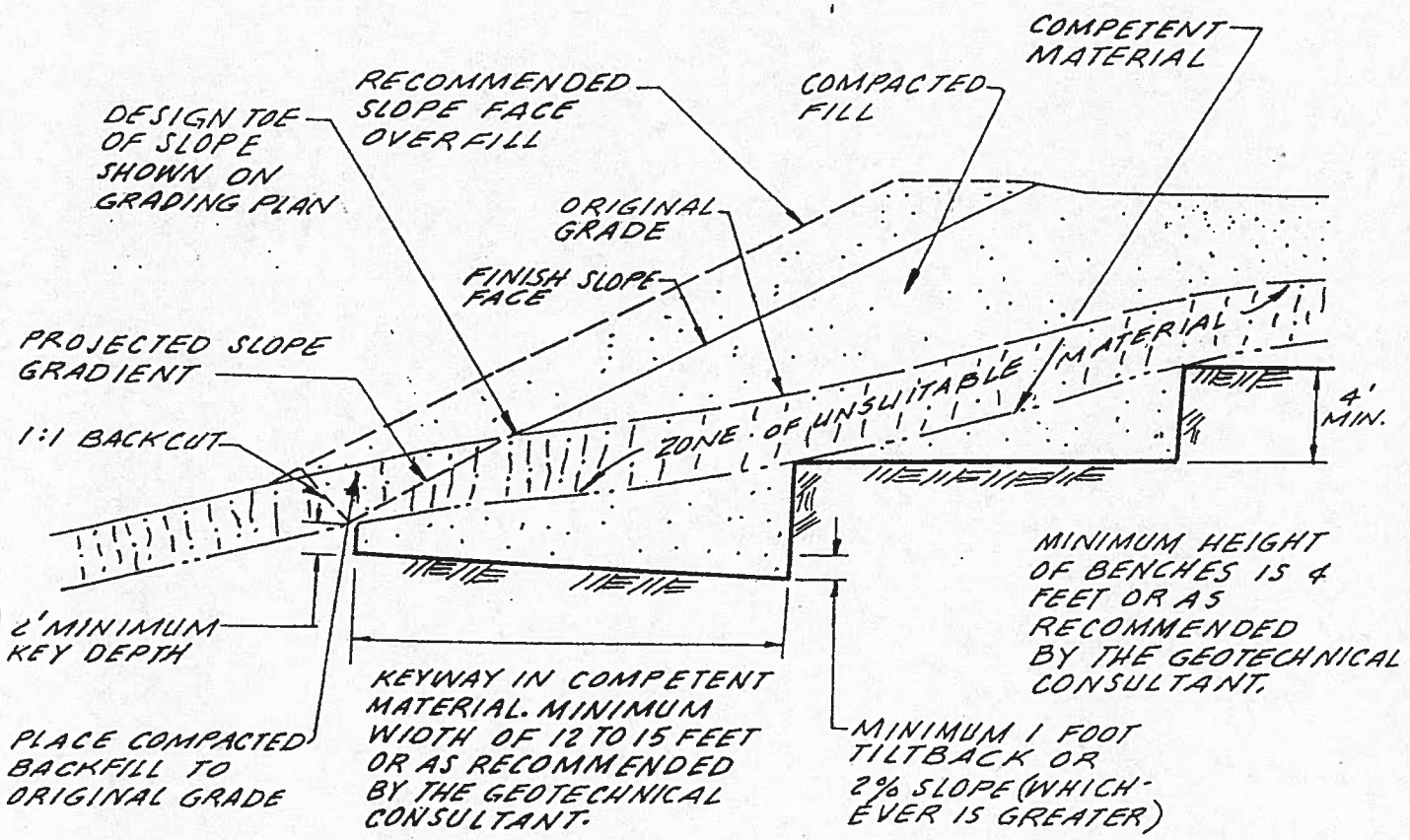
(N.T.S.)



NOTE: ALTERNATE DESIGN SHOULD BE REVIEWED BY THE GEOTECHNICAL CONSULTANT PRIOR TO CONSTRUCTION.

TYPICAL FILL ABOVE NATURAL SLOPE DETAIL

N.T.S.



NOTE: BENCHING SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE GEOTECHNICAL CONSULTANT.

APPENDIX A

LOGS OF SUBSURFACE EXPLORATION

GORIAN & ASSOCIATES, INC.
Applied Earth Sciences

BORING: B-1

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-27', 2050# 27-57'
Boring Diameter: 24" Surface Elevation: 964'± Logged by: CHD Date: 08/03/00

Work Order: 2272-1-0-11
Report Log No.: 20524

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
0							CL		COLLUVIUM: AT 0'-1.5'; Very dark grayish brown (10YR 3/2) sandy clay, some cobbles and gravel (damp, hard). Basalt clasts common.	
			4/ 12"	14.7	104		CL		: AT 1.5'-4.5'; Dark grayish brown (10YR 4/2) to grayish brown (10YR 5/2) sandy silty clay (damp to moist, hard). Some gravel. Few cobbles. At 4'; becoming very moist to wet.	
			4/ 12"	18.8	105					
5			6/ 12"	8.2	107		CL		: AT 4.5'-7'; Grayish brown (2.5Y 5/2) sandy clay with gravel (damp-moist, hard). Some cobbles. Below 5', hard drilling.	
							CL		OLDER ALLUVIUM: AT 7'-24'; Brownish yellow (10YR 6/6) silty clay mottled with light gray (5Y 7/2) (very moist, very stiff). Seepage at 7', Minor caving. At 15'; becoming stiff, very moist. At 23'; trace fine sand.	
10			2/ 12"	36.2	85					
15			1/ 12"	29.9	94					
20			1/ 12"	18.6	100					
25			1/ 12"	20.2	98		SM		: AT 24'-25'; Brownish yellow (10YR 6/6) silty fine to coarse sand, trace clay. Groundwater at 24'.	
							SC		: AT25'-27'; Brownish yellow (10YR 6/6) clayey fine sand (very moist, medium dense).	
							CL		: AT27'-27.5'; Brownish yellow (10YR 6/6) sandy clay (very moist, stiff).	
							CL		: AT 27.5'-31'; Yellowish brown (10YR 5/4) sandy clay (very moist, hard). Some gravel.	
30			11/ 12"	11.4	119					
							SC		: AT 31'-35'; Yellowish brown (10YR 5/4) clayey fine to coarse sand (saturated, dense). Common gravel, some cobbles.	

GORIAN & ASSOCIATES, INC
Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-27', 2050# 27-57'
Boring Diameter: 24" Surface Elevation: 964'±

Work Order: 2272-1-0-11
Report Log No.: 20524
Logged by: CHD Date: 08/03/00

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
35			7/ 12"	17.6	109		CL		: AT 35'-36.5'; Pale brown (10YR 6/3) silty clay, some coarse sand (moist, hard).	
							GC/ SC		: AT 36.5'-40.5'; Pale brown (10YR 6/3) clayey fine to coarse sand, common gravel. Interbedded with sandy clay.	
40			7/ 12"	26.3	100		CL		RESIDUAL SOIL: AT 40.5'-42.5'; Grayish brown (10YR 5/2) clay. Some coarse grains of sand (moist, hard). At 41'; crowd used to "get a bite". Few gravel.	
									CALABASAS FORMATION: AT 42.5'-46'; Olive gray (5Y 5/2) claystone. Fractured with iron oxide staining. At 45'; becoming greenish gray (10Y 5/1).	
45			6/ 12"	32.8	88					
									Total depth 46': Groundwater at 24', Caving from 5'-7', No Downhole.	
50										

GORIAN & ASSOCIATES, INC
Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-27', 2050# 27-57'
Boring Diameter: 24" Surface Elevation: 1018'± Logged by: CHD Date: 08/03/00 & 08/04/

BORING: B-2
Page 1 of 3
Work Order: 2272-1-0-11
Report Log No.: 20524

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
0							GM/ ML		COLLUVIUM: AT 0'-1'; Very dark grayish brown (10YR 3/2) silt (damp, stiff). Porous. Common gravel and cobbles of basalt and dacite.	
							CL		: AT 1'-3'; Very dark grayish brown (10YR 3/2) sandy clay (damp, stiff). Common gravel and cobbles. Some boulders.	
5			12/ 12"	9.4	106		GC/ SC		OLDER ALLUVIUM: AT 3'-20'; Brown (10YR 5/3) clayey fine to coarse sand (damp, very dense). Common gravel. Some cobbles. At 4'; core barrel used on large cobbles. At 4'; becoming yellowish brown (10YR 5/4) (moist, very dense). Very difficult drilling. Alternate core barrel and bucket auger. Rare shale fragments. At 16½'; crowd used. At 19'; common cobbles. Contact at 20'; is highly irregular, undulatory yet generally horizontal.	
10			9/ 10"							
15			14/ 9"	13.0	112					

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Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-27', 2050# 27-57'
Boring Diameter: 24" Surface Elevation: 1018'± Logged by: CHD Date: 08/03/00 & 08/04/

Work Order: 2272-1-0-11
Report Log No.: 20524

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
20			6/ 12"	17.4	102				CALABASAS FORMATION: AT 20'-41'; Pale olive (5Y 6/3) claystone (moist, hard). Fractured with manganese and iron oxide staining. After sample at 20'; 24" bucket auger used. Generally massive. Plastic deformation. At 25'; becoming interbedded with light olive gray (5Y 6/2) occasionally interbedded with brownish yellow (10YR 6/8) claystone. At 29½'; 1/2" thick silty fine sand interbed. At 30'; becoming interbedded with brown (10YR 5/3) to gray (5Y 6/1) claystone. At 32'; becoming interbedded with light yellowish brown (2.5Y 6/4) claystone. At 35'; 1/4" thick silty fine sand interbed. At 36'; minor interbed of light yellowish brown (2.5Y 6/4) siltstone (indurated). Not continuous.	
25			4/ 12"	23.6	100					APPROXIMATE ATTITUDE ON BEDDING AT 28' N75°E/12°NW
30			7/ 12"	15.7	108					ATTITUDE ON BEDDING AT 29½' N30°E/10°NW
35			7/ 12"	23.5	101					APPROXIMATE ATTITUDE ON BEDDING AT 35' N80°E/37°SE

GORIAN & ASSOCIATES, INC.
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Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
40	■		7/ 12"	27.7	97					
									Total depth 41': No caving, No groundwater, Downhole logged to 36'	
45										
50										

GORIAN & ASSOCIATES, INC.
Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-30', 2050# 30-60'
Boring Diameter: 24" Surface Elevation: 998'±

Work Order: 2272-1-0-11
Report Log No.: 20524
Logged by: JPQ Date: 08/08/2000

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
0							ML		COLLUVIUM: AT 0'-1.2'; grayish brown (10YR 5/2) clayey silt with gravel. Clasts to 1', subangular volcanics. (Hard).	
							CL		: AT 1.2'-2.5'; grayish brown (10YR 5/2) silty clay with gravel. Clasts to 1', subangular volcanics. (Hard). Basalt contact gradual.	
							GM/ ML		OLDER ALLUVIUM: AT 2.5'-15.3'; light olive brown (2.5Y 5/3) grading to light yellowish brown (10YR 6/4) clayey silt and gravel. Clasts subangular to subrounded, gravel and cobbles to 6" and chiefly composed of volcanics. Local areas with heavy limonitic staining. Minor manganese oxide. Few rootlets. Soil is hard to dense and breaks along polished fractures. Clear basal contact.	
5			8/ 12"	19.3	92					
10			15/ 10"	23.0	86					APPROXIMATE ATTITUDE ON POLISHED SURFACE AT 10.9' N73°W/52°NE
15			11/ 12"	14.4	85		SW		: AT 15.3'-16.9'; light yellowish brown (10YR 6/4) silty fine to coarse sand with gravel. Basal contact abrupt, planar. seepage.	
			2/ 12"	20.8	102				CALABASAS FORMATION: AT 16.9'+; olive gray (5Y 5/2) massive silty claystone. Very weathered and "sheared" to 17.3'; rootlets along plastic clay "seams" subparallel with upper contact. Below 17.3'; tightly fractured. Some fractures invaded by rootlets and calcium carbonate. Others stained by limonite. Thin plastic clay bed at 21', subparallel with limonite stained laminae of very fine-grained sandstone. Polished ? bedding surface at 29'. Bedding surface with subhorizontal striations, invaded by rootlets and calcium carbonate. Overall, bedding is poorly defined.	APPROXIMATE ATTITUDE ON CONTACT AT 16.9' N62°W/13°NE
20										APPROXIMATE ATTITUDE ON CLAYBED AT 21' N30°W/24°SW
25			2/ 12"	25.3	98					
30			7/ 12"	25.3	99					APPROXIMATE ATTITUDE ON BEDDING AT 29' N81°W/88°SW

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Hammer: 3450# 0-30', 2050# 30-60'
Boring Diameter: 24" Surface Elevation: 998'±

Work Order: 2272-1-0-11
Report Log No.: 20524
Logged by: JPQ Date: 08/08/2000

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
35	■		7/ 12"	19.0	104					APPROXIMATE ATTITUDE ON BEDDING AT 34½' N52°W/90°
40	■			23.8	102				: AT 40'-41'; dark gray to black silty claystone.	
45									Total depth 41': No caving, Moderate seepage at 15.3' to 16.9', Downhole logged to 35'	
50										

GORIAN & ASSOCIATES, INC
Applied Earth Sciences

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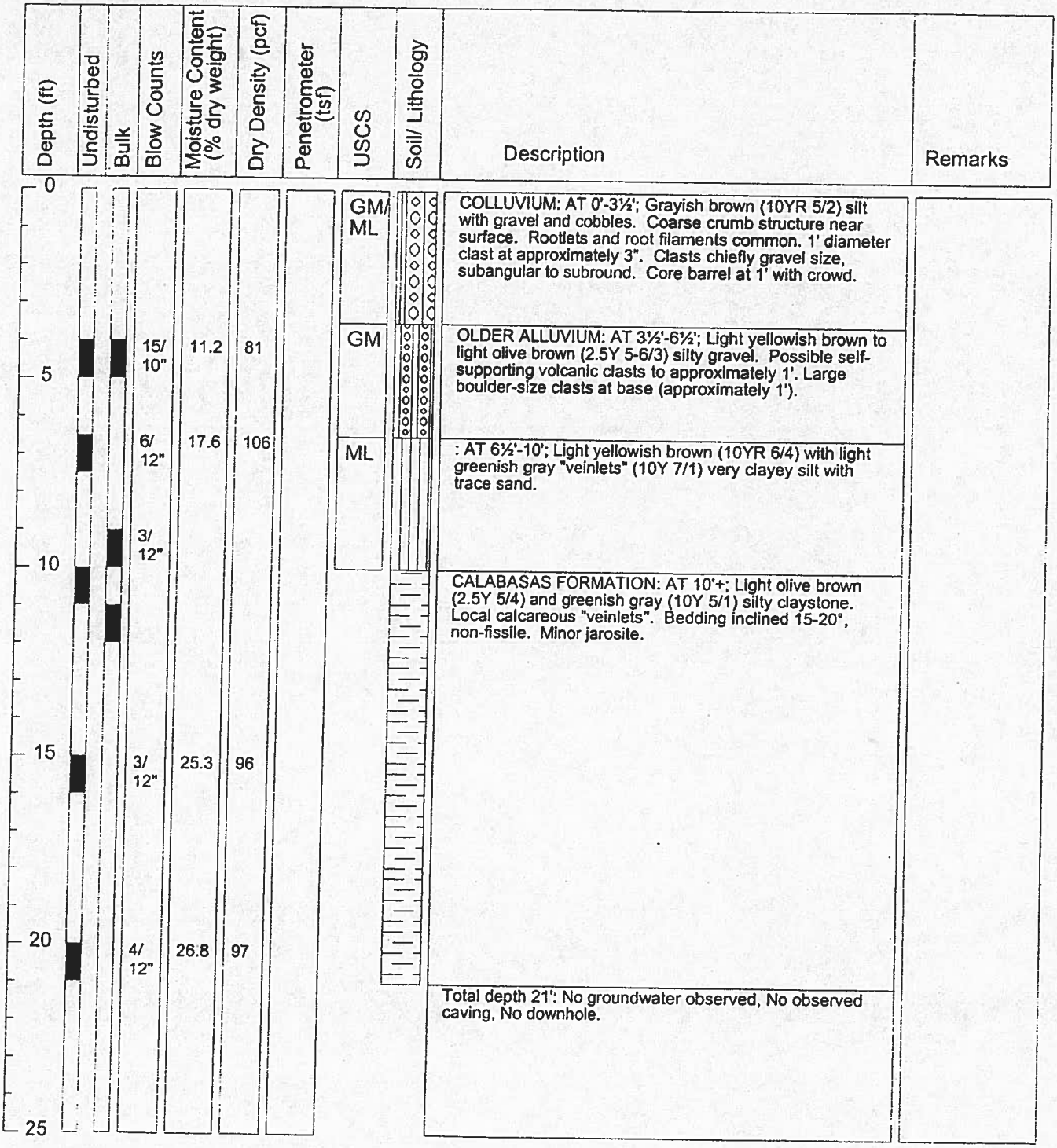
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-30', 2050# 30-60'
Boring Diameter: 24" Surface Elevation: 967'± Logged by: JPQ Date: 08/07/00

Work Order: 2272-1-0-11
Report Log No.: 20524



GORIAN & ASSOCIATES, INC.
Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-30', 2050# 30-60'
Boring Diameter: 24" Surface Elevation: 958'± Logged by: JPQ Date: 08/08/00

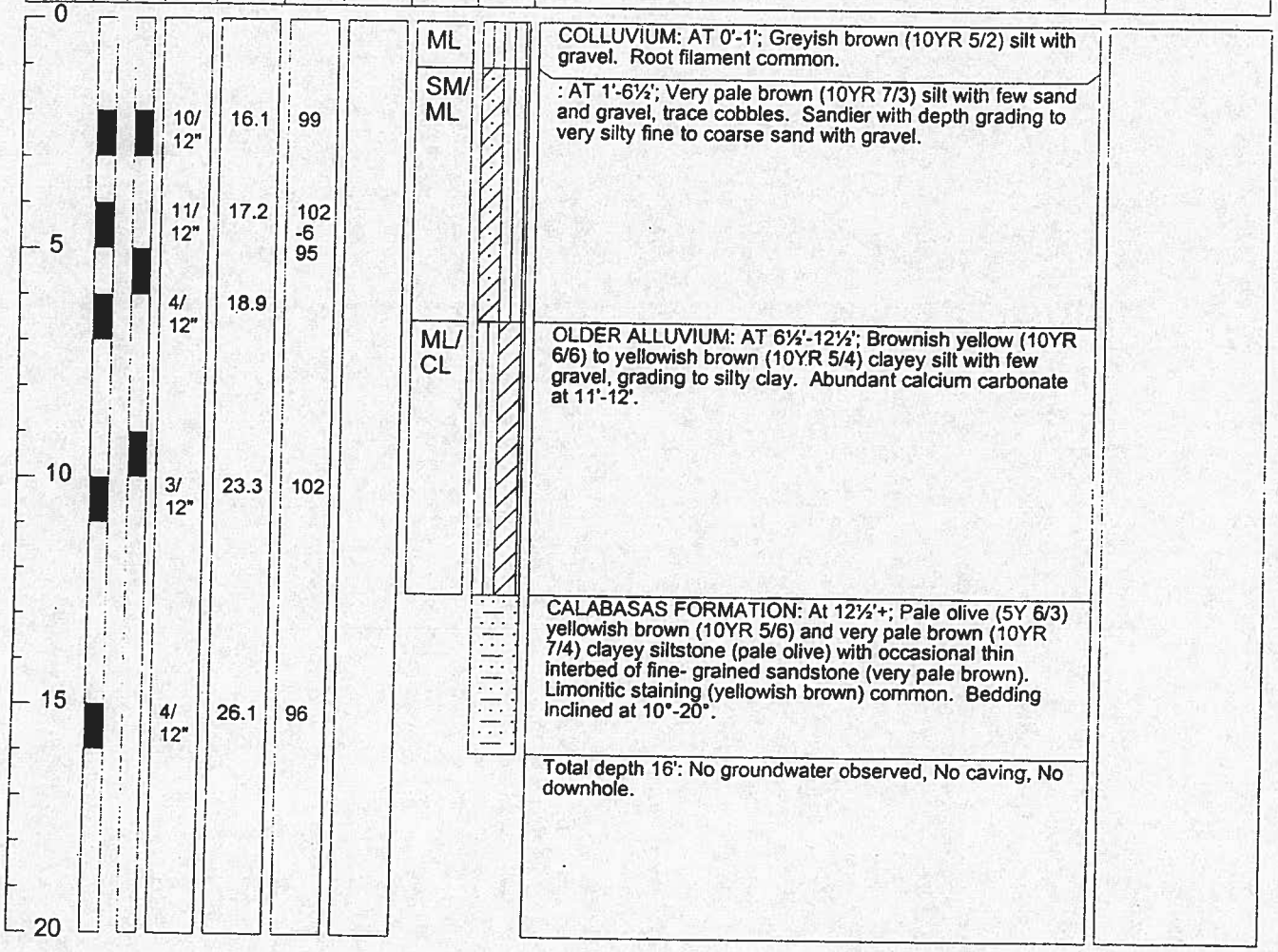
Work Order: 2272-1-0-11
Report Log No.: 20524

Depth (ft)	Undisturbed	Bulk	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	Penetrometer (tsf)	USCS	Soil/ Lithology	Description	Remarks
0							ML		FILL: AT 0'-1'; Dark grayish brown (10YR 4/2) very silty clay. Coarse crumb structure. Numerous root filaments disturbed by disking. Core bucket at 1' due to rock.	
							GM		COLLUVIUM: AT 1'-4½'; Dark grayish brown (10YR 4/2) silty gravel. Volcanic clasts to approximately 1'. (approximately 20% >6").	
5			7/ 12"	25.5	65		ML		OLDER ALLUVIUM: AT 4½'+; Light olive brown (2.5Y 5/3-4) to brownish yellow (10YR 6/6) with depth clayey silt with trace sand and gravel. Reduced adjacent to root traces. Thin interbed of wet fine sand in 15' sample (15'2").	
10			3/ 12"	27.1	97					
15			3/ 12"	33.2	90				Total depth 16': No groundwater observed (after 10 minutes), but wet at 15', No caving, No downhole.	
20										

GORIAN & ASSOCIATES, INC.
Applied Earth Sciences

Project: Khantzis, 30800 Block of Agoura Rd.
Drill Co. and Rig Type: TriValley, 24" Bucket Auger
Hammer: 3450# 0-30', 2050# 30-60'
Boring Diameter: 24" Surface Elevation: 977'±

BORING: B-6
Page 1 of 1
Work Order: 2272-1-0-11
Report Log No.: 20524
Logged by: JPQ Date: 08/08/00



APPENDIX B

LABORATORY TEST RESULTS

General

Recent laboratory test results on selected relatively undisturbed and bulk samples are presented below. Tests were performed to evaluate the physical and engineering properties of the encountered earth materials, including field moisture and density, compaction characteristics, expansion/consolidation potential, and shear strength.

Field Density and Moisture Tests

In situ dry density and moisture content were evaluated for relatively undisturbed samples obtained from the exploratory excavations. The test results and a detailed description of the soils encountered are shown on the attached logs.

Optimum Moisture-Maximum Density Curve

Maximum density/optimum moisture tests (compaction characteristics) were performed on selected bulk samples of the encountered materials. The results are as follows:

Boring	Depth (feet)	Visual Soil Classification	Maximum Dry Density – pcf	Optimum Moisture Content - %
B-3	25	Olive gray silty clay	107	18
B-4	9	Light yellowish brown clayey silt and fine sand	116	14
B-5	1	Dark grayish brown silty gravel	116.5	12.5
B-6	9	Brownish yellow clayey silt	105	20

Expansion Test

Selected samples of the encountered soils were tested for expansiveness. The samples were passed through the #10 sieve, wet to approximately 80% of the optimum moisture content, and compacted in a one inch thick ring. An axial load of 144 psf was applied to the sample and water was added to saturate the sample. Twenty-four hours after adding water, the amount of expansion was evaluated in terms of the "expansion index". The results are as follows:

Boring	Depth (feet)	Visual Soil Classification	Expansion Index	Index Range
B-3	25	Olive gray silty clay	80	51-90
B-6	9	Brownish yellow clayey silt	177	130+

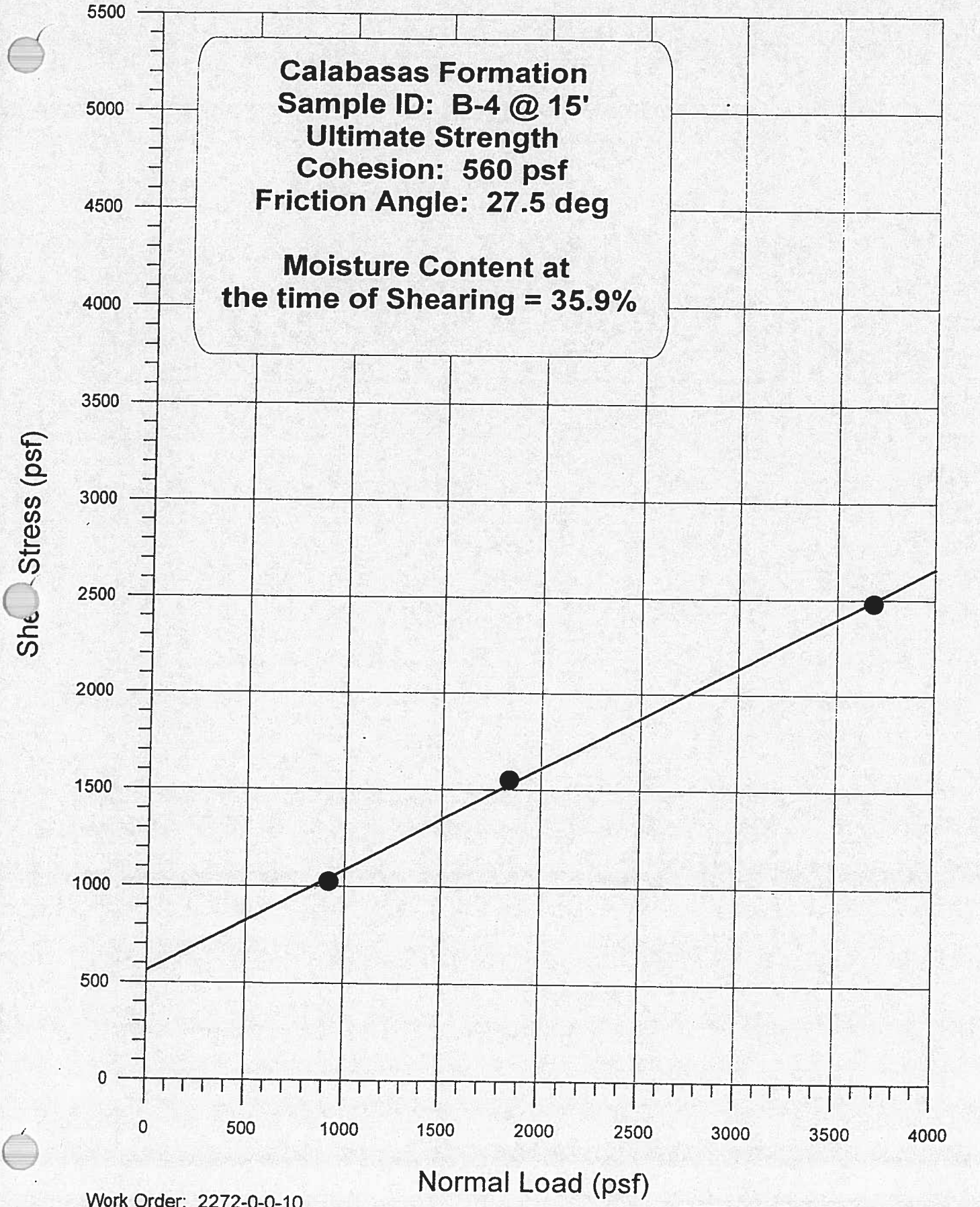
Direct Shear Tests

Strain controlled direct shear testing was performed on relatively undisturbed samples and remolded samples of the earth materials encountered during our exploratory program. Bulk samples were remolded to approximately 90% of the maximum density. The sample sets were saturated prior to shearing under axial loads ranging from 920 to 3,680 psf at a rate of 0.05 inches per minute. The shear strength results are attached as graphic summaries.

Load Consolidation/Hydroconsolidation Tests

Load consolidation tests were conducted on several relatively undisturbed soil samples. Test loads were added in increments to a maximum of 8,000 f. Water was added at an axial load of 1,000 psf to study the effect of moisture infiltration on potential consolidation behavior. The results are attached as graphic summaries.

RESULTS OF SHEARING STRENGTH TESTS



Work Order: 2272-0-0-10
Log Number: 20524

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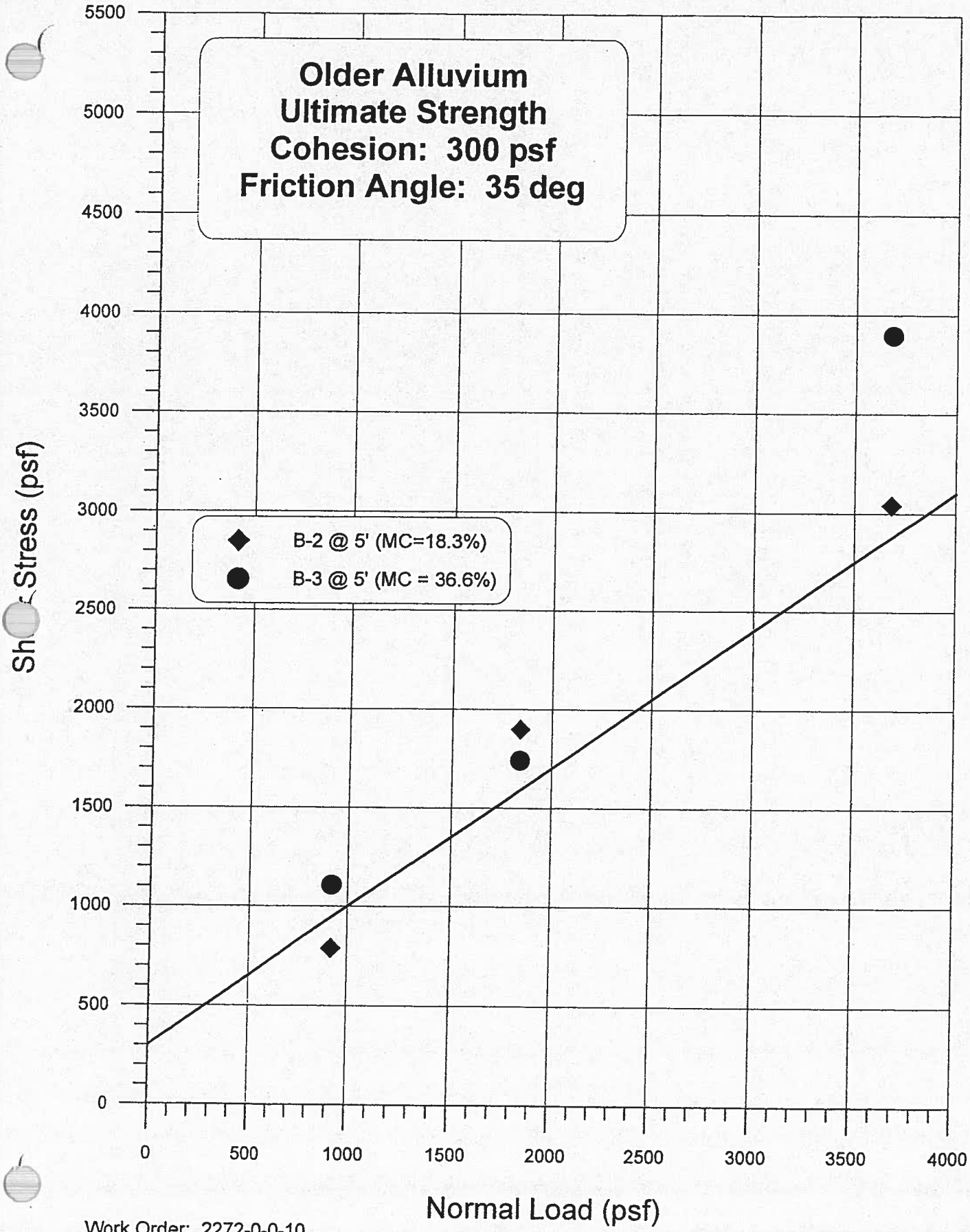
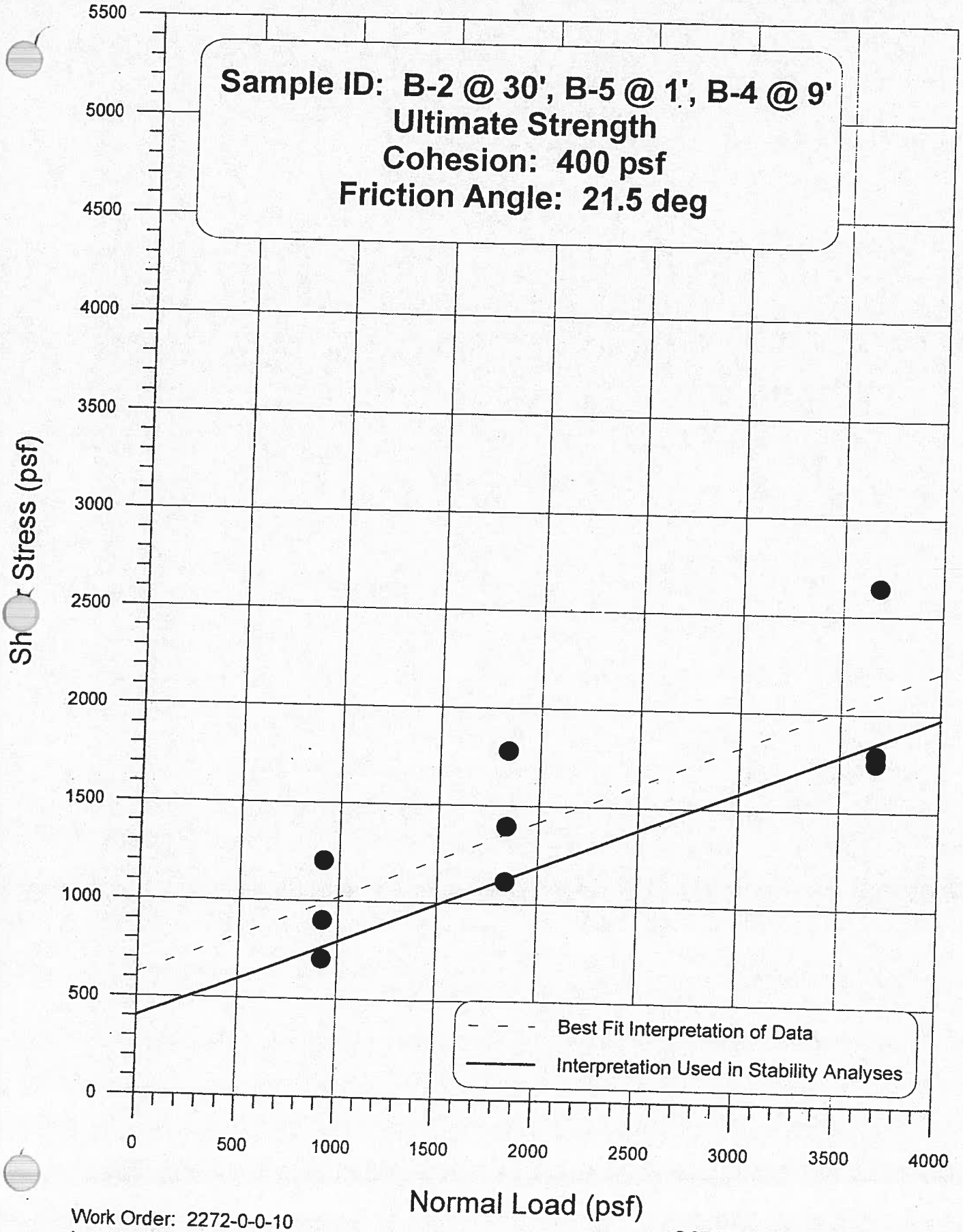
RESULTS OF SHEARING STRENGTH TESTS



Work Order: 2272-0-0-10
Log Number: 20524

GORIAN AND ASSOCIATES, INC.

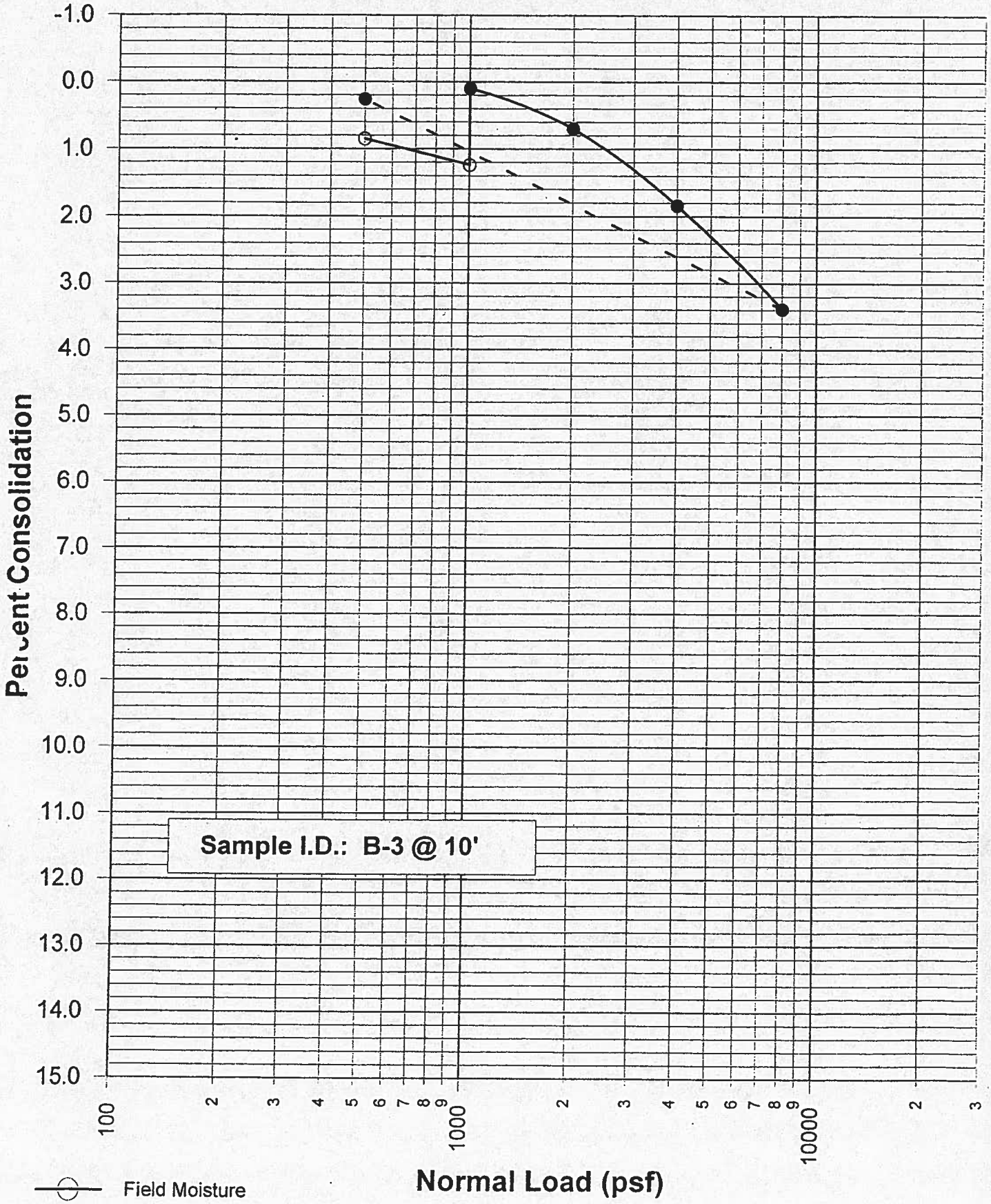
RESULTS OF SHEARING STRENGTH TESTS



Work Order: 2272-0-0-10
Log Number: 20524

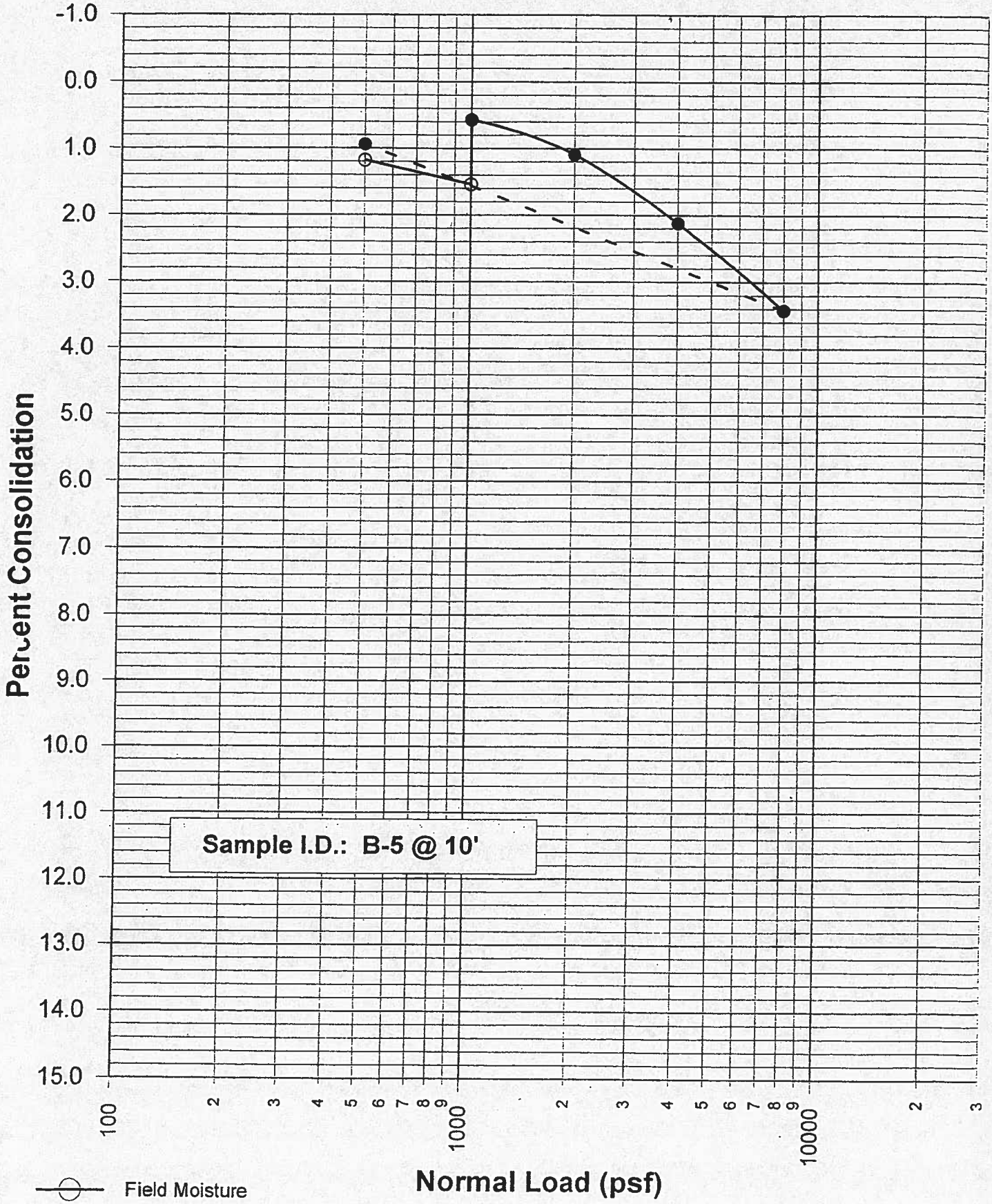
GORIAN AND ASSOCIATES, INC.

LOAD CONSOLIDATION TEST RESULTS



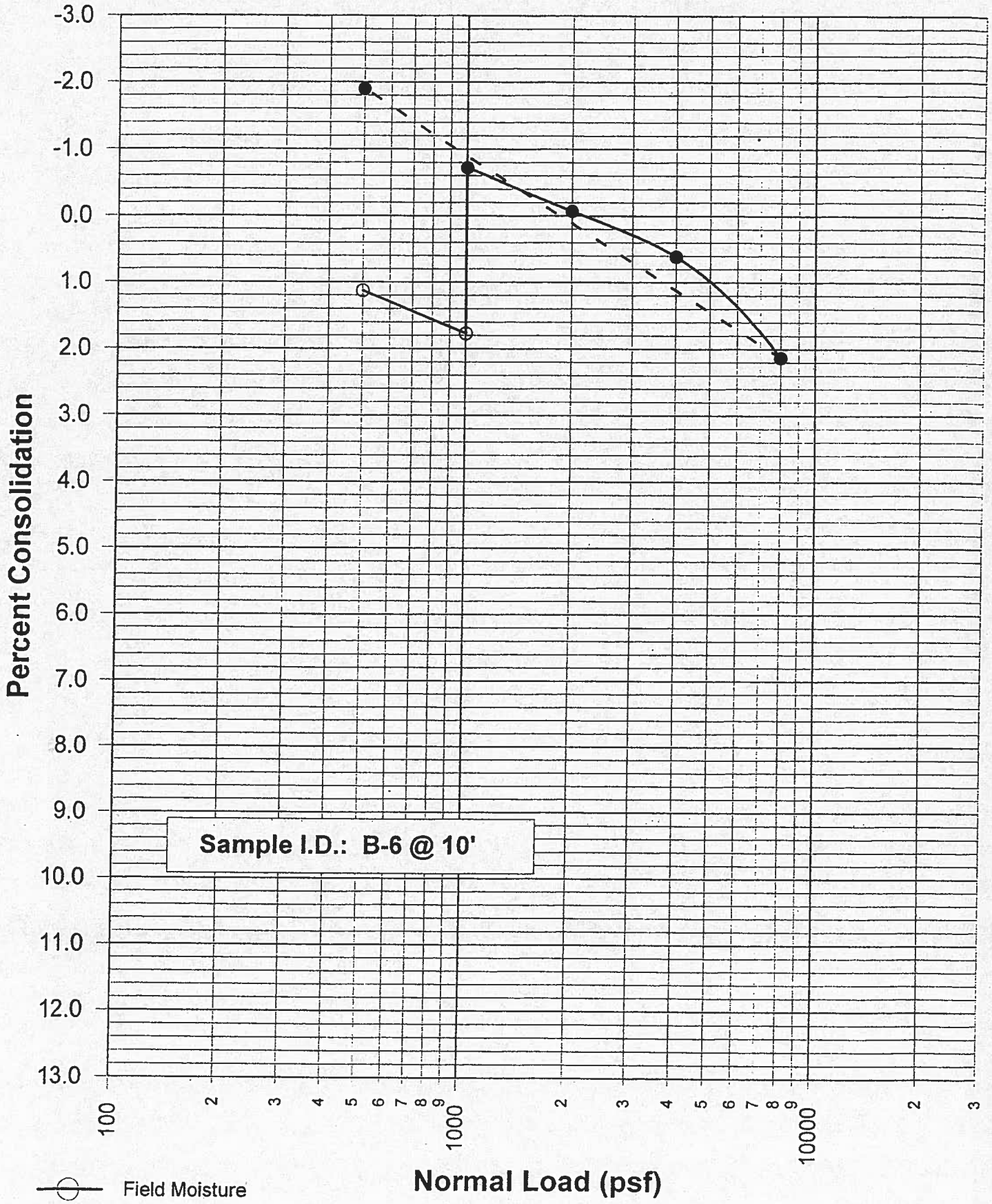
GORIAN AND ASSOCIATES, INC.
Work Order: 2272-1-0-11

LOAD CONSOLIDATION TEST RESULTS



GORIAN AND ASSOCIATES, INC.
Work Order: 2272-1-0-11

LOAD CONSOLIDATION TEST RESULTS



GORIAN AND ASSOCIATES, INC.
Work Order: 2272-1-0-11

APPENDIX C

RESULTS OF SLOPE STABILITY ANALYSES

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.16, May 2000 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/11/00
Time of Run: 1:05PM
Run By: GORIAN AND ASSOCIATES, INC.
Input Data Filename: D:2272a1w4.in
Output Filename: D:2272a1w4.OUT
Unit System: English
Plotted Output Filename: D:2272a1w4.PLT
PROBLEM DESCRIPTION APN# 2061-001-025, 30800 Block Agoura Rd
Section A-A' Static Global Stability

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 800.00 to Y-values listed.

32 Top Boundaries
49 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	169.00	31.00	169.00	1
2	31.00	169.00	36.00	170.00	1
3	36.00	170.00	72.00	158.00	1
4	72.00	158.00	113.00	165.00	2
5	113.00	165.00	114.00	175.00	1
6	114.00	175.00	197.00	175.00	1
7	197.00	175.00	231.00	175.00	2
8	231.00	175.00	231.50	182.00	2
9	231.50	182.00	232.00	190.00	1
10	232.00	190.00	260.00	190.00	1
11	260.00	190.00	286.00	190.00	2
12	286.00	190.00	286.50	195.00	2
13	286.50	195.00	287.00	200.00	1
14	287.00	200.00	312.00	202.00	1
15	312.00	202.00	345.00	205.00	2
16	345.00	205.00	345.50	210.00	2
17	345.50	210.00	346.00	215.00	1
18	346.00	215.00	464.00	231.00	1
19	464.00	231.00	538.00	265.00	4
20	538.00	265.00	792.00	323.00	4
21	792.00	323.00	891.00	346.00	4
22	891.00	346.00	960.00	384.00	4
23	960.00	384.00	1041.00	415.00	4
24	1041.00	415.00	1253.00	460.00	4
25	1253.00	460.00	1363.00	507.00	4
26	1363.00	507.00	1451.00	539.00	4
27	1451.00	539.00	1471.00	543.00	4
28	1471.00	543.00	1526.00	543.00	4
29	1526.00	543.00	1611.00	530.00	4
30	1611.00	530.00	1691.00	510.00	4
31	1691.00	510.00	1740.00	503.00	4
32	1740.00	503.00	1852.00	499.00	4
33	0.00	147.00	72.00	158.00	2
34	113.00	165.00	128.00	166.00	2
35	128.00	166.00	174.00	170.00	2
36	174.00	170.00	204.00	170.00	2
37	204.00	170.00	237.00	170.00	3
38	237.00	170.00	243.00	176.00	3
39	243.00	176.00	253.00	185.00	2
40	253.00	185.00	292.00	185.00	2
41	292.00	185.00	312.00	202.00	2
42	0.00	131.00	204.00	170.00	3
43	243.00	176.00	292.00	185.00	3
44	292.00	185.00	329.00	190.00	3
45	329.00	190.00	355.00	198.00	3
46	355.00	198.00	394.00	199.00	3
47	394.00	199.00	445.00	214.00	3

48	445.00	214.00	464.00	231.00	4
49	300.00	100.00	445.00	214.00	4

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	400.0	21.5	0.00	0.0	0
2	125.0	125.0	200.0	35.0	0.00	0.0	1
3	125.0	125.0	560.0	27.5	0.00	0.0	1
4	125.0	125.0	1000.0	26.0	0.00	312.0	0

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 14 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	0.00	147.00
2	72.00	158.00
3	113.00	165.00
4	128.00	166.00
5	174.00	170.00
6	237.00	170.00
7	253.00	185.00
8	292.00	185.00
9	329.00	190.00
10	355.00	198.00
11	394.00	199.00
12	445.00	214.00
13	464.00	231.00
14	1852.00	231.00

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

3000 Trial Surfaces Have Been Generated.

300 Surfaces Initiate From Each Of 10 Points Equally Spaced Along The Ground Surface Between X = 50.00(ft)
and X = 150.00(ft)

Each Surface Terminates Between X = 350.00(ft)
and X =1535.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft)

25.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 61 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	138.89	175.00
2	163.63	171.43
3	188.43	168.21
4	213.26	165.33
5	238.13	162.79
6	263.03	160.59
7	287.96	158.74
8	312.92	157.22
9	337.89	156.06
10	362.88	155.24
11	387.87	154.76
12	412.87	154.62
13	437.87	154.83
14	462.86	155.39
15	487.85	156.29
16	512.82	157.53
17	537.77	159.12
18	562.69	161.05
19	587.59	163.32
20	612.45	165.94
21	637.28	168.90
22	662.06	172.20
23	686.79	175.84

24	711.47	179.82
25	736.09	184.15
26	760.66	188.81
27	785.15	193.81
28	809.58	199.14
29	833.92	204.81
30	858.19	210.82
31	882.37	217.16
32	906.47	223.83
33	930.47	230.83
34	954.37	238.17
35	978.16	245.83
36	1001.85	253.82
37	1025.43	262.14
38	1048.89	270.77
39	1072.23	279.74
40	1095.44	289.02
41	1118.52	298.62
42	1141.47	308.54
43	1164.28	318.77
44	1186.95	329.32
45	1209.47	340.17
46	1231.83	351.34
47	1254.05	362.81
48	1276.10	374.59
49	1297.98	386.68
50	1319.70	399.06
51	1341.25	411.74
52	1362.62	424.71
53	1383.81	437.98
54	1404.81	451.54
55	1425.62	465.39
56	1446.25	479.52
57	1466.67	493.94
58	1486.90	508.63
59	1506.92	523.60
60	1526.73	538.85
61	1531.00	542.24

Circle Center At X = 410.1 ; Y = 1969.3 and Radius, 1814.7

*** 2.046 ***

Individual data on the 97 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)
1	24.7	5514.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	11.0	5903.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	13.8	10142.2	0.0	775.2	0.0	0.0	0.0	0.0	0.0
4	3.9	3388.5	0.0	489.0	0.0	0.0	0.0	0.0	0.0
5	4.7	4423.2	0.0	743.4	0.0	0.0	0.0	0.0	0.0
6	7.0	7167.9	0.0	1403.6	0.0	0.0	0.0	0.0	0.0
7	9.3	10572.3	0.0	2405.2	0.0	0.0	0.0	0.0	0.0
8	17.7	23461.0	0.0	6208.4	0.0	0.0	0.0	0.0	0.0
9	0.5	938.2	0.0	204.2	0.0	0.0	0.0	0.0	0.0
10	0.5	1410.1	0.0	205.8	0.0	0.0	0.0	0.0	0.0
11	5.0	16776.5	0.0	2145.9	0.0	0.0	0.0	0.0	0.0
12	1.1	3831.8	0.0	416.9	0.0	0.0	0.0	0.0	0.0
13	4.9	16700.7	0.0	2517.6	0.0	0.0	0.0	0.0	0.0
14	0.5	1720.3	0.0	322.8	0.0	0.0	0.0	0.0	0.0
15	9.5	33384.8	0.0	8505.9	0.0	0.0	0.0	0.0	0.0
16	7.0	25229.8	0.0	10451.2	0.0	0.0	0.0	0.0	0.0
17	3.0	11096.3	0.0	4611.1	0.0	0.0	0.0	0.0	0.0
18	23.0	86889.1	0.0	36309.1	0.0	0.0	0.0	0.0	0.0
19	0.5	2102.3	0.0	817.7	0.0	0.0	0.0	0.0	0.0
20	0.5	2417.1	0.0	818.9	0.0	0.0	0.0	0.0	0.0
21	1.0	4968.9	0.0	1580.9	0.0	0.0	0.0	0.0	0.0
22	4.0	21003.8	0.0	6658.8	0.0	0.0	0.0	0.0	0.0
23	20.0	108285.6	0.0	35271.0	0.0	0.0	0.0	0.0	0.0
24	0.9	5137.1	0.0	1734.5	0.0	0.0	0.0	0.0	0.0
25	16.1	92404.0	0.0	31923.9	0.0	0.0	0.0	0.0	0.0
26	8.9	52990.5	0.0	18651.2	0.0	0.0	0.0	0.0	0.0

27	7.1	43311.6	0.0	16090.5	0.0	0.0	0.0	0.0	0.0
28	0.5	3230.2	0.0	1170.3	0.0	0.0	0.0	0.0	0.0
29	0.5	3543.8	0.0	1175.4	0.0	0.0	0.0	0.0	0.0
30	9.0	67462.8	0.0	22026.8	0.0	0.0	0.0	0.0	0.0
31	7.9	60443.7	0.0	21009.6	0.0	0.0	0.0	0.0	0.0
32	7.2	56380.5	0.0	19384.3	0.0	0.0	0.0	0.0	0.0
33	17.8	143539.8	0.0	5551.9	0.0	0.0	0.0	0.0	0.0
34	6.1	50823.3	0.0	1911.9	0.0	0.0	0.0	0.0	0.0
35	18.9	160678.8	0.0	5888.1	0.0	0.0	0.0	0.0	0.0
36	25.0	221970.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
37	7.1	65075.9	0.0	2224.8	0.0	0.0	0.0	0.0	0.0
38	17.9	166240.6	0.0	5575.2	0.0	0.0	0.0	0.0	0.0
39	1.1	10714.9	0.0	354.4	0.0	0.0	0.0	0.0	0.0
40	23.8	240332.3	0.0	7445.6	0.0	0.0	0.0	0.0	0.0
41	25.0	283346.5	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
42	24.9	314476.0	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
43	0.2	3077.5	0.0	72.8	0.0	0.0	0.0	0.0	0.0
44	24.7	332504.0	0.0	7727.2	0.0	0.0	0.0	0.0	0.0
45	24.9	346351.6	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
46	24.9	355939.3	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
47	24.8	364342.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
48	24.8	371557.6	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
49	24.7	377587.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
50	24.7	382431.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
51	24.6	386091.1	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
52	24.6	388574.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
53	24.5	389883.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
54	6.8	109282.7	0.0	2187.0	0.0	0.0	0.0	0.0	0.0
55	17.6	280821.4	0.0	5613.0	0.0	0.0	0.0	0.0	0.0
56	24.3	389374.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
57	24.3	387507.3	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
58	24.2	384502.0	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
59	8.6	136545.5	0.0	2792.4	0.0	0.0	0.0	0.0	0.0
60	15.5	248586.2	0.0	5007.6	0.0	0.0	0.0	0.0	0.0
61	24.0	401364.1	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
62	0.5	9229.2	0.0	175.9	0.0	0.0	0.0	0.0	0.0
63	23.4	408470.6	0.0	7624.1	0.0	0.0	0.0	0.0	0.0
64	5.6	100957.2	0.0	1846.4	0.0	0.0	0.0	0.0	0.0
65	18.2	328236.8	0.0	5953.6	0.0	0.0	0.0	0.0	0.0
66	23.7	431315.4	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
67	23.6	431900.9	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
68	15.6	286147.0	0.0	5177.0	0.0	0.0	0.0	0.0	0.0
69	7.9	144488.0	0.0	2623.0	0.0	0.0	0.0	0.0	0.0
70	23.3	419794.0	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
71	23.2	405402.7	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
72	23.1	390065.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
73	22.9	373812.4	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
74	22.8	356670.5	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
75	22.7	338668.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
76	22.5	319839.5	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
77	22.4	300215.9	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
78	21.2	267066.0	0.0	7432.5	0.0	0.0	0.0	0.0	0.0
79	1.0	12776.2	0.0	367.5	0.0	0.0	0.0	0.0	0.0
80	22.1	265865.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
81	21.9	256924.9	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
82	21.7	247030.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
83	21.5	236211.9	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
84	21.4	224498.9	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
85	0.4	3922.9	0.0	140.7	0.0	0.0	0.0	0.0	0.0
86	20.8	206280.4	0.0	7659.2	0.0	0.0	0.0	0.0	0.0
87	21.0	193293.2	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
88	20.8	175685.0	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
89	20.6	157415.8	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
90	4.8	33835.1	0.0	1815.5	0.0	0.0	0.0	0.0	0.0
91	15.7	102178.1	0.0	5984.5	0.0	0.0	0.0	0.0	0.0
92	4.3	25462.7	0.0	1669.4	0.0	0.0	0.0	0.0	0.0
93	15.9	79764.3	0.0	6130.5	0.0	0.0	0.0	0.0	0.0
94	20.0	67272.3	0.0	7800.0	0.0	0.0	0.0	0.0	0.0
95	19.1	28749.2	0.0	7513.2	0.0	0.0	0.0	0.0	0.0
96	0.7	398.3	0.0	286.9	0.0	0.0	0.0	0.0	0.0
97	4.3	1078.0	0.0	1700.4	0.0	0.0	0.0	0.0	0.0

Failure Surface Specified By 63 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.33	159.94
2	108.17	157.08
3	133.04	154.53
4	157.94	152.29
5	182.86	150.35
6	207.81	148.72
7	232.78	147.39
8	257.75	146.37
9	282.74	145.66
10	307.74	145.26
11	332.74	145.16
12	357.74	145.37
13	382.73	145.89
14	407.72	146.71
15	432.70	147.84
16	457.65	149.28
17	482.59	151.02
18	507.51	153.07
19	532.40	155.43
20	557.26	158.09
21	582.08	161.06
22	606.86	164.33
23	631.61	167.91
24	656.30	171.79
25	680.95	175.97
26	705.55	180.46
27	730.08	185.24
28	754.56	190.33
29	778.97	195.72
30	803.32	201.41
31	827.59	207.39
32	851.79	213.68
33	875.90	220.26
34	899.94	227.14
35	923.89	234.31
36	947.75	241.77
37	971.51	249.53
38	995.18	257.58
39	1018.75	265.92
40	1042.21	274.55
41	1065.57	283.47
42	1088.82	292.67
43	1111.95	302.16
44	1134.96	311.93
45	1157.85	321.98
46	1180.61	332.31
47	1203.25	342.92
48	1225.75	353.81
49	1248.12	364.98
50	1270.35	376.42
51	1292.44	388.13
52	1314.38	400.11
53	1336.17	412.36
54	1357.81	424.88
55	1379.30	437.66
56	1400.62	450.70
57	1421.79	464.01
58	1442.79	477.57
59	1463.62	491.40
60	1484.28	505.47
61	1504.77	519.80
62	1525.08	534.38
63	1534.92	541.64

Circle Center At X = 328.2 ; Y = 2180.1 and Radius, 2034.9

*** 2.049 ***

Failure Surface Specified By 60 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	150.00	175.00
2	174.88	172.57
3	199.79	170.44
4	224.73	168.62
5	249.68	167.12
6	274.65	165.92
7	299.64	165.04
8	324.63	164.46
9	349.63	164.20
10	374.63	164.25
11	399.62	164.60
12	424.62	165.27
13	449.60	166.25
14	474.56	167.54
15	499.51	169.14
16	524.44	171.05
17	549.34	173.27
18	574.21	175.79
19	599.05	178.63
20	623.85	181.77
21	648.61	185.23
22	673.33	188.99
23	698.00	193.05
24	722.61	197.43
25	747.17	202.11
26	771.67	207.09
27	796.10	212.38
28	820.47	217.97
29	844.76	223.86
30	868.98	230.06
31	893.13	236.55
32	917.18	243.35
33	941.16	250.44
34	965.04	257.83
35	988.83	265.52
36	1012.52	273.50
37	1036.11	281.77
38	1059.60	290.34
39	1082.97	299.20
40	1106.24	308.35
41	1129.39	317.79
42	1152.42	327.51
43	1175.33	337.52
44	1198.11	347.81
45	1220.77	358.39
46	1243.29	369.25
47	1265.67	380.38
48	1287.91	391.79
49	1310.01	403.48
50	1331.96	415.44
51	1353.77	427.68
52	1375.41	440.18
53	1396.91	452.95
54	1418.24	465.99
55	1439.40	479.29
56	1460.40	492.86
57	1481.24	506.68
58	1501.89	520.76
59	1522.37	535.10
60	1532.07	542.07

Circle Center At X = 358.4 ; Y = 2175.8 and Radius, 2011.6

*** 2.051 ***

Failure Surface Specified By 61 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	150.00	175.00
2	174.57	170.36
3	199.20	166.11
4	223.90	162.23
5	248.65	158.74
6	273.46	155.62

7	298.31	152.89
8	323.20	150.54
9	348.12	148.58
10	373.07	147.00
11	398.04	145.80
12	423.03	144.99
13	448.03	144.56
14	473.03	144.52
15	498.02	144.87
16	523.01	145.60
17	547.99	146.71
18	572.94	148.21
19	597.87	150.09
20	622.77	152.36
21	647.63	155.01
22	672.44	158.04
23	697.21	161.46
24	721.92	165.25
25	746.57	169.43
26	771.15	173.98
27	795.66	178.91
28	820.09	184.22
29	844.43	189.91
30	868.69	195.97
31	892.85	202.40
32	916.90	209.21
33	940.85	216.38
34	964.69	223.92
35	988.40	231.83
36	1011.99	240.10
37	1035.46	248.74
38	1058.78	257.73
39	1081.96	267.09
40	1105.00	276.80
41	1127.89	286.86
42	1150.61	297.28
43	1173.18	308.04
44	1195.57	319.15
45	1217.80	330.60
46	1239.84	342.40
47	1261.70	354.53
48	1283.37	367.00
49	1304.84	379.80
50	1326.12	392.93
51	1347.19	406.38
52	1368.05	420.16
53	1388.69	434.26
54	1409.12	448.68
55	1429.32	463.40
56	1449.29	478.44
57	1469.03	493.78
58	1488.53	509.43
59	1507.78	525.37
60	1526.79	541.61
61	1528.02	542.69

Circle Center At X = 463.2 ; Y = 1767.4 and Radius, 1622.9

*** 2.051 ***

Failure Surface Specified By 61 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	150.00	175.00
2	174.55	170.26
3	199.16	165.89
4	223.84	161.91
5	248.58	158.30
6	273.37	155.08
7	298.21	152.24
8	323.09	149.79
9	348.00	147.72
10	372.95	146.03
11	397.91	144.73

12	422.90	143.81
13	447.89	143.28
14	472.89	143.13
15	497.89	143.37
16	522.88	143.99
17	547.86	145.00
18	572.82	146.40
19	597.76	148.18
20	622.67	150.34
21	647.54	152.89
22	672.36	155.82
23	697.14	159.13
24	721.87	162.83
25	746.53	166.90
26	771.13	171.36
27	795.66	176.19
28	820.11	181.41
29	844.48	187.00
30	868.76	192.96
31	892.94	199.30
32	917.02	206.01
33	941.00	213.09
34	964.86	220.54
35	988.61	228.35
36	1012.23	236.53
37	1035.73	245.08
38	1059.09	253.98
39	1082.31	263.25
40	1105.38	272.87
41	1128.31	282.85
42	1151.07	293.18
43	1173.68	303.85
44	1196.11	314.88
45	1218.38	326.25
46	1240.46	337.96
47	1262.37	350.02
48	1284.08	362.40
49	1305.60	375.13
50	1326.93	388.18
51	1348.04	401.56
52	1368.95	415.26
53	1389.65	429.29
54	1410.13	443.63
55	1430.38	458.28
56	1450.41	473.25
57	1470.20	488.52
58	1489.75	504.10
59	1509.06	519.97
60	1528.13	536.15
61	1534.48	541.70

Circle Center At X = 469.9 ; Y = 1764.3 and Radius, 1621.2

*** 2.051 ***

Failure Surface Specified By 63 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.33	159.94
2	108.13	156.71
3	132.96	153.81
4	157.82	151.23
5	182.72	148.98
6	207.65	147.04
7	232.59	145.43
8	257.56	144.15
9	282.54	143.18
10	307.53	142.54
11	332.53	142.23
12	357.53	142.24
13	382.53	142.57
14	407.52	143.23
15	432.50	144.21
16	457.47	145.51

17	482.41	147.14
18	507.34	149.09
19	532.23	151.37
20	557.10	153.97
21	581.93	156.88
22	606.72	160.13
23	631.46	163.69
24	656.16	167.57
25	680.80	171.77
26	705.39	176.29
27	729.92	181.13
28	754.38	186.29
29	778.77	191.76
30	803.09	197.55
31	827.34	203.66
32	851.50	210.08
33	875.58	216.81
34	899.56	223.85
35	923.46	231.20
36	947.26	238.87
37	970.95	246.84
38	994.54	255.11
39	1018.02	263.69
40	1041.39	272.58
41	1064.64	281.77
42	1087.77	291.25
43	1110.77	301.04
44	1133.65	311.13
45	1156.39	321.51
46	1179.00	332.18
47	1201.47	343.15
48	1223.79	354.40
49	1245.96	365.95
50	1267.99	377.78
51	1289.85	389.90
52	1311.56	402.29
53	1333.11	414.97
54	1354.49	427.93
55	1375.70	441.16
56	1396.74	454.67
57	1417.60	468.45
58	1438.28	482.50
59	1458.77	496.81
60	1479.08	511.39
61	1499.20	526.23
62	1519.13	541.33
63	1521.27	543.00

Circle Center At X = 344.3 ; Y = 2070.7 and Radius, 1928.5

*** 2.052 ***

Failure Surface Specified By 61 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	127.78	175.00
2	152.46	171.01
3	177.19	167.37
4	201.98	164.09
5	226.80	161.17
6	251.67	158.60
7	276.57	156.40
8	301.51	154.55
9	326.46	153.05
10	351.44	151.92
11	376.42	151.15
12	401.42	150.73
13	426.42	150.68
14	451.42	150.98
15	476.41	151.65
16	501.39	152.67
17	526.35	154.05
18	551.29	155.80
19	576.20	157.89

20	601.08	160.35
21	625.92	163.17
22	650.72	166.34
23	675.47	169.87
24	700.17	173.75
25	724.80	177.99
26	749.38	182.58
27	773.89	187.52
28	798.32	192.82
29	822.67	198.46
30	846.94	204.46
31	871.12	210.81
32	895.21	217.50
33	919.20	224.53
34	943.09	231.92
35	966.86	239.64
36	990.53	247.70
37	1014.07	256.11
38	1037.49	264.85
39	1060.79	273.93
40	1083.95	283.34
41	1106.97	293.08
42	1129.85	303.16
43	1152.58	313.56
44	1175.17	324.29
45	1197.59	335.34
46	1219.86	346.71
47	1241.95	358.40
48	1263.88	370.41
49	1285.63	382.73
50	1307.21	395.36
51	1328.60	408.30
52	1349.80	421.55
53	1370.81	435.10
54	1391.62	448.95
55	1412.23	463.10
56	1432.63	477.55
57	1452.83	492.28
58	1472.81	507.31
59	1492.57	522.62
60	1512.11	538.21
61	1517.94	543.00

Circle Center At X = 417.7 ; Y = 1889.6 and Radius, 1739.0

*** 2.052 ***

Failure Surface Specified By 63 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	72.22	158.04
2	96.93	154.20
3	121.68	150.70
4	146.48	147.54
5	171.32	144.72
6	196.20	142.23
7	221.10	140.09
8	246.04	138.28
9	271.00	136.82
10	295.97	135.69
11	320.96	134.91
12	345.95	134.47
13	370.95	134.36
14	395.95	134.60
15	420.95	135.18
16	445.93	136.10
17	470.90	137.36
18	495.85	138.97
19	520.77	140.91
20	545.67	143.19
21	570.53	145.81
22	595.35	148.77
23	620.13	152.06
24	644.87	155.70

25	669.55	159.67
26	694.18	163.98
27	718.74	168.62
28	743.24	173.60
29	767.67	178.91
30	792.03	184.56
31	816.30	190.53
32	840.49	196.84
33	864.60	203.47
34	888.61	210.44
35	912.52	217.73
36	936.33	225.34
37	960.04	233.28
38	983.63	241.54
39	1007.11	250.13
40	1030.47	259.03
41	1053.71	268.25
42	1076.82	277.79
43	1099.80	287.64
44	1122.64	297.80
45	1145.34	308.27
46	1167.90	319.06
47	1190.30	330.14
48	1212.56	341.54
49	1234.65	353.23
50	1256.59	365.23
51	1278.35	377.52
52	1299.95	390.11
53	1321.38	402.99
54	1342.63	416.17
55	1363.69	429.63
56	1384.57	443.38
57	1405.26	457.41
58	1425.76	471.72
59	1446.06	486.31
60	1466.16	501.18
61	1486.06	516.31
62	1505.74	531.72
63	1519.76	543.00

Circle Center At X = 365.9 ; Y = 1967.7 and Radius, 1833.4

*** 2.052 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.56	163.73
2	130.24	159.74
3	154.97	156.10
4	179.75	152.81
5	204.58	149.86
6	229.44	147.27
7	254.34	145.02
8	279.27	143.13
9	304.22	141.59
10	329.19	140.39
11	354.18	139.55
12	379.17	139.06
13	404.17	138.92
14	429.17	139.13
15	454.17	139.69
16	479.15	140.61
17	504.12	141.87
18	529.07	143.49
19	553.99	145.46
20	578.88	147.77
21	603.74	150.44
22	628.56	153.45
23	653.33	156.82
24	678.05	160.53
25	702.72	164.59
26	727.33	168.99
27	751.87	173.74

28	776.35	178.84
29	800.75	184.28
30	825.07	190.06
31	849.31	196.18
32	873.46	202.64
33	897.52	209.45
34	921.48	216.58
35	945.33	224.06
36	969.08	231.87
37	992.72	240.01
38	1016.24	248.48
39	1039.64	257.29
40	1062.91	266.42
41	1086.05	275.88
42	1109.06	285.66
43	1131.93	295.76
44	1154.65	306.19
45	1177.22	316.93
46	1199.64	327.99
47	1221.91	339.36
48	1244.01	351.05
49	1265.94	363.04
50	1287.71	375.34
51	1309.30	387.95
52	1330.71	400.86
53	1351.93	414.07
54	1372.97	427.57
55	1393.82	441.37
56	1414.47	455.46
57	1434.92	469.84
58	1455.16	484.51
59	1475.20	499.46
60	1495.03	514.69
61	1514.64	530.19
62	1529.68	542.44

Circle Center At X = 401.6 ; Y = 1917.4 and Radius, 1778.5

*** 2.053 ***

Failure Surface Specified By 64 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	72.22	158.04
2	96.80	153.48
3	121.45	149.28
4	146.15	145.43
5	170.90	141.93
6	195.71	138.80
7	220.55	136.02
8	245.43	133.59
9	270.35	131.53
10	295.29	129.82
11	320.25	128.48
12	345.23	127.49
13	370.23	126.86
14	395.23	126.60
15	420.23	126.69
16	445.22	127.14
17	470.21	127.95
18	495.18	129.12
19	520.13	130.65
20	545.06	132.54
21	569.96	134.78
22	594.83	137.39
23	619.65	140.35
24	644.43	143.67
25	669.16	147.34
26	693.83	151.37
27	718.44	155.76
28	742.99	160.50
29	767.46	165.59
30	791.87	171.03
31	816.18	176.82

32	840.42	182.97
33	864.56	189.46
34	888.61	196.29
35	912.55	203.47
36	936.39	211.00
37	960.12	218.87
38	983.74	227.08
39	1007.23	235.62
40	1030.60	244.51
41	1053.84	253.73
42	1076.94	263.28
43	1099.90	273.17
44	1122.72	283.38
45	1145.39	293.92
46	1167.91	304.79
47	1190.26	315.98
48	1212.45	327.49
49	1234.48	339.31
50	1256.33	351.46
51	1278.01	363.91
52	1299.50	376.68
53	1320.81	389.75
54	1341.93	403.13
55	1362.85	416.82
56	1383.58	430.80
57	1404.10	445.08
58	1424.41	459.65
59	1444.52	474.51
60	1464.40	489.66
61	1484.07	505.10
62	1503.51	520.81
63	1522.72	536.81
64	1529.35	542.49

Circle Center At X = 401.4 ; Y = 1864.1 and Radius, 1737.6

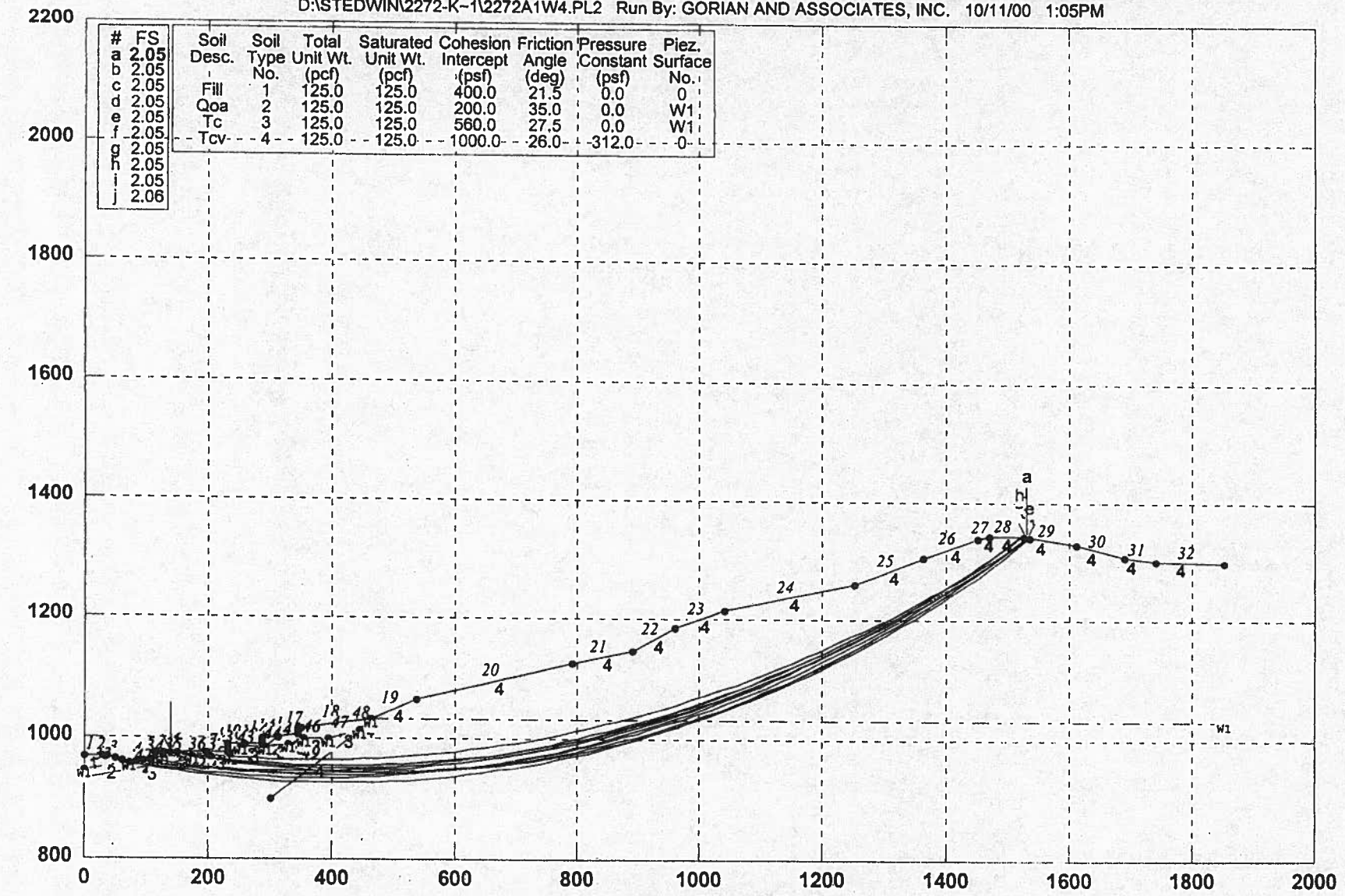
*** 2.055 ***

APN# 2061-001-025, 30800 Block Agoura RdSection A-A' Static Global Stability

D:\STEDWIN\2272-K~1\2272A1W4.PL2 Run By: GORIAN AND ASSOCIATES, INC. 10/11/00 1:05PM

#	FS
a	2.05
b	2.05
c	2.05
d	2.05
e	2.05
f	2.05
g	2.05
h	2.05
i	2.05
j	2.06

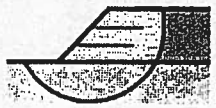
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pressure Constant (psf)	Piez. Surface No.
Fill	1	125.0	125.0	400.0	21.5	0.0	0
Qoa	2	125.0	125.0	200.0	35.0	0.0	W1
Tc	3	125.0	125.0	560.0	27.5	0.0	W1
Tcv	4	125.0	125.0	1000.0	26.0	-312.0	0



GSTABL7 FSmin=2.05

Safety Factors Are Calculated By The Modified Bishop Method

STED



*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.16, May 2000 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/11/00
Time of Run: 1:11PM
Run By: GORIAN AND ASSOCIATES, INC.
Input Data Filename: D:2272a14q.in
Output Filename: D:2272a14q.OUT
Unit System: English
Plotted Output Filename: D:2272a14q.PLT
PROBLEM DESCRIPTION APN# 2061-001-025, 30800 Block Agoura Rd
Section A-A' Pseudostatic Stability

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 800.00 to Y-values listed.

32 Top Boundaries
49 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	169.00	31.00	169.00	1
2	31.00	169.00	36.00	170.00	1
3	36.00	170.00	72.00	158.00	1
4	72.00	158.00	113.00	165.00	2
5	113.00	165.00	114.00	175.00	1
6	114.00	175.00	197.00	175.00	1
7	197.00	175.00	231.00	175.00	2
8	231.00	175.00	231.50	182.00	2
9	231.50	182.00	232.00	190.00	1
10	232.00	190.00	260.00	190.00	1
11	260.00	190.00	286.00	190.00	2
12	286.00	190.00	286.50	195.00	2
13	286.50	195.00	287.00	200.00	1
14	287.00	200.00	312.00	202.00	1
15	312.00	202.00	345.00	205.00	2
16	345.00	205.00	345.50	210.00	2
17	345.50	210.00	346.00	215.00	1
18	346.00	215.00	464.00	231.00	1
19	464.00	231.00	538.00	265.00	4
20	538.00	265.00	792.00	323.00	4
21	792.00	323.00	891.00	346.00	4
22	891.00	346.00	960.00	384.00	4
23	960.00	384.00	1041.00	415.00	4
24	1041.00	415.00	1253.00	460.00	4
25	1253.00	460.00	1363.00	507.00	4
26	1363.00	507.00	1451.00	539.00	4
27	1451.00	539.00	1471.00	543.00	4
28	1471.00	543.00	1526.00	543.00	4
29	1526.00	543.00	1611.00	530.00	4
30	1611.00	530.00	1691.00	510.00	4
31	1691.00	510.00	1740.00	503.00	4
32	1740.00	503.00	1852.00	499.00	4
33	0.00	147.00	72.00	158.00	2
34	113.00	165.00	128.00	166.00	2
35	128.00	166.00	174.00	170.00	2
36	174.00	170.00	204.00	170.00	2
37	204.00	170.00	237.00	170.00	3
38	237.00	170.00	243.00	176.00	3
39	243.00	176.00	253.00	185.00	2
40	253.00	185.00	292.00	185.00	2
41	292.00	185.00	312.00	202.00	2
42	0.00	131.00	204.00	170.00	3
43	243.00	176.00	292.00	185.00	3
44	292.00	185.00	329.00	190.00	3
45	329.00	190.00	355.00	198.00	3
46	355.00	198.00	394.00	199.00	3
47	394.00	199.00	445.00	214.00	3

```
    48        445.00      214.00      464.00      231.00        4
    49        300.00      100.00      445.00      214.00        4
ISOTROPIC SOIL PARAMETERS
 4 Type(s) of Soil
 Soil  Total  Saturated  Cohesion Friction   Pore   Pressure   Piez.
 Type Unit Wt. Unit Wt. Intercept   Angle  Pressure Constant Surface
  No.  (pcf)    (pcf)     (psf)     (deg)   Param.    (psf)     No.
   1   125.0    125.0     400.0     21.5    0.00       0.0      0
   2   125.0    125.0     200.0     35.0    0.00       0.0      1
   3   125.0    125.0     560.0     27.5    0.00       0.0      1
   4   125.0    125.0    1000.0     26.0    0.00     312.0      0
 1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
 Unit Weight of Water =  62.40
 Piezometric Surface No.  1 Specified by 14 Coordinate Points
   Point      X-Water     Y-Water
    No.         (ft)        (ft)
     1          0.00      147.00
     2         72.00      158.00
     3        113.00      165.00
     4        128.00      166.00
     5        174.00      170.00
     6        237.00      170.00
     7        253.00      185.00
     8        292.00      185.00
     9        329.00      190.00
    10        355.00      198.00
    11        394.00      199.00
    12        445.00      214.00
    13        464.00      231.00
    14       1852.00      231.00
 A Horizontal Earthquake Loading Coefficient
 Of0.150 Has Been Assigned
 A Vertical Earthquake Loading Coefficient
 Of0.000 Has Been Assigned
 Cavitation Pressure =    0.0(psf)
 A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
3000 Trial Surfaces Have Been Generated.
 300 Surfaces Initiate From Each Of 10 Points Equally Spaced
 Along The Ground Surface Between  X =  50.00(ft)
                                  and  X = 150.00(ft)
 Each Surface Terminates Between  X = 350.00(ft)
                                  and  X =1535.00(ft)
 Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is  Y =   0.00(ft)
 25.00(ft) Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial
      Failure Surfaces Examined.  They Are Ordered - Most Critical
      First.
       * * Safety Factors Are Calculated By The Modified Bishop Method * *
       Failure Surface Specified By 63 Coordinate Points
         Point      X-Surf      Y-Surf
          No.         (ft)        (ft)
           1         83.33      159.94
           2        108.17      157.08
           3        133.04      154.53
           4        157.94      152.29
           5        182.86      150.35
           6        207.81      148.72
           7        232.78      147.39
           8        257.75      146.37
           9        282.74      145.66
          10        307.74      145.26
          11        332.74      145.16
          12        357.74      145.37
          13        382.73      145.89
          14        407.72      146.71
          15        432.70      147.84
          16        457.65      149.28
          17        482.59      151.02
          18        507.51      153.07
```

19	532.40	155.43
20	557.26	158.09
21	582.08	161.06
22	606.86	164.33
23	631.61	167.91
24	656.30	171.79
25	680.95	175.97
26	705.55	180.46
27	730.08	185.24
28	754.56	190.33
29	778.97	195.72
30	803.32	201.41
31	827.59	207.39
32	851.79	213.68
33	875.90	220.26
34	899.94	227.14
35	923.89	234.31
36	947.75	241.77
37	971.51	249.53
38	995.18	257.58
39	1018.75	265.92
40	1042.21	274.55
41	1065.57	283.47
42	1088.82	292.67
43	1111.95	302.16
44	1134.96	311.93
45	1157.85	321.98
46	1180.61	332.31
47	1203.25	342.92
48	1225.75	353.81
49	1248.12	364.98
50	1270.35	376.42
51	1292.44	388.13
52	1314.38	400.11
53	1336.17	412.36
54	1357.81	424.88
55	1379.30	437.66
56	1400.62	450.70
57	1421.79	464.01
58	1442.79	477.57
59	1463.62	491.40
60	1484.28	505.47
61	1504.77	519.80
62	1525.08	534.38
63	1534.92	541.64

Circle Center At X = 328.2 ; Y = 2180.1 and Radius, 2034.9

*** 1.302 ***

Individual data on the 102 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force Hor (lbs)	Earthquake Force Ver (lbs)	Surcharge Load (lbs)	
1	24.8	11014.3	0.0	5456.1	0.0	0.0	1652.1	0.0	0.0	
2	4.8	4682.1	0.0	2316.3	0.0	0.0	702.3	0.0	0.0	
3	1.0	1683.3	0.0	532.0	0.0	0.0	252.5	0.0	0.0	
4	12.6	30076.1	0.0	7581.5	0.0	0.0	4511.4	0.0	0.0	
5	1.4	3586.2	0.0	978.3	0.0	0.0	537.9	0.0	0.0	
6	5.0	12733.1	0.0	3600.1	0.0	0.0	1910.0	0.0	0.0	
7	24.9	67202.9	0.0	21933.5	0.0	0.0	10080.4	0.0	0.0	
8	16.1	46855.2	0.0	17666.1	0.0	0.0	7028.3	0.0	0.0	
9	8.9	26932.0	0.0	10711.2	0.0	0.0	4039.8	0.0	0.0	
10	14.1	44378.3	0.0	17781.0	0.0	0.0	6656.7	0.0	0.0	
11	7.0	22580.1	0.0	9107.4	0.0	0.0	3387.0	0.0	0.0	
12	3.8	12459.7	0.0	5041.8	0.0	0.0	1869.0	0.0	0.0	
13	23.2	77973.3	0.0	31733.7	0.0	0.0	11696.0	0.0	0.0	
14	0.5	1939.3	0.0	703.9	0.0	0.0	290.9	0.0	0.0	
15	0.5	2409.7	0.0	704.7	0.0	0.0	361.5	0.0	0.0	
16	0.8	4127.2	0.0	1094.3	0.0	0.0	619.1	0.0	0.0	
17	4.2	22547.0	0.0	5988.0	0.0	0.0	3382.0	0.0	0.0	
18	6.0	32177.7	0.0	7382.3	0.0	0.0	4826.7	0.0	0.0	
19	0.5	2676.1	0.0	687.7	0.0	0.0	401.4	0.0	0.0	

20	9.5	51361.1	0.0	15360.6	0.0	0.0	7704.2	0.0	0.0
21	4.8	25870.8	0.0	11440.8	0.0	0.0	3880.6	0.0	0.0
22	2.2	12254.6	0.0	5419.1	0.0	0.0	1838.2	0.0	0.0
23	22.7	125137.1	0.0	55394.6	0.0	0.0	18770.6	0.0	0.0
24	3.3	18054.5	0.0	7998.1	0.0	0.0	2708.2	0.0	0.0
25	0.5	2931.0	0.0	1229.3	0.0	0.0	439.6	0.0	0.0
26	0.5	3244.0	0.0	1229.6	0.0	0.0	486.6	0.0	0.0
27	5.0	34155.1	0.0	12309.4	0.0	0.0	5123.3	0.0	0.0
28	15.7	109490.3	0.0	39604.1	0.0	0.0	16423.6	0.0	0.0
29	4.3	30121.5	0.0	11105.5	0.0	0.0	4518.2	0.0	0.0
30	17.0	122326.7	0.0	45882.9	0.0	0.0	18349.0	0.0	0.0
31	3.7	27378.3	0.0	10141.6	0.0	0.0	4106.8	0.0	0.0
32	12.3	90765.7	0.0	35004.4	0.0	0.0	13614.8	0.0	0.0
33	0.5	3889.7	0.0	1484.7	0.0	0.0	583.5	0.0	0.0
34	0.5	4201.9	0.0	1489.2	0.0	0.0	630.3	0.0	0.0
35	9.0	79089.1	0.0	27568.8	0.0	0.0	11863.4	0.0	0.0
36	2.7	24035.6	0.0	8893.7	0.0	0.0	3605.3	0.0	0.0
37	0.0	298.9	0.0	10.5	0.0	0.0	44.8	0.0	0.0
38	25.0	227009.0	0.0	7800.0	0.0	0.0	34051.4	0.0	0.0
39	11.3	105150.9	0.0	3516.7	0.0	0.0	15772.6	0.0	0.0
40	13.7	130272.6	0.0	4283.3	0.0	0.0	19540.9	0.0	0.0
41	25.0	242832.7	0.0	7800.0	0.0	0.0	36424.9	0.0	0.0
42	12.3	122112.1	0.0	3845.4	0.0	0.0	18316.8	0.0	0.0
43	12.7	127121.8	0.0	3954.6	0.0	0.0	19068.3	0.0	0.0
44	6.3	64306.3	0.0	1984.7	0.0	0.0	9645.9	0.0	0.0
45	18.6	197316.7	0.0	5815.3	0.0	0.0	29597.5	0.0	0.0
46	24.9	290325.4	0.0	7800.0	0.0	0.0	43548.8	0.0	0.0
47	24.9	318750.9	0.0	7800.0	0.0	0.0	47812.6	0.0	0.0
48	5.6	75619.0	0.0	1757.9	0.0	0.0	11342.9	0.0	0.0
49	19.3	265094.8	0.0	6042.1	0.0	0.0	39764.2	0.0	0.0
50	24.8	349560.3	0.0	7800.0	0.0	0.0	52434.0	0.0	0.0
51	24.8	356903.5	0.0	7800.0	0.0	0.0	53535.5	0.0	0.0
52	24.7	363197.5	0.0	7800.0	0.0	0.0	54479.6	0.0	0.0
53	24.7	368442.0	0.0	7800.0	0.0	0.0	55266.3	0.0	0.0
54	24.6	372640.8	0.0	7800.0	0.0	0.0	55896.1	0.0	0.0
55	24.6	375795.7	0.0	7800.0	0.0	0.0	56369.4	0.0	0.0
56	24.5	377909.7	0.0	7800.0	0.0	0.0	56686.5	0.0	0.0
57	24.5	378989.6	0.0	7800.0	0.0	0.0	56848.4	0.0	0.0
58	24.4	379041.4	0.0	7800.0	0.0	0.0	56856.2	0.0	0.0
59	13.0	202373.3	0.0	4174.2	0.0	0.0	30356.0	0.0	0.0
60	11.3	175729.6	0.0	3625.8	0.0	0.0	26359.4	0.0	0.0
61	24.3	376370.5	0.0	7800.0	0.0	0.0	56455.6	0.0	0.0
62	24.2	373673.5	0.0	7800.0	0.0	0.0	56051.0	0.0	0.0
63	24.1	369979.3	0.0	7800.0	0.0	0.0	55496.9	0.0	0.0
64	15.1	229881.4	0.0	4898.8	0.0	0.0	34482.2	0.0	0.0
65	8.9	137008.9	0.0	2901.2	0.0	0.0	20551.3	0.0	0.0
66	12.9	202227.4	0.0	4201.6	0.0	0.0	30334.1	0.0	0.0
67	11.0	177354.0	0.0	3598.4	0.0	0.0	26603.1	0.0	0.0
68	23.9	395591.7	0.0	7800.0	0.0	0.0	59338.8	0.0	0.0
69	12.3	209581.6	0.0	4021.0	0.0	0.0	31437.2	0.0	0.0
70	11.5	199413.7	0.0	3779.0	0.0	0.0	29912.1	0.0	0.0
71	23.7	412365.0	0.0	7800.0	0.0	0.0	61854.7	0.0	0.0
72	23.6	413098.6	0.0	7800.0	0.0	0.0	61964.8	0.0	0.0
73	22.2	391389.1	0.0	7396.2	0.0	0.0	58708.4	0.0	0.0
74	1.2	21379.5	0.0	403.8	0.0	0.0	3206.9	0.0	0.0
75	23.4	405018.3	0.0	7800.0	0.0	0.0	60752.8	0.0	0.0
76	23.2	391137.9	0.0	7800.0	0.0	0.0	58670.7	0.0	0.0
77	23.1	376417.2	0.0	7800.0	0.0	0.0	56462.6	0.0	0.0
78	23.0	360881.3	0.0	7800.0	0.0	0.0	54132.2	0.0	0.0
79	22.9	344552.0	0.0	7800.0	0.0	0.0	51682.8	0.0	0.0
80	22.8	327450.2	0.0	7800.0	0.0	0.0	49117.5	0.0	0.0
81	22.6	309601.3	0.0	7800.0	0.0	0.0	46440.2	0.0	0.0
82	22.5	291029.9	0.0	7800.0	0.0	0.0	43654.5	0.0	0.0
83	22.4	271761.2	0.0	7800.0	0.0	0.0	40764.2	0.0	0.0
84	4.9	56884.5	0.0	1712.4	0.0	0.0	8532.7	0.0	0.0
85	17.3	198981.7	0.0	6087.6	0.0	0.0	29847.3	0.0	0.0
86	22.1	248094.8	0.0	7800.0	0.0	0.0	37214.2	0.0	0.0
87	21.9	239766.7	0.0	7800.0	0.0	0.0	35965.0	0.0	0.0
88	21.8	230587.9	0.0	7800.0	0.0	0.0	34588.2	0.0	0.0
89	21.6	220580.4	0.0	7800.0	0.0	0.0	33087.1	0.0	0.0
90	5.2	51535.1	0.0	1883.3	0.0	0.0	7730.3	0.0	0.0

91	16.3	157176.6	0.0	5916.7	0.0	0.0	23576.5	0.0	0.0
92	21.3	193602.4	0.0	7800.0	0.0	0.0	29040.4	0.0	0.0
93	21.2	177715.4	0.0	7800.0	0.0	0.0	26657.3	0.0	0.0
94	21.0	161185.9	0.0	7800.0	0.0	0.0	24177.9	0.0	0.0
95	8.2	58715.8	0.0	3074.3	0.0	0.0	8807.4	0.0	0.0
96	12.6	83697.7	0.0	4725.7	0.0	0.0	12554.7	0.0	0.0
97	7.4	44599.1	0.0	2785.9	0.0	0.0	6689.9	0.0	0.0
98	13.3	69812.6	0.0	5014.2	0.0	0.0	10471.9	0.0	0.0
99	20.5	77749.7	0.0	7800.0	0.0	0.0	11662.5	0.0	0.0
100	20.3	40381.9	0.0	7800.0	0.0	0.0	6057.3	0.0	0.0
101	0.9	956.9	0.0	358.4	0.0	0.0	143.5	0.0	0.0
102	8.9	4424.7	0.0	3456.9	0.0	0.0	663.7	0.0	0.0

Failure Surface Specified By 63 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	72.22	158.04
2	96.93	154.20
3	121.68	150.70
4	146.48	147.54
5	171.32	144.72
6	196.20	142.23
7	221.10	140.09
8	246.04	138.28
9	271.00	136.82
10	295.97	135.69
11	320.96	134.91
12	345.95	134.47
13	370.95	134.36
14	395.95	134.60
15	420.95	135.18
16	445.93	136.10
17	470.90	137.36
18	495.85	138.97
19	520.77	140.91
20	545.67	143.19
21	570.53	145.81
22	595.35	148.77
23	620.13	152.06
24	644.87	155.70
25	669.55	159.67
26	694.18	163.98
27	718.74	168.62
28	743.24	173.60
29	767.67	178.91
30	792.03	184.56
31	816.30	190.53
32	840.49	196.84
33	864.60	203.47
34	888.61	210.44
35	912.52	217.73
36	936.33	225.34
37	960.04	233.28
38	983.63	241.54
39	1007.11	250.13
40	1030.47	259.03
41	1053.71	268.25
42	1076.82	277.79
43	1099.80	287.64
44	1122.64	297.80
45	1145.34	308.27
46	1167.90	319.06
47	1190.30	330.14
48	1212.56	341.54
49	1234.65	353.23
50	1256.59	365.23
51	1278.35	377.52
52	1299.95	390.11
53	1321.38	402.99
54	1342.63	416.17
55	1363.69	429.63
56	1384.57	443.38

57	1405.26	457.41
58	1425.76	471.72
59	1446.06	486.31
60	1466.16	501.18
61	1486.06	516.31
62	1505.74	531.72
63	1519.76	543.00

Circle Center At X = 365.9 ; Y = 1967.7 and Radius, 1833.4

*** 1.303 ***

Failure Surface Specified By 63 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.33	159.94
2	108.13	156.71
3	132.96	153.81
4	157.82	151.23
5	182.72	148.98
6	207.65	147.04
7	232.59	145.43
8	257.56	144.15
9	282.54	143.18
10	307.53	142.54
11	332.53	142.23
12	357.53	142.24
13	382.53	142.57
14	407.52	143.23
15	432.50	144.21
16	457.47	145.51
17	482.41	147.14
18	507.34	149.09
19	532.23	151.37
20	557.10	153.97
21	581.93	156.88
22	606.72	160.13
23	631.46	163.69
24	656.16	167.57
25	680.80	171.77
26	705.39	176.29
27	729.92	181.13
28	754.38	186.29
29	778.77	191.76
30	803.09	197.55
31	827.34	203.66
32	851.50	210.08
33	875.58	216.81
34	899.56	223.85
35	923.46	231.20
36	947.26	238.87
37	970.95	246.84
38	994.54	255.11
39	1018.02	263.69
40	1041.39	272.58
41	1064.64	281.77
42	1087.77	291.25
43	1110.77	301.04
44	1133.65	311.13
45	1156.39	321.51
46	1179.00	332.18
47	1201.47	343.15
48	1223.79	354.40
49	1245.96	365.95
50	1267.99	377.78
51	1289.85	389.90
52	1311.56	402.29
53	1333.11	414.97
54	1354.49	427.93
55	1375.70	441.16
56	1396.74	454.67
57	1417.60	468.45
58	1438.28	482.50
59	1458.77	496.81

60	1479.08	511.39
61	1499.20	526.23
62	1519.13	541.33
63	1521.27	543.00

Circle Center At X = 344.3 ; Y = 2070.7 and Radius, 1928.5

*** 1.304 ***

Failure Surface Specified By 64 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	72.22	158.04
2	96.80	153.48
3	121.45	149.28
4	146.15	145.43
5	170.90	141.93
6	195.71	138.80
7	220.55	136.02
8	245.43	133.59
9	270.35	131.53
10	295.29	129.82
11	320.25	128.48
12	345.23	127.49
13	370.23	126.86
14	395.23	126.60
15	420.23	126.69
16	445.22	127.14
17	470.21	127.95
18	495.18	129.12
19	520.13	130.65
20	545.06	132.54
21	569.96	134.78
22	594.83	137.39
23	619.65	140.35
24	644.43	143.67
25	669.16	147.34
26	693.83	151.37
27	718.44	155.76
28	742.99	160.50
29	767.46	165.59
30	791.87	171.03
31	816.18	176.82
32	840.42	182.97
33	864.56	189.46
34	888.61	196.29
35	912.55	203.47
36	936.39	211.00
37	960.12	218.87
38	983.74	227.08
39	1007.23	235.62
40	1030.60	244.51
41	1053.84	253.73
42	1076.94	263.28
43	1099.90	273.17
44	1122.72	283.38
45	1145.39	293.92
46	1167.91	304.79
47	1190.26	315.98
48	1212.45	327.49
49	1234.48	339.31
50	1256.33	351.46
51	1278.01	363.91
52	1299.50	376.68
53	1320.81	389.75
54	1341.93	403.13
55	1362.85	416.82
56	1383.58	430.80
57	1404.10	445.08
58	1424.41	459.65
59	1444.52	474.51
60	1464.40	489.66
61	1484.07	505.10
62	1503.51	520.81

63	1522.72	536.81
64	1529.35	542.49

Circle Center At X = 401.4 ; Y = 1864.1 and Radius, 1737.6

*** 1.305 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	105.56	163.73
2	130.24	159.74
3	154.97	156.10
4	179.75	152.81
5	204.58	149.86
6	229.44	147.27
7	254.34	145.02
8	279.27	143.13
9	304.22	141.59
10	329.19	140.39
11	354.18	139.55
12	379.17	139.06
13	404.17	138.92
14	429.17	139.13
15	454.17	139.69
16	479.15	140.61
17	504.12	141.87
18	529.07	143.49
19	553.99	145.46
20	578.88	147.77
21	603.74	150.44
22	628.56	153.45
23	653.33	156.82
24	678.05	160.53
25	702.72	164.59
26	727.33	168.99
27	751.87	173.74
28	776.35	178.84
29	800.75	184.28
30	825.07	190.06
31	849.31	196.18
32	873.46	202.64
33	897.52	209.45
34	921.48	216.58
35	945.33	224.06
36	969.08	231.87
37	992.72	240.01
38	1016.24	248.48
39	1039.64	257.29
40	1062.91	266.42
41	1086.05	275.88
42	1109.06	285.66
43	1131.93	295.76
44	1154.65	306.19
45	1177.22	316.93
46	1199.64	327.99
47	1221.91	339.36
48	1244.01	351.05
49	1265.94	363.04
50	1287.71	375.34
51	1309.30	387.95
52	1330.71	400.86
53	1351.93	414.07
54	1372.97	427.57
55	1393.82	441.37
56	1414.47	455.46
57	1434.92	469.84
58	1455.16	484.51
59	1475.20	499.46
60	1495.03	514.69
61	1514.64	530.19
62	1529.68	542.44

Circle Center At X = 401.6 ; Y = 1917.4 and Radius, 1778.5

*** 1.307 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	94.44	161.83
2	119.20	158.36
3	144.01	155.23
4	168.85	152.43
5	193.73	149.98
6	218.64	147.85
7	243.57	146.07
8	268.53	144.62
9	293.51	143.51
10	318.50	142.74
11	343.49	142.31
12	368.49	142.22
13	393.49	142.46
14	418.48	143.05
15	443.47	143.97
16	468.43	145.23
17	493.38	146.83
18	518.31	148.77
19	543.20	151.04
20	568.07	153.65
21	592.89	156.60
22	617.68	159.88
23	642.41	163.50
24	667.10	167.45
25	691.73	171.74
26	716.30	176.36
27	740.80	181.32
28	765.24	186.60
29	789.60	192.22
30	813.88	198.16
31	838.08	204.43
32	862.19	211.03
33	886.22	217.96
34	910.14	225.21
35	933.97	232.79
36	957.69	240.68
37	981.30	248.90
38	1004.80	257.44
39	1028.17	266.29
40	1051.43	275.46
41	1074.56	284.94
42	1097.56	294.74
43	1120.43	304.84
44	1143.16	315.26
45	1165.74	325.98
46	1188.18	337.01
47	1210.46	348.34
48	1232.59	359.97
49	1254.56	371.90
50	1276.37	384.13
51	1298.01	396.65
52	1319.48	409.46
53	1340.77	422.56
54	1361.88	435.95
55	1382.81	449.62
56	1403.55	463.58
57	1424.10	477.82
58	1444.46	492.33
59	1464.62	507.12
60	1484.57	522.17
61	1504.32	537.50
62	1511.21	543.00

Circle Center At X = 362.9 ; Y = 1987.6 and Radius, 1845.4

*** 1.308 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	94.44	161.83

2	119.28	158.99
3	144.15	156.46
4	169.06	154.24
5	193.98	152.34
6	218.93	150.76
7	243.90	149.50
8	268.88	148.55
9	293.88	147.92
10	318.87	147.61
11	343.87	147.62
12	368.87	147.94
13	393.86	148.58
14	418.85	149.54
15	443.81	150.82
16	468.76	152.41
17	493.69	154.32
18	518.59	156.55
19	543.46	159.09
20	568.30	161.95
21	593.09	165.12
22	617.85	168.61
23	642.56	172.41
24	667.22	176.53
25	691.82	180.96
26	716.37	185.70
27	740.85	190.75
28	765.27	196.12
29	789.62	201.79
30	813.89	207.77
31	838.09	214.06
32	862.20	220.66
33	886.23	227.56
34	910.17	234.77
35	934.01	242.28
36	957.76	250.09
37	981.41	258.20
38	1004.95	266.62
39	1028.38	275.33
40	1051.70	284.34
41	1074.91	293.64
42	1097.99	303.24
43	1120.95	313.13
44	1143.78	323.31
45	1166.49	333.78
46	1189.05	344.54
47	1211.48	355.59
48	1233.77	366.92
49	1255.91	378.53
50	1277.90	390.42
51	1299.74	402.59
52	1321.42	415.03
53	1342.94	427.75
54	1364.30	440.75
55	1385.49	454.01
56	1406.51	467.54
57	1427.36	481.34
58	1448.03	495.40
59	1468.52	509.72
60	1488.83	524.30
61	1508.95	539.14
62	1514.05	543.00

Circle Center At X = 330.9 ; Y = 2115.3 and Radius, 1967.7

*** 1.309 ***

Failure Surface Specified By 61 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	138.89	175.00
2	163.63	171.43
3	188.43	168.21
4	213.26	165.33
5	238.13	162.79

6	263.03	160.59
7	287.96	158.74
8	312.92	157.22
9	337.89	156.06
10	362.88	155.24
11	387.87	154.76
12	412.87	154.62
13	437.87	154.83
14	462.86	155.39
15	487.85	156.29
16	512.82	157.53
17	537.77	159.12
18	562.69	161.05
19	587.59	163.32
20	612.45	165.94
21	637.28	168.90
22	662.06	172.20
23	686.79	175.84
24	711.47	179.82
25	736.09	184.15
26	760.66	188.81
27	785.15	193.81
28	809.58	199.14
29	833.92	204.81
30	858.19	210.82
31	882.37	217.16
32	906.47	223.83
33	930.47	230.83
34	954.37	238.17
35	978.16	245.83
36	1001.85	253.82
37	1025.43	262.14
38	1048.89	270.77
39	1072.23	279.74
40	1095.44	289.02
41	1118.52	298.62
42	1141.47	308.54
43	1164.28	318.77
44	1186.95	329.32
45	1209.47	340.17
46	1231.83	351.34
47	1254.05	362.81
48	1276.10	374.59
49	1297.98	386.68
50	1319.70	399.06
51	1341.25	411.74
52	1362.62	424.71
53	1383.81	437.98
54	1404.81	451.54
55	1425.62	465.39
56	1446.25	479.52
57	1466.67	493.94
58	1486.90	508.63
59	1506.92	523.60
60	1526.73	538.85
61	1531.00	542.24

Circle Center At X = 410.1 ; Y = 1969.3 and Radius, 1814.7

*** 1.309 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	94.44	161.83
2	119.38	159.99
3	144.33	158.43
4	169.30	157.15
5	194.27	156.14
6	219.26	155.41
7	244.26	154.95
8	269.26	154.78
9	294.26	154.88
10	319.26	155.26

11	344.25	155.91
12	369.23	156.85
13	394.20	158.06
14	419.16	159.55
15	444.09	161.31
16	469.01	163.35
17	493.90	165.67
18	518.77	168.26
19	543.60	171.13
20	568.40	174.28
21	593.17	177.70
22	617.89	181.39
23	642.58	185.36
24	667.22	189.61
25	691.80	194.12
26	716.34	198.91
27	740.82	203.97
28	765.25	209.30
29	789.61	214.90
30	813.91	220.78
31	838.15	226.92
32	862.31	233.33
33	886.40	240.01
34	910.42	246.95
35	934.36	254.16
36	958.21	261.64
37	981.98	269.38
38	1005.67	277.39
39	1029.26	285.65
40	1052.76	294.18
41	1076.17	302.97
42	1099.47	312.02
43	1122.67	321.32
44	1145.77	330.88
45	1168.77	340.70
46	1191.65	350.77
47	1214.41	361.10
48	1237.07	371.68
49	1259.60	382.51
50	1282.01	393.59
51	1304.30	404.91
52	1326.46	416.48
53	1348.49	428.30
54	1370.39	440.36
55	1392.15	452.67
56	1413.77	465.21
57	1435.26	478.00
58	1456.60	491.02
59	1477.79	504.28
60	1498.84	517.77
61	1519.74	531.49
62	1534.83	541.65

Circle Center At X = 272.6 ; Y = 2407.2 and Radius, 2252.4

*** 1.311 ***

Failure Surface Specified By 62 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	94.44	161.83
2	119.38	160.00
3	144.33	158.45
4	169.30	157.17
5	194.28	156.17
6	219.27	155.45
7	244.26	155.01
8	269.26	154.84
9	294.26	154.95
10	319.26	155.34
11	344.25	156.00
12	369.23	156.94
13	394.20	158.16
14	419.16	159.66

15	444.09	161.43
16	469.01	163.48
17	493.90	165.80
18	518.77	168.40
19	543.60	171.28
20	568.40	174.43
21	593.17	177.86
22	617.89	181.56
23	642.57	185.54
24	667.21	189.78
25	691.80	194.31
26	716.33	199.10
27	740.81	204.16
28	765.24	209.50
29	789.60	215.11
30	813.90	220.99
31	838.13	227.13
32	862.30	233.55
33	886.39	240.23
34	910.40	247.18
35	934.34	254.40
36	958.19	261.88
37	981.96	269.62
38	1005.64	277.63
39	1029.24	285.90
40	1052.74	294.43
41	1076.14	303.22
42	1099.44	312.27
43	1122.65	321.58
44	1145.74	331.14
45	1168.73	340.96
46	1191.61	351.04
47	1214.38	361.37
48	1237.03	371.95
49	1259.56	382.78
50	1281.98	393.86
51	1304.26	405.18
52	1326.42	416.76
53	1348.45	428.58
54	1370.35	440.64
55	1392.11	452.95
56	1413.73	465.49
57	1435.22	478.28
58	1456.56	491.30
59	1477.75	504.56
60	1498.80	518.05
61	1519.70	531.77
62	1534.46	541.71

Circle Center At X = 271.9 ; Y = 2408.6 and Radius, 2253.7

*** 1.311 ***

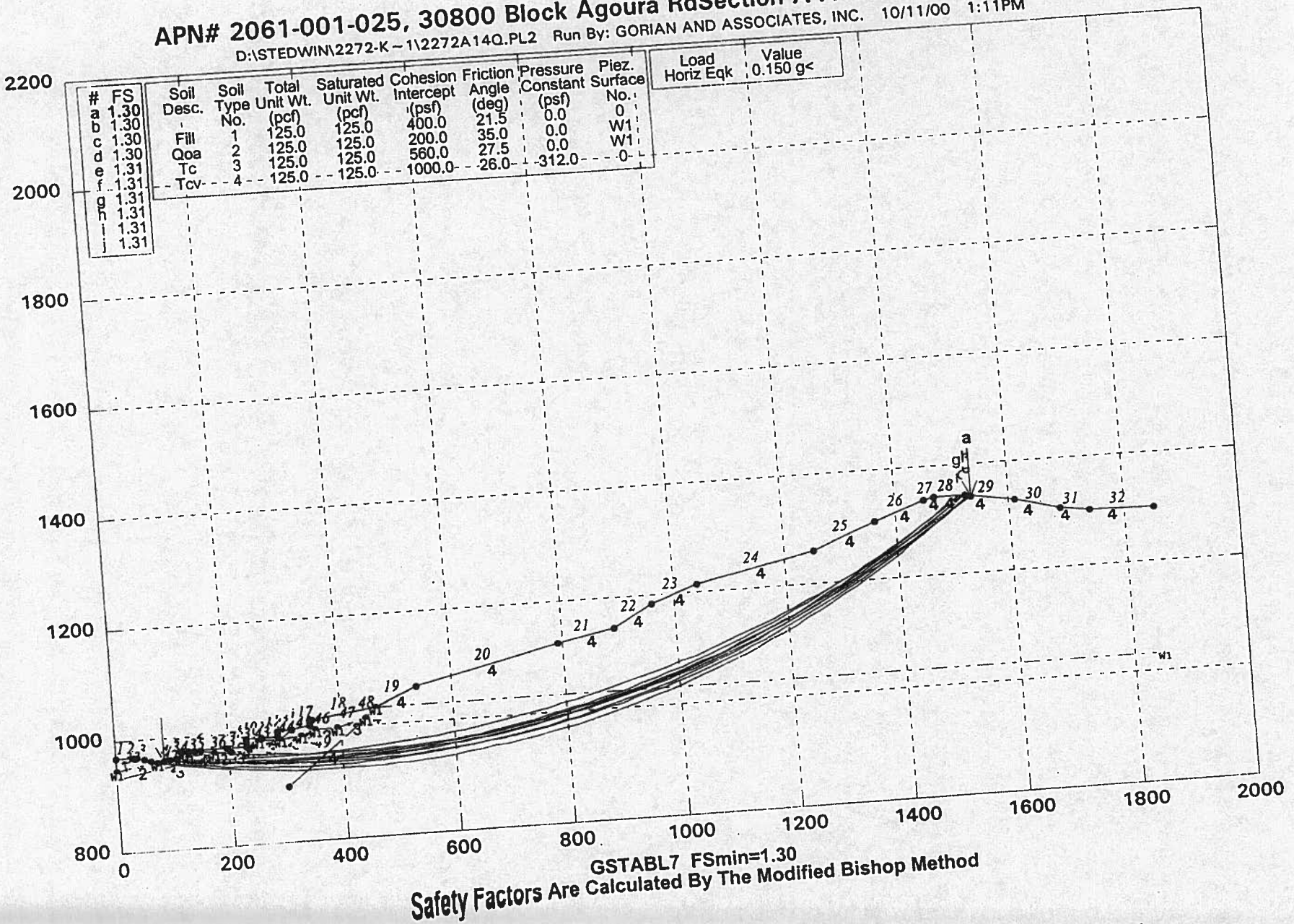
APN# 2061-001-025, 30800 Block Agoura RdSection A-A' Pseudostatic Stability

D:\STEDWIN\2272-K-1\2272A14Q.PL2 Run By: GORIAN AND ASSOCIATES, INC. 10/11/00 1:11PM

#	FS
a	1.30
b	1.30
c	1.30
d	1.30
e	1.31
f	1.31
g	1.31
h	1.31
i	1.31
j	1.31

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pressure Constant (psf)	Piez. Surface No.
-	-	-	-	400.0	21.5	0.0	0
Fill	1	125.0	125.0	200.0	35.0	0.0	W1
Qoa	2	125.0	125.0	560.0	27.5	0.0	W1
Tc	3	125.0	125.0	1000.0	26.0	-312.0	0
Tcv	4	125.0	125.0				

Load	Value
Horiz Eqk	0.150 g<



GSTABL7 FSmin=1.30

Safety Factors Are Calculated By The Modified Bishop Method

STED

*** GSTABL7 ***
** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.16, May 2000 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer`s Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 10/11/00
Time of Run: 11:49AM
Run By: GORIAN AND ASSOCIATES, INC.
Input Data Filename: D:2272a3w.in
Output Filename: D:2272a3w.OUT
Unit System: English
Plotted Output Filename: D:2272a3w.PLT
PROBLEM DESCRIPTION APN# 2061-001-025, 30800 Block Agoura Rd
Section A-A' Global Static Stability

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and 800.00 to Y-values listed.

19 Top Boundaries
36 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	169.00	31.00	169.00	1
2	31.00	169.00	36.00	170.00	1
3	36.00	170.00	72.00	158.00	1
4	72.00	158.00	113.00	165.00	2
5	113.00	165.00	114.00	175.00	1
6	114.00	175.00	197.00	175.00	1
7	197.00	175.00	231.00	175.00	2
8	231.00	175.00	231.50	182.00	2
9	231.50	182.00	232.00	190.00	1
10	232.00	190.00	260.00	190.00	1
11	260.00	190.00	286.00	190.00	2
12	286.00	190.00	286.50	195.00	2
13	286.50	195.00	287.00	200.00	1
14	287.00	200.00	312.00	202.00	1
15	312.00	202.00	345.00	205.00	2
16	345.00	205.00	345.50	210.00	2
17	345.50	210.00	346.00	215.00	1
18	346.00	215.00	464.00	231.00	1
19	464.00	231.00	538.00	265.00	4
20	0.00	147.00	72.00	158.00	2
21	113.00	165.00	128.00	166.00	2
22	128.00	166.00	174.00	170.00	2
23	174.00	170.00	204.00	170.00	2
24	204.00	170.00	237.00	170.00	3
25	237.00	170.00	243.00	176.00	3
26	243.00	176.00	253.00	185.00	2
27	253.00	185.00	292.00	185.00	2
28	292.00	185.00	312.00	202.00	2
29	0.00	131.00	204.00	170.00	3
30	243.00	176.00	292.00	185.00	3
31	292.00	185.00	329.00	190.00	3
32	329.00	190.00	355.00	198.00	3
33	355.00	198.00	394.00	199.00	3
34	394.00	199.00	445.00	214.00	3
35	445.00	214.00	464.00	231.00	4
36	300.00	100.00	445.00	214.00	4

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	125.0	125.0	400.0	21.5	0.00	0.0	0
2	125.0	125.0	200.0	35.0	0.00	0.0	1
3	125.0	125.0	560.0	27.5	0.00	0.0	1
4	125.0	125.0	1000.0	26.0	0.00	312.0	0

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40