Calabasas Blue
Residential Project

Draft Initial Study and Mitigated Negative Declaration



PREPARED FOR:

City of Calabasas
100 Civic Center Way
Calabasas, California 91302
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September 2012

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MITIGATED NEGATIVE DECLARATION

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Appendix E Noise Impact Analysis
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1.0 INTRODUCTION

1.1 PROJECT HISTORY AND BACKGROUND

The 21-acre project site for the proposed Calabasas Blue residential project analyzed in this document has been the subject of three previous development efforts, the most recent being an approved multi-family residential development (Entrada at Malibu Canyon) for which an MND was certified. That MND analyzed impacts regarding development of an 86-unit multi-family residential project that would occupy approximately 5 acres of the 21-acre site. Although prepared as a stand-alone document, the Entrada MND incorporated by reference, per CEQA Guidelines Section 15150, some analysis from a 2005 FEIR that was certified for a previously proposed project on the site. Although the Entrada multi-family residential project did receive approval, the applicant did not pursue construction of the project, and the property's real interest has since been transferred to Calabasas Blue LLC. The Calabasas Blue residential project is being proposed to develop the site with a similar residential density as the previously approved project, but with the goal of providing a more aesthetically pleasing development for the community and potential residents. Calabasas Blue LLC has indicated that the property would be developed under the existing approved Entrada at Malibu plans should the current proposal not be approved.

The project site is located in western Los Angeles County, within the City of Calabasas (City), California, and is situated on the east side of Las Virgenes Road, south of the Ventura Freeway. The property is located across from the intersections of Oak Glen Street and Willow Glen Street, and consists of two irregularly shaped and vacant parcels identified with Assessor Parcel Numbers 2069-011-005 and 2069-011-006.

This document has been prepared as a stand-alone document, although some previous descriptions of the subject area and existing conditions as well as impact analysis has been incorporated by reference where such data is still valid and appropriate for this project. However, due to the age of the previous environmental documents regarding this property, new technical studies (included as appendices) and analysis have been provided for issue areas where existing conditions or baselines may have changed.

Previous environmental documents prepared for projects proposed for this property, including the March 2005 FEIR and the 2007 MND, are available for review from Mr. Geoffrey Starns, AICP, Senior Planner, or Krystin Rice, Planning Assistant at the City of Calabasas, 100 Civic Center Way, Calabasas, California 91302.

1.2 PROPOSED PROJECT

The currently proposed project evaluated in this document would develop a 78-unit multi-family residential project referred to as Calabasas Blue. This development would occupy a similar footprint area to the approved Entrada project, and is being proposed to provide a development that is more aesthetically pleasing than the Entrada project, which has been approved for construction. The focus of the revisions proposed by the Calabasas Blue project is to further reduce aesthetic impacts including reducing structure massing by providing fewer dwelling units spread among 12 buildings (compared to only 3 buildings for Entrada), reducing observed building heights from Las Virgenes Road, and providing for visual corridors between buildings to the hillsides and ridgelines beyond the developed area.

The Calabasas Blue project is a revision of the previously approved Entrada multi-family development project. As such, the entitlements for the existing approved project are also applicable to the Calabasas Blue application as it is a project modification rather than a new project. The proposed 78-unit multi-family residential development, along with other planned and approved residential developments in the project area, would help accommodate future growth in the City and provide additional property tax revenue for the City to assist with its capital improvement projects. The Calabasas Blue residential project is completely described in Section 2.0 Project Description.

Although a recent update of the City of Calabasas General Plan has modified the list of approved land uses under the Business Limited and Commercial land use designation, which applies to this property, this project proposes a revision of an existing approved project (Entrada) of a similar land use and intensity. As the Entrada development, an 86-unit multi-family residential project, is specifically described as an approved project in the current General Plan, the project analyzed in this MND, which proposes a 78-unit multi-family development would be also be consistent with the General Plan's land use designation to the extent that the project is consistent with the previously approved land uses for this site. As with the Entrada development, the proposed project would require a Conditional Use Permit (CUP) under the B-LI/CL land use and zoning designations, but would not require a Zone Change or General Plan Amendment. For more information, refer to the Land Use and Planning section of the MND (*Section 5.10*).

The project objectives for the Calabasas Blue residential development are similar to those stated in the Final EIR and MND documents that have been prepared for previously proposed development of the subject property.

The applicant has worked diligently with the City's Planning Staff and the community to revise the basic development concept for this property to accomplish a number of objectives including: **(1)** reducing the building height above grade as observed from Las Virgenes road, **(2)** reducing the mass of each building by distributing dwelling units among twelve buildings rather than three to provide view corridors between buildings, **(3)** relocating the recreational lot to a more central location providing a courtyard and greenbelt area within the development, and **(4)** facilitating the City's future Las Virgenes Road improvements by dedicating a portion of property frontage in exchange for a similarly sized abandonment of right-of-way, to allow the roadway to be straightened through this segment and integrate with previous roadway improvements made at the adjacent residential development to the north.

1.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AUTHORITY TO PREPARE A NEGATIVE DECLARATION

The City of Calabasas is the lead CEQA agency responsible for the review and approval of the proposed multi-family residential project. Based on the findings of the Initial Study and previous environmental documentation regarding the similarly designed Entrada at Malibu multi-family development approved for the project site, the City of Calabasas has made the determination that a Mitigated Negative Declaration (MND) is the appropriate environmental document to be prepared in compliance with CEQA. As provided for by CEQA §21064.5, a MND may be prepared for a project subject to CEQA when an Initial Study has identified potentially significant

effects on the environment but revisions in the project have been made and as a result there is clearly no significant effect on the environment that would occur.

This Draft MND has been prepared by the City of Calabasas as lead agency and is in conformance with Section 15070, subsection (a), of the State of California Guidelines. The purpose of the MND and the Initial Study Checklist is to determine any potentially significant impacts associated with the proposed project and incorporate mitigation measures into the project design as necessary to reduce or eliminate the significant or potentially significant effects of the project.

1.4 OTHER AGENCIES THAT MAY USE THE MITIGATED NEGATIVE DECLARATION

This MND is intended to be used by responsible and trustee agencies that may have an interest in review of the project. The City of Calabasas would obtain all permits as required by law. There are no identified jurisdictional areas of other responsible agencies within the project site.

1.5 PUBLIC REVIEW PROCESS

In accordance with CEQA, a good faith effort has been made during the preparation of this MND to contact affected agencies, organizations and persons who may have an interest in this project.

In reviewing the MND, affected public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment. A copy of the draft MND and related documents are available for review at the Calabasas City Hall (Planning Division), 100 Civic Center Way, Calabasas, California 91302, between the hours of 7:30 a.m. to 5:30 p.m. Monday through Thursday, and 7:30 a.m. to 2:00 p.m. Friday, and Calabasas Library, 200 Civic Center Way, Calabasas, 91302 (call 818-225-7616 for library hours).

Comments may be made on the MND in writing before the end of the public review period. A 21-day review and comment period from September 10, 2012 to October 1, 2012 has been established in accordance with Sections 15072(a) of the CEQA Guidelines. Following the close of the public comment period, the City of Calabasas will consider this MND and comments thereto in determining whether to approve the proposed project.

Written comments on the MND should be sent to the following address by 5:00 p.m., October 1, 2012:

City of Calabasas
100 Civic Center Way
Calabasas, CA 91302
Contact: Geoffrey Starns, AICP, Senior Planner
or Krystin Rice, Planning Assistant
Telephone: (818) 224-1600

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project is a revision of an approved project for which an MND has been certified (Entrada at Malibu Canyon), to be located in western Los Angeles County, within the City of Calabasas, California. As such, although this MND has been prepared as a stand-alone document, it does incorporate by reference some of the project site details from the previously certified MND for the Entrada project regarding existing conditions where baselines have not changed.

The City is located approximately 30 miles northwest of downtown Los Angeles, and the project site is located within a portion of Section 30, Township 1 North, Range 17 West as shown on the USGS 7.5' Calabasas Quadrangle. Regional access to the project area is via the Ventura Freeway (US 101) and the proposed project location is south of US 101 on a 21.77-acre site along the east side of Las Virgenes Road. The subject property is identified by the street address 4240 Las Virgenes Road and the associated APN numbers 2069-011-005, and -006, and is located across from the intersections of Oak Glen Street and Willow Glen Street. **Figures 1 and 2** provide project location maps with regional and local context respectively.

2.2 ENVIRONMENTAL SETTING

As shown in **Figure 3,** the project site is currently vacant with no improvements other than a dirt road that provides access into the property from Las Virgenes Road. The northern portion of the property is distinguished by a lower-lying west-facing hill that ascends approximately 300 feet above mean sea level (AMSL) southeast from Las Virgenes Road cresting at 1,050 feet AMSL. From the central portion of the site, a north-facing slope ascends approximately 150 feet from a drainage swale to an east-west trending ridge defined by two knolls that occupy the southern portion of the property.

Adjacent land uses include a single-family residential neighborhood to the north, Las Virgenes Road and residential neighborhoods to the west, Las Virgenes Municipal Water District (LVMWD) facilities and offices to the south, and open space to the east.

According to the City's General Plan Map, the project site is designated as Business – Limited Intensity (B-LI) and is zoned CL – Commercial, Limited (City of Calabasas 2030 General Plan). The project site is located within the planning area of the Las Virgenes Gateway Master Plan (LVGMP) and also within a designated City Scenic Corridor, the Las Virgenes Corridor Design Plan (LVCDP). To be consistent with these plans, the project would incorporate design elements from the *Scenic Corridor Design Guidelines* and comply with the general architectural and design guidance contained in the LVCP and LVGMP, which regulate urban design and architectural aesthetics.



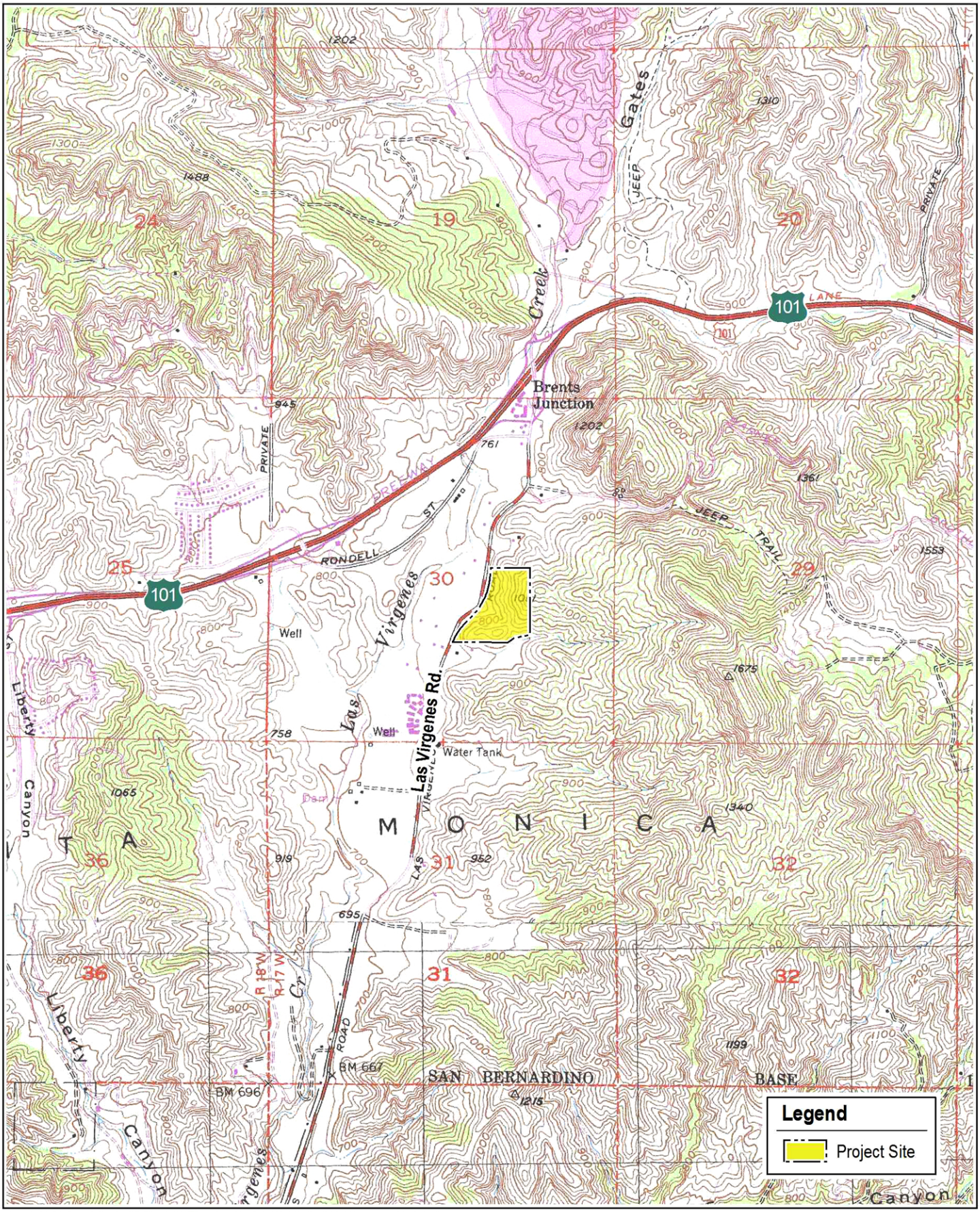
CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

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Regional Map

MILES 0 4 8

FIGURE 1



Aerial Source: Portions of Calabasas and Malibu Beach 7.5 min USGS Topographic Quadrangles.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

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Vicinity Map

0 1,000 2,000 Feet

FIGURE 2



Aerial Source: GoogleEarth Pro, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

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Aerial Photograph of the Project Site

0 100 200 Feet

FIGURE 3

2.3 PROJECT CHARACTERISTICS

The project proposes to develop a 78-unit multi-family residential project on approximately 5 acres of the 21.77-acre property, as a revision to the approved 86-unit Entrada at Malibu Canyon Multi-Family Housing Project that has not broken ground. The applicant is proposing to develop the site based on this plan as an alternative to the approved development plan, to provide a more visually appealing project based on community input, while maintaining a similar land use density. The development density proposed for the site would be 3.58 dwellings per acre, and the overall area of ground disturbance including graded slopes would be approximately 8 acres. At project completion, 16 acres of the site (76 percent) would remain as open space providing a buffer between the undeveloped areas to the east, and other land use to the south of the project site.

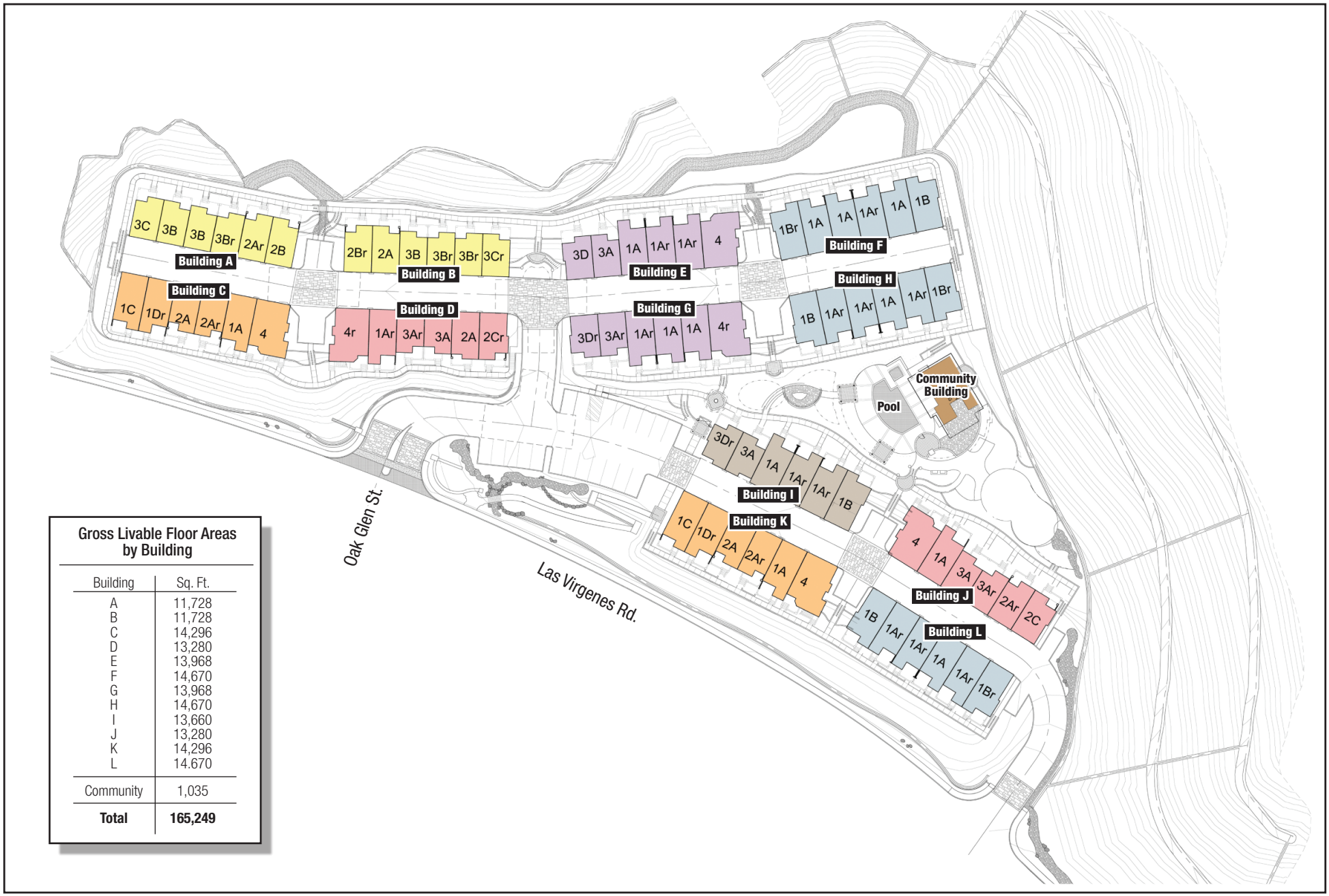
Residential Component

The proposed residences would consist of townhomes and condominium units distributed among 12 buildings arranged in pairs within the western portion of the subject property as shown in **Figure 4***, Proposed Site Plan*. The total residential building square footage would be approximately 165,249 square feet, and the attached dwellings would provide approximately 1,174 to 2,688 square feet of gross floor area for each unit. This proposed configuration has been designed to provide less imposing structures on the site as compared to the approved Entrada project's 86-unit three-building design. **Table 2-1** shows the mix of unit plans proposed to be constructed.

Table 2-1
Unit Mix

Unit Type	No. of Units	Sq. Ft.	Bedrooms	Cost Rate
1	36	2,628 – 2,688	3	Market
2	12	2,241 – 2,295	2	Market
3	18	2,038 – 2,098	2	Market
4A	6	1,945	2	Market
4B	6	1,174	1	2 Market 4 Affordable

By proposing less massive buildings compared to those previously approved for the site, this project would preserve several view corridors between buildings to the undeveloped hillsides and ridgelines to the east. Although the proposed 3-story buildings would have overall heights of approximately 35 feet, grading plans for the project have been designed to allow the garage level floors to be below the finished grade when viewed from each building's "front" façade. By orienting the buildings so that the garages would not be visible from Las Virgenes Road, only the upper two stories would be visible from beyond the project site. Therefore the maximum visible height of the residences along Las Virgenes Road would be two stories, approximately 23 feet, above the finished grade, as opposed to the approved Entrada project that would develop residential buildings with three-story building heights visible from the roadway. Additionally, as a comparison with existing conditions, the project's rooflines would be no higher



Gross Livable Floor Areas by Building

Building	Sq. Ft.
A	11,728
B	11,728
C	14,296
D	13,280
E	13,968
F	14,670
G	13,968
H	14,670
I	13,660
J	13,280
K	14,296
L	14.670
Community	1,035
Total	**165,249**

Source: Mainstreet Architects & Planners, Inc., June, 2012.

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Proposed Site Plan

FEET 0 50 100

FIGURE 4

than the floor level of the adjacent residential project to the north (The Colony). Slope plantings along Las Virgenes Road would provide partial visual screening of the architectural components as shown in **Figure 5**, *Conceptual Landscape Plan*. Visual simulations prepared for the project are provided in this MND in *Section 5.1, Aesthetics*.

The Monterey architectural style of the proposed residences, including balconies, roof details, and other architectural articulation, would be consistent with the style of the approved Entrada project, and is designed to be consistent with the community character and comply with the general architectural and design guidance contained in the LVCP and LVGMP. The proposed rooflines are oriented so as to reflect the natural topography on the project site, and the project's color palette includes neutral earth tones that would blend with the adjacent hillside and be consistent with other development within the viewshed. Each residential building would be configured as one of six similar building layouts as shown in **Figures 6 through 11**, which show elevations of the residential buildings as proposed.

Recreational Component

A 1,035 square-foot community building would be located near the southern boundary of the development footprint to provide residents with a gym and community room, as well as incorporate a variety of active recreation facilities and outdoor amenities including built-in barbeques, a swimming pool, and a tot-lot playground. An elevation for the community building/recreation facility is provided as **Figure 12**.

Access and Parking

A main entry road would be located along Las Virgenes Road in alignment with Oak Glen Street and provide internal circulation within the development by connecting with a secondary ingress/egress point from Las Virgenes Road at the southern end of the development area. The main entryway would lead to driveways within the development that pass between the residential buildings providing access to the units' attached garages. These driveways and garages would be generally screened from off-site views by buildings and landscaping. The project would accommodate emergency vehicle access by providing vehicle turnaround areas consisting of reserved fire lanes located between buildings at distances required by Los Angeles County Fire Department standards. These features would be in addition to the dual entryways that provide access from Las Virgenes Road (See Figure 4). The project would provide a total of 216 parking spaces consisting of 189 private garage spaces for residents (42 tandem spaces), plus 27 surface spaces for visitors, which would exceed the number of physical parking spaces required for the proposed development by City Ordinance 17.28.040. However, this City Ordinance does not recognize the provision of tandem parking spaces, therefore, this development is seeking a 25 percent reduction of required parking per Section 17.28.050, which would reduce the project's parking requirement to a total of 148 spaces. With approval of this reduction, the project's 174 non-tandem spaces would exceed the minimum requirements of the City's Code regarding parking space provision. The private parking garages would have interior access to the associated living spaces with the exception of 6 one-bedroom condos, which would have single vehicle garages with exterior access. Each unit's private parking garage will include designated space for trash and recycling bins so that exterior dumpster areas will be unnecessary.



Source: L.A. Group Design Works Landscape Architecture, July 10, 2012.

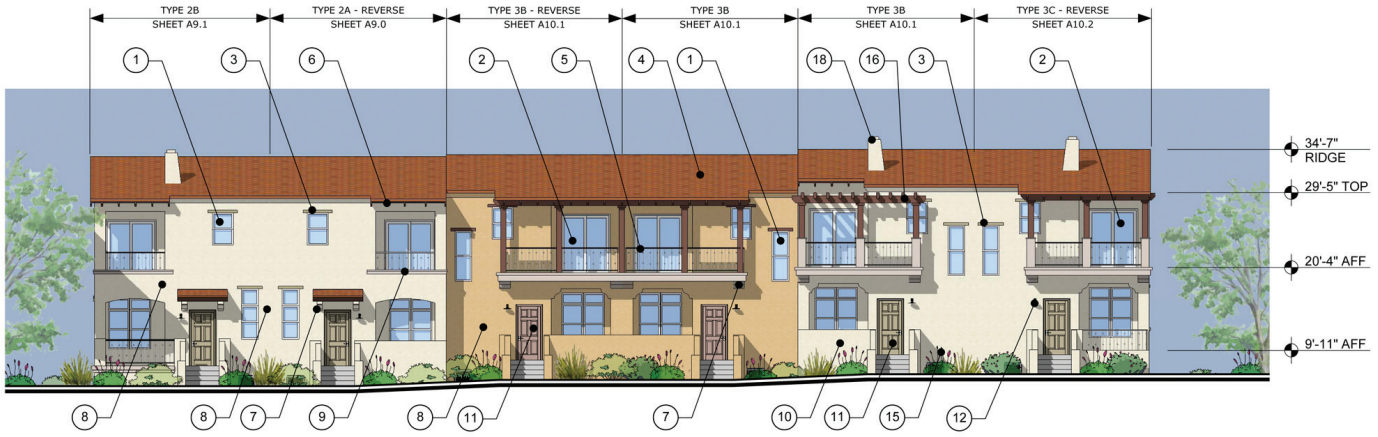
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CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

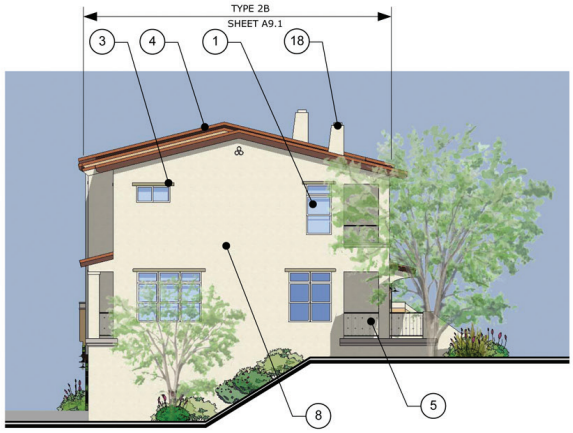
Conceptual Landscape Plan

FEET 0 60 120

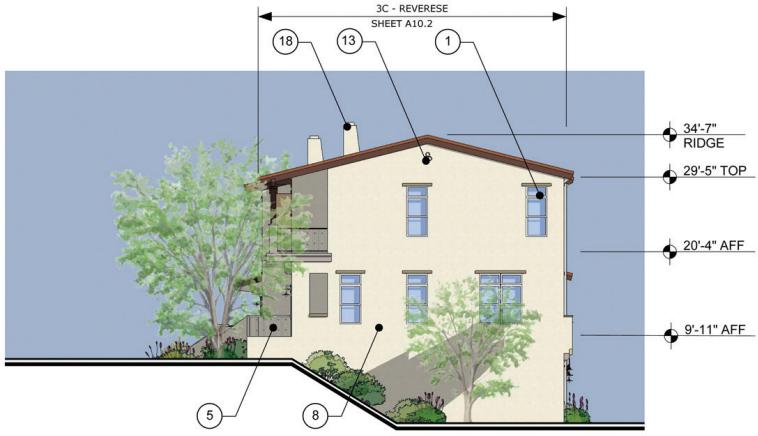
FIGURE 5



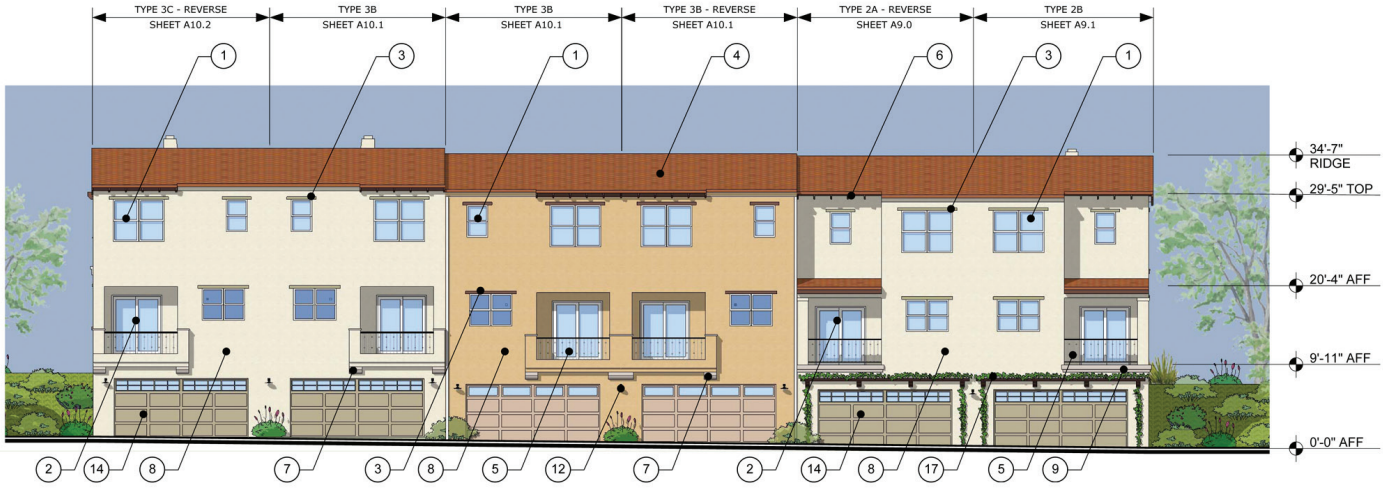
East Elevation



South Elevation



North Elevation



West Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 1

Concrete Tile
San Benito - Eagle Roofing - 360

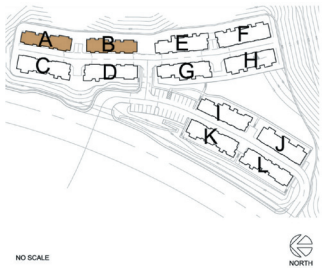
Stucco
Oatmeal - La Habra - X-81
Oatmeal - La Habra - X-82

Paint - Composite Trim & Wood
Fairbanks Green - Dunn Edwards - DE6250
Drifting - Dunn Edwards - DEW770
Log Cabin - Dunn Edwards - DEA162

Paint - Doors
Fairbanks Green - Dunn Edwards - DE6250
Hickory - Dunn Edwards - DE6250

NOTE: Building B will be color Scheme 2, (see color board for materials).

Key Plan



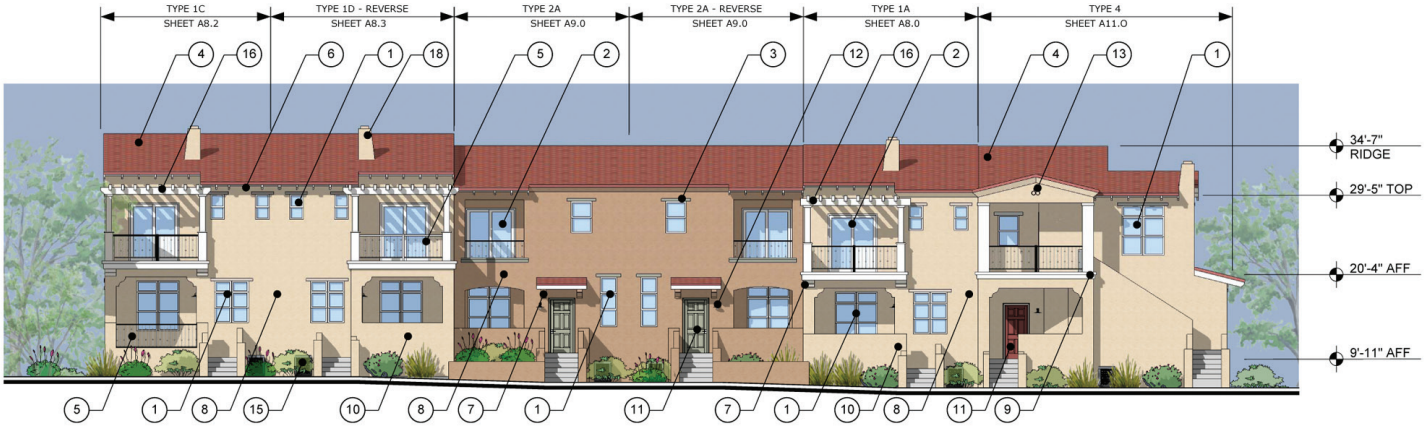
Source: Mainstream Architects & Planners, Inc., June, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

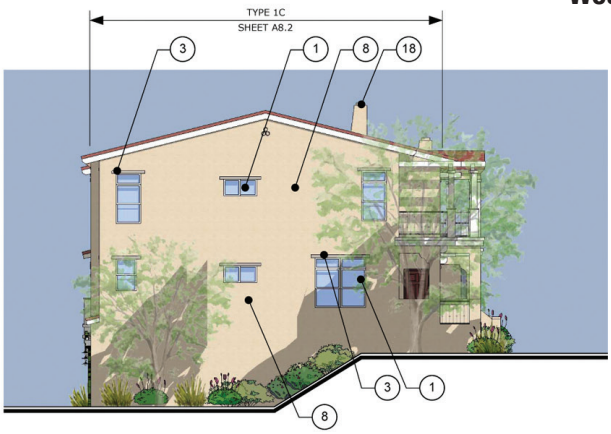
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Building A/B Elevations

FIGURE 6



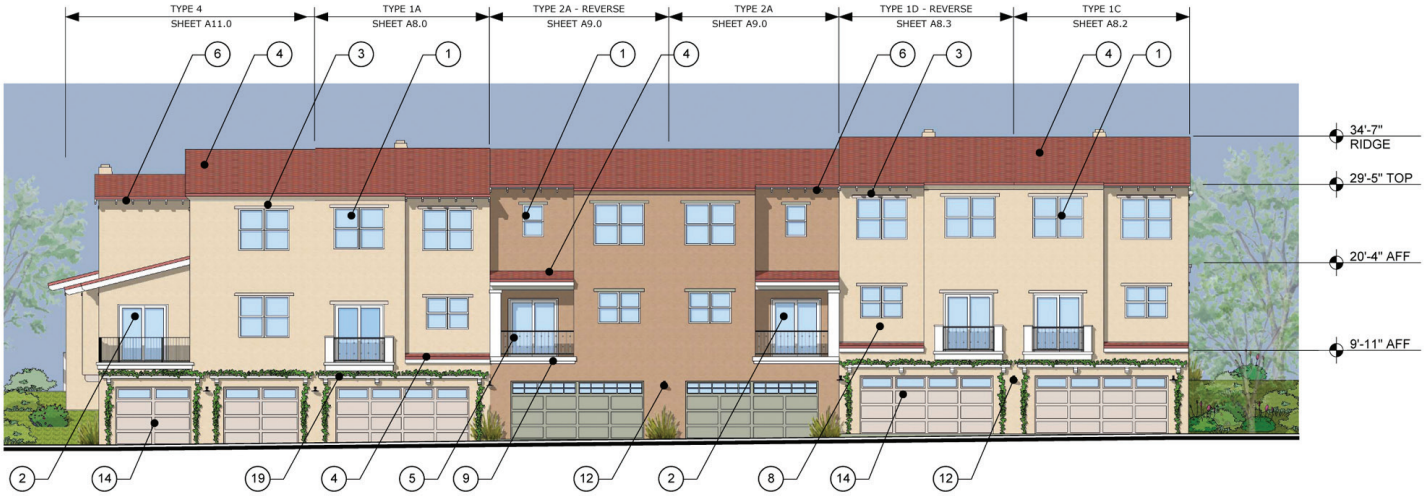
West Elevation



North Elevation



South Elevation



East Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 2

Concrete Tile
Valejo Range - Eagle Roofing - 3606

Stucco
Sandstone - La Habra - X-86
Viejo - La Habra - X-475

Paint - Composite Trim & Wood
Drifting - Dunn Edwards - DEW770
Stone Creek - Dunn Edwards - DE6278
Vanilla Shake - Dunn Edwards - DEW325

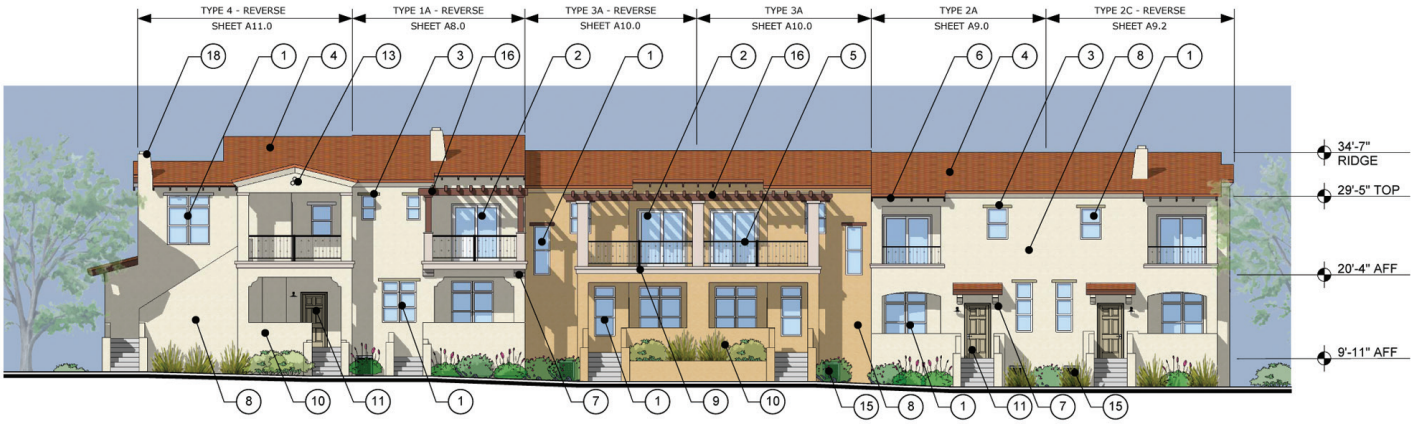
Paint - Doors
Stone Creek - Dunn Edwards - DE6278
Spiced Berry - Dunn Edwards - DEA149
Drifting - Dunn Edwards - DEW770

Key Plan

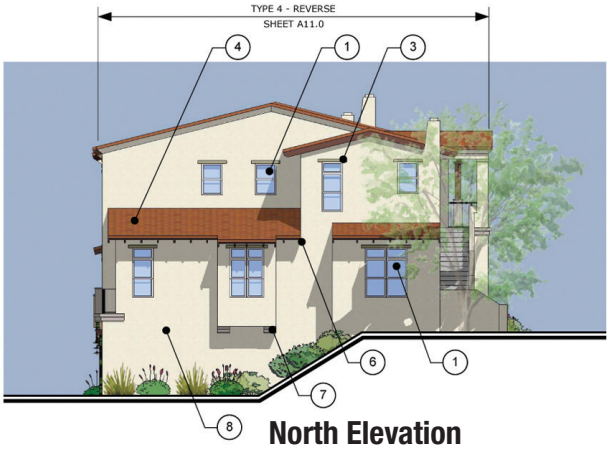


Source: Mainstream Architects & Planners, Inc., June, 2012.

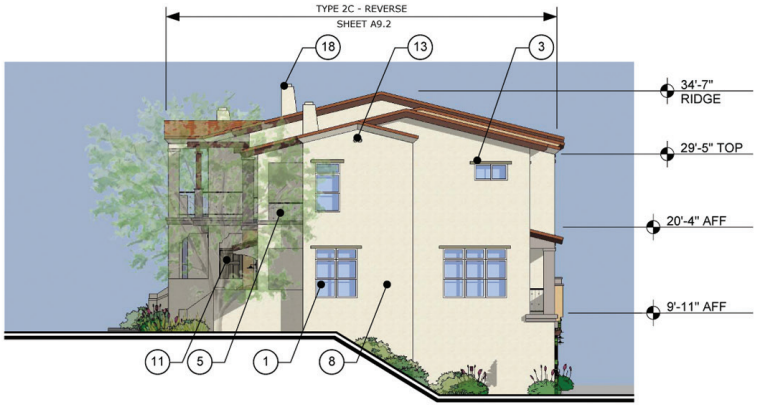
Building C/K Elevations



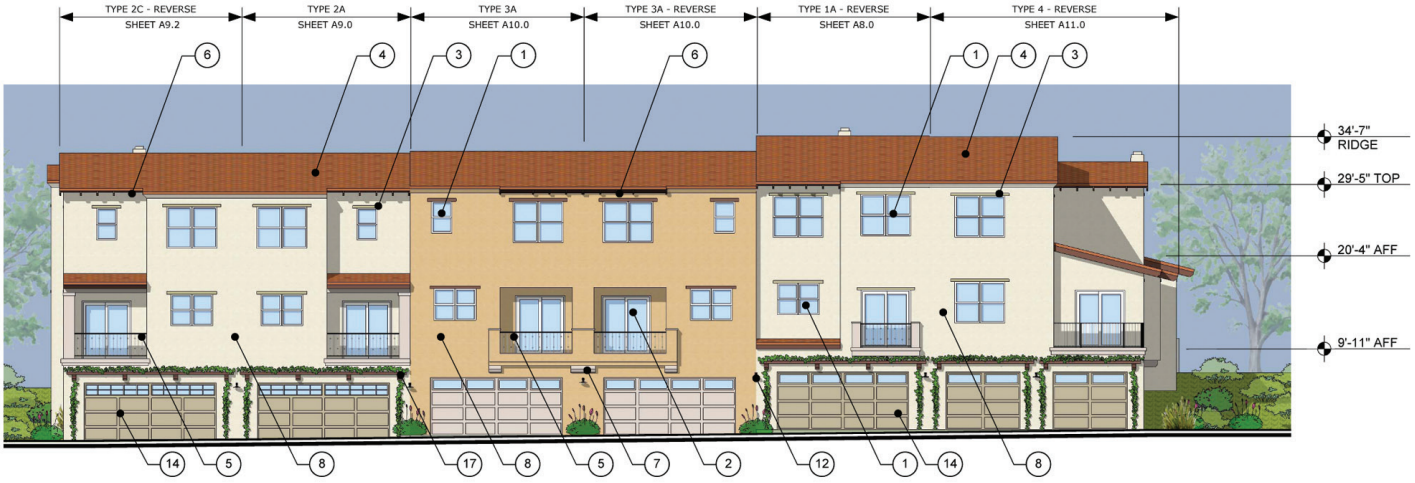
West Elevation



North Elevation



South Elevation



East Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 1

Concrete Tile
San Benito Blend - Eagle Roofing - 360

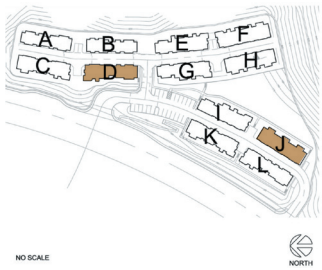
Stucco
Oatmeal - La Habra - X-81
Oatmeal - La Habra - X-82

Paint - Composite Trim & Wood
Fairbanks Green - Dunn Edwards - DE6250
Drifting - Dunn Edwards - DEW770
Log Cabin - Dunn Edwards - DEA162

Paint - Doors
Fairbanks Green - Dunn Edwards - DE6250
Hickory - Dunn Edwards - DE6250

NOTE: Building B will be color Scheme 2, See color board for materials.

Key Plan



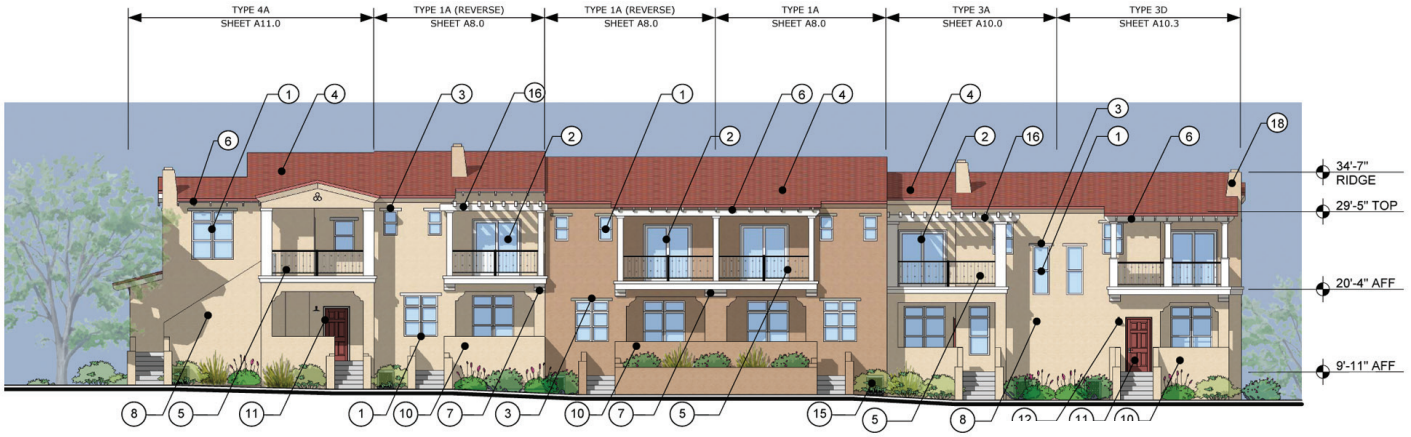
Source: Mainstream Architects & Planners, Inc., June, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

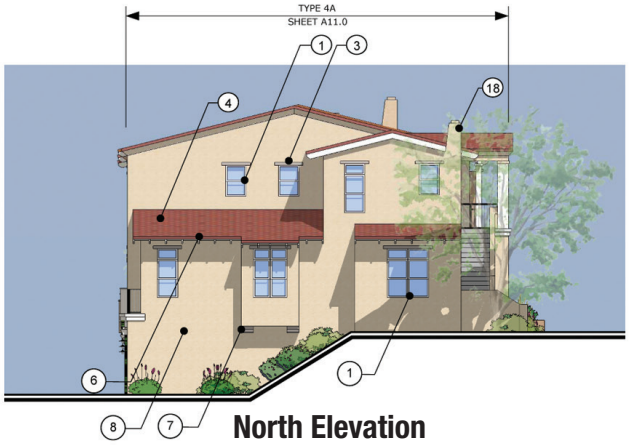
ENVICOM CORPORATION

Building D / J Elevations

FIGURE 8



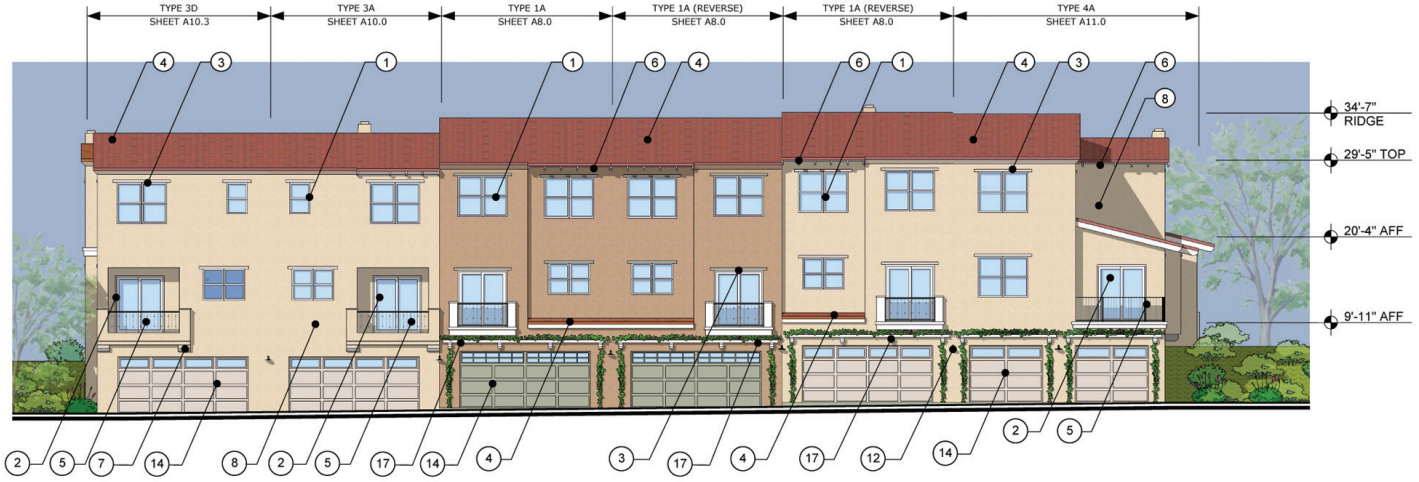
West Elevation



North Elevation



South Elevation



East Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 2

Concrete Tile
Valejo Range - Eagle Roofing - 3606

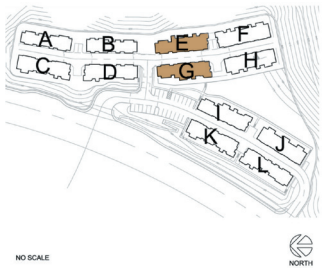
Stucco
Sandstone - La Habra - X-86
Viejo - La Habra - X-475

Paint - Composite Trim & Wood
Drifting - Dunn Edwards - DEW770
Stone Creek - Dunn Edwards - DE6278
Vanilla Shake - Dunn Edwards - DEW325

Paint - Doors
Stone Creek - Dunn Edwards - DE6278
Spiced Berry - Dunn Edwards - DEA149
Drifting - Dunn Edwards - DEW770

NOTE: Building G will be color Scheme 1 (see color board for materials).

Key Plan



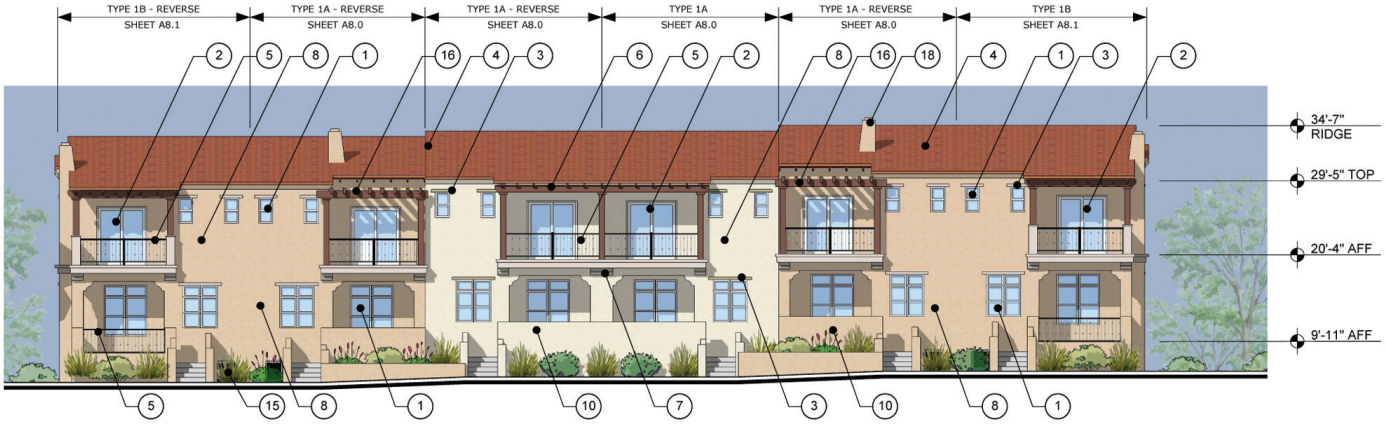
Source: Mainstream Architects & Planners, Inc., June, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

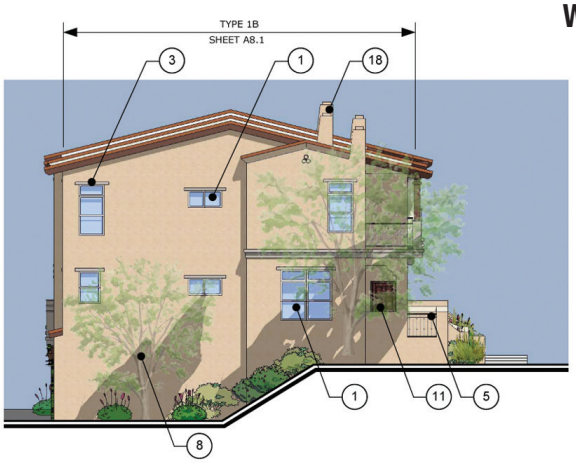
ENVICOM CORPORATION

Building E/G Elevations

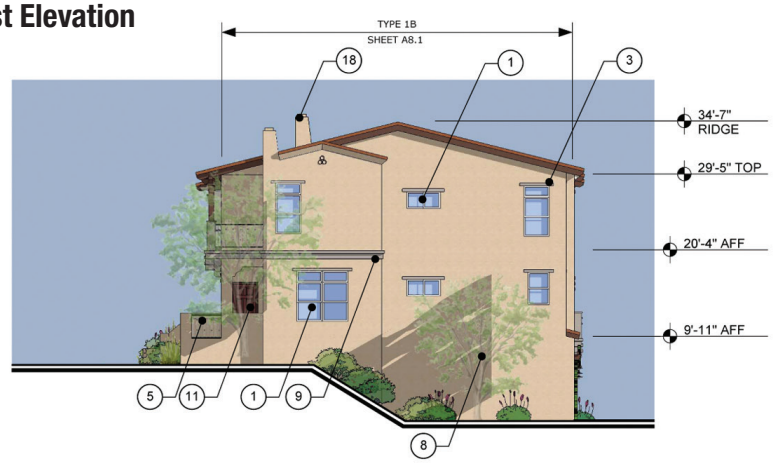
FIGURE 9



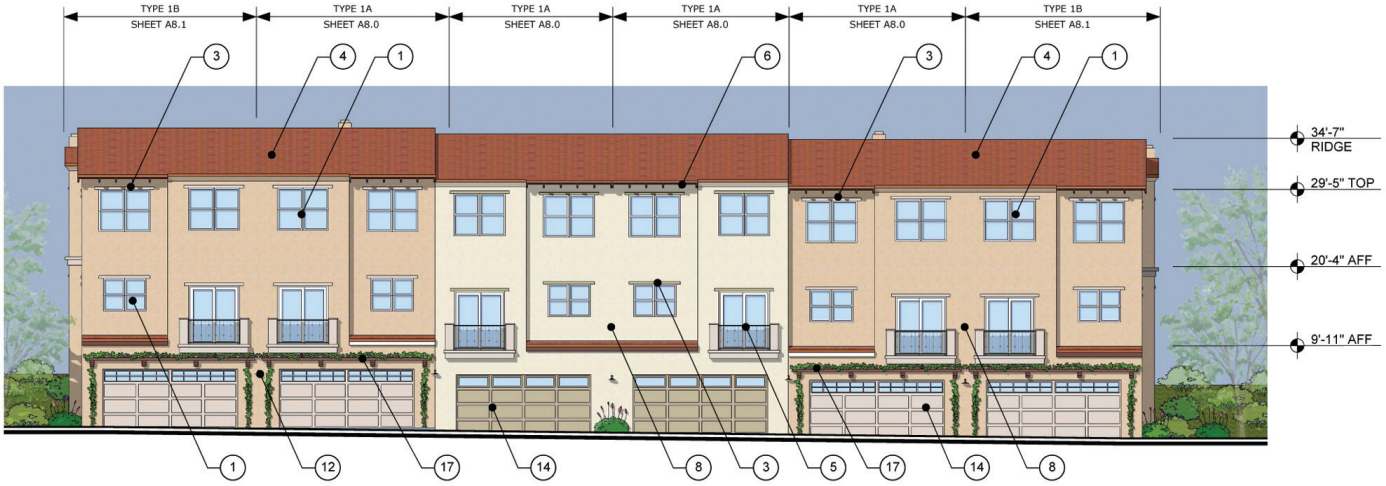
West Elevation



North Elevation



South Elevation



East Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 3

Concrete Tile
Blend - Eagle Roofing - XXX

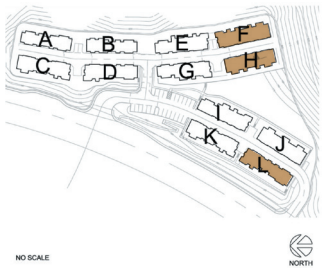
Stucco
Pacific Sand - La Habra - X-97
Oatmeal - La Habra - X-81

Paint - Composite Trim & Wood
Drifting - Dunn Edwards - DEW770
Fairbanks Green - Dunn Edwards - DE6250
Log Cabin - Dunn Edwards - DEA162

Paint - Doors
Fairbanks Green - Dunn Edwards - DE6250
Spiced Berry - Dunn Edwards - DEA149
Drifting - Dunn Edwards - DEW770

NOTE: Building H will be color Scheme 2, See color board for materials.

Key Plan

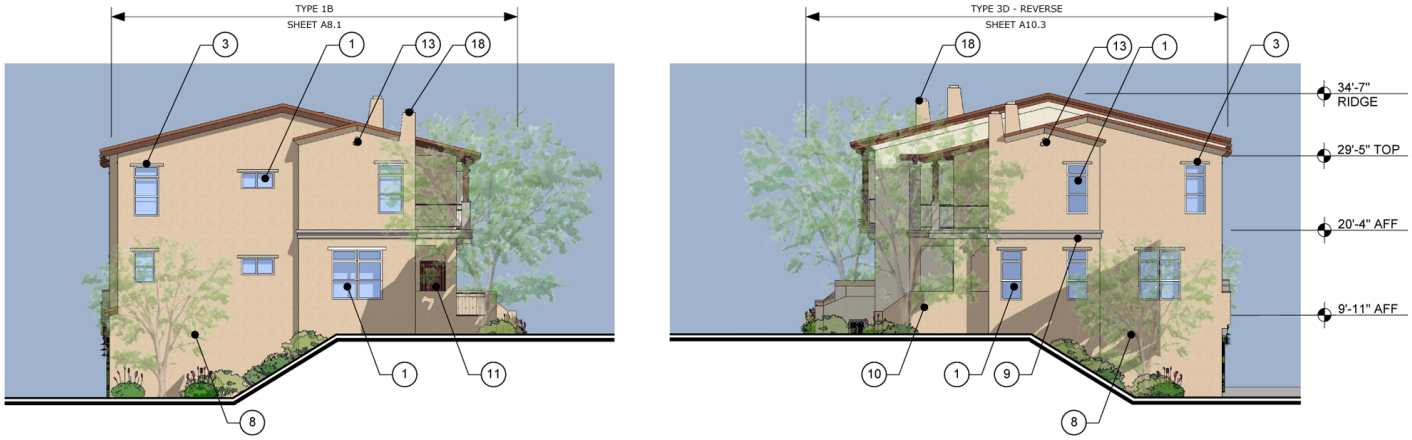


Source: Mainstream Architects & Planners, Inc., June, 2012.

Building F/H/L Elevations

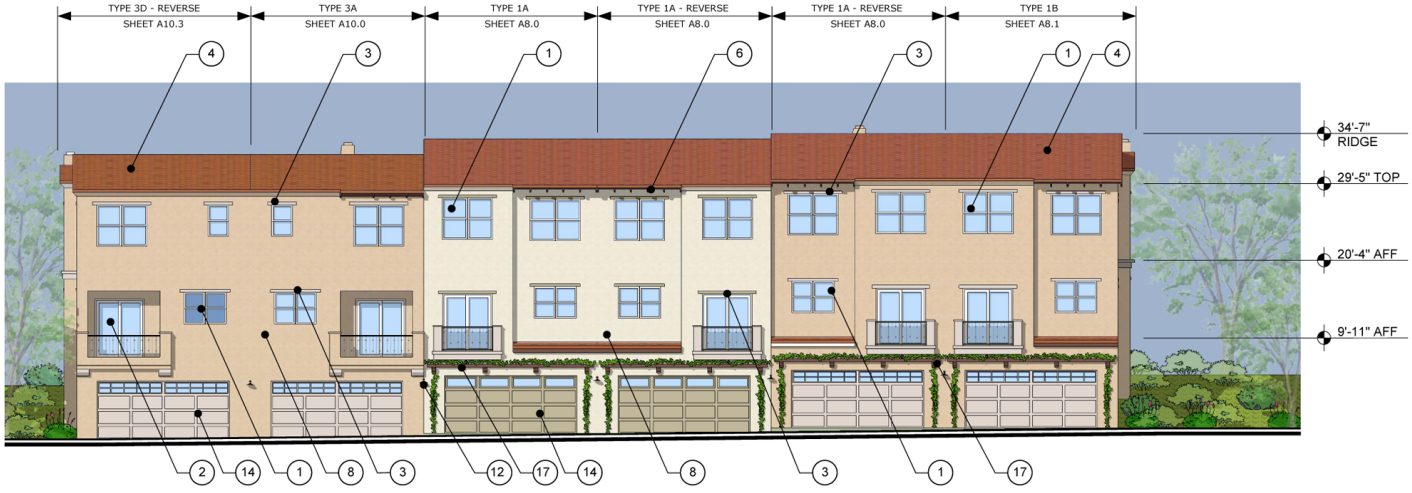


West Elevation



North Elevation

South Elevation



East Elevation

Material Notes

1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 3

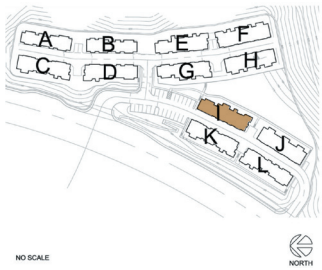
Concrete Tile
Blend - Eagle Roofing - XXX

Stucco
Pacific Sand - La Habra - X-97
Oatmeal - La Habra - X-81

Paint - Composite Trim & Wood
Drifting - Dunn Edwards - DEW770
Fairbanks Green - Dunn Edwards - DE6250
Log Cabin - Dunn Edwards - DEA162

Paint - Doors
Fairbanks Green - Dunn Edwards - DE6250
Spiced Berry - Dunn Edwards - DEA149
Drifting - Dunn Edwards - DEW770

Key Plan



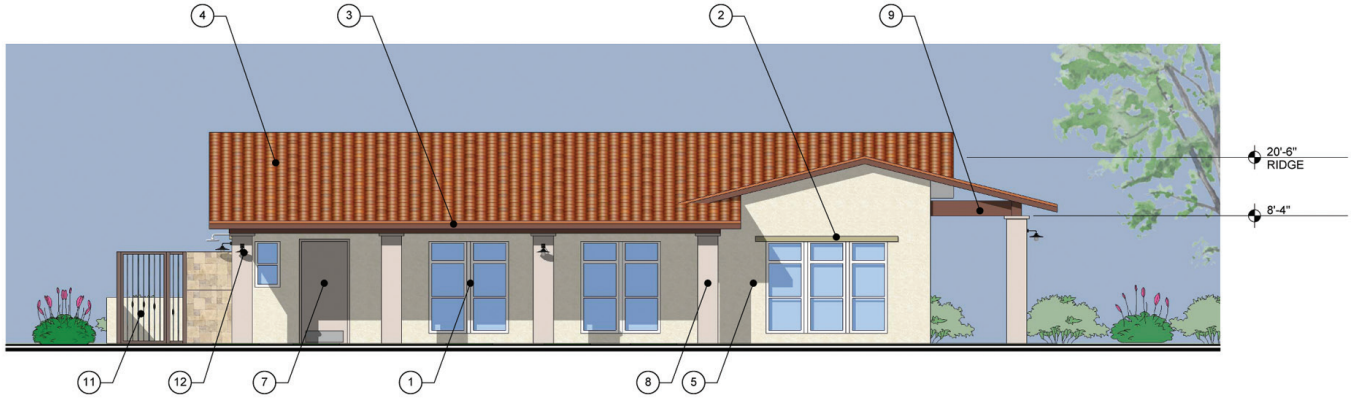
Source: Mainstream Architects & Planners, Inc., June, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

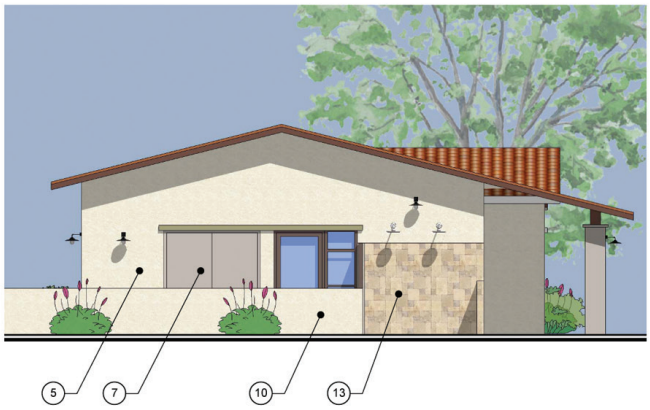
ENVICOM CORPORATION

Building I Elevations

FIGURE 11



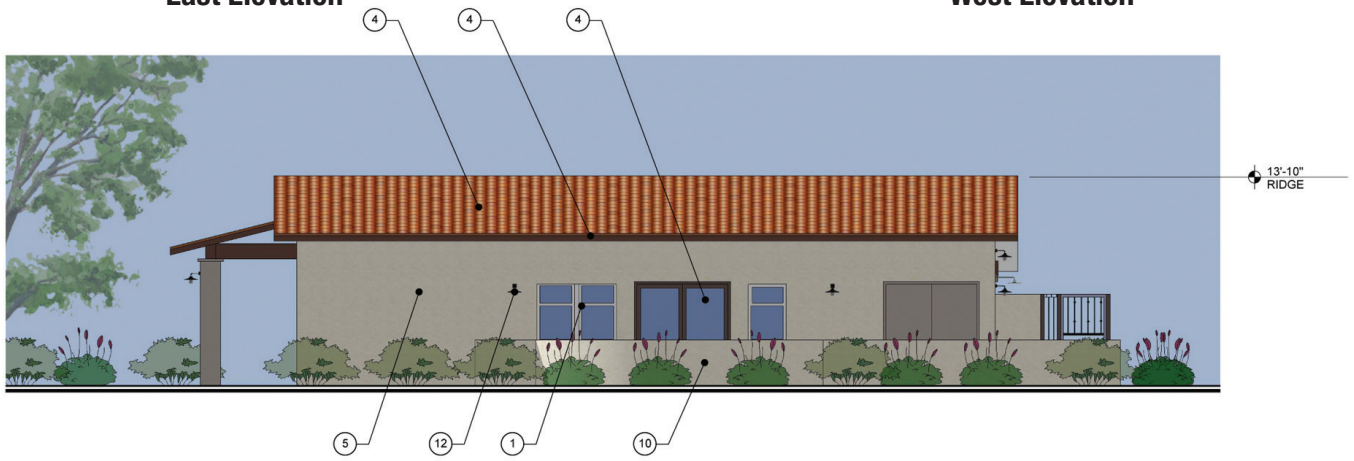
North Elevation



East Elevation



West Elevation



South Elevation

Material Notes

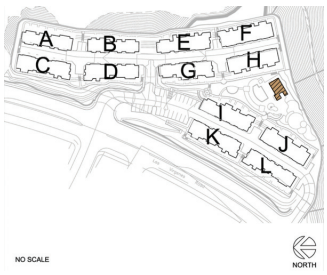
1. Vinyl Frame Window
2. Vinyl Sliding Door
3. Composite Window Trim (painted)
4. Concrete Roof Tile
5. Metal Guardrail
6. Wood Rafter Tails (painted)
7. Wood Corbel Detail (painted)
8. Color Integrated Exterior Stucco
9. Composite Trim (painted)
10. Patio Wall, Stucco
11. Entry Door (painted)
12. Exterior Light Fixture
13. Decorative Clay Tile with Bird Screen
14. Overhead Garage Door (painted)
15. Location of HV-AC (see Building Plans)
16. Wood Trellis Structure (painted)
17. 12" Vine Trellis
18. Decorative Chimney, Stucco

Color Palette

Color Scheme 1

Concrete Tile
San Benito - Eagle Roofing - 360
Stucco
Oatmeal - La Habra - X-81
Paint - Composite Trim & Wood
Fairbanks Green - Dunn Edwards - DE6250
Drifting - Dunn Edwards - DEW770
Log Cabin - Dunn Edwards - DEA162
Paint - Doors
Hickory - Dunn Edwards - DE6250

Key Plan



Source: Mainstream Architects & Planners, Inc., June, 2012.

Community Building Elevations

Roadway Improvements

The City of Calabasas has prepared plans to widen and upgrade Las Virgenes Road in the vicinity of the Calabasas Blue residential project including the portion of the roadway that fronts the project. To achieve the City's desired road width and alignment, the roadway curve in front of the project would require straightening. To facilitate the City's plan, the applicant would dedicate a portion of the project's frontage property at the southern end of the site in exchange for the City's abandoning a similar portion of the existing roadway to the applicant along the northern end of the site, as shown in **Figure 13,** which would allow for a straighter, safer roadway.

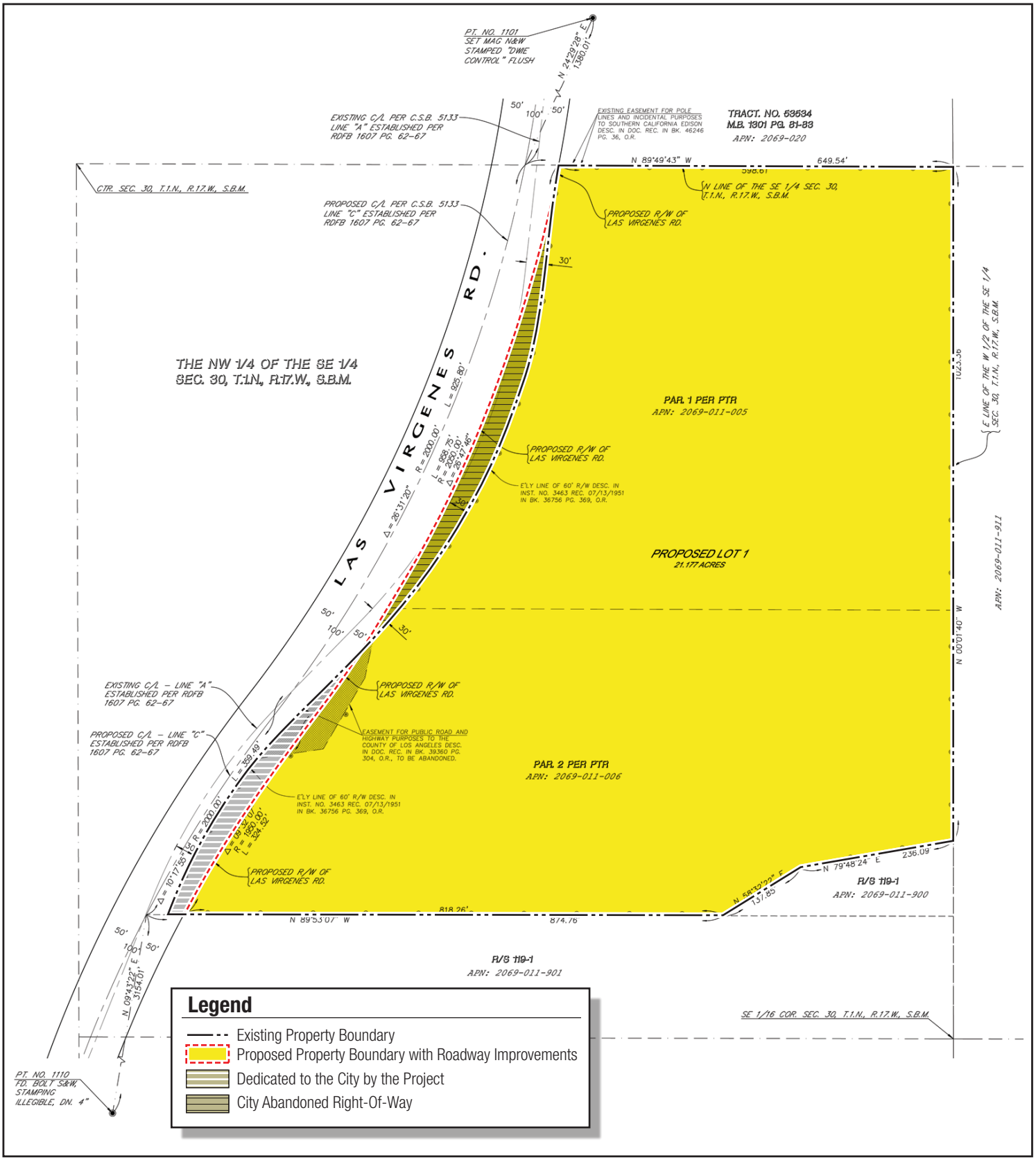
In the event that the City does not provide the planned improvements at the time of construction of this project, the City would require the project to improve Las Virgenes Road from 2 travel lanes to 4 travel lanes along the project frontage, with a raised median and Class II bike lanes. If the project is required to perform these roadway improvements, they would include the roadway realignment discussed above that would require the project to dedicate a portion of frontage property in exchange for an abandonment of existing roadway right-of-way that would be consistent with the approximate placement of the project's retaining walls as shown in Figure 4 (exact placement of the retaining wall to be agreed upon by the City's Public Works Department).

Infrastructure and Retaining Walls

The project site is located within LVMWD's wastewater service area. Existing water and sewer lines are located within Las Virgenes Road adjacent to the project site as is the existing storm water drainage infrastructure. LVMWD's Tapia Water Reclamation Facility currently treats wastewater in the project area.

Grading of the project would occur on approximately 8 of the site's 21 acres, and result in approximately 161,700 cubic yards (cy) of cut, 43,300 cy of fill, and a net export of 118,400 cy. Grading to the south and east of the proposed development footprint would result in a series of 2:1 cut slopes and 6-foot-wide benches to contour the slopes. Two detention basins with bulk flow inlets are proposed to accommodate stormwater runoff from eastern slopes and allow excess runoff to enter the project's underground drainage system. The project's drainage system would include bioswales and other devices within the developed area to allow for onsite infiltration of stormwater, and an underground runoff detention device placed beneath the parking area, which would reduce the rate of stormwater runoff from the project's impervious surfaces. Stormwater runoff leaving the site would be directed into LVMWD's existing storm drain within Las Virgenes Road.

Behind the project's eastern residential buildings, a proposed retaining wall with a maximum height of 25 feet would be constructed along the base of a constructed 2:1 slope. The wall would be screened from public view by the proposed residences and vegetation. Additional smaller retaining walls are proposed along the project frontage with Las Virgenes road, with a maximum height of 4 feet with landscaped grades at a 2:1 grade above the wall and 3:1 below the wall at the margins of a proposed sidewalk. The proposed landscaping plan would provide partial visual screening of this retaining wall from the roadway (See Figure 5).



Source: Mainstream Architects & Planners, Inc., March 26, 2012.

Las Virgenes Road Right-Of-Way Dedication and Abandonment

FEET 0 100 200

FIGURE 13

Construction

The project construction phase would begin in the spring or summer of 2013, and would occur over a period of approximately 21 months: 9 months of grading and infrastructure construction and 12 months of landscape and building construction. Construction staging areas for equipment, materials and employee vehicles would be contained entirely onsite. Construction vehicles would access the site via Las Virgenes Road.

2.4 DISCRETIONARY ACTIONS

As the designated Lead Agency, the City of Calabasas has assumed responsibility for preparing this document. The decision to approve the project is within the purview of the City Planning Commission. The Planning Commission will use the information included in this MND to consider potential impacts to the physical environment associated with the project when making the decision to approve the project. The Draft MND will be made available for review to the public and public agencies for 30 days to provide comments on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (Section 15204 of the CEQA Guidelines).

The following is a list of discretionary actions required for project approval prior to construction of the proposed project. All of these approvals are within the purview of the City of Calabasas Planning Commission and are appealable to the City Council.

The City will use the MND and supporting documentation in its decision to issue discretionary permits, including a Conditional Use Permit (CUP), Site Plan Review, Tentative Tract Map, and an Oak Tree Permit.

As a revision of the previously approved multi-family project, the currently proposed Calabasas Blue multi-family project would not trigger the need for a General Plan Amendment or a Zone Change. Refer to *Section 5.10* of the MND for additional discussion.

3.0 FINDINGS

The City of Calabasas finds that the proposed project would not have a significant adverse effect on the environment based on the Initial Study/Environmental Checklist (see *Section 4*) and the Environmental Evaluation Discussion (see *Section 5*). Some potentially significant effects have been identified and mitigation measures have been incorporated into the project to ensure that these impacts remain at less than significant levels. A Mitigated Negative Declaration (MND) is therefore proposed to satisfy the requirements of CEQA (PRC 21000 et. seq. 14 Cal. Code Resolution 15000 et. seq.). This conclusion is supported by the findings detailed in *Section 3.1*.

3.1 FINDINGS OF NO SIGNIFICANT EFFECT

1. *Aesthetics:* Project implementation would not significantly affect scenic vistas, scenic resources, the visual quality of the site or its surroundings, day or nighttime views, and would not result in significant light or glare effects (see *Section 5.1, Aesthetics*).

2. *Agricultural Resources:* Project implementation would not affect agricultural resources (see *Section 5.2, Agricultural Resources*).

3*. Air Quality:* The operations of the proposed project would not create long-term significant impacts. The project's construction phase would not create significant short-term construction related air quality impacts, as enhanced dust control measures are required by SCAQMD Rule 403 because of the non-attainment status of the air basin for PM-10/PM-2.5. Off-site construction-related emissions from soil export operations would be performed without significant impacts by disposing of material at the nearby Calabasas Landfill, approximately 2 miles from the project site. In the event that soil disposal occurs at an alternative location (for lower costs or other reasons) that would be farther from the project site, soil export scheduling shall be extended such that the average daily emissions from on-road trucking would not contribute to an exceedance of SCAQMD significance thresholds listed in Table 5.3-1. Recommended mitigation measures were identified to further reduce emissions from construction activities. (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.3, Air Quality*).

4*. Biological Resources:* Mitigation measures have been incorporated into the project to reduce potential impacts to biological resources to below a level of significance (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.4, Biological Resources*).

5*. Cultural Resources:* Project implementation would not cause a substantial adverse change in the significance of historical or archaeological resources, and would not disturb any human remains, as there are none of the resources known or expected to occur on the site. Mitigation has been included as part of the project to reduce potential impacts should undiscovered paleontological resources exist on the site (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.5, Cultural Resources*).

6. *Geology and Soils:* Mitigation measures from the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project (City of Calabasas 2007) as well as the previously certified FEIR for the Entrada at Malibu Canyon, Standard Pacific Homes (City of

Calabasas 2005) are applicable to this project in order to reduce impacts related to landslides, soil erosion, liquefaction and expansive soils (see *Section 5.6, Geology and Soils*).

7. *Greenhouse Gas Emissions:* The project would not result in a significant contribution to greenhouse gas emissions, and no significant impacts are anticipated (see *Section 5.7, Greenhouse Gas Emissions*).

8. *Hazards and Hazardous Materials:* Mitigation has been included into the project to reduce potentially significant impacts related to emergency access during construction of the Las Virgenes Road improvements (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.8, Hazards and Hazardous Materials*). No other significant hazards or hazardous materials impacts would result.

9*. Hydrology and Water Quality:* Measures have been incorporated into the project to reduce potential impacts to water resources during construction and post-construction to below a level of significance (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.9, Hydrology and Water Quality*).

10*. Land Use and Planning:* The proposed project would be compatible with existing and planned land uses in the project vicinity, and no significant impacts are anticipated (see *Section 5.10, Land Use and Planning*).

11*. Mineral Resources:* Project implementation would not affect mineral resources (see *Section 5.11, Mineral Resources*).

12*. Noise:* Project construction activities would generate noise that could potentially cause an impact at nearby residences, and future residents of the project could be exposed to potentially significant noise levels in outdoor areas (balconies and patios). Mitigation measures have been identified that would reduce each of these potential impacts to less than significant. The project would not expose sensitive receptors to significant ground vibrations during construction, and would not generate traffic noise levels that would contribute to a significant noise increase under existing or cumulative conditions. The project would not be located near a public or private airport (see *Section 3.2, Mitigation Measures and Monitoring Program* and *Section 5.12, Noise*).

13*. Population and Housing:* The project would not significantly affect local housing availability or population trends (see *Section 5.13, Population and Housing*).

14*. Public Services:* The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered government facilities (see *Section 5.14, Public Services*).

15*. Recreation:* The project would not significantly affect recreational facilities in the project vicinity and would provide active recreation facilities onsite for use by project residents (see *Section 5.15, Recreation*).

16*. Transportation/Traffic:* The project would not have a significant impact on transportation/traffic, including direct and cumulative effects and parking impacts (see *Section 5.16, Transportation/Traffic*).

17*. Utilities and Service Systems:* Project implementation would not significantly affect utilities and service systems, including water supply, wastewater treatment, and solid waste disposal. Las Virgenes Municipal Water District (LVWMD) does not have local sources of drinking water to serve the community, and must import all potable water supplies. The LVMWD 2011 Urban Water Management Plan (UWMP) estimates that the available water supply will exceed demand through 2035. However, as water supply conditions are always subject to uncertainties, the City continues to promote conservation practices through restrictions on water intensive land uses, water flow devices as well as promotion of native landscaping. Therefore, to assure compliance with City policies related to water conservation, mitigation measures have been identified. (see *Section 5.17, Utilities and Service Systems* and *Section 3.2, Mitigation Measures and Monitoring Program*).

3.2 MITIGATION MEASURES AND MONITORING PROGRAM

The City of Calabasas has summarized the various mitigation measures to be imposed on the project to reduce impacts to less than significant. As this project is proposing a reduction of units, and an associated reduction of some project impacts, the proposed mitigations are generally consistent with the mitigation measures listed in the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project (City of Calabasas 2007) for those impacts that would still require mitigation to reduce the level of impact to less than significant. In some cases, mitigation measures have been recommended as a way of reducing impacts that have been determined to be less than significant based on the City's thresholds. These mitigation measures include:

Air Quality

AQ-1. If soil export is disposed of at a location that is greater than two miles from the project site, the number of daily truck trips for soil export shall be reduced (based on discussion with the City) to insure that average daily construction emissions do not exceed SCAQMD significance thresholds. As an example; should a soil disposal site be located a distance of 10 miles from the project site, a maximum of 60 daily two-way truck trips for soil disposal shall be allowed in order to maintain daily emissions at a rate that would be below a level of significance. Additionally, the applicant would consult with the City to ensure that appropriate permits are in place for any alternate disposal location should one be identified.

AQ-2. The AQMD staff recommends that the lead agency minimize or eliminate significant adverse air quality impacts by adding the following mitigation measures where feasible:

- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow,
- Provide dedicated turn lanes for movement of construction trucks and equipment on-and-off site,
- Reroute construction trucks away from congested streets or sensitive receptor areas,
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM-10 generation,

- Ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers specifications,
- Use coatings and solvents with a VOC content lower than that required under AQMD Rule 1113,
- Use materials that do not require painting when feasible,
- Use pre-painted construction materials,
- Give preference to contractors who use 2010 and newer diesel haul trucks (e.g. material delivery trucks and soil import/export),
- During project construction all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 2 emissions standards, or higher.
- Establish a preference for contractors using diesel particulate filters (DPF), particularly on dozers.

Biological Resources

Bio-1. Two weeks prior to initiation of grading, construction, or fuel modification activities, a survey for special-status wildlife species shall be conducted by a qualified biologist. The biologist shall also conduct a second survey no more than five days prior to initiation of grading, construction, or fuel modification. The results of the surveys shall be documented and submitted to the City of Calabasas. The City and the California Department of Fish and Game shall be notified and consulted regarding the presence of any special-status species found onsite. Should a federally listed species be found, the United States Fish and Wildlife Service shall be notified. If a special-status species is found, impacts to the species shall be avoided. If avoidance is not feasible, appropriate measures to mitigate for the presence of the species onsite shall be determined by consultation with the City and the relevant agencies, and may involve the capture and transfer of the species to an appropriate habitat and location where the species would not be harmed by project activities.

Bio-2. No earlier than 14 days prior to construction, site preparation, or fuel modification activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February 1 through August 31), a City-approved biologist shall perform three field surveys 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 Game Code Sections 3503, 3503.5, or 3511 are present in the construction zone or within 500 feet of the construction zone. The third nesting bird survey shall be conducted within three days of the start of construction, site preparation, or fuel modification activities. In the event that an active nest(s) is (are) found within the survey area, construction, site preparation, or fuel modification activities within the 500-foot radius shall stop until consultation with the City, CDFG, and USFWS (when applicable, i.e. if the nesting birds are listed under the federal Endangered Species Act), is conducted and an appropriate setback can be established. The buffer shall be demarcated and project activities within the buffer 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.

Bio-3. The loss of 0.57 acres of sawtooth goldenbush – California sagebrush shrubland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., non-native grassland) to sawtooth goldenbush – California sagebrush shrubland. On-site restoration should be implemented only where suitable conditions exist to support a viable sawtooth goldenbush – California sagebrush plant community. If on-site restoration is not possible, compensation for the loss of 0.57 acres of sawtooth goldenbush – California sagebrush shrubland may be accomplished by off-site restoration of in-kind habitat or by a contribution to an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- 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 control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to development of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Bio-4. The loss of 0.21 acres of creeping wild-rye grassland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., non-native grassland) to creeping wild-rye

grassland. On-site restoration should be implemented only where suitable conditions exist to support a creeping wild-rye grassland plant community. If on-site restoration is not possible, compensation for the loss of 0.21 acres of creeping wild-rye grassland may be accomplished by off-site restoration of in-kind habitat or by a contribution to an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- 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 control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to development of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Bio-5. The loss of 0.29 acres of purple needlegrass grassland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., disturbed purple needlegrass grassland or non-native grassland) to purple needlegrass grassland. On-site restoration should be implemented only where suitable conditions exist to support a viable purple needlegrass grassland plant community. If on-site restoration is not possible, compensation for the loss of 0.29 acres of purple needlegrass grassland

may be accomplished by off-site restoration of in-kind habitat or by a contribution to an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- 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 control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to development of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Bio-6. Only non-invasive ornamental plant species or appropriate native plant species shall be used for landscaping in future development of the project site. Excluded species shall include, but not be limited to, those listed as problematic and/or invasive by the California Invasive Plant Council, or which are listed as 'noxious weeds' by the State of California or the US Federal Government. The permittee shall submit a Revised Landscape Plan, which shall be reviewed by a City of Calabasas approved qualified biologist or restoration ecologist to exclude all potentially invasive ornamental species. Mexican fan-palm (*Washingtonia robusta*) and Japanese honeysuckle (*Lonicera japonica*), as well as invasive members of the genera *Pennisetum* and *Cistus* shall be among those species excluded from use in landscaping. The Landscape Plan shall include a plant

pallet that complies with the species approved by the City-approved biologist, and shall be approved prior to issuance of a grading permit. The approved plant palette shall be adhered to throughout the life of any development. The Community Development Director, in consultation with an approved biologist, shall conduct site inspections to ensure the appropriate plant materials have been planted and are maintained through the life of the project.

Bio-7. The applicant shall comply with the conditions required by the Oak Tree Permit to be obtained from the City prior to encroachment into the Protection Zone of any onsite oak trees that meet the native oak and mature tree criteria within the City's Oak Tree Ordinance. In addition, all construction work activities within the Protected Zones of Tree Number 327 and Tree Number 335 shall minimize impacts due to encroachment by implementing mitigation techniques that would include, but not be limited to, the following requirements:

- All work conducted within the protected zone of an oak tree shall be performed in the presence of the applicant's oak tree consultant, and be verified by the City's oak tree consultant.
- Unless otherwise approved, all work conducted within the protected zone shall be accomplished using hand tools only. Use of tractors and other vehicles is prohibited.
- Roots will be severed cleanly with a saw, avoiding torn, ragged, or shattered ends.
- Following construction, a city-qualified arborist shall conduct annual monitoring for a minimum of five years as warranted by site conditions, to ensure continued health of the trees encroached upon.

Replacement oak trees shall be provided onsite as mitigation with a minimum trunk diameter of one inch provided for every inch removed. The total amount of replacement trees to be provided by this project shall be determined by the monitoring arborist at the time of encroachment.

The loss of an onsite oak tree from encroachment impacts within a designated monitoring period specified by the Permit shall be mitigated by replacement standards established in the City of Calabasas Oak Tree Ordinance. Specifically, to mitigate the loss of a tree during the specified monitoring period, replacement oak tree specimens (of the same species) of at least 1-inch in trunk diameter shall be planted onsite such that the sum of the replacement tree trunk diameters would be equal to or greater than the trunk diameter of the tree being mitigated for. Replacement oaks shall be clustered in an attempt to replace the specific type of oak habitat lost. Alternatively, the project could contribute the equivalent Product Replacement Cost (PRC) to the City Oak Tree Mitigation Fund.

Cultural Resources

CR-1. If fossils are identified during construction activities, the area will be flagged by the construction contractor for evaluation and recovery of specimens by a professional paleontologist. All recovered specimens will be documented, analyzed and prepared to a point of identification and permanent storage, to the

satisfaction of the City Community Development Department. All recovered specimens will be stored in an accredited repository with permanent retrievable storage and access for research and interpretation.

Geology and Soils

Geo-1. A final site-grading plan for the project shall be submitted for review and acceptance by the City Engineer. The grading plan shall be accompanied by a Final Soils and Geotechnical Report prepared in accordance with the Guidelines for Geotechnical and Geological Reports in the City of Calabasas and signed by a California Registered Civil Engineer and/or a California Registered Geotechnical Engineer. All remedial work and slope restoration shall be completed consistent with the approved report unless modifications are permitted in writing by the City Engineer.

Geo-2. The project geotechnical engineer and/or engineering geologist shall demonstrate that all geologic hazards associated with the development of this property have been acceptably eliminated or mitigated. Prior to issuance of a building permit, the applicant's geologist and/or geotechnical engineer shall be required to certify that all hazards have either been eliminated or can be remediated. The City's consulting geologist shall provide written certification that all onsite geotechnical hazards can be reduced to a level below significance based on the proposed remediation measures.

Geo-3. Prior to issuance of a building permit, initiation of rough grading, or issuance of any subsequent development permits, the project geotechnical engineer or engineering geologist shall prepare a final Geologic and Soils Engineering Assessment reflecting the approved project configuration. This geotechnical study shall, as deemed necessary by the City Engineer and consulting City geologist and geotechnical engineer, further assess slope stability and slope stability remediation within the proposed residential development footprint. This geotechnical study shall also provide a detailed plan for remediation of the existing landslide area that is located along the slope on the southern portion of the property. The findings and recommendations of the geotechnical assessment shall be incorporated into the final engineering design for the project.

Geo-4. All proposed cut and fill slopes identified as susceptible to future erosion and/or soil slippage shall be planted with an erosion resistant ground cover adhering to the following criteria:

- the ground cover is effective in preventing surface erosion;
- the ground cover is drought resistant;
- the ground cover has a relatively low surface mass/weight;
- has a fairly deep and extensive root system
- requires minimum maintenance by the owner; and
- has a low irrigation demand.

Geo-5. The City's Geologic Engineering Consultant shall be responsible for approving the appropriate erosion control/slope failure control-planting program prior to issuance of grading permits.

Geo-6. All buried utilities, drainage structures, roadways, building foundations, building pads, fences, retaining walls, and similar structures shall be designed in accordance with adopted City Building Codes. As necessary, the project geotechnical and civil engineer shall consult with the City's Building Official and City Engineer to ensure that all structures are designed to prevent damage from soil creep. Final approval of all project improvement plans (grading, utilities, building pads, etc.) shall be provided by the City's Building Official and the City Engineer prior to issuance of grading and/or building permits.

Geo-7. For any grading operations that may occur during the period between November 1 and April 15, the project applicant shall submit an erosion control plan for review and acceptance by the City Engineer. If the implementation of this project extends through the month of November, such an erosion control plan shall be required prior to the initiation of slope repair.

Hazards and Hazardous Materials

HM-1. Prior to issuance of permits for the proposed project, a Traffic Control Plan shall be prepared to the satisfaction of the City Engineer for the project street frontage with Las Virgenes Road. The Traffic Control Plan shall be implemented for the duration of construction activities along the street frontage. The Traffic Control Plan shall address methods to avoid conflicts between vehicles on Las Virgenes Road and construction vehicles entering and exiting the site.

Hydrology and Water Quality

WQ-1. The project applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Section 402 or the CWA NPDES General Permit, and to the satisfaction of the City Engineer. The Plan shall be subject to review and approval by the City of Calabasas. The applicant shall monitor adherence to the requirements contained in the Plan and as stipulated in the General Permit, including specific monitoring, sampling, and testing procedures for 303(d) water bodies.

WQ-2. Landscaped slopes and retaining walls shall be included throughout the project site to prevent excessive soil erosion and provide biofiltration of runoff to reduce the potential for contaminants to be discharged offsite.

WQ-3. Two surface detention basins shall be constructed for the drainage areas above the residential buildings to the east, which would protect the project from debris flows that might occur, and also to reduce the amount of stormwater that would discharge from the property during a storm event. Additionally, two subsurface detention basins consisting of 9'-diameter pipe are to be provided onsite to receive and detain stormwater flows as well as well as nuisance flows from within the developed area. These detention facilities are to have adequate capacity to reduce the rate of runoff flows that leave the site to less than that under existing

conditions. For the developed portion of the project site, detained runoff shall be treated before release into the municipal stormwater system by reuse on landscaped slopes, biofiltration in bioswale areas and planters, or by use of a mechanical, hydrodynamic treatment device.

These stormwater detention and treatment facilities shall be designed as part of the project improvement plans per the recommendations of the August 2, 2012 Conceptual Hydrology Study included as Appendix D, and as approved by the City Engineer.

Noise

Noise-1. The construction contractor shall oversee that construction activities only be permitted from 7:00 a.m. to 6:00 p.m., Monday through Friday, and Saturday from 8:00 a.m. – 5:00 p.m. Construction shall not be permitted on Sunday or holidays unless approved by the City Engineer.

Noise-2. During construction, stationary noise sources that exceed 70 dBA of continuous noise generation (at 50 feet) shall be shielded with temporary barriers if existing residences are within 350 feet of the noise source. This measure shall be overseen by the construction contractor, to the satisfaction of the City Community Development Department.

Noise-3. The construction contractor shall oversee that all mobile equipment will have properly operating and maintained mufflers.

Noise-4. Designated parking areas for construction worker vehicles and for materials storage and assembly shall be provided by the construction contractor, to the satisfaction of the City Community Development Department. These areas shall be set back as far as possible from or otherwise shielded from the surrounding developments.

Noise-5. The construction contractor shall notify immediately surrounding property owners in writing on a monthly basis of construction schedules involving major grading, to the satisfaction of the City Community Development Department.

Noise-6. The construction contractor shall ensure that haul routes be approved by the City to avoid residential development areas as feasible.

Noise-7. Prior to issuance of a building permit, to reduce traffic noise from Las Virgenes Road to 65 dBA CNEL or less within private outdoor areas, the project's final design plans shall be amended to include noise barriers for the upper story balconies and patios that face Las Virgenes Road for Buildings C, D, K, and L (Figure 4). These barriers should be 5.5 feet high measured from the balcony floor, and could be constructed of laminated safety plexi-glass or equivalent, or a combination of a decorative 3-foot to 4-foot solid deck railing (e.g. wood or stucco) with no air gaps, topped with the transparent plexi-glass panels to reach the required height. The transparent noise shields shall not cause glare effects which would impair visibility for vehicle operators on Las Virgenes Road or for area

residences, and shall be of a material with demonstrated glare-reducing properties to be approved by the Community Development Director. All required safety design standards for falling protection for balcony occupants must be observed, including the minimum height and construction of a safety deck railing. Prior to issuance of a certificate of occupancy for Buildings C, D, K, and L, the applicant may choose to submit an exterior noise evaluation for the constructed upper floor balconies that face Las Virgenes Road to accurately quantify the ambient noise level to be experienced at those locations before proceeding with installation of the noise shields as amended to the final design plans. If the results of the post-construction noise evaluation indicate that ambient noise levels at these private outdoor areas is below 65 dBA CNEL, at the discretion of the Community Development Director, installation of the mitigation noise shields may be deemed unnecessary. At a minimum, the noise evaluation must:

- Be prepared by a qualified noise consultant approved by the Community Development Director;
- Be conducted over a 24-hour period to accurately characterize the noise environment;
- Report the results as dBA CNEL;
- Be submitted to the Community Development Director prior to certification of occupancy; and
- If the findings of the evaluation indicate that exterior noise levels at these locations exceed 65 dBA CNEL, include recommendations to reduce noise levels of these outdoor private areas to below 65 dBA CNEL, such as the aforementioned transparent noise shield.

The applicant shall be bound to implement installation of the noise shielding, or an alternative adequate noise reduction technique if a viable alternative is identified by the noise evaluation, in the event that the post-construction noise evaluation reports the ambient noise levels at these locations to be 65 dBA CNEL or above. In the absence of conducting the post-construction noise evaluation, the applicant shall proceed with installation of the noise shields as described above, and as amended to the final design plans, prior to issuance of a certificate of occupancy for Buildings C, D, K, and L.

Utilities and Service Systems

Although the project would not result in significant impacts regarding utilities and service systems, the following mitigation measures are to assure compliance with water conservation practices promoted by the City where feasible. Any specific water conservation regulations would be followed as a matter of course and would be approved by the City through the final plan check and issuance of permits.

Utilities-1. Interior water fixtures shall be equipped with water conserving fixtures, including low faucets and ultra low flow toilets, as required by LVMWD standards.

Utilities-2. All irrigated landscaping shall be maintained with recycled water.

Utilities-3. Landscaping shall be heavily mulched and planted with drought tolerant vegetation.

Utilities-4. Although the project is not a "regionally significant project" (more than 500 dwelling units) as defined by Senate Bill (SB) 610, and is therefore not subject to the SB 610 enhanced CEQA water conservation requirements, the project shall incorporate dual plumbing to accommodate the use of recycled water for non-potable interior uses, if feasible.

4.0 INITIAL STUDY

City of Calabasas Planning Commission

CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY AND CHECKLIST
(Article IV – CRA CEQA Guidelines)

1. Project title:
Calabasas Blue Residential Development

2. Lead agency name and address:
City of Calabasas
100 Civic Center Way
Calabasas, California 91302

3. Contact person and phone number:
Mr. Geoffrey Starns, AICP, Senior Planner
or Krystin Rice, Planning Assistant
Phone (818) 224-1600

4. Project location:
4240 Las Virgenes Road Calabasas, CA 91302

The Project is located in western Los Angeles County within the City of Calabasas and occupies a portion of Section 30, Township 1 North, Range 17 West as shown on the USGS 7.5' Calabasas Quadrangle. The subject property is a 21-acre site on the east side of Las Virgenes Road across from the intersections of Oak Glen Street and Willow Glen Street. APN numbers 2069-011-005, and -006.

5. Project sponsor's name and address:
Calabasas Blue, LLC
25340 Prado De Los Arboles
Calabasas, CA 91302

6. General plan designation:
Business – Limited Intensity (City of Calabasas 2030 General Plan, 2008)

7. Zoning:
CL-SC

8. Description of project:
The Calabasas Blue Residential Project is a revision of an approved project for which an MND has been certified (Entrada at Malibu Canyon), to be located in western Los Angeles County, within the City of Calabasas, California. The proposed project has been designed to provide a similar number of residential units within a similar development footprint as the approved project, with the main goal of reducing the visual height and mass of the residential buildings. The project proposes development of a 78-unit multi-family residential project on approximately 5

acres of the 21-acre property (with a total of 8 acres to be disturbed). The project site is currently vacant with no improvements other than a dirt road that provides access into the property from Las Virgenes Road. Adjacent land uses include a single-family residential project (The Colony) to the north, Las Virgenes Road, residential neighborhoods, and a private school to the west, Las Virgenes Municipal Water District (LVMWD) facilities and offices to the south, and open space to the east. The proposed structures would include twelve residential buildings providing a total of 165,249 square feet of living area, and a 1,035 square foot community/recreation building. The project will provide 216 off-street parking spaces, including private parking garages under each residential unit (189 spaces) in addition to 27 guest parking spaces on the site. Public amenities include the community recreation room with a gym, pool, outdoor grills, and a tot lot. The site would be accessed by a main entry driveway from Las Virgenes Road and a secondary ingress/egress driveway at the southern end of the development. The main entry driveway would align with Oak Glen Street to form a four-way intersection, which would be signalized. (see attached project description in Section 2 for additional information)

9. **Surrounding land uses and setting:**
Adjacent land uses include a single-family residential neighborhood (The Colony) to the north, Las Virgenes Road, residential neighborhoods, and a private school to the west, Las Virgenes Municipal Water District (LVMWD) facilities and offices to the south, and open space to the east.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):**
None.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

☐	Aesthetics	☐	Agriculture Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Geology /Soils
☒	Hazards & Hazardous Materials	☒	Hydrology / Water Quality	☐	Land Use / Planning
☐	Mineral Resources	☒	Noise	☐	Population / Housing
☐	Public Services	☐	Recreation	☐	Transportation/Traffic
☒	Utilities / Service Systems	☐	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

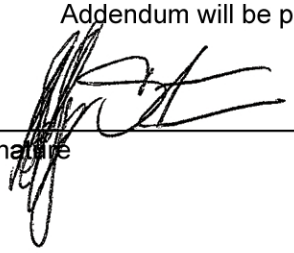
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. 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" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on 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 or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project. Therefore, an EIR Addendum will be prepared.



Signature

SEPT 4, 2012

Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

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

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

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

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

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

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

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

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

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

9. The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL IMPACTS (Explanations of all potentially and less than significant impacts are included in Section 5 *Discussion of Initial Study Environmental Checklist*)

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a 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?	☐	☐	☒	☐
II.	**AGRICULTURAL RESOURCES.** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, 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 the existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
III.	**AIR QUALITY.** The significance criteria established by the South Coast Air Quality Management District (SCAQMD) may be relied upon to make the following determinations. Would the project result in:				
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?	☐	☐	☒	☐
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a.	Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations 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 the City or regional plans, policies, regulations 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?	☐	☐	☐	☒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a. Cause a substantial adverse change in significance of a historical resource as defined in CEQA Section 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in significance of an archaeological resource pursuant to CEQA Section 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?	☐	☐	☐	☒
VI. GEOLOGY AND SOILS. Would the project:				
a. Exposure of 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?	☐	☒	☐	☐

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
VII.	**GREENHOUSE GAS EMISSIONS.** Would the project:				
a.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b.	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
VIII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f.	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for the people residing or working in the 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?	☐	☐	☒	☐
IX.	**HYDROLOGY AND WATER QUALITY.** Would the proposal result in:				
a.	Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b.	Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of 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 land 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 through 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 plain as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
h.	Place within a 100-year flood plain structures, which would impede or redirect flood flows?	☐	☐	☐	☒
i.	Expose people or structures to a significant risk of loss, inquiry or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j.	Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐
X.	**LAND USE AND PLANNING**. Would the project:				
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with 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, 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?	☐	☐	☐	☒
XI.	**MINERAL RESOURCES**. Would the project:				
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b.	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒
XII.	**NOISE.** Would the project result in:				
a.	Exposure of persons to or generation of noise in level in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b.	Exposure of people 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?	☐	☒	☐	☐

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING. Would the project:				
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?	☐	☐	☐	☒
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:				
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐
d. Parks?	☐	☐	☒	☐
e. Other public facilities?	☐	☐	☐	☒
XV. RECREATION.				
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?	☐	☐	☒	☐

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
XVI.	**TRANSPORTATION/CIRCULATION**. Would the project:				
a.	Conflict with an applicable plan, ordinance or policy establishing measures 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 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?	☐	☐	☐	☒
XVII.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
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?	☐	☐	☒	☐

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c.	Require or result in the construction of new stormwater 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 resource, 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 inadequate 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?	☐	☐	☒	☐
XVIII.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of 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 which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual 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 cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

5.0 DISCUSSION OF INITIAL STUDY ENVIRONMENTAL CHECKLIST

The following discussion of environmental impacts anticipated to occur with implementation of the proposed project consists of a brief explanation for each of the answers provided in the Initial Study/Environmental Checklist. For each issue addressed below, the impacts associated with development of this project have been determined to be "Less Than Significant with Mitigation Incorporated", "Less Than Significant", or "No Impact". Data and information has been provided to substantiate the level of significance determination for each impact issue. The issues that were determined to be "Less Than Significant with Mitigation Incorporated" will have mitigation measures identified that would reduce impacts to below a level of significance. These mitigation measures will be incorporated into the Mitigation Monitoring and Reporting Program (MMRP) to be developed for the project.

5.1. AESTHETICS

Refer to **Figures 14, 15, and 16** for photographs of existing conditions of the project site, and illustrative representations of the proposed project at buildout.

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. The project would not be visible from any designated scenic vistas. The project site is located within the Las Virgenes Scenic corridor. The City of Calabasas defines the corridor as the "Gateway" to the Santa Monica Mountains National Recreation Area. As such, the project is required to comply with the City's Scenic Corridor (-SC) Overlay Zone (Calabasas Municipal Code Section 17.18.040). The purpose of the –SC overlay zoning district is to: protect an important economic and cultural base of the City by preventing the destruction of the natural beauty and environment of the City; to safeguard and enhance property values; to protect public and private investment, buildings and open spaces; and to protect and enhance the public health, safety, and welfare.

The City's Scenic Corridor Ordinance (Ordinance No. 98-132) and the 1998 Las Virgenes Gateway Master Plan (LVGMP) recommend the incorporation of feasible development standards to minimize the visual impacts of the project on the surrounding environment. These standards include, but are not limited to:

- All roofs visible from scenic corridors shall be surfaced with medium dark colored fire-retardant, non-glare materials;
- Roof should be sloped parallel to the natural topography to protect line of site within the view corridor;
- All structures within the Scenic Corridor shall avoid straight, blank facades. Upper floor levels on multi-story buildings should be stepped-back from their base, thus opening up the view corridor both vertically and horizontally;
- All structures shall be designed and situated on site to minimize adversely impacting views;
- Developments within the LVGMP shall be designed consistent with the "Monterey" architectural style. This rural California architecture is typified by one and two story structures of horizontal mass, with exteriors of wood and plaster. Buildings also include balconies, exterior stairs and walks. Significant landscaping shall be an integral component of the building plan and shall include garden walls, trellises, arbors and the



Existing Conditions

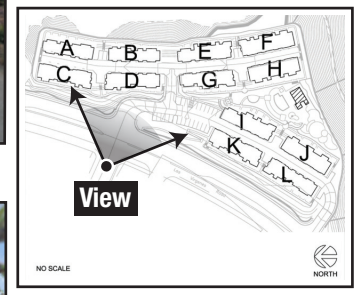


Illustrative Representation of Proposed Project

Source: Blue Marble Development, LLC., 2012.

View Looking Southeast Along Las Virgenes Road from North of the Oak Glen Street Intersection





Existing Conditions



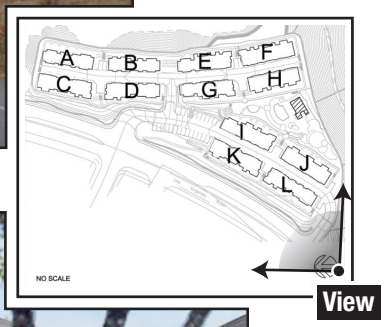
Illustrative Representation of Proposed Project

Source: Blue Marble Development, LLC., 2012.

View Looking East from the Las Virgenes Road/Oak Glen Street Intersection



Existing Conditions





Illustrative Representation of Proposed Project

Source: Blue Marble Development, LLC., 2012.

ENVICOM CORPORATION

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

View Looking Northeast Along Las Virgenes Road from Near the Southern Extent of the Subject Property

FIGURE 16

like; and Colors and materials should be muted and sympathetic to the colors and textures of the terrain and foliage on the site and the vicinity.

The project applicant has incorporated a number of architectural design elements described in the LVGMP into the project design. Architectural design would be in the Monterey style and would be consistent with the LVGMP. Architectural design must be approved by the City of Calabasas Planning Division prior to issuance of a building permit to ensure that the project is consistent with surrounding development and with the guidelines of the LVGMP.

Site modifications would result in a more angular and suburban landscape when compared to existing conditions. However, approximately 13 of the 21.77-acre site (approximately 60 percent) would not be graded or developed and would remain in a relatively undisturbed state, particularly in the eastern portions of the site. The portions of the project site proposed for modification are located on the lower lying areas of the site adjacent to Las Virgenes Road, and the higher elevations, which contain the most visible scenic resources, would be preserved. The highest portion of the site to be visually impacted would be the hillside area located on the south side on the property that is to be removed and recompacted to remove an existing landslide. Following remediation of the landslide area, a final contour grading of the area would be sculptured to resemble the existing topography.

A City project to widen Las Virgenes Road in the vicinity of the project as part of the Las Virgenes Road Corridor Design Plan would somewhat alter the project's frontage along the roadway. To accommodate the future road widening, which is scheduled to occur within the next two years, the proposed project would dedicate a portion of the subject property along the site's southern frontage in exchange for an abandonment of a similar sized portion of the right-of-way along the property's northern frontage area. This exchange would facilitate the City's Las Virgenes Road Corridor Design Plan by allowing a straighter roadway alignment in front of the Calabasas Blue project site as part of the roadway widening and improvement project. The proposed residential project's slope adjacent to the eastern edge of Las Virgenes Road would feature a 3:1 vegetated slope in front of a 4-foot high retaining wall with a 2:1 vegetated slope above featuring trees and shrubs for partial screening of proposed residences. Overall, given the above analysis, the project would result in less than significant impacts to scenic vistas.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. Construction of the multi-family units on the project site would not substantially damage scenic resources such as trees, rock outcroppings or historic buildings visible from an officially designated State Scenic Highway. As shown on the Department of Transportation's Scenic Highway Mapping System website[1], the portion of Las Virgenes Road that lies adjacent to the subject property is not designated as a scenic highway, and views to the east of this roadway as vehicles or pedestrians travel south from the US 101 Freeway or north from the Las Virgenes Road/Lost Hills Road intersection are constrained by variations in land topography and intermittent commercial and residential development. The proposed project would not significantly affect views of the existing natural environment from a portion of Las Virgenes Road that is designated as an Eligible State Scenic Highway (State Highway 27),

[1] http://www.dot.ca.gov/hq/LandArch/scenic_highways/, accessed May 7, 2012.

which lies south of the Lost Hills Road intersection. This Eligible State Scenic Highway is approximately 1 mile south of the project site and is visually separated by intervening ridgelines. The project would impact approximately 8 of the site's 21.77 acres, or 37 percent of the site; hence, a majority of the project site would not be affected by the project and would be remain open space. Specifically, the ridgeline areas that occupy the eastern portion of the subject property would not be disturbed by the proposed development. A total of nine protected oak trees occupy the property and are all located outside of the proposed grading boundary and would remain in open space, and as such, would be preserved by the project. Of these native oak trees, seven are located in areas that would not be disturbed and would not be impacted. The proposed grading plan would encroach into the root protection zones of two oak trees at the southern extent of disturbance, but would not be expected to cause significant damage as discussed in response 5.4-e and in the Oak Tree Survey prepared for this project (Appendix F). Section 5.4-e identifies applicable requirements for the protection of these trees associated with a City Oak Tree Permit, which the project would need to have issued pursuant to the City's Oak Tree Preservation and Protection Guidelines. Adherence to these standard conditions for Oak Tree Protected Zone encroachment would reduce potential impacts to these two oak trees. Overall, impacts to scenic resources would be less than significant.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. Refer to response 5.1-a. Development of the proposed project would introduce suburban uses onto a site that is currently vacant and rural in nature, as shown in Figures 14, 15, and 16. The proposal to construct townhomes in the lower-lying areas of the project site adjacent to Las Virgenes Road would preserve the property's upper hillside areas and ridgelines of the southern and eastern boundaries, that offer the most visible and highest value scenic resources of the site, as shown in the artist renderings provided in Figures 14 through 16. The proposed residential buildings would also be significantly screened visually from the roadway by landscape trees proposed by the project as shown in Figures 14 through 16 (actual screening would be more complete than depicted once landscape trees mature and vegetation becomes denser).

The project would add residential features to the Las Virgenes Road alignment including residential buildings and landscaping. Four of the proposed townhome buildings would be visible from Las Virgenes Road, specifically Buildings C, D, K and L. The proposed design for these four buildings would place the lower story below the grade on the west elevations where visible from the roadway (See Figures 7, 8, and 10). This design feature would give the appearance of two-story buildings as seen from Las Virgenes Road, which would be a reduced impact relative to the three-story visible height of the approved Entrada residential project and would be consistent with the LVGMP. In addition, the proposed project would place private garage entrances at the back of Buildings C, D, K and L, so that residential garage areas would not be visible from Las Virgenes Road. This design feature would reduce potential visual impacts such as unsightly expanses of garage doors, or unkempt garage interiors.

The project proposes landscaping along Las Virgenes Road, along project walls and along the project's street frontage to soften project visual effects. The project would be consistent with the LVGMP as it incorporates features to minimize the visual impacts, including those related to the

existing visual character of the site and its surroundings. Overall, impacts to the visual character of the vicinity would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The project site is currently vacant; consequently, residential development of the site would increase light and glare at the project site, which could potentially affect the surrounding area. The construction phase would not be expected to introduce significant new sources of light and glare to the project site as the City's noise ordinance (discussed in Section 5.12) generally restricts residential construction activity from occurring at night. Temporary sources of light and glare during the construction period may be associated with delivery of materials and construction equipment. Due to the temporary nature of these potential nuisance impacts, and the limited amount of evening hours in which they could occur, construction period light and flare impacts would be less than significant.

The long-term introduction of some amount of nighttime light would be inevitable due to safety requirements such as street lighting. However, with the exception of necessary security lighting, illumination of the project site and project land use would be limited to areas of activity. The project site is located below the adjacent easterly and southerly ridgelines and visibility of residential lighting would be minimal. Public street lighting on Las Virgenes Road would be required for safety and would potentially add to light intrusion to adjacent neighborhoods from existing street lighting.

Lighting fixtures within the project area would be designed to be consistent with the City's Lighting Ordinance (Ordinance No. 2002-176) and implemented to provide illumination appropriate for the level of activity within the project site. In addition, exterior lighting would be of low-intensity and shielded downward. Therefore, with adherence to the standard conditions of the City's Lighting Ordinance, light and glare impacts would be less than significant.

5.2 AGRICULTURE

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

No Impact. Based on the Los Angeles County Important Farmland Map prepared by the California Department of Conservation (DOC), the project site is not located in an area designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The map shows that the site is designated as Other Land (California Department of Conservation 2010), which denotes that the land is not included in any other agricultural mapping category and may designate, among other areas not suitable for farming, vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres.

The project would have no impact on farmland resources as there would be no Prime farmland or other important farmland types affected, and the proposed development would not directly or indirectly lead to the conversion of farmland. Additionally, there are no areas adjacent to the

site that are actively being farmed. Consequently, the project would have no impact on agricultural resources.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The proposed project site is not designated under any Williamson Act contract, and no impact would occur.

c) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

No Impact. Refer to 5.2-a above. The project would not create changes to the existing environment that would result in the conversion of farmland to non-agricultural use.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. There are no forest lands on the project site or in the vicinity.

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

No Impact. Refer to 5.2-a and d above. The project would not create changes to the existing environment that would result in the conversion of farmland to non-agricultural use, and the site is not occupied by forest land.

5.3. AIR QUALITY

This section is based on the CalEEMod.2011.1.1 emissions modeling calculations and Air Quality and Greenhouse Gas Emissions Impact Analysis report prepared by Giroux & Associates (May 2012), which is included as *Appendix A*. The CalEEMod was developed by the South Coast Air Quality Management District (SCAQMD) and provides a model to calculate both construction emissions and operational emissions from a residential land use project. It is noted that this analysis was performed assuming a total of 81 units would be developed. A subsequent reduction in dwelling units to the proposed total of 78 units would nominally reduce the total project emissions calculated for the analysis described below. Construction impacts to air quality would not be appreciably different based on this minor reduction in units. The findings in the study would not change as a result of the slightly smaller project and although emissions from operation of the project would be marginally lower, the impact significance would remain the same as those discussed below.

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

Less Than Significant Impact. The proposed project site is located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles,

Riverside, and San Bernardino counties. Air quality conditions in the SCAB are under the jurisdiction of the SCAQMD.

National Ambient Air Quality Standards (AAQS) were established in 1971 for six pollutants, with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. Because California had established AAQS several years before the Federal action, and because of unique air quality problems introduced by the restrictive dispersion meteorology that affects much of the State, there is a considerable difference between State and Federal clean air standards. These standards are the levels of air quality pollutants that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Subsequent legislation such as the Federal Clean Air Act Amendments (CAAA) of 1990, and further scientific study, has resulted in modifications and additions to National and State AAQS regulations.

State and Federal laws require jurisdictions that do not meet clean air standards to develop plans and programs that will bring those areas into compliance. An Air Quality Management Plan (AQMP) typically contains emission reduction measures and attainment schedules to meet specified deadlines. The currently available AQMP that is applicable to the region where the proposed project would be located was adopted in June 2007. The SCAQMD is the agency responsible for regulating air pollution in the project area.

Residential projects such as the proposed Calabasas Blue project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing general development. As the AQMP is based upon the expected overall level of development in the region, a project that is in conformance with adopted plans, forecasts and programs relative to population, housing, employment and land use, would generally not be expected to conflict with the AQMP.

The project is an allowable use under the City's General Plan and Zoning designations, with the provision that a Conditional Use Permit is issued for the project. Additionally, as this project proposes a revision of an approved plan (Entrada at Malibu) that is identified in the City's 2030 General Plan, the proposed 78-unit multi-family Calabasas Blue residential development is consistent with the growth assumptions included in the AQMP. The project is therefore not expected to obstruct implementation of the AQMP, and impacts would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact with Mitigation Incorporated.

Construction

Dust is typically the primary concern during construction of new homes and infrastructure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions."

Average daily emissions of particulate matter 10 microns in diameter (PM-10) during site grading and other disturbance are shown in the CalEEMod.2011.1.1 computer model to be about 10 pounds per acre. This estimate presumes the use of reasonably available control

measures (RACMs). The SCAQMD regulates fugitive dust emissions via Rule 403, which requires the use of best available control measures (BACMs) for fugitive dust from construction activities, which would reduce on-site emissions further than estimated by CalEEMod. A limited amount of construction activity particulate matter is in the 2.5-micron diameter (PM-2.5) range. PM-2.5 emissions are estimated to comprise 10-20 percent of overall PM-10 emissions generated.

Enhanced dust control measures provided by SCAQMD Rule 403 are required as a condition of approval because of the non-attainment status of the air basin for PM-10. Some of the requirements of Rule 403 that would apply to this project are listed below, although additional requirements may also apply:

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Stabilize previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Cover all stockpiles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone.
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard.
- Sweep streets daily if visible soil material is carried out from the construction site.

In addition to fine particles (PM-10 and PM-2.5) that remain suspended in the atmosphere semi-indefinitely, construction activities generate larger dust particles that are chemically non-reactive and are readily filtered out by human breathing passages. These larger fugitive dust particles are therefore not regulated by an AAQS, although such particles could potentially be a soiling nuisance as they settle out on parked cars, outdoor furniture or landscape foliage. The deposition distance of most soiling nuisance particulates is less than 100 feet from the source under normal wind conditions. There are no sensitive receptors within 100 feet from the project construction site perimeter.

Construction period emissions will also be generated from on and off-site heavy equipment used for grading, construction, and paving, etc. Grading is expected to require 118,400 cubic yards (CY) of export from the project site. At 20 CY for a tractor and double trailer earth hauler, this project would require 5,920 loads (11,840 truck trips) to move such a volume of dirt. The emissions generated by the on-road hauling of excess soils from the site would constitute a substantial portion of the project's daily construction emissions.

An average of 148 loads of material (296 one-way trips) would need to be hauled daily during an assumed 40-day (2 work-month) grading schedule. The planned destination for disposal of export material is the Calabasas Landfill, which is approximately two (2) miles from the project site. However, the landfill charges the same tipping fee for inert soil as for refuse, and a significant disposal cost could prompt grading contractors to find alternate disposal sites with potentially longer hauling distances. If longer hauling distances are selected, the export hauling

period may need to be extended to maintain daily construction activity emissions at less than significant levels. Such an extension of the timeframe for hauling export soils should not affect the overall development schedule as export soils may be stockpiled on-site for hauling away at a reduced rate to maintain emission levels at less than significant levels. As an example, should a soil disposal site be located 10 miles from the project site, the export hauling period required to keep average daily construction emissions below significance would be 80-100 days. The estimated period for project grading and infrastructure construction is 9 months or approximately 194 working days. Therefore, based on the estimated duration of site preparation activities, extending the soil export period to maintain air quality emissions below significance would be possible without adjusting the overall project schedule.

The CalEEMod 2011.1.1 computer model was used to calculate emissions from an assumed construction equipment fleet and schedule anticipated by CalEEMod. As shown in **Table 5.3-1**, based on the results of the CalEEMod analysis, the worst-case daily emissions estimated for the project from construction activities would not exceed SCAQMD Thresholds for any of the criteria pollutants analyzed, with the currently planned soil export disposal location (Calabasas Landfill) and with use of best management practices for dust control. Therefore, impacts due to project construction would be less than significant. However, as this analysis assumes a 40-day grading and soil export period, mitigation has been provided to ensure that the daily average emissions from soil export emissions do not exceed significance thresholds should a disposal site other than the Calabasas Landfill be used.

Table 5.3-1
Construction Activity Emissions Maximum Daily Emissions (pounds/day)

Construction Emissions [a]	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2 (e)
2013							
Unmitigated	11.0	88.3	63.9	0.1	45.1	13.9	9,545.6
Mitigated [b]	8.5	66.5	52.5	0.1	40.2	5.1	9,545.6
2014							
Unmitigated	33.8	33.7	27.5	0.1	2.9	2.7	4,907.1
Mitigated [b]	33.8	33.7	27.5	0.1	2.9	2.7	4,907.1
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**	**NA [c]**

Source: CalEEMod.2011.1.1 output in appendix A.
[a] Includes on-road materials delivery as well as on-road soil export hauling and construction crew commuting.
[b] Mitigation applied to the CalEEMod to estimate construction emissions reductions included:
- Water exposed surfaces 3 times daily
- Use dozers with diesel particulate filters (DPF)

[c] CO_2(e) emissions impacts are discussed in Section 5.7 Greenhouse Gas Emissions.

As shown in Table 5.3-1, construction activities are not anticipated to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation measures are provided to ensure that construction activity emissions remain below significant levels.

AQ-1:

If soil export is disposed of at a location that is greater than two miles from the project site, the number of daily truck trips for soil export shall be reduced (based on discussion with the City) to insure that average daily construction emissions do not exceed SCAQMD significance thresholds. As an example; should a soil disposal site be located a distance of 10 miles from the project site, a maximum of 60 daily two-way truck trips for soil disposal shall be allowed in order to maintain daily emissions at a rate that would be below a level of significance. Additionally, the applicant would consult with the City to ensure that appropriate permits are in place for any alternate disposal location should one be identified.

The SCAQMD staff also recommends that the lead agency minimize or eliminate significant adverse air quality impacts by adding the following mitigation measure to be implemented where feasible:

AQ-2 (Recommended):

- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow,
- Provide dedicated turn lanes for movement of construction trucks and equipment on-and-off site,
- Reroute construction trucks away from congested streets or sensitive receptor areas,
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM-10 generation,
- Ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers specifications,
- Use coatings and solvents with a VOC content lower than that required under SCAQMD Rule 1113,
- Use materials that do not require painting when feasible,
- Use pre-painted construction materials,
- Give preference to contractors who use 2010 and newer diesel haul trucks (e.g. material delivery trucks and soil import/export),
- During project construction all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 2 emissions standards, or higher.
- Establish a preference for contractors using diesel particulate filters (DPF), particularly on dozers.

Localized Significance Thresholds

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance evaluated above. These analysis elements are called Localized Significance Thresholds (LSTs), and were developed in response to the Governing Board's Environmental Justice Enhancement Initiative 1-4. The LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute measurably to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The SCAQMD has issued guidance on applying CalEEMod to LSTs, and has published pollutant concentration data for 1, 2 and 5-acre sites for sensitive receptors at varying distances. The closest sensitive uses to the Calabasas Blue development perimeter are residences located approximately 185 feet to the west, across Las Virgenes Road. A conservative receptor distance of 50 meters was used as a reference for this project to compare with the LST screening tables. Per LST guidance, only on-site construction activity is considered in the LST analysis. The CalEEMod output files, included as Appendix A, provide on-site construction emissions that exclude on-road haul, worker commuting, and vendor delivery emissions, for use in evaluating LST impacts. Table 5.3-2 shows that on-site emissions are below the LST for construction, and therefore, LST impacts are less than significant.

Table 5.3-2
Localized Significance Thresholds (LST)
and On-Site Construction Emissions

	CO	NOx	PM-10	PM-2.5
Localized Significance Thresholds [a]	1,009	143	20	7
Max. On-Site Construction Emissions [b]	33	40	8	5

Source: CalEEMod Output in Appendix A
[a] based on a 2.5-acre project site at 50 meters from a sensitive receptor
[b] maximum mitigated emissions from on-site construction

Operation

Operational emissions from the proposed project would most predominantly be associated with energy use and mobile sources (personal vehicles), as well as area source emissions from cleaning products, landscape maintenance, etc. According to the project's traffic analysis, the project would generate an estimated 471 average daily trips (ADT) conservatively using 81 dwelling units as a basis of analysis (see Section 5.17 Transportation/Traffic, and Appendix G).

Operational emissions for the proposed residential development were calculated using CalEEMod 2011.1.1 for an assumed project build-out year of 2014, also conservatively using 81 dwelling units as a basis of analysis. The results are shown in **Table 5.3-3,** which indicate that operations of the project would not cause the SCAQMD's recommended threshold levels to be exceeded. Therefore, operational emissions would be less than significant.

Table 5.3-3
Proposed Daily Operational Air Emissions and Impacts

	Operational Emissions (lbs/day)						
Source	**ROG**	**NO_x**	**CO**	**SO_2**	**PM-10**	**PM-2.5**	**CO_2**
Area	10.6	0.5	33.7	0.1	4.3	4.3	2,100.4
Energy	0.1	0.5	0.2	0.0	0.0	0.0	647.2
Mobile	2.4	5.7	24.2	0.0	4.7	0.3	4,173.3
Total	**13.1**	**6.7**	**58.1**	**0.1**	**9.0**	**4.6**	**6,290.9**
SCAQMD Threshold	55	55	550	150	150	55	-
Exceeds Threshold?	No	No	No	No	No	No	NA [a]

Source: CalEEMod Output in Appendix A
Analysis is based on an assumed 81-unit development.
[a] CO_2 emissions impacts are discussed in Section 5.7 Greenhouse Gas Emissions.

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

Less Than Significant with Mitigation Incorporated. See response 5.3-b. Due to the non-attainment status of the SCAB for PM-10, SCAQMD Rule 403 requires that an aggressive dust control program be implemented during project construction as a condition of approval. As shown in Table 5.3-1, construction emissions of PM-10 would be 30 percent below the SCAQMD threshold of significance without employing mitigation measures. Compliance with Rule 403 will reduce fugitive dust emissions to below the mitigated level of 40.2 lbs. per day, which would not be considered a cumulatively considerable net increase.

The AQMD recommends that in addition to dust reduction requirements provided by Rule 403, adverse air quality impacts be further minimized by adding the mitigation measures provided within mitigation measure *AQ-2 (Recommended)* as discussed above in response 5.3-b.

Therefore, by complying with Rule 403 and incorporating recommended mitigation measures as feasible, no further reductions are necessary and these impacts would be reduced to less than significant.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Substantial pollutant concentrations associated with residential development are typically found in areas directly adjacent to congested roadway intersections. These areas of vehicle congestion have the potential to be subjected to concentrations of air pollutants from exhaust fumes, creating pockets of elevated levels of CO, which are called “hot spots”. As exhaust fumes from vehicular traffic are the primary source of CO, there is a direct relationship between traffic/circulation congestion and potential CO impacts.

The SCAQMD has demonstrated in its CO attainment redesignation request to EPA that there are no "hot spots", i.e., locations where emission concentrations expose individuals to elevated risks of adverse health effects, anywhere in SCAB. A screening analysis for CO hotspots was performed at all intersections within the project area for which the project traffic report (Appendix G) provided data, to determine if significant concentrations of CO would occur with implementation of the proposed project in addition to the development of future projects.

Calculations were made for the A.M. and P.M. peak hours for existing traffic, existing plus project traffic, and a future plus project scenario that includes projected growth and planned development. The future plus project scenario that combines future build-out traffic with existing conditions represents a worst-case analysis.

This project would be considered to have significant impacts if project-related mobile-source emissions result in an exceedance of the California one-hour and eight-hour CO standards, which are 20 ppm and 9 ppm respectively[2].

The results of the microscale impact analysis indicate that within the study area, the maximum one-hour concentration of CO is estimated to be 4.2 ppm for the future plus project scenario, which is below the one-hour standard of 20 ppm. The maximum 8-hour CO concentration with future plus project traffic conditions would be 3.3 ppm, which is below the 8-hour standard, which is below the 8-hour standard of 9 ppm. Therefore, micro-scale air quality impacts are not significant.

e) Would the project create objectionable odors affecting a substantial number of people*?*

Less Than Significant Impact. Although offensive odors seldom cause physical harm, they can be annoying and cause concern. During the construction period, the potential odors associated with the proposed project would result from the application of asphalt, from diesel and gas fumes, and from the application of paint. Due to the temporary nature of construction, odors associated with project construction would be considered less than significant. No long-term odors are anticipated to result with implementation of the project.

The LVMWD maintains their office headquarters at a facility adjacent to the project site. Water treatment does not occur at this site and therefore there are no associated odors generated at this location. The nearest facility with a potential for odor generation is the LVMWD solids composting facility located 0.9 miles south of the project site. This facility is an in-vessel composting facility with air emissions controlled and treated before release. The facility is considered state-of-the-art and has won numerous awards; and periodically, the public is invited into the facility to pick up bags of finished compost (at no cost to local residents) for use in their yards or gardens. Given the distance separation between the project site and the composting facility, and the degree of odor control practices, the potential for odors generated at this facility to cause a nuisance at the project site is considered negligible and the impacts related to odors would be less than significant.

[2] ppm = parts per million.

5.4. BIOLOGICAL RESOURCES

This section is based on the Technical Biological Study prepared by Envicom Corporation (2012), and an Oak Tree Survey Report prepared by James Dean Designs (2012), which are included as Appendix B and Appendix F respectively, as well as relevant biological studies prepared for previously proposed projects as the project site.

a) Would the project 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 (CDFG) or U.S. Fish and Wildlife Service (USFWS)?

Less than Significant, with Mitigation Incorporated

Special-Status Plant Species

Special-status plant species either have unique biological significance, limited distribution, restricted habitat requirements, particular susceptibility to human disturbance, or a combination of these factors. Herein, the term "special-status" is used to denote those species that meet the criteria of CEQA Guidelines Section 15380 as an endangered, rare, or threatened species, whether or not officially listed, as provided in Section 15380(d). Special-status plant species include either of the following:

- Plant species that are listed, proposed for listing, or meet the criteria for listing as endangered, threatened, or rare by the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA); or
- Plant species that are listed on the CDFG Special Vascular Plants, Bryophytes and Lichens List, which includes the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants. Plants on the CNPS List 1B (which includes rare, threatened, or endangered species, in CNPS's opinion, in California and elsewhere) and List 2 (plants considered rare, threatened, or endangered in California, but more common elsewhere) are considered sensitive.

CEQA Guidelines, Section 15125(a), also direct that special emphasis should be placed on resources that are rare or unique to the region.

A botanical survey of the project site was conducted on May 15, 2012 by Mr. James Anderson, biologist at Envicom Corporation. Survey methodology and a complete list of the vascular plant species observed is provided in the Technical Biological Study prepared for this MND in Appendix B. Biological surveys of the site were also conducted by Dudek in July 2006 and by Envicom Corporation in April and May of 2003. No plant species listed as rare, threatened, or endangered that would require a mandatory finding of significance pursuant to CEQA 15380 were found during any of the surveys of the site.

An evaluation of the potential for occurrence of special-status plant species at the project site was undertaken through research of the CDFG Natural Diversity Database (CDFG 2012) using the Rarefind application for sensitive "elements" on the Calabasas quadrangle and eight adjacent quadrangles. 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 May 2012 field survey, as well as the negative results of prior surveys of

the site in 2006 and 2003, potentially occurring species can be confirmed as absent or their potential for occurrence can be considered much reduced. The only special-status plant species with potential to occur at the site are chaparral ragwort (*Senecio aphanactis*) [CRPR 2.2], round-leaved filaree *(California macrophylla*) [CRPR 1B.1], and Braunton's milkvetch (*Astragalus brauntonii*) [FE], although their potential for occurrence is low, at best. The chaparral ragwort and round-leaved filaree are small annual herbs known to occur in coastal scrub or foothill grassland habitats and could be difficult to locate within dense vegetation at the site, and could have gone undetected, if present. Site surveys were sufficient to confirm the absence of Braunton's milkvetch plants at the site. However, this species is a short-lived perennial with seeds that remain dormant in the soil for long periods between fires or mechanical disturbance, which stimulates germination of the seeds. It is a soil specialist, requiring carbonate soils high in calcium, manganese, with some potassium. Given that NRCS soils maps show the soils at the site are comprised of up to 15% calcium carbonate, this species is considered to have low potential to occur as a dormant seed bank. However, it is not known from the vicinity of the project site or this part of the Santa Monica Mountains.

Two species with a California Rare Plant Rank (CRPR) 4, namely Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4.2] and Coulter's Matilija poppy (*Romneya coulteri*) [CRPR 4.2] were found at the site during the May 2012 botanical survey, as well as during previous surveys of the site. The locations of these two species are shown on **Figure 17** *Vegetation Impacts Map*.

Twelve (12) Catalina mariposa lilies were found in coastal sage scrub and non-native grassland habitats at the site and an undetermined number of Coulter's Matilija poppies occur as a very small patch in a landscaped area along the property's southern boundary.

Plants with a CRPR of 4 are not rare, but rather are included on a "watch list" of species with limited distribution. CRPR 4 species do not carry a mandatory finding of significance pursuant to CEQA 15380. However, while plants in this category cannot be called "rare" from a statewide perspective, and very few, if any, are eligible for state listing, many of them are significant locally. For this reason, the California Native Plant Society (CNPS) strongly recommends that CRPR 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA, which may be particularly appropriate for: the type locality of a CRPR 4 plant; populations at the periphery of a species' range, areas where the taxon is especially uncommon; areas where the taxon has sustained heavy losses; or, population exhibiting unusual morphology or occurring on unusual substrates.

Coulter's Matilija poppy, although native to southern California, has been introduced to the Santa Monica Mountains region (Raven, P., 1986). Therefore, this species does not occur at the site in its native habitat, and was likely planted or has otherwise spread to the site. This species would not be impacted by the project. The Catalina mariposa lily is not locally rare, is fairly common in suitable habitats within the Santa Monica Mountains region, and is not otherwise locally significant based on the CNPS criteria outlined above. The project would result in the removal of ten (10) Catalina mariposa lilies, a seed bank, and the loss of suitable Catalina mariposa lily habitat at the site, which would have a negligible effect on the local population as well as the entire population of the species.



Aerial Source: GoogleEarth Pro, 2011.

Legend

- Existing Property Boundary
- Proposed Property Boundary Line
- Limits of Permanent Impacts
- Fuel Modification (200-ft. Buffer of Proposed Structures)

Woodlands

- OW — Coast Live Oak / Annual Grass-Herb Woodland *(Quercus agrifolia)*

Shrublands

- Ac — California Sagebrush Shrubland *(Artemisia californica)*
- HA — Sawtooth Goldenbush - California Sagebrush Shrubland *(Hazardia squarrosa - Artemisia californica)**
- Hs — Sawtooth Goldenbush Shrubland *(Hazardia squarrosa)*
- Ef — California Buckwheat Grassland *(Eriogonum fasciculatum)*

Native Grasslands

- Et — Creeping Wild Rye Grassland *(Elymus triticoides)* *
- Sp — Purple Needlegrass Grassland *(Stipa pulchra)**

Non-Native Grasslands

- NG — Non-Native Grasses and Forbs Mapping Unit

Individual Trees / Shrubs

- Qa — Coast Live Oak *(Quercus agrifolia)*
- Ql — Valley Oak *(Quercus lobata)*
- Sn — Blue Elderberry *(Sambucus nigra* ssp. *caerulea)*
- Heritage Protected Tree (50' Protection Zone around trunk)
- Protected Tree (5' Protection Zone around drip line)

Notable Plant Species

- Catalina Mariposa-Lily *(Calochortus catalinae)* **
- Coulter's Matilija Poppies *(Romneya coulteri)*

Other

- SV — Sparsely Vegetated (Ruderal)
- A — Asphalt

* **CDFG Natural Community of Special Concern**
** **Denotes the number of individuals at that location**

ENVICOM CORPORATION

Vegetation Impacts Map

0 75 150 Feet

FIGURE 17

As no special-status species requiring a mandatory finding of significance under CEQA 15380 have been found or are expected at the site, and the CRPR 4 species that occur at the site are not locally significant, impacts to special-status plant species are less than significant.

Special-Status Wildlife Species

For the purposes of this analysis, the term "special-status" is used to denote those species that meet the criteria of CEQA Guidelines Section 15380 as an endangered, rare, or threatened species, whether or not officially listed, as provided in Section 15380(d). Our discussion of sensitive wildlife species includes those that are:

- Listed, proposed for listing, or meet the criteria for listing as endangered, threatened, or rare by under FESA or CESA; or,
- Listed on the CDFG's Special Animals list with a designation of CSC (California Species of Special Concern)[3] or CFP (California Fully Protected)[4].

CEQA Guidelines, Section 15125(a), also directs that special emphasis should be placed on resources that are rare or unique to the region.

Wildlife species observed during surveys of the site in 2012, 2006, and 2003 have been limited to species common or relatively common to the region. No species listed as endangered, threatened, California fully-protected (CFP), or as a California species of special concern (CSC) that would require a mandatory finding of significance pursuant to CEQA 15380 have been observed. However, a considerable number of additional wildlife species, including special-status species that were not observed during site surveys, are anticipated to occur in the vicinity, and on the subject property, even if in some cases only infrequently, in transit, or on a temporary basis. An assessment of the potential for occurrence of special-status wildlife species is provided in the Technical Biological Report in Appendix B. The potential for occurrence was undertaken through research of the CDFG Natural Diversity Database (CDFG 2012) using the Rarefind application for sensitive "elements" on the Calabasas quadrangle and eight adjacent quadrangles. The potential for occurrence analysis provides a speculative assessment of the potential for the occurrence at the site of special-status animals on the basis of their known distribution and habitat requirements.

3 CSC – California Species of Special Concern.
A California Species of Special Concern is a species, subspecies or distinct population of an animal native to California that currently satisfies one or more of the following (not necessary mutually exclusive) criteria:
- Is extirpated from the State or, in the case of birds, in its primary seasonal or breeding role;
- Is listed as Federally- but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- Is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status

4 CFP – California Fully Protected Species.
A California Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Special-status vertebrate wildlife species that are expected to occur at the site include coast horned lizard (CSC), white-tailed kite (CFP), and northern harrier (CSC). Additional species that may occur, if only rarely or occasionally, include loggerhead shrike (CSC), golden eagle (CFP), burrowing owl (CSC), short-eared owl (CSC), grasshopper sparrow (CSC), black swift (CSC), Vaux's swift (CSC), bank swallow (CT), and olive-side flycatcher (CSC). Five species of special-status bats listed as CSC have potential to forage aerially over the property (see Technical Biological Report in Appendix B for list of potentially-occurring bat species), but are not expected to roost thereon. Among mammals other than bats, another three special-status species with potential to occur include the San Diego black-tailed jackrabbit (CSC), San Diego desert woodrat (CSC), and the American badger (CSC).

Many of the special-status wildlife species with potential to occur onsite likely would occur only rarely or occasionally and would not be significantly affected by habitat loss that would result from development of the proposed project, as impacts to their potential habitat would be a maximum of 11.79 acres (i.e., total area of grading and fuel modification impacts to shrubland, native, and non-native herbaceous communities combined), an exceedingly small proportion of the available habitat within their ranges. These species include residents, migrants and winter and other rare and uncommon visitors that may occasionally forage on the site, such as golden eagle, short-eared owl, Vaux's swift, northern harrier, olive-side flycatcher, black swift, bank swallow, and all of the bat species. Impacts to a maximum of 11.79 acres of habitat would not have a substantial adverse effect on individuals or populations of these species because their occasional use of the site is unlikely to be affected. Direct impacts to these species from habitat loss that would result from development of the proposed project are therefore less then significant.

Several other special-status species with potential to occur onsite may be 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 horned lizard, burrowing owl, white-tailed kite, loggerhead shrike, San Diego black-tailed jackrabbit, San Diego desert woodrat, and 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. All of these species are still relatively wide-ranging in California, and the site does not provide particularly important or valuable habitat for any of the species; i.e., no populations of any of these species would be substantially affected by the proposed project although some individuals may be directly impacted or displaced because of habitat modification. Because the maximum amount of potential habitat impacted for these species from grading and fuel modification activities would be 11.79 acres (coastal scrub, native, and non-native grassland combined), only a few individuals would have the potential for their entire home range or territory to be impacted; most likely, coast horned lizard or San Diego desert woodrat. The remaining species would continue to use undeveloped portions of the site and adjacent offsite habitat within the surrounding area, much of which is protected as open space, as resident and foraging habitat. Because of the relatively small impacts on these special-status species within this regional context, implementation of the project would not result in a substantial adverse effect and thus direct impacts to these species are less than significant.

Most of the potentially occurring special-status wildlife species are capable of escaping harm during project development, including grading and construction, or fuel modification, while others are potentially vulnerable to direct impacts, including injury and mortality. In this case, these special-status species that could be directly impacted include potentially-occurring land dwelling and ground dwelling animals, including coast horned lizard, burrowing owl, San Diego black-tailed jackrabbit, San Diego desert woodrat, and the American badger. Direct loss of a special-status wildlife species that meets CEQA section 15380 criteria due to grading, construction, or fuel modification activities is a potentially significant, but mitigable impact.

Bio-1:
Two weeks prior to initiation of grading, construction, or fuel modification activities, a survey for special-status wildlife species shall be conducted by a qualified biologist. The biologist shall also conduct a second survey no more than five days prior to initiation of grading, construction, or fuel modification. The results of the surveys shall be documented and submitted to the City of Calabasas. The City and the California Department of Fish and Game shall be notified and consulted regarding the presence of any special-status species found onsite. Should a federally listed species be found, the United States Fish and Wildlife Service shall be notified. If a special-status species is found, impacts to the species shall be avoided. If avoidance is not feasible, appropriate measures to mitigate for the presence of the species onsite shall be determined by consultation with the City and the relevant agencies, and may involve the capture and transfer of the species to an appropriate habitat and location where the species would not be harmed by project activities.

Nesting Birds

Grading and fuel modification, if conducted during the nesting bird season (February 1 to August 31) would have the potential to result in the loss of trees and shrubs that could contain active bird nests. In addition, these activities would also affect herbaceous vegetation that could support and conceal ground-nesting species. Project activities that result in the loss of bird nests, eggs, and young, would be in violation of one or more of California Fish and Game Code sections 3503 (any bird nest), 3503.5 (birds-of-prey), or 3511 (Fully Protected birds). In addition, removal or destruction of one or more active nests of any other birds listed by the federal Migratory Bird Treaty Act of 1918 (MBTA), whether nest damage was due to vegetation removal or to other construction activities, would be considered a violation of the MBTA and California Fish and Game Code Section 3511, and therefore would be a significant, but mitigable impact.

Bio-2:
No earlier than 14 days prior to construction, site preparation, or fuel modification activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February 1 through August 31), a City-approved biologist shall perform three field surveys 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 Game Code Sections 3503, 3503.5, or 3511 are present in the construction zone or within 500 feet of the construction zone. The third nesting bird survey shall be conducted within three days of the start of construction, site preparation, or fuel modification activities. In the event that an active nest(s) is (are) found within the survey area, construction, site preparation, or fuel modification activities within the 500-foot radius shall stop until consultation with the City, CDFG, and USFWS (when applicable, i.e. if the nesting birds are listed under the federal Endangered

Species Act), is conducted and an appropriate setback can be established. The buffer shall be demarcated and project activities within the buffer 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.

b) Would the project 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?

Less than Significant, with Mitigation Incorporated

Vegetation Communities

There is no streambed or riparian habitat at the project site and therefore the project would not result in impacts to habitats regulated under Section 1602 of the Fish and Game Code.

Seven native and two non-native plant communities occur at the project site, as shown on **Table 5.4-1** and on Figure 17. Plant communities at the project site 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* (CDFG/CNPS, January 2006) and the *List of Vegetation Alliances and Associations* (*Natural Communities List*) (CDFG, September 2010). These documents provide comprehensive lists of officially recognized plant communities occurring in the Santa Monica Mountains and environs and the State of California, respectively. Each plant community included in these documents has been assigned a conservation status rank by the CDFG (also known as "rarity rank"), which is used to determine the sensitivity of plant communities.[5] Plant communities with global or state status ranks of G1 through G3, or S1 through S3, respectively, are considered to be sensitive, and are referred to as "natural communities of special concern." Sensitive plant communities are protected pursuant to CEQA, and impacts to these communities must therefore be avoided or mitigated. The acreage and conservation status rank of plant communities occurring at the site are provided in Table 5.4-1.

The plant communities occurring at the project site as well as the project impacts to sensitive plant communities are discussed below. The acreages of direct, permanent impacts to plant communities that would result from project grading and fuel modification are shown in Table 5.4-1. The acreages of off-site areas to the west of the existing property boundary that would be impacted by the project are also shown. For more detailed information on the composition and classification of the plant communities at the site, see the Technical Biological Report in Appendix B.

[5] The conservation status ranking system adopted by the CDFG consists of a geographic scale (G=Global; S=State) and a degree of threat (1=critically imperiled; 2=imperiled; 3=vulnerable to extirpation or extinction; 4=apparently secure; and 5=demonstrably widespread, abundant, or secure). Plant communities with global or state conservation status ranks of G1 through G3, or S1 through S3, respectively, are sensitive, and are referred to by the CDFG as "natural communities of special concern."

Table 5.4-1
Existing and Impacted Acreage of Plant Communities at Calabasas Blue Project Site

Habitat Class	Plant Community*	Conservation Status Rank	Acreage On-site	Acreage Impacted		
				On-site Grading	Fuel Modification	Off-site Grading
Woodland	Coast Live Oak / Annual Grass-Herb Woodland (*Quercus agrifolia*) [71.060.09]	G5S4	1.53	0.00	0.10	N/A
Shrubland	California Sagebrush Shrubland (*Artemisia californica*) [32.010.01]	G5S5	0.27	0.00	0.00	N/A
	Sawtooth Goldenbush–California Sagebrush Shrubland (*Hazardia squarrosa-Artemisia californica*) [32.055.02]**	G3S3	0.58	0.53	0.04	N/A
	Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*) [32.055.00]**	G3S3	1.45	1.44	0.01	N/A
	California Buckwheat Shrubland (*Eriogonum fasciculatum*) [32.040.02]	G5S5	0.23	0.23	0.003	0.06
Native Herbaceous	Creeping Wild Rye Grassland (*Elymus tritidoides*)[6] [41.080.01]**	G4S3	0.21	0.21	0.00	N/A
	Purple Needlegrass Grassland (*Stipa pulchra*)[7] [41.150.00]**	G4S3	0.38	0.29	0.00	N/A
Non-Native Herbaceous	Non-Native Grasses and Forbs Mapping Unit	N/A	17.08	5.10	3.23	0.20
	Sparsely Vegetated (Ruderal)	N/A	0.04	0.00	0.00	0.18
Other Landcover	Asphalt	N/A	N/A	0.00	0.00	0.17
	TOTAL ACREAGE		**21.77**	**7.80**	**3.38**	**0.61**

* Numbers in brackets are unique codes for each plant community, as provided in *List of Vegetation Alliances and Associations* (*Natural Communities List*) (CDFG, September 2010).
** CDFG Natural Community of Special Concern (Sensitive Plant Community).

The following four plant communities at the site are considered to be rare or sensitive, and would be impacted by grading and/or fuel modification for the proposed project:

- Sawtooth Goldenbush–California Sagebrush Shrubland (*Hazardia squarrosa – Artemisia californica*)
- Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*)
- Creeping Wild Rye Grassland (*Elymus triticoides*)
- Purple Needlegrass Grassland (*Stipa pulchra*)

[6] *Elymus triticoides* was formerly named *Leymus triticoides*.
[7] *Stipa pulchra* was formerly named *Nassella pulchra*.

Coast Live Oak / Annual Grass-Herb Woodland (*Quercus agrifolia*) [G5S4] [71.060.09]

This plant community is characterized by dominance of coast live oak (*Quercus agrifolia*) in the tree canopy and a largely non-native annual grass and herb understory. Valley oak (*Quercus lobata*) is present at low cover. The tree layer contains at least 10% absolute cover of oak trees. The shrub layer is sparse and consists of California sagebrush (*Artemisia californica*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), purple sage (*Salvia leucophylla*), and sawtooth goldenbush (*Hazardia squarrosa*). The herbaceous layer contains a diversity of non-native grasses and forbs, including wild oat (*Avena fatua*), rip-gut brome (*Bromus diandrus*), hoary mustard (*Hirschfeldia incana*), and tecolote (*Centaurea melitensis*). Native herbs are not well represented, but include species such as (*Bloomeria crocea*), narrow-leaf milkweed (*Asclepias fascicularis*), American bird's foot trefoil (*Acmispon americanus*), and succulent lupine (*Lupinus succulentus*). This community occurs outside of the grading footprint on upper slopes in the northeastern portion of the property (See Figure 17). Fuel modification, based on a 200-foot distance from proposed structures, would extend approximately 55 feet into the oak woodland, impacting a total of 0.10 acres of this plant community. It is anticipated that fuel modification within the oak woodland would be limited to removal of dead oak branches and cutting of shrubs and herbs in the understory, and that the living oak trees would therefore not be impacted. As this plant community is not considered sensitive by the CDFG or by City policy, impacts would be less than significant. The individual oak trees within the oak woodland are protected under the City's Oak Tree Ordinance, as discussed under a separate heading below.

California Sagebrush Shrubland (*Artemisia californica*) [32.010.01]

The California sagebrush shrubland at the project site is dominated by California sagebrush, and also contains low cover of purple sage. California sagebrush shrubland occurs in the northeastern portion of the property approximately 385 feet outside of the project grading footprint and 280 feet from the potential fuel modification zone (See Figure 17). This community receives a G5S5 conservation status rank and is therefore not considered sensitive by the CDFG. Impacts to California sagebrush shrubland are less than significant.

Sawtooth Goldenbush – California Sagebrush Shrubland (*Hazardia squarrosa-Artemisia californica*) (G3S3) [32.055.02]

Sawtooth goldenbush – California sagebrush shrubland occurs on a moderately steep northwest-facing slope in the southern portion of the project site (See Figure 17). The sawtooth goldenbush – California sagebrush shrubland is co-dominated by sawtooth goldenbush and California sagebrush and contains a generally sparse herbaceous layer consisting of various native and non-native herbs, including native giant wild rye (*Elymus condensatus*), black mustard (*Brassica nigra*), and non-native brome grasses (*Bromus* spp.). Purple sage and coyote bush are also present, but at very low cover (<1%). Sawtooth goldenbush – California sagebrush shrubland is a CDFG natural community of special concern. Project grading would impact a total of 0.53 acres of this plant community, and fuel modification would potentially impact an additional 0.04 acres, out of a total of 0.58 acres at the site. Project impacts to sawtooth goldenbush – California sagebrush shrubland are significant, but mitigable.

Bio-3:

The loss of 0.57 acres of sawtooth goldenbush – California sagebrush shrubland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., non-native grassland) to sawtooth goldenbush – California sagebrush shrubland. On-site restoration should be implemented only where suitable

conditions exist to support a viable sawtooth goldenbush – California sagebrush plant community. If on-site restoration is not possible, compensation for the loss of 0.57 acres of sawtooth goldenbush – California sagebrush shrubland may be accomplished by off-site restoration of in-kind habitat or by a contribution to an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- 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 control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to development of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*) (G3S3) [32.055.00]

Sawtooth goldenbush shrubland at the project site contain at least 10% cover of sawtooth goldenbush in the shrub layer and dense cover of non-native invasive herbs, such as black mustard, summer mustard, Italian thistle (*Carduus pycnocephalus*), and annual brome grasses (See Figure 17). Other native shrubs are also present, but sparingly, including coast goldenbush (*Isocoma menziesii*) and California sagebrush. Although sawtooth goldenbush shrubland receives a G3S3 conservation status rank, site investigation reveals that, in this case, the areas mapped as sawtooth goldenbush shrubland lack significant resource value and are too severely disturbed by invasive species to warrant being provided protected status. Project grading would impact a total of 1.44 acres of this plant community, and fuel modification would potentially impact an additional 0.01 acres, out of a total of 1.45 acres at the site. Due to the

severely degraded condition of this plant community at the site, impacts are considered to be less than significant.

California Buckwheat Shrubland (*Eriogonum fasciculatum*) [32.040.02]

California buckwheat shrubland occurs in a relatively flat, previously disturbed area at the site, and on steep slopes adjacent to Las Virgenes Road (See Figure 17). This community is not considered sensitive by the CDFG. Project impacts to this community, which would total 0.29 acres, of which 0.23 would be on-site and 0.06 would be off-site, would be less than significant.

Creeping Wild-Rye Grassland (*Elymus tritidoides*)[8] [G4S3] [41.080.01]

Creeping wild-rye grassland occurs at the project site as dense patches of dominant creeping wild-rye grass with rip-gut brome (*Bromus diandrus*) and/or other non-native herbs, growing in relatively flat areas and slight depressions. Creeping wild-rye is a perennial and rhizomatous native grass that often occurs in mesic habitats, including areas that are seasonally saturated. This plant community is apparently rare in the Santa Monica Mountains region and, in California, non-native grasses and agriculture have probably replaced many of the native stands. The CDFG considers creeping wild-rye grassland to be a natural community of special concern. There are four patches of creeping wild-rye grassland at the project site; two occur along a broad hilltop/ridgeline, and two smaller patches are in a relatively flat area in the central portion of the site (See Figure 17). Project grading would impact a total of 0.21 acres out of a total of 0.21 acres of creeping wild-rye grassland at the site. Project impacts to the sensitive creeping wild-rye grassland plant community are significant, but mitigable.

Bio-4:
The loss of 0.21 acres of creeping wild-rye grassland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., non-native grassland) to creeping wild-rye grassland. On-site restoration should be implemented only where suitable conditions exist to support a creeping wild-rye grassland plant community. If on-site restoration is not possible, compensation for the loss of 0.21 acres of creeping wild-rye grassland may be accomplished by off-site restoration of in-kind habitat or by a contribution to an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- Contingency measures

[8] *Elymus triticoides* was formerly named *Leymus triticoides*.

Success criteria shall at a minimum be evaluated based on appropriate survival rates and percent cover of planted native species, as well as control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to grading of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Purple Needlegrass Grassland (*Stipa pulchra*)[9] [G4S3] [41.150.00]

Purple needlegrass grassland is an herbaceous community that contains a significant component (typically >10% relative cover or >5% absolute cover) of native perennial purple needlegrass. This once extensive grassland community of California's valleys and foothills has been reduced in extent by urban development and agriculture. Remaining stands typically contain a significant component of non-native annual grasses and forbs. Stands in the Santa Monica Mountains are usually small in extent. The CDFG considers purple needlegrass grassland to be a natural community of special concern. There are seven patches of purple needlegrass grassland at the project site, ranging in size from 0.002 to 0.24 acres (See Figure 17). The patches also range in value, and most of the patches of purple needlegrass at the site are substantially invaded by non-native species such as bromes and mustards, and contain few additional native species. The most significant patch of purple needlegrass grassland in both size and value occurs in the southwestern portion of the site, just upslope from an old roadbed close to Las Virgenes Road. Native wildflowers such as purple clarkia (*Clarkia purpurea*), elegant clarkia (*Clarkia unquiculata*), Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4], common golden-star (*Bloomeria crocea*), speckled clarkia (*Clarkia cylindrica*), owl's clover (*Castilleja exerta*), and blow-wives (*Achyrachaena mollis*) were identified in this area. Project grading would impact a total of 0.29 acres out of a total of 0.38 acres of purple needlegrass grassland at the site. Project impacts to the sensitive purple needlegrass grassland plant community are significant, but mitigable.

Bio-5:

The loss of 0.29 acres of purple needlegrass grassland shall be compensated for at a 3:1 ratio. To the extent possible, this shall be accomplished by the on-site restoration of disturbed habitats (e.g., disturbed purple needlegrass grassland or non-native grassland) to purple needlegrass grassland. On-site restoration should be implemented only where suitable conditions exist to support a viable purple needlegrass grassland plant community. If on-site restoration is not possible, compensation for the loss of 0.29 acres of purple needlegrass grassland may be accomplished by off-site restoration of in-kind habitat or by a contribution to

[9] *Stipa pulchra* was formerly named *Nassella pulchra*.

an in-lieu fee program approved by the Community Development Director and the CDFG. In-lieu fees shall be used for the restoration of in-kind habitat.

A restoration plan shall be developed by a qualified biologist, restoration ecologist or resource specialist, and approved by the Community Development Director and CDFG prior to issuance of the grading permit for the project. In broad terms, the plan 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
- 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 control of invasive plant species within the restoration area.

The restoration project shall be initiated prior to grading of the Calabasas Blue Project, and shall be implemented over a five-year period. The restoration project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the restoration plan, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the restoration project shall be submitted to the Community Development Director and the CDFG. Five years after project start, a final report shall be submitted to the Community Development Director and CDFG, which shall at a minimum discuss the implementation, monitoring and management of the restoration project over the five-year period, and indicate whether the restoration project has, in part, or in whole, been successful based on established success criteria. 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 Community Development Director and the CDFG.

Non-Native Grasses and Forbs Mapping Unit

This mapping unit is used for convenience, and may contain multiple non-native herbaceous vegetation types, consisting of various non-native annual grasses and forbs. Selected common non-native herbs present in these areas include annual brome grasses, wild oat, hoary mustard, black mustard, tecolote, foxtail barley (*Hordeum murinum*), glabrous cat's ear (*Hypochaeris glabra*), Italian thistle, and rattail fescue (*Vulpia myuros*). Although strongly dominated by non-natives, a few native shrub species including coyote bush (*Baccharis piluraris*), California sand-aster (*Corethrogyne filaginifolia*), California sagebrush, Parry's rabbitbush (*Ericameria parryi*), sawtooth goldenbush, and chaparral morning glory (*Calystegia macrostegia*) are found in these areas, as well as various native herbs, such as slender tarplant (*Deinandra fasciculata*), turkey mullein (*Croton setiger*), American bird's-foot trefoil, succulent lupine, Catalina mariposa lily [CRPR 4], and common golden-star. Due to their non-native condition, areas mapped as non-native grasses and forbs are clearly not sensitive. Project impacts to these areas, which would total 8.53 acres, of which 8.33 acres would be on-site and 0.20 acres would be off-site, would be less than significant.

Sparsely Vegetated (Ruderal)

Areas mapped as sparsely vegetated consist primarily of non-native ruderal species. These areas have been graded or cleared of vegetation, and may be mowed or otherwise disturbed on a regular basis. Selected species observed include hoary mustard, Russian thistle (*Salsola tragus*), Canadian horseweed (*Erigeron canadensis*), Buenos Aires horseweed (*Erigeron bonariensis*), telegraph weed (*Heterotheca grandiflora*), bur-clover (*Medicago polymorpha),* small-flowered cheeseweed (*Malva parviflora*), and red-stemmed filaree (*Erodium cicutarium*). These areas generally lack native species. A total of 0.18 acres of sparsely vegetated (ruderal) areas, all of which would be off-site, would be removed by the proposed project. Due to their non-native condition, these areas are clearly not sensitive. Project impacts to areas classified as sparsely vegetated (ruderal) would be less than significant.

Plant Communities/Habitats – California Natural Diversity Database (CNDDB) Review of Vegetation Map of the Santa Monica Mountains

A review of the California Department of Fish and Game's Natural Diversity Database (CNDDB) Rarefind 3 application reveals 13 Sensitive Plant Communities/Habitats have been reported by other observers in the Calabasas Quadrangle area, or within adjacent quadrangles. These Sensitive Plant Communities/Habitats include:

- California Walnut Woodland;
- Cismontane Alkali Marsh;
- Southern California Coastal Lagoon;
- Southern California Steelhead Stream;
- Southern Coast Live Oak Riparian Forest;
- Southern Coastal Salt Marsh;
- Southern Cottonwood Willow Riparian Forest;
- Southern Mixed Riparian Forest;
- Southern Riparian Scrub;
- Southern Sycamore Alder Riparian Woodland;
- Southern Willow Scrub;
- Valley Needlegrass Grassland; and
- Valley Oak Woodland.

Only Valley Needlegrass Grassland, which is referred to herein as Purple Needlegrass Grassland, occurs at the project site, as discussed above. These communities/habitats are otherwise absent from the project site.

Introduction of Invasive Exotic Species

Invasive exotic species introduced as landscaping could be dispersed by runoff, wind, or wildlife, or by various other means to natural habitats in the area, including native plant communities found in protected open space in the vicinity of the project site. Invasive species could outcompete native plants and disrupt normal ecological processes, reducing biological diversity and potentially threatening the quality of natural habitats.

Comparison of species listed on the project Landscape Plan plant palette, dated March 27, 2012, with California Invasive Plant Inventory (California Invasive Plant Council 2006, 2007) lists of non-native plants that threaten the State's wildlands indicates the following suggested plants are invasive, or potentially invasive: Mexican fan-palm (*Washingtonia robusta*) and fountain-

grass (*Pennisetum* sp.). Additionally, the following species or genera that have not been evaluated and listed by the Cal-IPC are known to be noxious weeds or to spread to native habitats in the Santa Monica Mountains: Japanese honeysuckle (*Lonicera japonica*) and rock-rose (*Cistus* sp.). Prior to mitigation that would reduce project level impacts of invasive species to native habitats to less than significant levels, introduction of invasive plant species would be a potentially significant impact.

Bio-6
Only non-invasive ornamental plant species or appropriate native plant species shall be used for landscaping in future development of the project site. Excluded species shall include, but not be limited to, those listed as problematic and/or invasive by the California Invasive Plant Council, or which are listed as 'noxious weeds' by the State of California or the US Federal Government. The permittee shall submit a Landscape Plan, which shall be reviewed by a City of Calabasas approved qualified biologist or restoration ecologist to exclude all potentially invasive ornamental species. Mexican fan-palm (*Washingtonia robusta*) and Japanese honeysuckle (*Lonicera japonica*), as well as invasive members of the genera *Pennisetum* and *Cistus* shall be among those species excluded from use in landscaping. The Landscape Plan shall include a plant pallet that complies with the species approved by the City-approved biologist, and shall be approved prior to issuance of a grading permit. The approved plant palette shall be adhered to throughout the life of any development. The Community Development Director, in consultation with an approved biologist, shall conduct site inspections to ensure the appropriate plant materials have been planted and are maintained through the life of the project.

c) Would the project have a substantial adverse effect on federally protected wetlands (including marshes, vernal pools, and coastal wetlands) or waters of the United States, as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means?

No impact. No federally protected wetlands or jurisdictional waters of the U.S. have been identified at the site.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than significant impact. The project site does not contain a native wildlife nursery site.

To assess the project's impacts on wildlife movement, the City of Calabasas General Plan, the Santa Monica Mountains National Recreation Area (SMMNRA) Land Protection Plan (March 1998), and the South Coast Missing Linkages Project: A Linkage Design for the Santa Monica Mountains-Sierra Madre Connection (Penrod, K. et. al., 2006) were reviewed to determine if the project site is within an area that has been identified as an important wildlife corridor or an important linkage necessary for maintaining connectivity between large areas of core natural habitat. The project site was also evaluated in conjunction with surrounding habitats for its potential importance to wildlife movement through field investigation and review of recent aerial photographs of the area.

The City of Calabasas General Plan (Figure IV-1, Significant Ecological Areas, Linkages, and Corridors) identifies the project site as within a wildlife linkage. The wildlife linkage included in the City's General Plan encompasses a wide swath of natural habitats located to the east of Las Virgenes Road that extend from the southern city limits near Mulholland Road to the 101 Freeway, as well as north of the 101 Freeway. These areas are part of a landscape-scale habitat linkage referred to as the Santa Monica-Sierra Madre Connection, which is important for facilitating wildlife movement and maintaining habitat connectivity between the Santa Monica Mountains and inland habitats, including the Simi Hills and Sierra Madre Mountains (Penrod, K. et. al., 2006). These areas are also identified as part of an important habitat linkage in the SMMNRA Land Protection Plan.

The project site is bounded by residential uses and paved roads on the west, a residential development on the north, and developed Las Virgenes Municipal Water District property on the south. The project site is contiguous to the east with the aforementioned natural habitats and the habitat linkage, much of which is protected as natural open space.

General Plan Policy IV-2 directs that the City should ensure that new developments maintain the biotic habitat value of habitat linkages. The project would result in the permanent removal of natural habitat within an identified habitat linkage, thereby reducing the area and width of the linkage. Importantly, development of the project would not fragment the linkage, as the proposed project would be sited at the edge of existing urban development. The eastern portion of the property, which is directly contiguous with natural open space, would remain undeveloped and would continue to provide habitat for wildlife movement. Although project development would affect wildlife movement by removing habitat within an important habitat linkage, this loss of habitat would not significantly impede movement or significantly disrupt the capacity of the linkage to provide opportunities for dispersal of fauna (and flora) over the short or long-term. Therefore, although adverse, impacts are considered to be less than significant.

e) Conflict with any local policies or ordinance protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant, with Mitigation. Oak trees and scrub oak habitat (species in the genus *Quercus*) within the City of Calabasas are protected by the City's Oak Tree Ordinance. A permit is required to cut, relocate, or remove oak trees that are larger than 2 inches in diameter at any location above the tree's natural grade. A permit is also required for encroachment within a qualified oak tree's (also larger than two inches in diameter at any location above the tree's natural grade) protection zone, which is defined as five feet beyond the dripline and in all cases at least 15 feet from the trunk of the tree. The City's Oak Tree Ordinance also requires that protection zones for Heritage Trees (protected trees with trunk sizes of greater than 24" diameter) shall extend 50 feet from the trunk.

An oak tree survey of the project site was conducted by Mr. James Dean A.S.L.A., of James Dean Design Inc. on May 19, 2012 to document the location and condition of any existing oak trees on the site that would qualify for protection under the City's Oak Tree Ordinance. Based on the oak tree report prepared for this document, included as Appendix F, the proposed project would preserve all protected oak trees on the property. Site disturbance from grading activities would encroach into the protected zones of two mature valley oaks (*Quercus lobata*), one of which has a trunk diameter of 24" and is thus designated a Heritage tree. These oak trees and

their respective impacts are listed in **Table 5.4-2** and shown in **Figure 18** *Oak Tree Impacts*. The protection zone encroachments would not result in detectable signs of loss, as reported by the Oak Tree Report for this project (Appendix F).

Table 5.4-2
Oak Tree Protection Zone Impacts

Tree #	Trunk Diameter	Heritage Size?	Protection Zone	Protection Zone Impacts (%)	Detectable Signs of Loss
327	24"	Yes	50' from trunk	23%	No
335	16"	No	5’ outside of dripline	30%	No

By City Ordinance, encroachment by development activities into the protected zone of an oak tree requires an Oak Tree Permit to be issued by the City. This project is requesting an Oak Tree Permit for encroachment into the Protected Zones of two oak trees (Tree Numbers 327 and 335) located at the southern margins of the area to be graded. A permit to encroach would require specific procedures for protecting oak trees during work within the Protected Zone, as well as replacement requirements for the removal of roots or limbs. Mitigation Measure *Bio*-7 has been included to ensure that potential impacts related to encroachment into the Protected Zones of Tree Number 327 and Tree Number 335 would be minimized.

Bio-7
The applicant shall comply with the conditions required by the Oak Tree Permit to be obtained from the City prior to encroachment into the Protection Zone of any onsite oak trees that meet the native oak and mature tree criteria within the City's Oak Tree Ordinance. In addition, all construction work activities within the Protected Zones of Tree Number 327 and Tree Number 335 shall minimize impacts due to encroachment by implementing mitigation techniques that would include, but not be limited to, the following requirements:

- All work conducted within the protected zone of an oak tree shall be performed in the presence of the applicant’s oak tree consultant, and be verified by the City’s oak tree consultant.
- Unless otherwise approved, all work conducted within the protected zone shall be accomplished using hand tools only. Use of tractors and other vehicles is prohibited.
- Roots will be severed cleanly with a saw, avoiding torn, ragged, or shattered ends.
- Following construction, a city-qualified arborist shall conduct annual monitoring for a minimum of five years as warranted by site conditions, to ensure continued health of the trees encroached upon.

Replacement oak trees shall be provided onsite as mitigation for any limb or root removed from the Protected Zone with a minimum trunk diameter of one inch provided for every inch of limb or root severed or removed. The total amount of replacement trees to be provided by this project shall be determined by the monitoring arborist at the time of encroachment.

The loss of an onsite oak tree from encroachment impacts within a designated monitoring period specified by the Permit shall be mitigated by replacement standards established in the



ENVICOM CORPORATION

Oak Tree Location Map

FEET 0 75 150

FIGURE 18

City of Calabasas Oak Tree Ordinance. Specifically, to mitigate the loss of a tree during the specified monitoring period, replacement oak tree specimens (of the same species) of at least 1-inch in trunk diameter shall be planted onsite such that the sum of the replacement tree trunk diameters would be equal to or greater than the trunk diameter of the tree being mitigated for. Replacement oaks shall be clustered in an attempt to replace the specific type of oak habitat lost. Alternatively, the project could contribute the equivalent Product Replacement Cost (PRC) to the City Oak Tree Mitigation Fund.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No impact. The project site is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or other such plan. The Palo Comado Canyon Significant Ecological Area (SEA No. 12) is located approximately 0.5 mile to the northeast, and would not be impacted by the project due to the lack of a significant nexus between the SEA and the project site.

5.5 CULTURAL RESOURCES

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact. As discussed and referenced in the MND for the previously approved Entrada residential project, a Phase 1 Cultural Resources Inventory was prepared by HEART Archaeological Consulting for the subject property. The report included a records search conducted by the South Coast Information Center and a foot surface reconnaissance of the project site in order to determine whether any registered archaeological or historical resources would be impacted by development. No sensitive archaeological or historical resources were identified on the project site or in the immediate vicinity; therefore, no impacts would result.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No Impact. Refer to response 5.5-a.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature*?*

Less Than Significant Impact with Mitigation Incorporated. The project site is not located in a Potential Cultural Resource Area as designated by the City's 2030 General Plan. The 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project reported that the subject site is located within the Upper Topanga Formation, which was classified by the City's 1993 Community Profile as having high paleontological sensitivity where fossils would likely be exposed by earthmoving activities[10] (City of Calabasas 1993). While current City documents do not indicate that unique paleontological resources may occupy the site, the subject property has not been previously disturbed by human activities with the

[10] City of Calabasas General Plan: Community Profile 1993. Pages II-74 to II-77.

exception of the graded access road; therefore there is the potential for the discovery of paleontological resources during construction, and impacts would be significant. The following mitigation measure *CR-1* below is included as part of the project in the event that unknown buried paleontological resources are discovered during grading, and would reduce potential impacts to below a level of significance:

CR-1: If fossils are identified during construction activities, the area will be flagged by the construction contractor for evaluation and recovery of specimens by a professional paleontologist. All recovered specimens will be documented, analyzed and prepared to a point of identification and permanent storage, to the satisfaction of the City Community Development Department. All recovered specimens will be stored in an accredited repository with permanent retrievable storage and access for research and interpretation. In addition, this project will comply with the requirements of the City's Historic Preservation Ordinance and the Requirements for Archaeological Resources (Sec. 17.36.070).

d) Would the project disturb any human remains, including those interred outside of formal cemetery?

No Impact. Refer to response 5.5-a. The 2005 Cultural Resources Inventory and site reconnaissance did not reveal the presence of any human remains (City of Calabasas 2005).

5.6 GEOLOGY AND SOILS

The project evaluation provided in this section is based on the Geotechnical Site Evaluation for the subject property that has been prepared by Gorian & Associates (April 24, 2012) and is included as Appendix C. This site evaluation incorporates original site investigations as well as information referenced from previous geotechnical evaluation reports prepared for the site produced in October 2007 and April 2002. As geologic and soil conditions are not anticipated to have changed throughout the time span in which these studies were performed, and as no land clearing or grading has been conducted at the proposed project site during that time, the earlier data is accepted by the current consultant, in addition to the 2012 observations, as relevant to the current conditions.

a) Would the project 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.

Less Than Significant Impact. There are no known active or potentially active faults that cross the project site, and the site is not within an Alquist-Priolo Earthquake Fault Zone as defined by the State Geologist. As the project site is not located within a State designated Earthquake Fault Zone, the potential for ground rupture due to faulting onsite is considered remote.

ii) Strong seismic ground shaking?

Less Than Significant Impact with Mitigation Incorporated. Although no active faults have been mapped within the City of Calabasas, the City lies in a seismically active region that is prone to occasional earthquakes (City of Calabasas 2030 General Plan EIR). Significant earthquakes have occurred within a 40-mile radius of the Site within the last 40 years, most notably the 1994 Northridge earthquake centered approximately 13 miles to the northeast of the project site, which produced strong ground motion at the subject site that resulted in a peak horizontal acceleration of approximately 0.38 g. Other major faults in this region of Southern California include the San Andreas Fault Zone, the Newport-Inglewood Fault, and the San Fernando-Sierra Madre Fault Zone, which are located approximately 40 miles to the north, 20 miles to the southeast, and 18 miles to the northeast of the project site respectively. While a certain level of exposure to seismic ground shaking is expected for practically all development within seismically active southern California, mandatory design standards are in place to reduce structural impacts. As such, the project's proposed structures will be built in accordance with the latest Uniform Building Code design standards to ensure that people or structures are not exposed to potential substantial adverse effects during a seismic event that would generate slight to very intense ground shaking. Impacts would be potentially significant, and the following mitigation measures would reduce impacts to below a level of significance:

Geo-1
A final site-grading plan for the Calabasas Blue Residential Development project shall be submitted for review and acceptance by the City Engineer. The grading plan shall be accompanied by a Final Soils and Geotechnical Report prepared in accordance with the Guidelines for Geotechnical and Geological Reports in the City of Calabasas and signed by a California Registered Civil Engineer and/or a California Registered Geotechnical Engineer. All remedial work and slope restoration shall be completed consistent with the approved report unless modifications are permitted in writing by the City Engineer.

Geo-2:
The Project geotechnical engineer and/or engineering geologist shall demonstrate that all geologic hazards associated with the development of this property have been acceptably eliminated or mitigated. Prior to issuance of a building permit, the applicant's geologist and/or geotechnical engineer shall be required to certify that all hazards have either been eliminated or can be remediated. The City's consulting geologist shall provide written certification that all onsite geotechnical hazards can be reduced to a level below significance based on the proposed remediation measures.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction is a seismic phenomenon where saturated soils lose strength when severely shaken and develop excess pore pressures. This phenomenon is currently understood to be of concern in the upper 50 feet of the subsurface profile. Low lying areas of the subject site directly adjacent to Las Virgenes Road are shown to be within an area susceptible to seismically induced liquefaction on the California Geological Survey Seismic Hazard Zones Map for the Calabasas

Quadrangle. As with previous recommendations for development of this site, alluvial soils with the potential for liquefaction would be removed and replaced with engineered fill. As such, liquefaction would not be considered a hazard to the project site and impacts would be less than significant.

iv) Landslides

Less Than Significant with Mitigation Incorporated. Landslide hazard areas are generally considered to exist when substantial slopes are located on or immediately adjacent to a property. The California Public Resources Code defines an earthquake-induced landslide area as an area where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation would be required.

Cross-sections were prepared for the project site in order to analyze slope stability. Evaluation of surficial stability of the natural slopes was performed using the soil data from on-site exploratory test pits and borings within each of the general drainage areas that exist on the subject site. The results of all but one of these analyses indicate the natural slopes exceeded the generally accepted lower limit factor of safety of 1.5 for surficial slope stability. This is also evidenced by the lack of surficial slumping on these slopes. However, the evaluation indicated that the surficial stability within a draw located above the southeastern extent of the development footprint (at the site of the proposed southeastern debris basin), would be 1.2 (below the 1.5 limit of safety).

The amount of possible slope erosion material from the eastern slopes of the development area to be considered in the project design is conservatively estimated to be approximately 1,700 cubic yards. The catchment/detention basins proposed to be located east of the building pad areas provide a combined capacity for storage of approximately 1,700 cubic yards from the site's drainage areas. Additionally, each basin would have a bulk-flow inlet capable of handling 1,000 cubic yards above the storage area volume of each basin.

A relatively large landslide is present along the north-facing slope on the southern portion of the property. This material is to be removed from the slope down to firm in-place native soil/bedrock, and replaced with engineered fill.

Given that the project site is susceptible to unstable slopes (landslides), impacts resulting from unstable slopes would be significant. The Geotechnical Site Evaluation Prepared for the currently proposed project by Gorian & Associates (Appendix C) concluded that the existing on-site adverse geologic conditions such as the landslide and unsuitable soils can be remediated. Therefore the site may be developed from a geotechnical perspective, provided that the recommendations presented in Appendix C are incorporated into the design and construction of the proposed development. The recommendations in Appendix C include recommendations provided for the development of this site as reported in the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project (City of Calabasas 2007). As such, mitigation measures previously identified in the 2007 MND for the subject site are incorporated by

reference and restated below, which would reduce impacts to below a level of significance:

Geo-3:
Prior to issuance of a building permit, initiation of rough grading, or issuance of any subsequent development permits, the project geotechnical engineer or engineering geologist shall prepare a final Geologic and Soils Engineering Assessment reflecting the approved project configuration. This geotechnical study shall, as deemed necessary by the City Engineer and consulting City geologist and geotechnical engineer, further assess slope stability and slope stability remediation within the proposed residential development footprint. This geotechnical study shall also provide a detailed plan for remediation of the existing landslide area that is located along the slope on the southern portion of the property. The findings and recommendations of the geotechnical assessment shall be incorporated into the final engineering design for the project.

Geo-4:
All proposed cut and fill slopes identified as susceptible to future erosion and/or soil slippage shall be planted with an erosion resistant ground cover adhering to the following criteria:

- The ground cover is effective in preventing surface erosion;
- The ground cover is drought resistant;
- The ground cover has a relatively low surface mass/weight;
- Has a fairly deep and extensive root system
- Requires minimum maintenance by the owner; and
- Has a low irrigation demand.

Geo-5:
The City's Geologic Engineering Consultant shall be responsible for approving the appropriate erosion control/slope failure control-planting program prior to issuance of grading permits.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact With Mitigation Incorporated. As discussed in response 5.6-a(iv), the potential for future erosion and soil slippage exists, therefore mitigation measures identified above in response 5.6-a(iv) shall be incorporated in order to reduce impacts to less than significant.

c) Would the project 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact with Mitigation Incorporated. A previous geotechnical evaluation of the site has shown that natural soil deposits (Qns) ranging from 1 to 5-feet thick on mantle slope areas are located within the project site. The western and south-central portions of the site are underlain by a thick sequence of alluvial soil (Qal) that ranges in thickness from 5 to 27-feet. A relatively large landslide (Qls) is present along the north-facing slope on the

southern portion of the property that is to be removed from the slope to the level of firm in-place native soils/bedrock, and replaced with stabilization fill. Underlying the surficial materials on the subject site and surrounding areas is sedimentary bedrock assigned to the Upper Topanga Formation (Ttuc).

Based upon field observations, research, laboratory testing and analysis, of soils on the subject site that were reported in a previous FEIR (City of Calabasas 2005) and subsequently incorporated by reference into the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project, the soil and weathered bedrock on the project site may be subject to creep. This is due in part to the sloping contact between the natural soil and bedrock. Creep is the very slow movement of clayey fills, natural soils and weathered bedrock that takes place in the near surface portions of slopes. Creep rates are very slow with no distinct failure surfaces. The slow rate of deformation can have serious effects on buried utilities, drainage structures, roadways, slabs, fences, walls, and similar structures. As stated above, the Geotechnical Site Evaluation Prepared for the currently proposed project by Gorian & Associates (Appendix C) concluded that the site may be developed from a geotechnical perspective, provided that the recommendations presented in Appendix C are incorporated into the design and construction of the proposed development. The recommendations provided in Appendix C include recommendations and mitigations reported in the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project (City of Calabasas 2007). Therefore, mitigation identified in the MND for the Entrada project (2007) is restated below as applicable to the proposed project in order to reduce impacts to less than significant.

Geo-6:
All buried utilities, drainage structures, roadways, building foundations, building pads, fences, retaining walls, and similar structures shall be designed in accordance with adopted City Building Codes. As necessary, the project geotechnical and civil engineer shall consult with the City's Building Official and City Engineer to ensure that all structures are designed to prevent damage from soil creep. Final approval of all project improvement plans (grading, utilities, building pads, etc.) shall be provided by the City's Building Official and the City Engineer prior to issuance of grading and/or building permits.

Geo-7:
For any grading operations that may occur during the period between November 1 and April 15, the project applicant shall submit an erosion control plan for review and acceptance by the City Engineer. If the implementation of this project extends through the month of November, such an erosion control plan shall be required prior to the initiation of slope repair.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks of life or property?

Less Than Significant Impact with Mitigation Incorporated. Expansive soils contain clay particles that change in volume (shrink or swell) due to a change in the soil moisture content. This effect can cause distress to foundations as either uplift, or settlement. Based on previous expansion index testing, soils and bedrock at the site are in the low to moderately expansive index ranges (21-50 and 51-90 respectively).

Mitigation measures required for the previously approved Entrada Project that are restated in responses 5.6–a (iv) and 5.6-c for this project would mitigate potentially significant impacts due to expansive soils to a less than significant level.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The project would have wastewater treated by a municipal sewer service to be provided by an underground utility connection to the project site; therefore soils would not be required to support the use of septic tanks or alternative wastewater disposal systems. No impact would occur.

5.7. GREENHOUSE GAS EMISSIONS

The following analysis is based on the CalEEMod.2011.1.1 emissions modeling calculations and Air Quality and Greenhouse Gas Emissions Impact Analysis report prepared by Giroux & Associates (May 2012), which is included as Appendix A. The CalEEMod was developed by the South Coast Air Quality Management District (SCAQMD) and provides a model to calculate operational emissions of greenhouse gases (expressed as CO_2(e)) from a residential land use project. It is noted that this analysis was completed assuming a total of 81 units would be developed. A reduction in dwelling units to the proposed total of 78 units would nominally reduce the total project emissions calculated for the analysis described below. The findings in the study would not change as a result of the slightly smaller project and although greenhouse gas emissions from operation of the project would be marginally lower, the impact significance would remain the same as those discussed below.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. Certain gases emitted by human activity have been implicated in global climate change, and are commonly referred to as greenhouse gases (GHG) due to their role in trapping heat near the surface of the earth. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These gases have varying potentials for trapping heat in the atmosphere, so for analysis of impacts, these emissions are reported as a cumulative amount of all of these regulated gases, modified by the proportional heat trapping potential of each one relative to that of CO_2. The resulting amount is reported as a carbon dioxide equivalent, or CO_2(e).

California has passed several bills regarding GHG regulations, including Assembly Bill (AB) 32. A major component of AB 32 related to development such as the proposed project is a mandate that California's GHG emissions be reduced to 1990 levels by 2020, which forces an overall reduction of GHG emissions by 25-40%, from "business as usual". Section 15064.4 of the California Code of Regulations specifies a process for evaluating the significance of GHG emissions by quantifying a project's emissions, determining if they are significant, and specifying mitigation if impacts are found to be potentially significant. At each of these steps, the guidelines afford the lead agency substantial flexibility.

The SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold on December 5, 2008 of 10,000 Metric Tons (MT) CO_2(e) per year for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.). In September 2010, SCAQMD provided revisions that recommended a threshold of 3,500 MT CO2e per year for residential projects. This recommended 3,500 MT annual emissions threshold has been used as a significance guideline for this analysis.

Construction Activity GHG Emissions

The CalEEMod air quality computer model (discussed in Section 5.3, *Air Quality*), estimated that construction activities for this project would occur over approximately 14 months and would generate a total of 745 MT CO_2(e) emissions. SCAQMD GHG emissions policy for evaluating impacts from construction activities is to amortize emissions over a 30-year lifetime, which yields an amortized level of 25 MT CO_2(e) emissions per year for build-out of this project. Therefore, the project's impacts related to GHG emissions from construction activities would be considered less-than-significant.

Operational GHG Emissions

Operational GHG emissions from this project include direct emissions, such as mobile sources and area sources, and indirect emissions from off-site electricity generation provided for the project. These emissions, calculated by CalEEMod, are summarized in **Table 5.7-1** (see Appendix A for the full report). As seen in Table 5.7-1, the project's total GHG emissions would not exceed the SCAQMD recommended significance threshold of 3,500 MT CO_2(e) annually. Therefore, no mitigation measures are required as the project's operational GHG emissions would be less than significant.

Table 5.7-1
Annual GHG Emissions

Consumption Source	MT CO_2(e) tons/year
Area Sources	61
Energy Utilization	210
Mobile Source	656
Solid Waste Generation	17
Water Consumption	36
Annualized Construction	25
Total	**1,005**
SCAQMD Recommended Threshold	3,500
Source: CalEEMod Output provided in appendix A Analysis is based on an assumed 81-unit development.	

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. See response to 5.7a. The project's GHG emissions would not exceed the applicable significance thresholds that have been adopted or recommended for the State's compliance with AB 32. Additionally, as a revision of an approved project that is

described in the City's 2030 General Plan (Entrada at Malibu), GHG emissions associated with this project, which proposes fewer dwelling units, would already be anticipated by local and regional planning documents that rely on the General Plan for growth projections. Therefore, this project would not conflict with an applicable plan, policy, or regulation to reduce GHG emissions, and this impact would be less than significant.

5.8. HAZARDS AND HAZARDOUS MATERIALS

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No Impact. Development and operation of the proposed residential project would not involve the use of explosives or acutely hazardous materials. In addition, there are no identified hazardous material sites in the vicinity of the project site and no hazardous materials or wastes have been identified within the project site (City of Calabasas 2007). Therefore, the project would have no impact with regard to creating a potential hazardous condition to the public or the environment through routine transport, use, or disposal of hazardous materials.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. Relatively small amounts of hazardous substances, such as fossil fuels, lubricants, and solvents would be used onsite for construction and maintenance of the project; however, these materials shall be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment, and impacts would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The closest school is New Village Leadership Academy located at 4345 Las Virgenes Road, which is approximately 200 feet west of the project site. As analyzed in response 5.8-a, during the operational phase, the project would not generate hazardous emissions or handle acutely hazardous materials. As described in response 5.8-b, hazardous materials used during the construction phase, such as fuels, petroleum and solvents shall be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Therefore, due to the City's existing management protocols regarding handling or transportation of hazardous wastes, potential impacts are considered less than significant.

d) Would the project 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?

No Impact. Based on the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project, a Phase I Environmental Site Assessment (ESA) reported that the

21-acre project site was not identified in any governmental, hazardous materials database. Additionally, no properties that are proximal to the site were identified as being subject to federal, state or county regulations that would indicate the presence environmental conditions that could potentially impact the site. No local records were found that would indicate historical uses or disposal of hazardous materials on the project site. As such, the project would not be located on a site that would create a significant hazard to the public or the environment, and no project impacts would occur.

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?

No Impact. The nearest airport is the Van Nuys airport approximately 12 miles to the northeast. Given this distance, no feature of the project would 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?

No Impact. Refer to response 5.8-e.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact with Mitigation Incorporated. Some temporary traffic hazards would occur during construction activities, particularly regarding the entryway intersections and utility connections within or adjacent to Las Virgenes Road, which could interfere with emergency response plans or evacuation plans. This impact is considered potentially significant. The following mitigation measure would reduce potential effects to below a level of significance:

HM-1: Prior to issuance of permits for the proposed project, a Traffic Control Plan shall be prepared to the satisfaction of the City Engineer for the project street frontage with Las Virgenes Road. The Traffic Control Plan shall be implemented for the duration of construction activities along the street frontage. The Traffic Control Plan shall address methods to avoid conflicts between vehicles on Las Virgenes Road and construction vehicles entering and exiting the site.

h) Would the project 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?

Less Than Significant Impact. As discussed in the 2007 MND for the previously approved Entrada at Malibu Canyon Multi-Family Housing Project, the subject site is located in a Very High Fire Hazard Severity Zone as delineated by the County of Los Angeles Fire Department. Although the site is surrounded by urban development on three sides, the eastern portion of the site is bounded by preserved open space that consists largely of nonnative grasses. The project incorporates design features such as fire resistant landscaping and would comply with County of Los Angeles Fire Department fuel modification requirements to provide a buffer zone

between the proposed residences and brush areas. Therefore, impacts are considered less than significant.

5.9. HYDROLOGY AND WATER QUALITY

This section is based on the Conceptual Hydrology Study for VTTM 60488, 4240 Las Virgenes Road, prepared by Diamond West Incorporated (August 2, 2012), which is included as Appendix D.

a) Would the project violate any water quality standards or waste discharge requirements?

Less Than Significant Impact with Mitigation Incorporated.

Construction

During construction, pollutants could be transported offsite and enter existing storm water conveyance systems, including Las Virgenes/Malibu Creek, which is currently listed on the State Water Resource Control Board's 303(d) list of impaired water bodies for coliform, nutrients, organic enrichment, scum, sedimentation, selenium, and trash (2002, CWA Section 303(d), List of Water Quality Limited Segments, LA RWQCB).

The construction phase of the project would result in disturbed soils from the grading of approximately 8 acres, which would increase the erosion potential of onsite soils creating the potential for offsite sediment transport. Sediment that leaves the site would likely be deposited in either Las Virgenes or Malibu Creek, where such sedimentation could adversely affect aquatic habitat. Sedimentation related to construction sites can typically be caused by erosion of unprotected graded slopes and poor stockpile management. Commonly used construction materials can also pollute downstream water resources if the materials are allowed to be carried offsite with stormwater runoff, or soak into the soil. This short-term impact is considered potentially significant, particularly considering the site's proximity to Las Virgenes Creek. However, the following mitigation measure, in the form of site-specific BMPs would reduce impacts to below a level of significance:

WQ-1:
The project applicant shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with Section 402 of the CWA NPDES General Permit, and to the satisfaction of the City Engineer. The Plan shall be subject to review and approval by the City of Calabasas. The applicant shall monitor adherence to the requirements contained in the Plan and as stipulated in the General Permit, including specific monitoring, sampling, and testing procedures for 303(d) water bodies.

Operation

Following construction, day-to-day activities on the project site associated with residential land uses (i.e., car washing, automobile maintenance, landscape fertilization, etc.) can potentially introduce pollutants into the storm drain system. Potential pollutants might include detergents, volatile organic compounds, fertilizers, oil, paint, etc., particularly if such materials are not properly used, stored, and disposed of by residents or on-site maintenance/landscaping personnel. If these types of pollutants were to come into contact with runoff water, either by

negligence or accident, they could potentially be carried by stormwater or irrigation runoff and discharged into the Las Virgenes or Malibu Creeks, which could result in significant surface water quality impacts. Groundwater impacts can also result from the transport of chemicals within a fluvial system. Although the level of contamination is controlled by a variety of complex environmental factors (such as varying soil chemistry, groundwater and surface water systems, and significant biological activity) significant groundwater impacts can result from relatively small pollutant concentrations, especially in already impaired water bodies.

Due to the potential for liquefaction of the soils, infiltration of the project's stormwater runoff is not feasible for this site as a stormwater treatment option. Therefore, as discussed in Appendix D, a variety of treatment methods are to be employed to insure treatment of runoff from the entire development footprint of the proposed project. These treatment methods, and the associated percentage of the development area to be treated by each method include: Collection and reuse (23.8%), biofiltration via bioswale and planters (42.2% and 0.70% respectively), and by mechanical/hydrodynamic treatment (23.5%).

To reduce potential operational impacts related to water quality and stormwater discharge, the project would implement BMPs as well as include design features based on the August 2, 2012 Conceptual Hydrology Study (Appendix D), which are presented as mitigation measures below, that would reduce water quality impacts to below a level of significance:

WQ-2:
Landscaped slopes and retaining walls shall be included throughout the project site to prevent excessive soil erosion and provide biofiltration of runoff to reduce the potential for contaminants to be discharged offsite.

WQ-3:
Two surface detention basins shall be constructed for the drainage areas above the residential buildings to the east, which would protect the project from debris flows that might occur, and also to reduce the amount of stormwater that would discharge from the property during a storm event. Additionally, two subsurface detention basins consisting of 9'-diameter pipe are to be provided onsite to receive and detain stormwater flows as well as well as nuisance flows from within the developed area. These detention facilities are to have adequate capacity to reduce the rate of runoff flows that leave the site to less than that under existing conditions. For the developed portion of the project site, runoff shall be treated before release into the municipal stormwater system by reuse of detained runoff for irrigation of landscaped slopes, by biofiltration in bioswale areas and planters, or by use of a mechanical, hydrodynamic treatment device.

These stormwater detention and treatment facilities shall be designed as part of the project improvement plans per the recommendations of the August 2, 2012 Conceptual Hydrology Study included as Appendix D, and as approved by the City Engineer.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of a 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)?

Less Than Significant Impact. The project site is largely underlain by sedimentary bedrock. As stated in the Gorian & Associates Geotechnical Site Evaluation prepared for the project (2012), groundwater was not encountered during recent subsurface explorations up to 6 feet below the surface. However, that report did provide data from previous geotechnical studies of the site, which had encountered groundwater seepage at depths from 11 to 51 feet below the surface of the project site. No existing wells were identified within the site boundaries. Therefore, as with the previously approved Entrada project, this proposed project would not substantially deplete groundwater supplies. Additionally, the limited amount of impervious surfaces to be introduced on the 21-acre site would also indicate that the project would not interfere substantially with groundwater recharge. Therefore, less than significant impacts to groundwater are anticipated.

c) Would the project 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 offsite?

Less Than Significant Impact. The proposed project would introduce impervious surfaces, consisting of sidewalks, rooftops, asphalt roadways and parking areas that replace previously permeable ground. Impervious surfaces intercept rainfall that would otherwise naturally percolate into the soil onsite, and generally will convey stormwater runoff to be discharged into local waterways. A potential increase in runoff from a site when compared to preconstruction conditions could increase erosion or siltation of downstream facilities. In order to adequately capture site runoff and prevent increased runoff quantities inundating downstream receiver water bodies, this project would alter existing onsite drainage patterns. However, the project would not alter offsite drainage patterns and would not involve redirection of a stream or river.

The project would utilize a storm drain system to capture and convey runoff from the undeveloped eastern portion of the property as well as within the development footprint. Above the eastern retaining wall, two surface retention basins would intercept flows from the hillsides and direct excess flows through 36-inch outlets into an underground storm drain system beneath the project's developed areas. The storm drain system would incorporate two underground detention basins, to be located below the common parking area, and southwest of the recreation area adjacent to the southern retaining wall, as shown in **Figure 19** *Standard Urban Stormwater Mitigation Plan (SUSMP)*. The underground detention basins would be designed to detain runoff from the developed portion of the project to reduce the overall rate of runoff discharge conveyed from the project site, in accordance with the City of Calabasas Municipal Code. It should be recognized that the detention volume of these facilities has not been designed to store the entire runoff volume for a 50-year, 24-hour storm event, but rather to attenuate storm water runoff such that post-development values would be less than under existing conditions.

Stormwater runoff flow rate calculations provided in the project's Conceptual Hydrology Study show that with a 50-year 24-hour storm event, under a hypothetical worst-case scenario assuming a recent burning of the undeveloped areas and the associated debris bulk introduced into the system from such an occurrence, the rate of flows leaving the site would be less than under existing conditions (net decrease with project: 2.1 cfs).



Source: Diamond West, Inc., July 9, 2012.

Standard Urban Stormwater Mitigation Plan (SUSMP)

FEET 0 60 120

FIGURE 19

As the project's stormwater runoff would continue to be directed to drainage facilities within Las Virgenes Road as it is under the existing condition, although at a lesser rate, the project would not be expected to create erosion or siltation problems on- or off-site. Therefore, this impact would be less than significant.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through 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 offsite?

No Impact. Refer to response 5.9-c. Based on the 2012 Hydrology Study prepared for this property (Appendix D), under a 50-year 24-hour storm event, offsite flows from the project would be less than under existing conditions. Therefore, although the project would introduce some impervious surfaces to the property, the proposed storm drainage system with detention basins would adequately capture site runoff and reduce off-site flow rates to below existing condition levels. As this project would not alter the course of a stream or river, and stormwater flows would continue to be directed to drainage facilities in Las Virgenes Road without increasing the rate of runoff, the project would not create flooding on or off-site. This impact would be less than significant.

e) Would the project 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?

Less Than Significant Impact. See response 5.9-d. Runoff from the project area currently surface drains in a southwesterly direction within two separate watersheds ("north" and "south"), which drain to separate inlets on the property's western boundary at Las Virgenes Road. As the subject property's topography directs runoff to the roadway without traversing adjacent properties, the project would not adversely affect the hydrologic conditions of other properties in the vicinity. As shown in Figure 19, with implementation of the proposed project, runoff would continue to be directed to the stormwater drainage system in Las Virgenes Road via the project's underground drainage facilities.

The project has been designed so that the 50-year off-site flow rate of the project at build-out would be less than under existing conditions, even in the case of burned conditions of the surrounding natural areas. The 2012 Conceptual Hydrology Study prepared for the proposed project (Appendix D) provides hydrology calculations for the project site that considered quantities of runoff due to 24-hour storm events of various intensities including: 3/4" *quantitative precipitation measurement* (Qpm), 10-year, and 50-year (including burned conditions). Based on the Hydrology Study, the rate of runoff leaving the site under each of those conditions, would be less than under the existing conditions.

The City of Calabasas Municipal Code requires that all development runoff shall not exceed that of pre-development. To comply with this requirement, two underground detention basins are proposed onsite to detain the increase in runoff from impervious surfaces, thereby mitigating the potential impact of runoff increases. As a result of the proposed drainage system design features, the project would not create or contribute runoff flow rates in excess of that which the site currently contributes to the local stormwater system, and thus would not exceed the

capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, impacts would be less than significant.

f) Would the project otherwise degrade water quality?

Less Than Significant Impact. Refer to responses 5.9-a through 5.9-e.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary of Flood Insurance Rate Map (FIRM) or other flood hazard delineation map?

No Impact. The project site vicinity is mapped on the following FEMA FIRM: Los Angeles County, California (and Incorporated Areas), Map Number 06037C1264F, September 26, 2008. According to this map, the subject property and all adjacent properties are located in Zone D, which is defined as an area in which flood hazards are undetermined, but possible. However, the proposed project would not be located within a FEMA designated Special Flood Hazard area. As this property is not located in a designated 100-year flood hazard area, no impact would be anticipated.

h) Would the project place within a 100-year flood plain structures, which would impede or redirect flood flows?

No Impact. Refer to response 5.9-g.

i) Would the project 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?

No Impact. There are no levee or dam structures located upstream of the project site within the subwatershed where the site is located.

j) Would the project expose people or structures to a significant risk of loss, injury or death involving Inundation by seiche, tsunami, or mudflow?

Less Than Significant Impact. See response 5.9-d. There are no structures or reservoirs located upstream of the project site within the subwatershed where the site is located that would pose a risk of seiche. The project site would not be at risk from tsunami hazards as it is not located in a tsunami hazard zone and is approximately seven (7) miles inland. As discussed above, the project would include two sediment detention basins located between the project development and the undeveloped hillsides to the east, which have been designed to reduce runoff and to reduce risks from mudflows to less than significant.

5.10. LAND USE AND PLANNING

a) Would the project physically divide an established community?

No Impact. The project is bordered by Las Virgenes Road, residential neighborhoods and a school to the west; open space to the east; a residential neighborhood to the north; and the LVMWD facilities and offices to the south as shown in **Figure 20**, *Existing Land Uses*. These



Aerial Source: GoogleEarth Pro, 2012.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

ENVICOM CORPORATION

Surrounding Land Uses

0 125 250 Feet

FIGURE 20

land uses would be consistent with the proposed residential project and the project would not conflict with existing land uses in the vicinity. No communities would be physically divided by the proposed project.

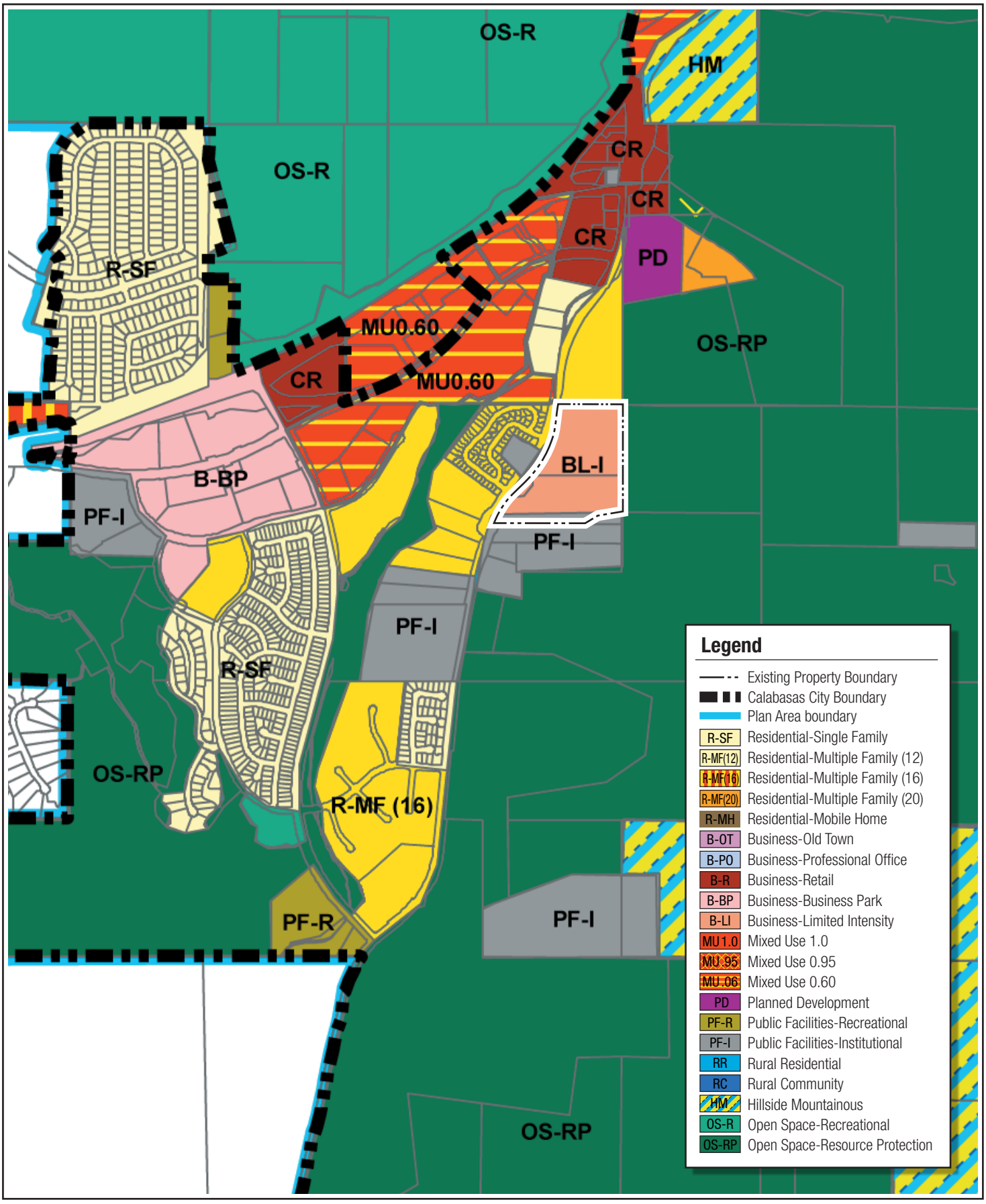
b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The project site is currently designated in the City's General Plan as Business-Limited as and zoned Commercial-Limited (**Figures 21 and 22**). The project application includes a request for a Conditional Use Permit (CUP). As a revision with reduced land use intensity of the previously permitted Entrada at Malibu Canyon Multi-Family Housing Project, which is described in the City's 2030 General Plan as an approved project, the proposed project would not be in conflict with applicable land use plan, policy, or regulation.

City of Calabasas 2030 General Plan

The basis for determining consistency with the City's General Plan is provided in the City's General Plan Consistency Review Program. This program establishes the rules by which the consistency of an individual development project is evaluated and sets forth maximum allowable impacts and detailed performance standards for individual projects. A review of the proposed project was completed to determine consistency with the performance standards applicable to development on lands within the Business-Limited designation, the results of which are presented in **Table 5.10-1**.

As discussed in the table, the project would be consistent with the City's General Plan, and impacts would be less than significant.

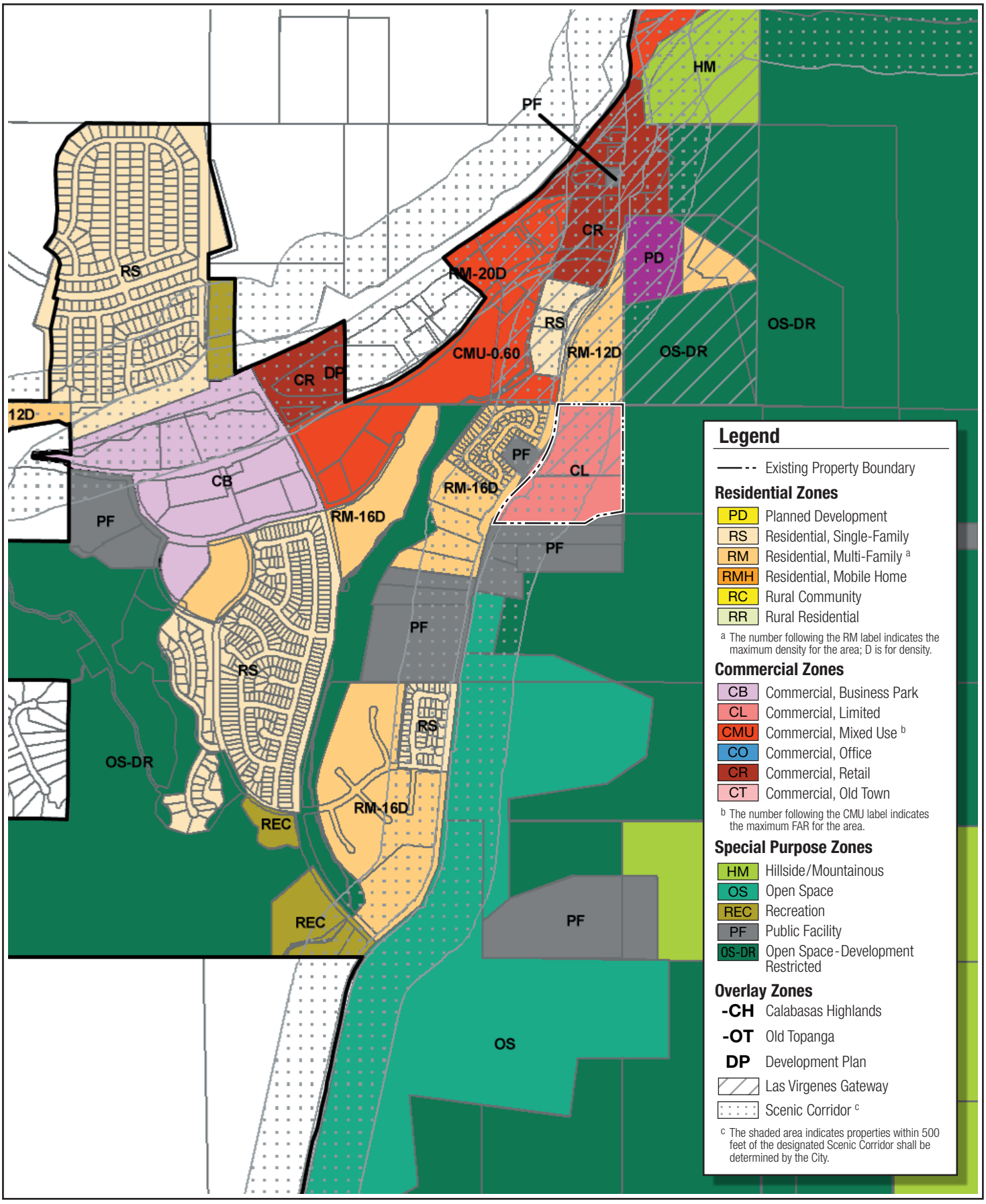


Source: City of Calabasas, 2007, and Rincon Consultants, 2008.

General Plan Land Use Designations

FEET 0 600 1,200

FIGURE 21



Source: City of Calabasas, City Council Ordinance 2010-265 Zoning Map, January 27, 2010.

Zoning Map

FEET 0 600 1,200

FIGURE 22

Table 5.10-1
City of Calabasas General Plan Consistency Analysis

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Land Use Element		
Policy II-8 Emphasize retention of Calabasas' natural environmental setting, neighborhood character, and scenic features as a priority over the expansion of urban areas.	Steep hillsides dominate the eastern portion of the project site, and would remain undisturbed by development of the project. The project would preserve all protected oak trees on the property, seven of which are large enough for designation as heritage oaks. Encroachments into the protected zones of two oak trees would require City permits as mitigation as well as additional trees to be planted based on the amount and size of any roots removed from the protected zones. A monitoring program would be implemented to assure that impacts do not affect the tree's health.	Consistent
Policy II-9 Require that development be compatible with the overall residential character of the community.	The proposed residential buildings would be designed to minimize massing through varied building facades and balconies, rotated buildings, etc. to help the development blend in with surrounding land uses from both a character and architectural perspective.	Consistent
Policy II-10 Promote an assembly of distinct neighborhoods that encompass a range of housing types that: • Are visually attractive and compatible in intensity, dwelling unit size, and structural design with the need to protect the surrounding natural environment; and • Meet the needs and suit the small town and rural lifestyles of present and future residents.	See responses to Policies V-9, V-12 and IX-8.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy II-12 Promote a citywide open space system consisting of 3.0 acres per 1,000 population of active recreational land and 3,000 acres of protected natural open space whose location and size represents an extensive network of protected areas with a high degree of continuity and systematic order of purposes, including resource conservation, recreation and protection of public safety.	The site plan retains approximately 16 acres of open space (76 percent of the property) in the eastern and southern portions of the site with continuity to open space areas to the east. Views of the contiguous hillside would be maintained and visible from various locations.	Consistent
Policy II-14 Limit approval of new discretionary development projects to those that can be integrated into the community, providing for the protection of existing neighborhoods, desirable non-residential land uses, and open space.	As a revision of an existing approved plan, the proposed project would integrate into the community as well as or more so than the approved development in terms of aesthetic character, structural massing, and development density. The project would also maintain approximately 76% of the property as open space.	Consistent
Policy II-15 Discretionary development projects are permitted the basic development intensity of their site as indicated on the General Plan Land Use Map and General Plan Land Use Districts table if the proposed project is consistent with General Plan goals, objectives, approaches, and relevant policies and performance standards. Development intensities greater than the basic development intensity outlined in Table II-1 (of the General Plan) may be permitted, up to the maximum development intensity identified in Table II-1 (of the General Plan), only if the impacts of the proposed development are less than those identified in "Maximum Acceptable Development Impacts" table in the Municipal Code.	As a revision and reduction of development intensity of the approved Entrada at Malibu project, which is specifically described in the General Plan, this proposed project would be consistent with the General Plan goals, objectives, approaches, and relevant policies and performance standards.	Consistent
Policy II-16 All development agreements adopted after the adoption of the Calabasas General Plan shall be consistent with the provisions of the General Plan.	The proposed project is a revision of the previously approved Entrada at Malibu development that is specifically described in the current General Plan. The proposal includes reductions in density and in visual impacts relative to the approved plan.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy II-17 Encourage the clustering of development as a means of preserving significant environmental features. Clustered development shall meet the following criteria: • The clustering of development shall occur pursuant to a specific plan, planned development, or equivalent mechanism; • The overall density of the project area shall not exceed the maximum specified in Table II-1, calculated as if there were no clustering; • The resulting project will not require a greater level of public services and facilities than would have an equivalent non-clustered project; • The result of clustering development shall yield a more desirable and environmentally sensitive development plan, create usable open space areas for the enjoyment of project residents, and preserve significant environmental features; and • The net intensity of the developed area that results from clustering is compatible with the surrounding environment.	See response to Policies II-8 and II-12. The site plan clusters the residential buildings close to Las Virgenes Road and preserves steep hillside topography to the east.	Consistent
Open Space Element		
Policy III-14 Preserve all significant ridgelines (as identified in the General Plan) and other significant topographic features such as canyons, knolls, rock outcroppings, and riparian woodlands. Exceptions may be granted to accommodate General Plan designated trails, viewpoints, and fuel modification measures needed for the protection of public health and safety.	The proposed development would be restricted to the lower portion of the property nearest Las Virgenes Road and avoid ridgelines that occupy the eastern portion of the property. As such, the property's ridgeline features would be preserved even though they are not designated as "significant" by the General Plan. No other significant topographic features are identified on the property.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy III-16 Avoid mass graded "mega-pads" for development. Smaller steps or grade changes shall be used over single large slope banks.	The proposed 78 dwelling units would be distributed among 12 buildings as opposed to the more massive 3-building design of the previously approved plan. The development would include grade changes, as four of the residential buildings would be stepped down to occupy the property's lower elevations from the other developed areas creating variety along the project's frontage with Las Virgenes Road.	Consistent
Policy III-17 Protect graded areas from wind and water erosion through slope stabilization methods (i.e., planting, walls, or netting). Interim erosion control plans shall also be required.	During construction, a Storm Water Pollution Prevention Plan (SWPPP) will be implemented and monitored to minimize erosion and sediment runoff from the property. As part of the SWPPP, final stabilization (e.g. vegetation of at least 70 percent coverage) must be achieved to satisfy NPDES requirements. A retaining wall would be constructed to stabilize the base of the graded slopes that form the boundary of the developed area. See Section 5.9 and Mitigation Measures WQ-1 and WQ-2.	Consistent
Conservation Element		
Policy IV-2 Ensure that new developments, including roads, maintain the biotic habitat value of riparian areas, oak woodlands, habitat linkages, and other sensitive biological habitats. Specifically, the following are unacceptable biological impacts: • Net loss of wetlands or riparian vegetation • Measurable reduction in species diversity • Loss of breeding and roosting areas, foraging areas, habitat linkages, or food sources that will result in a measurable reduction in the reproductive capacity of biotic resources	Refer to the Biological Resource section of the MND (*Section 5.4*) for documentation of a consistent finding with this policy. No impacts to wetlands would occur as a result of project implementation. Mitigation measures have been incorporated into the project to reduce potential impacts on sensitive species to less than significant.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IV-3 Require new developments on properties that include sensitive biotic habitats to cluster development in the least sensitive portions of the property and preserve and/or restore the most sensitive resources without creating urban development patterns in rural areas.	See Section 5.4. The proposed project's clustering of the development at the lower elevations nearest existing development and Las Virgenes Road would preserve the highest value habitat areas and linkages such that species diversity and reproductive capacity would not be expected to be diminished with identified mitigation measures incorporated.	Consistent
Policy IV-9 Continue to enforce the City's Oak Tree Ordinance.	As seen in Section 5.4 and the attached Oak Tree Report (Appendix F), the project would preserve all onsite oak trees. A City Oak Tree Permit will be required as mitigation for encroachments into the Protected Zones of two oak trees, which will specify requirements for working in the protected zones to avoid damaging the trees, as well as requirements for planting replacement trees as compensation for any root or limb removal from the protected zones.	Consistent
Policy IV-11 Promote the planting of additional trees in urban locations. Plantings should include replacement of trees that are, or have been, removed and new trees in locations where none are currently present.	The project includes a conceptual landscape plan (Figure 5) that identifies tree plantings among the developed areas as well as on graded slope areas.	Consistent
Policy IV-17 Ensure that construction activity within Calabasas complies with applicable South Coast Air Quality Management District rules and policies.	Construction activities would be required to comply with SCAQMD Rule 403 regarding fugitive emissions including dust and diesel exhaust.	Consistent
Policy IV-18 Minimize emissions of air pollutants, including greenhouse gases, generated by electricity and natural gas consumption through implementation of the energy conservation policies and the solid waste recycling policies listed in the General Plan.	The proposed buildings would be required to meet or exceed the State's Title 24 energy efficiency standards. Each residence will have adequate garage space for storage of appropriately sized refuse and recyclable material bins to facilitate achievement of the City's goal of diverting 75 percent of solid waste for recycling.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IV-21 Coordinate land development review with the Las Virgenes Municipal Water District to ensure that adequate water supplies are available to support any new development.	Based on the LVMWD UWMP, adequate water supplies would be available for the proposed development. Additionally, as a revision of a previously approved development, the project's water supply needs would have already been included in projections of demand in the current UWMP. In producing this MND, the project is providing LVMWD with opportunity to comment on the adequacy of supplies for this project.	Consistent
Policy IV-22 Ensure that new buildings are designed to minimize domestic water use based on the requirements of the City's Green Building Ordinance and consider establishing incentives to achieve greater water use efficiencies than are required by the Ordinance.	The proposed development will incorporate water saving features including low flow fixtures. Mitigation measures have been included in Section 5.17 Utilities and Service Systems, to assure consistency with this policy.	Consistent
Policy IV-23 Promote the use of drought-tolerant plants and efficient landscape irrigation design in existing developed areas and as part of new public and private development approvals.	The final landscape plan will be subject to approval by the City to assure compliance with aesthetic and water conservation goals. Mitigation measures have been included in Section 5.17 Utilities and Service Systems, to assure consistency with this policy.	Consistent
Policy IV-24 Where reclaimed water service is or can be made available, promote the use of dual water systems on new development to facilitate the use of reclaimed wastewater for landscape irrigation.	See response to Policy IV-23.	Consistent
Policy IV-27 Require runoff mitigation plans as part of the application and development review process that illustrate the Best Management Practices (BMPs) to be employed to prevent pollutants from running off the project site into area waterways. BMPs may include, but are not limited to, the use of biofiltration techniques and/or provision of subsurface filtering.	The project will feature two surface runoff detention basins above the project development to detain flows from the undeveloped slopes to the east. Onsite runoff from the project's impervious surfaces would enter the proposed drainage system that includes an underground detention device designed to reduce runoff to pre-project quantities. See Section 5.9 and Mitigation Measure WQ-3.	Consistent
Policy IV-28 Continue to require the use of BMPs during site grading and construction to control temporary erosion and offsite deposition of soils.	See response to Policy III-17.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IV-30 Require the use of best management practices for soil erosion control as part of any grading activity or natural landform alteration. Additionally, require erosion control measures prior to grading operations commencement.	See response to Policy III-17.	Consistent
Policy IV-31 Promote balanced onsite grading operations to eliminate the need for transporting soils on or offsite. In addition, promote phased grading operations instead of mass grading. The extent of clearing and grubbing operations, as well as the area being graded at any particular point in time, should be limited to the minimum necessary.	The proposed grading will be limited to the minimum necessary to achieve the desired 2:1 slope grades above the development area, as well as mitigation of an identified landslide hazard area. Cut and fill quantities will be balanced onsite to the extent feasible, with an estimated net export of 118,400 cubic yards of soil.	Consistent
Policy IV-32 Regulate construction activities to eliminate potentially destructive practices that remove topsoil or place soils in areas intended to be preserved in open space, as well as practices such as dumping of construction wastes in unauthorized areas, washing out concrete trucks and spreading lime-laden water.	See response to Policy III-17. An approved SWPPP for the project construction activities will include requirements related to topsoil conservation (e.g. minimization of disturbance area), as well as designated areas and guidelines for concrete wash-out basins.	Consistent
Housing Element		
Policy V-9 As part of the 2030 Land Use Element, provide expanded opportunities for multi-family housing and mixed use development consistent with the City's regional housing needs requirement (RHNA), as mandated by the State.	The project provides 78 multi-family dwelling units for purchase. Four of the proposed units would be provided as affordable housing units (low-income) and 74 units would be provided at market rate.	Consistent
Policy V-12 Continue to require new housing development to set-aside a portion of units for lower and moderate income households through the Inclusionary Housing Ordinance. Only if that is not economically feasible, allow for payment of an in-lieu fee, but this is considered the less desirable alternative.	Four of the proposed dwelling units would be set aside for low-income housing.	Consistent
Policy V-15 Require affordable housing units, except those for the elderly, to be dispersed throughout a project, and not grouped together in a single area.	The project's affordable housing units (dwelling type 4B) would be dispersed throughout the project as the upstairs units of dwellings identified as 4 and 4R as shown in Figure 4.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Circulation Element		
Policy VI-11 Maintain an adequate supply of parking to support the function of the uses parking serves, and to facilitate transportation demand management programs.	This Project is seeking a 25% reduction in required off-street parking per Section 17.28.050 because the Code does not recognize tandem parking. With approval of this reduction, the total parking space requirement would be 148. The project design features 174 non-tandem parking spaces for residents and visitors, which would exceed City requirements. An additional 42 parking spaces would be provided as tandem spaces within individual garages for a total of 216 available parking spaces.	Consistent
Safety Element		
Policy VII-1 Incorporate adequate mitigation measures into proposed development projects to achieve an acceptable level of risk from potential seismic hazards resulting from ground motion or fault rupture.	See section 5.6. An identified landslide area at the southeast portion of the development area would be excavated and replaced with engineered fill and re-contoured to blend with the existing topography. Mitigation measures Geo-1 through Geo-5 would ensure that adverse geological conditions are adequately remediated to achieve an acceptable level of risk from seismic hazards or other geotechnical factors.	Consistent
Policy VII-2 Emphasize prevention of physical and economic loss associated with earthquakes and other geologic disasters through early identification of potentially hazardous conditions prior to project approval.	See response to Policy VII-1.	Consistent
Policy VII-5 Where engineering solutions to slope stability constraints are required, implement landform grading programs so as to recreate a natural hillside appearance.	See response to Policy VII-1.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy VII-6 Prior to approval of development projects within the liquefaction or landslide hazard zones depicted on Figure VII-2 or other areas identified by the City Engineer as having significant liquefaction or landslide hazards, require applicants to prepare site-specific liquefaction and/or landslide studies and mitigation. Such studies shall be subject to review and approval by the City Engineer.	The attached Geotechnical Site Evaluation (Appendix C) provides results of recent soil studies and updates of previous geologic investigations of the site as well as recommendations to be reviewed by the City engineer. Mitigation measures Geo-1 through Geo-5 would ensure that adverse geological conditions including liquefaction or landslide hazards are adequately studied and remediated to achieve an acceptable level of risk from these hazards or other geotechnical factors.	Consistent
Policy VII-10 For discretionary development projects, limit new impervious surfaces to those that will not individually or cumulatively increase harmful runoff into natural stream channels downstream.	See response to Policy IV-27.	Consistent
Policy VII-15 Require design and siting of new development within areas subject to wildfires in a manner that minimizes the threat of loss from wildland fire.	The proposed project would place development in the lower elevations of the property nearest Las Virgenes Road, which would be the most defensible portion of the property and most accessible by firefighting vehicles and personnel.	Consistent
Policy VII-16 Ensure that new development is designed so as to facilitate access by firefighting equipment and to maintain adequate evacuation routes.	Adequate firefighting equipment access is mandated by building codes and requires approval of the LACFD. The site plan proposes dual egress points from the property to facilitate evacuation procedures.	Consistent
Policy VII-17 Do not permit development within areas that do not have adequate water pressure or fire flows until sufficient pressure and fire flows can be reliably provided.	Prior to occupancy, the development would require inspection and approval by LACFD that would include verification of adequate fire flows and hydrant placement.	Consistent
Policy VII-24 Enforce the requirement that industrial facilities and construction sites have adequate Hazardous Materials Handling and Spill Response Plans to ensure that the goals of pollutant control are consistent with the City's public safety needs and the General Plan's water quality objectives.	During construction, the project's SWPPP would provide requirements for proper handling of any hazardous material that may be used on the site, as well as preparedness for spill cleanup. These requirements would be monitored for compliance throughout the construction period. See Mitigation Measure WQ-1.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Noise Element		
Policy VIII-1 Use the Land Use Compatibility for Community Noise Environments matrix provided in the General Plan to determine the compatibility of land use when evaluating proposed new land uses in the City. The matrix shall be used as a guide to assist in determining the acceptability of noise for existing or proposed land use.	See Section 5.12 for a full noise analysis. Based on the General Plan, the property is within a 60 dBA CNEL noise contour associated with the 101 Freeway. The City's Land Use Compatibility for Community Noise Environments matrix lists multi-family housing development as "normally acceptable" within this level of noise environment. Four of the proposed residential structures could potentially be exposed to traffic noise levels exceeding 65 dBA CNEL at outdoor private balcony areas, however, mitigation measure Noise – 7 would adequately reduce any resulting impacts.	Consistent
Policy VIII-2 If a proposed development project that will create or affect existing noise sensitive land uses is proposed in a location that is within a 60 dBA or greater CNEL noise contour, as determined by independent experts or consultants hired by the City, require that the project applicant demonstrate that, unless mitigation is available: (1) the project will not generate noise exceeding the "normally acceptable" range for existing uses on adjacent properties; and (2) adjacent influences will not generate ambient noise on the project site that exceeds the "normally acceptable" range for the proposed use.	See Section 5.12 for a full noise analysis. All potential impacts regarding project generated noise, or noise that the project would be exposed to, have mitigation measures identified that would reduce those impacts to less than significant.	Consistent
Policy VIII-3 Locate and design noise-sensitive land uses and noise generators in such a manner that noise objectives will be maintained.	See Section 5.12 for a full noise analysis. With implementation of identified mitigation measures, the project would not conflict with noise objectives.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy VIII-6 Incorporate consideration of noise impacts to significant wildlife habitats into the development/environmental review process.	See Section 5.12 for a full noise analysis, and Section 5.4 for analysis of biological resource impacts. The most significant noise source in the project vicinity would be traffic on Las Virgenes Road. The project would not contribute to a significant increase in traffic noise under cumulative conditions. The proposed development would occupy approximately 5 acres of the property that is adjacent to the roadway, leaving a 16-acre buffer between the development and open-space and wildlife habitats to the east.	Consistent
Policy VIII-8 Use noise standards in the review of proposed developments to determine whether the proposal promotes acceptable noise compatible land uses both during construction and subsequently.	See Section 5.12 for a full noise analysis. The project would conform to City designated noise standards with identified mitigation measures.	Consistent
Community Design Element		
Policy IX-1 Through community input and design review, ensure that new development and redevelopment is of high quality design, is aesthetically pleasing, and contributes to a positive image for the City.	The applicant has sought community input in designing the proposed revisions to the previously approved development plan to be consistent with this policy.	Consistent
Policy IX-3 Ensure that new development projects become assets to the community through direct contribution to the enhancement of Calabasas' visual environment.	The proposed project has been designed with the goal of reducing visual impacts to the City's environment, including reducing the scale and mass of individual buildings.	Consistent
Policy IX-5 Ensure that new development is aesthetically compatible with the area's natural environment and that it contributes to a positive image for the City.	Approximately 76% of the 21-acre property would remain as undeveloped open space. In addition, the proposed residential buildings would be reduced in scale and mass to provide a more aesthetically compatible project compared to the approved Entrada project.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IX-6 Require that new developments preserve views of identified scenic resources from designated corridors.	The reduced scale and mass of the proposed residential buildings would preserve view corridors between buildings. Views from Las Virgenes Road and the 101 Freeway of the upper hillsides and ridgelines that define the eastern portion of the property would not be screened by the project. As a comparison, the project's highest roofline would be at a similar elevation as the lower floors of the adjacent residential development to the north (The Colony).	Consistent
Policy IX-8 Require that new developments establish architectural and siting design themes that are compatible with the surrounding context, including: • Prominent design features existing in the immediate area (i.e. trees, landforms, historic landmarks); • Existing and planned development, buildings and structures; and • The natural environment (i.e., hillsides, washes, native vegetation, community landscaping).	The Monterey architectural style, materials and colors proposed for this project (Figures 6 through 12) are similar to those used in developments in the surrounding area and is consistent with the Las Virgenes Gateway Master Plan. The buildings would be constructed at various angles and grades to fit into the property's hillside landforms and natural environment. As such, this project would be compatible with the surrounding context.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IX-9 Require that new developments create pleasing transitions to surrounding development. For example, where applicable: • The bulk of new structures should be compatible with the area's environment and with adjacent development; • Setbacks from streets and adjacent properties should be in proportion to the structure and the function of the street and shall encourage pedestrian scale and uses (for example, zero setbacks from property lines and street right-of- way are appropriate within Old Town); and • Multi-story structures should be made less imposing by physically stepping the upper stories of the structures back from street level.	The project would provide a residential development compatible with existing residential developments adjacent to the northern boundary as well as on the west side of Las Virgenes Road. To make the proposed structures less imposing, the project's multi-story buildings would be configured such that the garage level would be below grade as viewed from Las Virgenes Road resulting in an observed building height of two stories, or approximately 23 feet (Figures 14, 15, and 16). The proposed buildings would also be designed to minimize massing through varied rooflines, building facades, and balconies, as well as orienting the buildings at angles that follow the contours of the site's topography to help the development blend in with the surrounding environment from both a character and architectural perspective.	Consistent
Policy IX-10 Within residential neighborhoods, protect neighborhood character by maintaining the mass, scale, and height of structures at a size that is compatible with the size of the parcel upon which the structure is located, as well as the size of adjacent development.	See response to Policy IX-9. The proposed project has been designed with the goal of reducing visual impacts as compared to the approved Entrada development by reducing the mass and scale of individual buildings as well as the visible building height as observed from offsite. As proposed, this project's rooflines would be no higher than the floor level of the adjacent residential neighborhood to the north (The Colony). These proposed revisions to the approved development plan would result in structures of a more compatible size with that of adjacent development.	Consistent
Policy IX-12 Provide appropriate transitions between different projects and between suburban and rural/semi-rural land uses through the provision of buffer areas, landscaping, and other similar treatments, such as hedges, walls, fences, berms, or landscaped open space.	Based on a review of the conceptual landscape plan, the trees proposed for planting would be arranged in informal masses similar to the surrounding natural environment and would blend with the surrounding open space areas to the east. The slope-landscaping plan will be reviewed for consistency with the LA County Fuel Modification requirements which would require native, fire resistant plant materials along slopes of the development area.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy IX-14 Promote lower level lighting/illumination citywide through implementation of lighting standards such as the City's "Dark Skies" ordinance.	While exterior lighting would be required within the public areas of the development, the lighting fixtures would be shielded to minimize light trespass in accordance with the City Ordinance Section 17.27.030.	Consistent
Policy IX-43 Require new development to be designed in a manner consistent with the Scenic Corridor Overlay Zoning requirements and the Scenic Corridor Design Guidelines.	The Monterey architectural style, materials and colors proposed for the project are similar to those used in developments in the surrounding area and is consistent with the Scenic Corridor Design Guidelines as provided for the Las Virgenes Corridor Plan (LVCP) as well as the Las Virgenes Gateway Master Plan (LVGMP).	Consistent
Policy IX-44 Preserve large areas of natural hillsides and other dominant natural environmental features visible from the Ventura Freeway.	The proposed buildings would maintain the existing natural environmental features on-site, particularly the steep slopes and dominant ridgeline in the eastern portion of the project site. These slopes are partially visible from the U.S. 101 (Ventura Freeway) Scenic Corridor, and will be avoided by the development project and remain as open space.	Consistent
Cultural Resources Element		
Policy XI-1 Ensure proper treatment of archaeological resources before development occurs at a site where such resources are present.	As analyzed in Section 5.5 of the MND, impacts to cultural resources would be less than significant. No sensitive archaeological or historical resources were identified on the project site or in the immediate vicinity.	Consistent
Policy XI-2 Preserve significant archeological and paleontological resources in-situ, when feasible. When avoidance of impacts is not possible, require data recovery mitigation for all significant resources. All forms of excavation in deposits of Native American origin shall be coordinated and monitored by representatives of the Chumash nation.	See response to Policy XI-1.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Services, Infrastructure and Technology		
Policy XII-7 Require developers to construct and/or pay for the new onsite capital improvements required to serve the new development. Also, require that new development: • Is phased so as to ensure that facility and service demands associated with new development do not exceed capital facility capacities; • Does not adversely affect the level of service provided to existing development; and • Does not increase the cost of providing public services to existing residents and businesses.	Local public service agencies will be asked for input and review of the project during the public review process. Development of the project would contribute to the demand for public services. As described in Section 5.14 Public Services, the project would not aversely affect the level of service for existing development, but would pay necessary fees to ensure that additional demands are met. Therefore the project will not negatively affect municipal and public service standards established in the City's General Plan. The project would also pay a fair share for planned improvements to Las Virgenes road; and if such improvements are not begun by the City at the time of this project's construction, the roadway would be widened as part of this project's construction along the segment that fronts the subject property. (see Section 5.16 Transportation/Traffic)	Consistent
Policy XII-9 Require the proponent of new development projects to ensure that the facilities (including systemwide improvements) to support projects are available at the time that they are needed.	See Sections 5.9 Hydrology and Water Quality, 5.14 Public Services, and 5.17 Utilities and Service Systems regarding the availability of facilities at the Project site. All facilities will be in place and adequate to support the Project at the time that they are needed.	Consistent
Policy XII-13 Direct new development to areas with adequate existing municipal facilities and services, areas where adequate facilities and services and facilities are committed, or areas where municipal facilities and services can be economically extended consistent with the master plans of area service providers.	See response to Policy XII-9.	Consistent
Policy XII-14 Coordinate land development review with the master planning efforts of area service providers to facilitate the provision of adequate services and facilities. New development shall pay its own way.	See response to Policy XII-7.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy XII-17 Require new development to provide full mitigation for school impacts, subject to the provisions of State law that limit the City's ability to require school mitigation.	The construction of this 78-unit multi-family housing development is not anticipated to impact school facilities. However, the project applicant would pay appropriate school impact fees as permitted by State law, prior to issuance of a Certificate of Occupancy. Refer to *Section 5.14 (iii)* for additional analysis.	Consistent
Policy XII-20 Coordinate land development review with the master planning efforts of the LVMWD to facilitate provision of adequate services and facilities.	See response to Policy XII-7.	Consistent
Policy XII-21 Direct new development to areas with adequate existing water facilities and services, areas that have adequate facilities and services committed, or areas where facilities and services can be economically extended consistent with the LVMWD's master plan.	See response to Policy XII-9.	Consistent
Policy XII-24 Continue to implement opportunities to increase the use of recycled water and secondary effluent in coordination with the Las Virgenes Municipal Water District, potentially including the development of incentives to encourage the use of reclaimed water.	See Section 5.17 Utilities and Service Systems. Mitigation measures have been identified for this project requiring recycled water use for landscaping, and provision of dual plumbing to allow future indoor recycled water use for non-potable uses. Any use of recycled water would be in coordination with the LVMWD and with City approval of such use.	Consistent
Policy XII-25 Coordinate land development review with the master planning efforts of the LVMWD and TSD to facilitate provision of adequate sewer services and facilities.	See response to policy XII-7.	Consistent
Policy XII-26 Direct new development to areas with adequate existing sewer facilities and services, areas where adequate facilities and services and facilities are committed, or areas where services and facilities can be economically extended consistent with the LVMWD and TSD master plans of area service providers.	See response to policy XII-7.	Consistent

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Policy XII-29 Employ appropriate stormwater management practices to prevent stormwater problems from urban runoff, which may include flooding, erosion, or stream channel scouring in natural drainage systems. These practices at a minimum will include the collection, control and treatment of stormwater runoff at a rate and quantity that prevents damage to both man-made and natural drainage systems.	An underground detention basin would be located beneath the proposed guest parking area. This detention basin would collect and control runoff at a reduced rate compared to existing conditions, which would prevent project-related runoff from damaging man-made and natural drainage systems.	Consistent
Policy XII-30 Promote natural stormwater control mechanisms such as engineered and City approved detention/retention basins and drainage swales to manage stormwater runoff.	As discussed in Section 5.9 two surface detention basins and an underground detention facility would detain the required increase in runoff rate, thereby mitigating the impact these impacts.	Consistent
Policy XII-32 Prevent water quality degradation through implementation of Best Management Practices and educational programs to reduce pollution entering surface waters.	A Storm Water Pollution Prevention Plan (SWPPP) would be prepared for the project, as required by the City's Public Works Department. To prevent water quality degradation, the plan would address erosion and sedimentation on the project site during construction and operation. Additionally, Best Management Practices would be implemented on the project site during construction.	Consistent

Las Virgenes Road Corridor Design Plan

The project would be required to contribute funds towards regional circulation improvements identified in the City's Circulation Element of the General Plan. Also, as described in Section 2.3, the project proposes to dedicate a portion of the property's frontage at the southern end of the site in exchange for the City's abandoning a similar portion of the existing roadway to the applicant along the northern end of the site, which would facilitate the City's plans to widen and upgrade Las Virgenes Road. This exchange would allow the City to achieve the desired road with and alignment for a straighter, safer roadway along the project frontage. In addition to roadway lane improvements, the Las Virgenes Road Corridor Design Plan includes other elements that address circulation, beautification, and provision of public transit and pedestrian facilities within the project vicinity. This project would not conflict with any of these elements that the City would pursue in upgrading the roadway including the potential to signalize the Oak Glen intersection. As such, the project would be consistent with the regional traffic improvements outlined in the Las Virgenes Road Corridor Design Plan, and no conflicts with this design plan or impacts would result.

Las Virgenes Gateway Master Plan

The current LVGMP designates the project site for Limited Commercial use. However, as stated in the 2005 FEIR for the Entrada at Malibu Canyon Single-Family Residential Project previously proposed for the site, the City and area residents have expressed a desire that the site be used for residential use to be consistent with the existing semi-rural/ suburban feel of the community. With approval of the CUP, the project would be consistent with the Master Plan.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) serves as the Metropolitan Planning Organization with the responsibility to establish regional land use and transportation policy. This responsibility includes a mandate by the federal government to research and develop plans for transportation, growth management, hazardous waste management, and air quality. SCAG consists of six regional planning sub-areas. The proposed project is located within the Los Angeles sub-region.

The Southern California Association of Governments (SCAG) addresses regional planning issues in its 2008 Regional Comprehensive Plan (RCP). The RCP is a major advisory plan prepared by SCAG that has been designed to address the future of development within the region through the year 2035 and contains chapters on Land Use and Housing, Open Space and Habitat, Water, Energy, Air Quality, Solid Waste, Transportation, Security and Emergency Preparedness, and the Economy.

SCAG also acts as an area-wide clearinghouse for regionally significant projects and is charged with the responsibility of reviewing such projects for consistency with regional plans. Based on CEQA Guidelines Section 15206, the size and scope of the proposed project does not meet the criteria for what is considered a regionally significant project. Therefore, impacts on regional land use planning are considered less than significant.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. Refer to response 5.4-f. The project site is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or other such plan.

5.11 MINERAL RESOURCES

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. No historical mining activities are known to have occurred directly on or adjacent to the project site. The California Geologic Survey designates areas in the western portion of Calabasas as Mineral Resource Zone (MRZ) 1, indicating that no significant mineral deposits are present. The remainder of the City is designated MRZ 3, indicating that the significance of mineral resources could not be evaluated from the available data. The 2030 General Plan Policy IV-46 prohibits the extraction of mineral resources that could result in significant environmental impacts. Mineral resources maps consulted for the project site do not indicate valuable mineral resources onsite (City of Calabasas 2007), therefore there would be no impacts to mineral resources.

b) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. See response 5.11-a.

5.12. NOISE

This section is based on the *Noise Impact Analysis*, prepared by Giroux & Associates (May 30, 2012), and included as *Appendix E*. It is noted that this analysis was completed assuming a total of 81 units would be developed. A reduction in dwelling units to the proposed total of 78 units would nominally reduce the total project noise generation associated with project-related traffic, as calculated for the analysis described below (see Section 5.16 *Transportation/Traffic*). Construction noise impacts would not be appreciably different based on this minor reduction in units. The findings in the study would not change as a result of the slightly smaller project and although traffic noise generated by this project would be marginally lower, the impact significance would remain the same as discussed below.

a) Would the project result in 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?

Less Than Significant Impact with Mitigation Incorporated. The Noise Element of the City of Calabasas General Plan establishes interior and exterior noise guidelines and noise limiting criteria for proposed noise-sensitive land use developments within the City. For planning purposes, noise levels are quantified on a scale that is more heavily weighted to factor in frequencies that fall within the maximum human sensitivity range. The noise levels evaluated are then expressed as A-weighted decibels (dBA).

State law requires that for planning purposes, noise levels measured during evening and nighttime hours are given an artificial increase of 5 dB and 10 dB respectively, recognizing that a community is more sensitive to unwanted noise intrusion during these quiet times. A 24-hour noise measurement that incorporates these evening and nighttime penalties for noise levels are called the Community Noise Equivalent Level (CNEL).

In order to protect the health and welfare of residents, for multi-family residential uses, such as the proposed project, the City recommends an exterior noise exposure of 65 dB CNEL. Noise levels up to 70 dB CNEL are considered “conditionally acceptable” and are permitted if noise mitigation measures have been evaluated. As a sensitive receptor, these noise limits would apply to the proposed residential project during operations. These noise limits would also apply to nearby residences and other sensitive land uses due to noise generating activities associated with construction of the proposed project. Project construction activities would be restricted by the City to occur between the hours of 7:00 a.m. and 6:00 p.m. Mondays through Fridays, 8:00 a.m. and 5:00 p.m. Saturdays and no construction is allowed on Sundays or legal holidays.

For multi-family residential uses such as the Calabasas Blue project, the City requires indoor noise exposure to be limited to 45 dB CNEL. Since normal noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dB CNEL allows the interior standard to be met without any specialized structural attenuation.

Vehicular traffic along Las Virgenes Road is the dominant continuous source of noise present in the vicinity of the project site. Noise measurements were made in the project vicinity and on the project site on Tuesday, May 22, 2012, in order to document existing baseline noise levels in the area. The baseline data is then used as a basis for projecting future noise exposure from the project upon the surrounding community, as well as noise exposure within the project from the roadway and other nearby land uses. The resulting measurements of ambient noise in the vicinity indicate that at a setback distance of 50 ft. from Las Virgenes Road, existing traffic noise at the project site at approximately 2:00 P.M. is 67 dB Leq, which is a steady-state level of noise energy measured over the monitoring period. The 50-ft. setback distance was conservatively chosen as an appropriate reading to evaluate the project's noise exposure due to proposed grading which will alter the terrain and likely affect the natural sound-attenuation of the site topography.

Applying the evening and nighttime noise level adjustments, CNELs for similar projects have been shown to be approximately 3 dB higher than early afternoon Leqs. The measurement of 67 dB Leq suggests that existing traffic noise at the western project façade is 70 dB CNEL at 50 feet from the roadway centerline. This value is consistent with projections derived from computer modeling of traffic noise at the indicated set-back distances (based on traffic counts provided in Appendix G).

Construction Noise Impacts

Short-term on-site construction noise impacts tend to occur in discrete phases dominated initially by earth-moving activities, then foundation construction, and finally finish construction. The earth-moving phase would be the noisiest, with equipment noise typically ranging from 75 to 90 dBA at 50 feet from the source.

Point sources of noise emissions are attenuated by a factor of 6 dB per doubling of distance through the spreading of sound waves. The loudest earthmoving equipment that would potentially be used at the site may require over 1,000 feet from the source to reduce the 90+ dBA source strength to a generally acceptable 65 dBA exterior exposure level for sensitive receptors. This estimate assumes a clear line of-sight from the source to the receiver. These short-term increases in ambient noise levels would be noticeable primarily to residents in the nearby residential developments, commercial retail/office tenants, an elementary school, and a church operating primarily on weekends and late evenings (after typical construction hours). These uses are located within 1,000 feet of the future construction zone. Variations in terrain elevation or existing structures will act as noise barriers that may attenuate noise levels at some sensitive receptor sites that are within 1,000 of the project site, which would reduce some construction noise impacts.

The City has not adopted any specific standards relating to construction noise. According to the City of Calabasas Municipal Code, permissible hours of construction are restricted to the hours of 7 a.m. to 6 p.m. Monday through Friday, and 8 a.m. to 5 p.m. on Saturday, and no construction is permitted on Sundays and Federal Holidays. These hours are included as conditions on any project construction permits and these limits will serve to minimize any adverse short-term construction noise impact potential. Mitigation measures are included to further reduce these short-term noise impacts.

Off-site noise generated by the project's construction activities would consist of truck hauling of materials into and out of the site. The estimated 118,400 CY of soil export will require almost 12,000 one-way truck trips. The daily noise level associated with these truck trips would be 67 dB CNEL (at 50 feet from roadway centerline) if the trips are evenly divided over 10 days. As discussed in Section 5.3, construction grading and hauling would occur over an assumed minimum 40-day period, which would result in a much lower noise level associated with soil export truck trips than over a 10-day period as conservatively evaluated in Appendix E. The addition of 67 dB CNEL and the existing 71 dB CNEL provides a +1.5 dB difference, which would not exceed the City's significance threshold regarding increasing traffic noise (discussed in more detail below under Operation Noise). Therefore, spreading haul trips evenly over a longer than 10-day period, as required to maintain air quality impacts at below significant levels (see Section 5.3, *Air Quality*), would ensure that the noise threshold is met with an even greater margin of safety off-site construction noise levels remain below significance thresholds with an even greater.

As discussed above, the project's potential construction noise impacts would be significant for the immediately adjacent properties only. The following mitigation measures would reduce construction related noise impacts to sensitive receptors in the project vicinity to less than significant levels:

Noise-1:
The construction contractor shall oversee that construction activities only occur from 7:00 a.m. to 6:00 p.m., Monday through Friday, and Saturday from 8:00 a.m. to 5:00 p.m. Construction shall not be permitted on Sunday or holidays unless approved by the City Engineer.

Noise-2:
Stationary noise sources that exceed 70 dBA of continuous noise generation (at 50 feet) shall be shielded with temporary barriers if existing residences are within 350 feet of the noise source. This measure shall be overseen by the construction contractor, to the satisfaction of the City Community Development Department.

Noise-3:
The construction contractor shall oversee that all mobile equipment will have properly operating and maintained mufflers.

Noise-4:
Designated parking areas for construction worker vehicles and for materials storage, stockpiling, and assembly shall be provided by the construction contractor, to the satisfaction of the City Community Development Department. These areas shall be set back as far as possible from or otherwise shielded from the surrounding developments.

Noise-5:
The construction contractor shall notify immediately surrounding property owners in writing on a monthly basis of construction schedules involving major grading, to the satisfaction of the City Community Development Department.

Noise-6:
The construction contractor shall ensure that haul routes be approved by the City to avoid residential development areas as feasible.

Operation Noise Impacts

Long-term noise concerns from the development of residential uses at the project site center primarily on mobile source emissions on project area roadways. The project's contribution to roadway noise increases were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA RD 77-108), which calculates the Leq noise level for site-specific traffic conditions. Data utilized for this analysis was provided by the project's traffic and Circulation Study prepared in May of 2012 (Appendix G).

According to the Calabasas General Plan EIR, the project's impacts to roadway noise exposure would be significant if they result in a substantial permanent or temporary increase in noise based on the levels of significance shown in **Table 5.12-1.**

Table 5.12-1
Thresholds of Significance for Operational Roadway Noise Increases

Post-Project Noise Level (CNEL)	Significant Increase
< 60 dB	5.0 dB or greater
60-65 dB	3.0 dB or greater
> 65 dB	1.5 dB or greater

Table 5.12-2 summarizes the calculated 24-hour CNEL level at 50 feet from the roadway centerline adjacent to the project site. Projected traffic increases were compared to existing conditions, as well as to future conditions that include build-out of approved and pending projects in the vicinity, to evaluate cumulative impacts. As shown in Table 5.12-1, for roadway noise conditions that would be greater than 65 dB following project implementation, as is the case for this project, an increase of 1.5 dB would be considered significant.

As shown in Table 5.12-2, the project itself will not cause any roadway segment to exceed the +1.5 dB CNEL threshold, either on a project level, or on a cumulative basis. Therefore, both project-only traffic noise impacts and cumulative traffic noise impacts are considered to be less than significant.

Table 5.12-2
Traffic Noise Impact Analysis
(CNEL in dB at 50 feet from Centerline)

Roadway Segment	Existing	Existing + Project	Future	Future+ Project	Maximum Increase [a]	Impact?
Las Virgenes Road						
N of Agoura	72.2	72.3	72.6	72.6	0.4	No
S of Agoura	71.0	71.0	71.2	71.2	0.2	No
Agoura Rd						
W of Las Virgenes	68.3	68.3	68.5	68.5	0.2	No
[a] Difference between future with project and existing levels Analysis based on an assumed 81-unit development.						

On-site Noise Exposure (Exterior)

To evaluate the potential for traffic noise impacts on residents of the proposed project, an analysis of noise exposure was conducted for proposed buildings that would have direct views of Las Virgenes Road. These units are identified in Figure 4 as Buildings C, D, G, K, and L. The remaining proposed buildings would not be anticipated to have significant noise exposure as they would have increased setback distances or are noise protected by the buildings fronting the roadway.

As discussed in Section 2, *Project Description*, and Section 5.1, *Aesthetics*, the garage floor of the buildings fronting the roadway would be below grade as viewed from Las Virgenes Road, and would thus be shielded from roadway noise impacts. As such, this analysis focuses on the upper two floors (first and second floors as described in Section 2), as those are the only portions visible and thus potentially impacted by traffic noise from Las Virgenes Road. Based on Figure's 7, 8, 9, and 10, these buildings would feature balconies or patios fronting Las Virgenes Road on the upper level, and patios with a low wall on the ground level (as seen from the west elevation). **Table 5.12-3** lists the outdoor noise levels expected at each of these buildings.

Table 5.12-3
Predicted Outdoor Noise Levels at Buildings Facing Las Virgenes Road

Building and Exposure [a]	Setback	Outdoor Noise Level	Needed Mitigation
C, K, and L			
Ground Level	85 feet	68 dB CNEL	3 dB
Upper Story	85 feet	69 dB CNEL	4 dB
D			
Ground Level	100 feet	67 dB CNEL	2 dB
Upper Story	100 feet	68 dB CNEL	3 dB
G			
Ground Level	180 feet	63 dB CNEL	NA
Upper Story	180 feet	65 dB CNEL	NA
[a] Exposure listed as viewed from Las Virgenes Road (west elevations)			

As described above, all patios located at ground level on the western elevation would be shielded by a partial wall and columns provided as design features that break the line-of-sight to the roadway; and were therefore afforded 3 dB of noise mitigation, satisfying the noise mitigation requirements to reduce outdoor noise levels to not exceed the City's significance threshold of 65 dB CNEL. No further mitigation is necessary for first floor (ground level from the western elevation) patios.

Balconies or patios that would face Las Virgenes Road on the upper level (second floor) of Buildings C, D, K, and L will be required to have noise shielding barriers in order to reduce outdoor noise levels to 65 dB CNEL. **Figure 23** shows the location of the proposed residential buildings that would require noise shielding for upper level outdoor patio or balcony areas that face Las Virgenes Road. These barriers should be 5.5 feet high measured from the balcony floor, and could be constructed of laminated safety plexi-glass or equivalent, or a combination of a decorative 3-foot to 3.5-foot solid deck railing (e.g. wood or stucco) with no air gaps, topped with the transparent plexi-glass panels to reach the required height. Installation of a transparent noise shield on the upper level balconies or patios of these buildings facing Las Virgenes Road would reduce noise by at least 5 dB, providing adequate mitigation for compliance with the City's outdoor noise exposure threshold. Additionally, the project would provide common areas of noise-protected outdoor space for recreation purposes, offering residents an alternative to private balconies, which are generally used for recreation. With the identified mitigation provided, the project's potential outdoor noise exposure impacts would be reduced to less than significant.

Noise-7:
Prior to issuance of a building permit, to reduce traffic noise from Las Virgenes Road to 65 dBA CNEL or less within private outdoor areas, the project's final design plans shall be amended to include noise barriers for the upper story balconies and patios that face Las Virgenes Road for Buildings C, D, K, and L as identified in Figure 23. These barriers should be 5.5 feet high measured from the balcony floor, and could be constructed of laminated safety plexi-glass or equivalent, or a combination of a decorative 3-foot to 4-foot solid deck railing (e.g. wood or stucco) with no air gaps, topped with the transparent plexi-glass panels to reach the required height. The transparent noise shields shall not cause glare effects which would impair visibility for vehicle operators on Las Virgenes Road or for area residences, and shall be of a material with demonstrated glare-reducing properties to be approved by the Community Development Director. All required safety design standards for falling protection for balcony occupants must be observed, including the minimum height and construction of a safety deck railing. Prior to issuance of a certificate of occupancy for Buildings C, D, K, and L, the applicant may choose to submit an exterior noise evaluation for the constructed upper floor balconies that face Las Virgenes Road to accurately quantify the ambient noise level to be experienced at those locations before proceeding with installation of the noise shields as amended to the final design plans. If the results of the post-construction noise evaluation indicate that ambient noise levels at these private outdoor areas is below 65 dBA CNEL, at the discretion of the Community Development Director, installation of the mitigation noise shields may be deemed unnecessary. At a minimum, the noise evaluation must:



Source: Diamond West, Inc., April 3, 2012.

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Project Buildings Potentially Subject to Outdoor Noise Exceeding City Standards

FEET 0 60 120

FIGURE 23

- Be prepared by a qualified noise consultant approved by the Community Development Director;
- Be conducted over a 24-hour period to accurately characterize the noise environment;
- Report the results as dBA CNEL;
- Be submitted to the Community Development Director prior to certification of occupancy; and
- If the findings of the evaluation indicate that exterior noise levels at these locations exceed 65 dBA CNEL, include recommendations to reduce noise levels of these outdoor private areas to below 65 dBA CNEL, such as the aforementioned transparent noise shield.

The applicant shall be bound to implement installation of the noise shielding, or an alternative adequate noise reduction technique if a viable alternative is identified by the noise evaluation, in the event that the post-construction noise evaluation reports the ambient noise levels at these locations to be 65 dBA CNEL or above. In the absence of conducting the post-construction noise evaluation, the applicant shall proceed with installation of the noise shields as described above, and as amended to the final design plans, prior to issuance of a certificate of occupancy for Buildings C, D, K, and L as identified in Figure 23.

On-site Noise Exposure (Interior)

For multi-family residential uses such as the proposed project, the City requires indoor noise exposure to be limited to 45 dB CNEL. Since normal noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dB CNEL allows the interior standard to be met without any specialized structural attenuation.

As shown in Table 5.12-3, the exterior noise exposure for residences nearest Las Virgenes Road (Buildings C, D, K, and L) would reach 69 dB CNEL and therefore would require attenuation of at least 24 dB to ensure that indoor noise levels would not exceed the City's 45 dB CNEL significance threshold.

For typical wood-frame construction, such as the proposed residences, the installation of dual-paned windows has been shown to reduce indoor noise levels by 30 dB relative to exterior noise exposure levels. Use of dual paned windows in new residential construction is required by code for energy conservation. Therefore, as a condition of approval, double paned windows would be installed on the proposed residences, which would reduce interior noise from Las Virgenes Road to less than significant. As a result, the project's interior noise exposure would be less than significant without further mitigation other than the ability to close the dual-paned windows to adequately shield the indoor residential space from potentially excessive noise from Las Virgenes Road.

Area Noise Sources (Not Traffic-Related)

The Las Virgenes Municipal Water District (LVMWD) office headquarters is located just south of the project site. However no water treatment occurs at this site and therefore no noise typically associated with water treatment is generated at this location.

The New Village Leadership Academy private school, located across Las Virgenes Road from the project, may generate student recreational activity noise. However, as seen in Figure 20, in

addition to a setback distance of approximately 250 feet, the school's structural buildings and adjacent residences provide a noise shield between the student playground and the proposed project. The combination of shielding and set-back would preclude significant noise impacts from student outdoor recreation. There are no other land uses adjacent to the project site that would generate noise at levels that may cause a potentially significant noise exposure for the proposed residences. Therefore, noise impacts from non-traffic related sources would be less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. The effects of ground-borne vibration include discernable movement of building floors, rattling of windows, and shaking of items on shelves. These effects generally occur due to resonances in the structural components of a building, which can amplify groundborne vibration.

Vibration is most commonly measured as the root mean square velocity of a vibrating object, which is expressed in units of vibration decibels (VdB). These vibration decibels diminish with distance from the source. For typical construction equipment, the Federal Transit Administration (FTA) has estimated vibration levels at various distances from sensitive receptors. In the absence of a City designated significance threshold for vibrations, a range of effects from various levels of vibrations are listed in **Table 5.12-4.**

Table 5.12-4
Effects of Groundborne Vibration

Vibration Levels	Vibration Effects
65 VdB	threshold of human perception
72 VdB	annoyance due to frequent events
80 VdB	annoyance due to infrequent events
94-98 VdB	minor cosmetic damage to structures

Construction of the project would not involve the use of explosives or pile-driving, which generate the highest level of vibrations for construction activities. For this project, the on-site construction equipment that would create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdB at 50 feet from the source (FTA 2006). The nearest residential receptor is approximately 185 feet from the project site, at which distance, the vibration level produced by this equipment dissipates to 69 VdB. Based on the effects of groundborne vibrations shown in Table 5.12-4, the vibrations generated by this equipment as perceived at the nearest sensitive receptor would be less than that which would be expected to cause an annoyance due to infrequent events such as construction, as well as below levels that would cause annoyance if such effects were perceived frequently. Therefore, as construction generated vibrations would not cause structural damage or annoyance at sensitive receptor locations, these impacts would not exceed any significance threshold and would be considered less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact. The project site is located in a relatively noisy environment due to its proximity to Las Virgenes Road. Traffic noise resulting from development of the proposed 78-unit residential project would not be substantial, as shown in Table 5.12-2. Other sources of noise typical of residential projects such as recreational activities and landscape maintenance would not generate noise levels that would substantially increase the ambient noise levels of the vicinity. Therefore this project would not result in a substantial permanent increase in ambient noise levels and these impacts would be less than significant.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact with Mitigation Incorporated. Refer to responses 5.12-a regarding construction noise and mitigation measures.

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?

No Impact. The project site is not located in close proximity to a public airport, and the project would not be affected by an airport land use plan. Therefore, no impacts would occur.

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?

No Impact. The project site is not located in close proximity to a private airstrip.

5.13 POPULATION AND HOUSING

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes or businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. The project site is currently undeveloped; therefore, development of the site with residential uses would introduce population growth into the area, both directly and indirectly. Based on data provided in the City of Calabasas 2030 General Plan EIR, development of the proposed 78-unit development would increase the City's population by 222 persons (i.e. 2.84 persons per household). The project proposes that 4 of the residential units (5.1 percent) would be provided as affordable housing. The proposed development would be largely consistent with the type and intensity prescribed for the site within the General Plan and under the City's zoning designation with approval of a Conditional Use Permit.

Additionally, as a revision (and reduction) of the previously approved Entrada at Malibu residential development that is discussed in the City's 2030 General Plan (2008), the growth associated with this project has already been anticipated within future projections and

accommodated for in planning for the City's infrastructure and services. For these reasons, the project's direct and indirect growth is considered less than significant.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is currently vacant; therefore no existing housing units would be displaced as a result of implementing the project. Conversely, the proposed project would result in the construction of a 78-unit multi-family residential project onsite, which would contribute to housing ownership opportunities in the community.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. See response 5.13 (b).

5.14 PUBLIC SERVICES

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 government 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 following public services:

i) Fire protection?

Less Than Significant Impact. The Los Angeles County Fire Department, Calabasas Station #125 would provide fire protection and emergency medical services for the project. This station is located at 5215 Las Virgenes Road, approximately one mile north of the project site. The station is staffed with three people per day, with one fire engine and one fire truck stationed at the facility. The average response time for the station is approximately 3 minutes (City of Calabasas 2005). This is not anticipated to change as a result of the proposed project.

The entire City of Calabasas is designated as a high fire hazard zone and the proposed development would be required to adhere to standard requirements set forth by the California Building Code (CBC) with City of Calabasas amendments, including maintaining a 200-foot fuel modification buffer around all structures.

The project site provides a secondary ingress/egress point from Las Virgenes Road at the southern end of the development footprint that would provide internal circulation with the project's main entryway via a connecting driveway. Additionally, the driveways at the rear of the project site will feature emergency vehicle turnaround areas to be located between buildings C and D, and G and H, built to Los Angeles County Fire Code specifications (See Figure 4).

The project would be reviewed by the Los Angeles County Fire Department to ensure that the project complies with Fire Code requirements for emergency access, hydrant locations and water supply (fire flow); therefore impacts would be less than significant.

ii) Police protection?

Less Than Significant Impact. Police protection services at the project site are provided by the Los Angeles County Sherriff's Department Lost Hills Substation. The Lost Hills Substation currently provides police services for the entire Calabasas area. Response times for this station average from about 4.7 minutes for emergency calls to about 23.6 minutes for routine calls (2030 General Plan EIR, 2008). The proposed project would increase the population within the western portion of the City, which would in turn increase the number of calls received by the Sherriff's Substation. This increased demand would require additional personnel time to serve the site however, no new police facilities would be required, and impacts would be less than significant.

iii) Schools?

Less Than Significant Impact. The Las Virgenes Unified School District (LVUSD) provides education to students in the project area. The project site is within the service area for Calabasas High School, A.E. Wright Middle School, and Lupin Hill Elementary School. Based on current enrollment, all three schools that would serve the project are operating within capacity as seen in **Table 5.14-1** below (Petrash, 2012).

Additional student enrollment generated by the proposed project could result in Lupin Hill Elementary School exceeding capacity as listed in the City's General Plan. Section 65995(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998) states that 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, the payment of state-mandated school impact fees that are required of any development within the City would reduce these impacts to less than significant.

Table 5.14-1
Capacity and Enrollment of LVUSD Schools That Would Serve the Project

School	Enrollment[a]	Capacity	Currently Exceeds Capacity?	Project Generated Students[b]	Exceeds Capacity with Project?
Lupin Elementary	631	644	No	32	Yes
A.E. Wright Middle School	770	1,770	No	16	No
Calabasas High School	1,722	1,922	No	29	No

Source: 2030 General Plan EIR
[a] Enrollment as of December 2011. Kathy Petrash, LVUSD. (June 2012)
[b] Project Generated Students calculated from School Generation Factors: Average per Household by Home Type for All Units. Data provided by Kathy Petrash at the Las Virgenes Unified School District (Number of students derived from the following: 78 units x (average number of students per household). (Elementary: 0.41 students per unit, Middle School: 0.20 students per unit and High School: 0.37 students per unit)

iv) Parks?

Less Than Significant Impact. The project is located in an area of the City of Calabasas served by existing park facilities. Additionally, the project would include development of a recreation facility featuring a gym, community room, tot-lot, and swimming pool.

Parks provided by the City that would serve the project include:

- The Bark Park - a one-acre park located 0.15 mile south of the project site on Las Virgenes Road, which provides an off-leash dog park area, and features amenities such as a separate gated children's play area and drinking fountains for dogs. This park also serves as a trailhead for a multi-use trail network through open spaces to the east.
- Juan Bautista de Anza Park - an 8-acre park and recreational facility located 1.1 miles south of the project site and features picnic areas, sports courts for basketball and roller hockey, and a multi-purpose community room. This park also serves as a trailhead for a multi-use trail network through public open space areas to the south.
- Grape Arbor Park - a 3-acre located approximately 1.4 miles northwest of the project site and features a basketball court, sand volleyball court, picnic shelter, t-ball diamond, open areas and playground equipment.

The project would also be served by Malibu Creek State Park; a 7,000-acre regional recreational open space area located approximately 1.5 miles south of the project that provides opportunities for hiking, fishing, bird watching, and horseback riding.

The project's addition of 222 residents to the area is not anticipated to exceed existing park capacity based on the availability of public parks in the vicinity as well as the

project's provision of onsite recreation amenities. As such, no new parks would be required to be constructed. Impacts would be less than significant.

v) Other public facilities?

No Impact. Refer to responses 5.14-a (i-iv) above.

5.15 RECREATION

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?

Less Than Significant Impact. Refer to response 5.14-a (iv).

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact. The project would include development of a recreation facility featuring a gym, community room, tot lot and swimming pool. Based on the environmental analysis contained in this document, it is not anticipated that these facilities would have an adverse effect upon the environment. The City's required environmental review and conditioning process shall ensure compliance with the applicable design standards, and therefore impacts would be less than significant.

5.16 TRANSPORTATION/TRAFFIC

This section is based on the *Calabasas Blue Residential Project Traffic and Circulation Study* prepared by Associated Transportation Engineers (May 16, 2012), included as Appendix G. As discussed in Appendix G, the traffic impact analysis was completed assuming the project would include a total of 81 dwelling units. A subsequent reduction of dwelling units to the proposed project's 78-unit total would result in a nominal reduction in trip generation. The findings in the study would not change as a result of the slightly smaller project and the calculations presented in this section and the tables below conservatively reflect the higher number of assumed dwelling units.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures 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?

Less Than Significant Impact. The City of Calabasas 2030 General Plan (2008) Circulation Element has adopted a level of service threshold of LOS C or better as the minimum acceptable operating standard for City intersections and roadway segments, and LOS D or better as the minimum acceptable operating standard for freeway interchanges. Appendix G includes a complete description of the City's LOS criteria.

Projects that degrade roadways and/or intersections below the LOS C/D standard must provide measures to mitigate their impacts. **Table 5.16-1** presents the City's thresholds of significance criteria as listed in the City of Calabasas 2030 General Plan Transportation Element.

Table 5.16-1
City of Calabasas Traffic Impact Thresholds

Project Related Traffic Increases that Constitute a Significant Impact Where Roadway Performance Standards Are or Will Be Exceeded (Urban Areas)		
Existing or Future Link/Intersection LOS	**Volume to Capacity (V/C) Ratio**	**Maximum Peak Hour V/C Increase**
LOS D	0.81 - 0.90	0.02
LOS E	0.91 - 1.00	0.015
LOS F	> 1.00	0.01

The trip generation forecasts based on the Institute of Transportation Engineers (ITE) Trip Generation Report for Residential Condominiums / Townhouses (Land Use Code #230), indicate that the project would result in an increase of 471 average daily traffic (ADT)[11] on arterial roadways in the study area. Of those ADT, 36 would occur in the A.M. Peak hour and 42 would occur during the P.M. peak hour.[12]

Existing ADT on roadways in the study area are listed in **Table 5.16-2** with the project's anticipated additional ADT. This table shows that the 2-lane segment of Las Virgenes Road adjacent to the project area currently operates as LOS F with 20,600 ADT. As a condition of approval, the City of Calabasas would require the applicant to improve Las Virgenes Road to a 4-lane roadway along the project frontage, and provide a traffic signal light at the Oak Glen Street intersection, if the City has not already undertaken such improvements at the time of construction of this project. Therefore, the traffic impact analysis described here and included as Appendix G *Traffic and Circulation Study*, assumes such roadway improvements for determining Existing + Project ADT and LOS. Although the proposed project would increase trips on this segment, the Volume to Capacity (V/C) increase would not exceed the City's threshold of significance for roadways where existing conditions are considered LOS F. The study determined that other roadway segments in the area would operate at LOS C or above with the project, and therefore, impacts to roadway segments would not be significant.

[11] ADT estimation is conservatively based on an 81-unit development (ADT for the proposed 78-unit development would be reduced by 18 for a total of 453 trips).
[12] Peak hour ADT would be reduced by or two A.M. trips and one P.M. trip for the proposed 78-unit development).

Table 5.16-2
Existing + Project Roadway Levels of Service

Roadway Segment	ADT		LOS	V/C Increase	Impact
	Existing	Existing + Project			
Las Virgenes Rd. n/o Agoura Rd.	27,600	27,778	LOS C	0.006	NO
Las Virgenes Rd. s/o Agoura Rd.	20,600	20,718	**LOS F**	0.006	NO
Agoura Rd. w/o Las Virgenes Rd.	11,100	11,147	LOS A	0.004	NO
Analysis is conservatively based on an 81-unit development.					

Levels of service were calculated for the study area intersections using the Existing + Project traffic volumes for A.M. and P.M peak hours as shown in **Tables 5.16-3 and 5.16-4.** As previously stated, the calculations were made with the assumption that the City's planned improvements for Las Virgenes Road, including widening the roadway in front of the project site and signalizing the Oak Glen intersection, would be implemented by either the City or the project applicant prior to occupancy of the proposed project. The necessary improvements would include widening Las Virgenes road from 2 travel lanes to 4 travel lanes along the project frontage, with a raised median and Class II bike lanes, in addition to providing a traffic signal at the Oak Glen intersection. If the project would be required to perform these roadway improvements, they would also include the roadway realignment shown in Figure 13, which is based on the City's roadway improvement plans that are included in Appendix G.

These tables show that most of the City's intersections in the study area would continue to operate at LOS C or better (LOS D or better for freeway on-ramps), which would be acceptable LOS based on City standards. The Las Virgenes / Lost Hills intersection currently operates at LOS E and project-related traffic would increase congestion at this intersection. The increased congestion at this intersection would be less than the City's threshold of significance for intersections that operate at LOS E under existing conditions. Project impacts related to intersection congestion would be less than significant.

Table 5.16-3
Existing and Existing + Project A.M. Peak Hour Intersection Levels of Service

Intersection	Existing		Existing + Project		Project -Added	
	ICU/ Delay	LOS	ICU/ Delay	LOS	Increase	Impact
Las Virgenes Rd. at U.S. 101 NB Ramps	20.1 sec	C	21.1 sec	C	0.006	NO
Las Virgenes Rd. at U.S. 101 SB Ramps	14.9 sec	B	14.9 sec	B	0.001	NO

Intersection	Existing		Existing + Project		Project -Added	
	ICU/ Delay	LOS	ICU/ Delay	LOS	Increase	Impact
Las Virgenes Rd. at Agoura Rd.	0.691	B	0.693	B	0.002	NO
Las Virgenes Rd. at Oak Glen Street[a]	0.493	A	0.495	A	0.002	NO
Las Virgenes Rd. at Lost Hills Rd.	**0.963**	**E**	**0.968**	**E**	**0.005**	NO

[a]Assumes intersection signalization
Bolded values exceed City LOS C/D standard
Analysis is conservatively based on an 81-unit development.

Table 5.16-4
Existing and Existing + Project P.M. Peak Hour Intersection Levels of Service

Intersection	Existing		Existing + Project		Project -Added	
	ICU/ Delay	LOS	ICU/ Delay	LOS	Increase	Impact
Las Virgenes Rd. at U.S. 101 NB Ramps	15.1 sec	B	15.2 sec	B	0.003	NO
Las Virgenes Rd. at U.S. 101 SB Ramps	39.1 sec	D	39.2 sec	D	0.002	NO
Las Virgenes Rd. at Agoura Rd.	0.601	A	0.604	B	0.003	NO
Las Virgenes Rd. at Oak Glen Street (a)	0.409	A	0.425	A	0.016	NO
Las Virgenes Rd. at Lost Hills Rd.	0.547	A	0.55	A	0.003	NO

[a]Assumes intersection signalization
Bolded values exceed City LOS C standard
Analysis is conservatively based on an 81-unit development.

Based on the data presented above in Tables 5.16-2, 5.16-3 and 5.16-4, the project would not significantly impact the study area roadway segments or intersections according to the City's thresholds. Therefore, the project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including streets, highways, freeways, and other modes of transportation. Impacts related to pedestrian and bicycle paths are further discussed in response to 5.16-f below.

Regardless of the lack of significance of traffic impacts, the project is nonetheless required to contribute its fair share to intersection and roadway improvements in the project vicinity, as a matter of City policy. The project applicant must pay City of Calabasas Lost Hills/Las Virgenes Corridor Bridge and Thoroughfare (B&T) fees. The fees would provide a fair-share payment towards the implementation of City improvements that have been programmed for the roadway circulation system in the area, including the planned Las Virgenes Road improvements adjacent to the proposed project.

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?

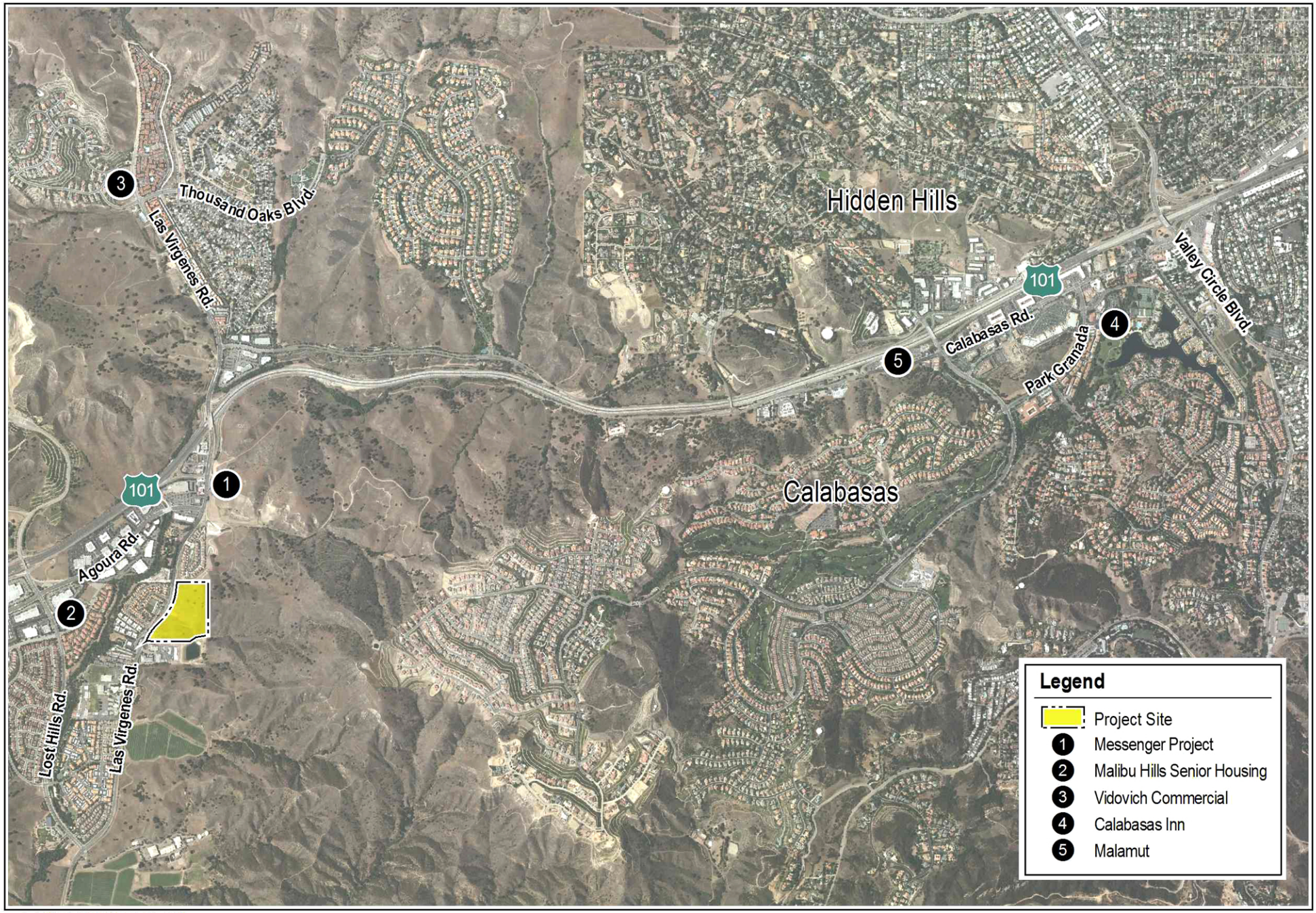
Less Than Significant Impact. As discussed in response 5.16-a, one roadway segment and one intersection (A.M. peak hour only) in the study area currently operate at unacceptable LOS and would continue to do so under the existing plus project scenario.

An analysis of the project traffic impacts for roadway segments and intersections assuming cumulative conditions (traffic volumes generated by approved and pending projects) in the City of Calabasas were conducted as part of the traffic study. Cumulative traffic volumes were estimated using a list of approved and pending projects provided by City staff, which is shown in **Table 5.16-5**. The locations of these projects are shown in **Figure 24**, *Cumulative Projects Location Map*. These future projects would generate an estimated 5,501 ADT to area roadways (296 A.M peak hour trips and 495 P.M. peak hour trips).

Table 5.16-5
Cumulative Projects Trip Generation (Approved/Pending Development)

Project Name	Land Use	Size	ADT	A.M. Peak Hour	P.M. Peak Hour
Messenger Project	Single-Family Res. Multi-Family Res. Senior Housing Specialty Retail	75 Units 75 Units 8 Units 21,400 SF	1,933	110	172
Malibu Hills Senior	Multi-Family Res.	60 Units	349	26	31
Vidovich Commercial	Office Commercial	33,740 SF 25,778 SF	371 1,140	52 34	50 83
Calabasas Inn	Multi-Family Res. Commercial	79 Units 15,000 SF	1,510	74	133
Malamut	Vintage Dealership	20,983 SF	198	0	26
		Total Trips	**5,501**	**296**	**495**
Source: City of Calabasas					

Of the roadway segments in the study area, the segment of Las Virgenes Road south of Agoura Road is forecast to operate at LOS F with cumulative and cumulative plus project traffic volumes as shown in **Table 5.16-6**. The increase in traffic demands associated with this project would be less than the adopted City thresholds and thus would not create a significant impact.



Aerial Source: GoogleEarth Pro, 2011.

CALABASAS BLUE RESIDENTIAL DEVELOPMENT - MND

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Cumulative Projects Location Map

0 1,250 2,500 Feet

FIGURE 24

Table 5.16-6
Cumulative + Project Roadway Levels of Service

Roadway Segment	ADT		LOS	V/C Increase	Impact
	Cumulative	Cumulative + Project			
Las Virgenes Rd. n/o Agoura Rd.	29,900	30,008	LOS C	0.004	NO
Las Virgenes Rd. s/o Agoura Rd.	21,700	21,818	**LOS F**	0.005	NO
Agoura Rd. w/o Las Virgenes Rd.	11,700	11,747	LOS A	0.004	NO
Analysis is conservatively based on an 81-unit development.					

Levels of service were calculated for the study area intersections assuming the cumulative and cumulative plus project volumes, which were compared to identify cumulative impacts as shown in **Table 5.16-7** and **Table 5.16-8**. The Las Virgenes / Lost Hills intersection, which would operate at LOS E during the A.M. peak hours under Cumulative + Project conditions, would not be subject to a significant increase in congestion associated with traffic generated by the project based on the City's significance thresholds. All other intersections studied are forecast to provide adequate LOS under the cumulative plus project scenario, thus the project's contribution to cumulative impacts related to intersection congestion would be less than significant.

Table 5.16-7
Cumulative and Cumulative + Project A.M. Peak Hour Levels of Service

Intersection	Cumulative		Cumulative + Project		Project Added	
	ICU/ Delay	LOS	ICU/ Delay	LOS	Increase	Impact
Las Virgenes Rd. at U.S. Highway 101 NB Ramps	21.2 sec	C	21.4 sec	B	0.007	NO
Las Virgenes Rd. at U.S. Highway 101 SB Ramps	15.0 sec	B	15.1 sec	B	0	NO
Las Virgenes Rd. at Agoura Rd.	0.733	C	0.735	C	0.002	NO
Las Virgenes Rd. at Oak Glen St.-Project Entrance[a]	0.5	A	0.502	A	0.002	NO
Las Virgenes Rd. at Lost Hills Rd.	**0.971**	**E**	**0.976**	**E**	0.005	NO
Bold values exceed City's LOS standard [a] Assumes signalized intersection Analysis is conservatively based on an 81-unit development.						

Table 5.16-8
Cumulative and Cumulative + Project P.M. Peak Hour Levels of Service

Intersection	Cumulative		Cumulative + Project		Project Added	
	ICU/ Delay	LOS	ICU/ Delay	LOS	Increase	Impact
Las Virgenes Rd. at U.S. Highway 101 NB Ramps	17.0 sec	B	17.2 sec	B	0.003	NO
Las Virgenes Rd. at U.S. Highway 101 SB Ramps	38.3 sec	D	40.3 sec	D	0.002	NO
Las Virgenes Rd. at Agoura Rd.	0.632	B	0.639	B	0.002	NO
Las Virgenes Rd. at Oak Glen St.-Project Entrance[a]	0.419	A	0.436	A	0.017	NO
Las Virgenes Rd. at Lost Hills Rd.	0.557	A	0.56	A	0.003	NO

Bold values exceed City's LOS standard
[a] Assumes signalized intersection
Analysis is conservatively based on an 81-unit development.

Planned Improvements

The City has programmed improvements for the study area roadways and intersections that are to be completed within the next two years. These improvements would address the inadequacy of capacity and LOS on Las Virgenes Road south of Agoura Road (adjacent to the proposed project) and at the intersection of Las Virgenes Road and Lost Hills Road. The roadway improvements will include additional travel lanes on Las Virgenes Road with a landscaped median and left-turn pockets, and a redesign of intersection operations at the Lost Hills Road intersection. These improvements would increase the cumulative plus project level of service to LOS C for the Las Virgenes Road segment south of Agoura Road, and LOS A for the intersection of Las Virgenes Road and Lost Hills Road (A.M and P.M. peak hours). To facilitate the City's planned roadway improvements, the project would dedicate a portion of the site's frontage property along the southern portion of the boundary with the Las Virgenes Road right-of-way, in exchange for an abandonment of a similar size portion of the existing roadway right-of-way along the northern portion of the property boundary with Las Virgenes Road. This exchange would enable the City to proceed with the roadway improvement plans, which include plans for straightening the roadway curve in front of the project's property.

As shown in the above tables, the project's volume to capacity increases in conjunction with cumulative impacts from approved and pending projects at study area intersections would not exceed the City's traffic impact significance thresholds. Therefore impacts would be less than significant.

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?

No Impact. The proposed project would not have any direct impacts on air traffic, as the site is not located in proximity to a regional or private airport, and does not include development of a private airstrip or heliport.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. The project would facilitate the City's planned improvements for Las Virgenes Road by exchanging a portion of the project's southern frontage property along the roadway (a dedication), for a similar size portion of the City's right-of-way property (abandonment) along the northern end of the property's frontage with Las Virgenes Road. This exchange would make it possible for the City to achieve a straighter, safer roadway in the front of the proposed project area. See Figure 13 for a depiction of the property to be dedicated, as well as right-of-way land to be abandoned by the City, for the purpose of creating a safer roadway.

The project would not introduce an incompatible land use to the area as the project would be consistent with the General Plan, and would be similar to adjacent land uses.

e) Result in inadequate emergency access?

Less Than Significant Impact. Primary access to the site would be provided by an internal roadway connection at Las Virgenes Road located opposite Oak Glen Street, converting the existing three-way intersection into a four-way, signalized intersection. Immediately east of Las Virgenes Road, the roadway transitions into an internal access roadway system providing vehicular circulation within the development and allowing direct access to each residential building. An additional access driveway would be provided to the south of the proposed residences (south of Building L), which would connect with the main entryway via the project's internal roadway. This secondary public entryway would be available for emergency access and allow internal circulation via the main entryway. Also, emergency access-only driveways for vehicle turn-around areas are proposed between buildings C and D, and between buildings G and H. These vehicle turn-around areas would be constructed according to LACFD requirements. As discussed in response 5.8-g, impacts related to emergency access would be less than significant.

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?

No Impact. The project would not conflict with the City's planned improvements to the Las Virgenes corridor as described in the City's Las Virgenes Road Corridor Design Plan. The planned improvements include the provision of Class II bike lanes and sidewalks along the roadway segment adjacent to the proposed project. As seen in response 5.16-d, the project would facilitate the City's plans for the Las Virgenes corridor by exchanging portions of the property frontage and existing right-of-way to allow for a straighter roadway alignment with

adequate width to accommodate the improvements. Should the City not provide the planned road improvements prior to construction of the proposed project, the applicant would be required to make roadway improvements to Las Virgenes Road in front of the subject property, including provision of a Class II bike lane.

5.17 UTILITIES AND SERVICE SYSTEMS

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant Impact. The project site is located within LVMWD's wastewater service area. LVMWD treats wastewater at the Tapia Water Reclamation Facility (TWRF), which it owns and operates jointly with the Triunfo Sanitation District. This facility is operated in accordance with the applicable regulations of the California Department of Health Services (DHS) and the State Water Resources Control Board (SWRCB), and is subject to regulation and testing by the Los Angeles Regional Water Quality Control Board (RWQCB). Given the relatively small scale of the project when compared to LVMWD's service area, the small increase in wastewater generated by the project is not anticipated to result in an exceedance of the treatment capacity of LVMWD facilities as permitted by the RWQCB. Additionally, as a revision of an approved project that is proposing fewer dwelling units than currently described in the City's 2030 General Plan, future wastewater generation associated with this development has been documented and available for incorporation into the District's planning efforts for infrastructure and capacity needs. Therefore, this impact would be less than significant.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

Less Than Significant Impact. The City of Calabasas 2030 General Plan EIR provides water consumption factors for residential uses to plan for future demand. For multi-family residential land uses, the City estimates that water use would be 500 gallons per day (gpd) per unit. Given this demand factor, the project would consume approximately 39,000 gallons of potable water per day (78 units x 500 gallons per day) or 0.12 Acre Feet per year (AFY). Existing regional water supplies are expected to accommodate the projected level of demand for the region as a whole. The LVMWD 2010 Urban Water Management Plan (UWMP) (June 2011) estimates that that supply will exceed demand in every year analyzed through 2035. Excess supplies range from 17,724 AFY in 2015 to 24,154 AFY in 2025. The proposed project's water use of 0.12 AFY would be less than one percent of the excess supply anticipated through 2035. Additionally, as this project is a revision (and reduction) of the previously approved Entrada project that is described in the City's 2030 General Plan (2008), the water demand associated with that project, which would be greater than under the current proposal, would be accounted for in the LVMWD's projected demands as reported in the UWMP. For these reasons, impacts would be less than significant.

Although impacts related to potable water supplies would be less than significant, mitigation measures are included to further reduce these impacts and to assure consistency with General Plan Policies IV-23 and XII-23 regarding water conservation, and also Policies IV-24 and XII-24 regarding recycled water use. These mitigation measures are listed below.

Utilities-1: All interior water fixtures shall be equipped with water conserving fixtures, including low flow faucets and ultra low flow toilets, as required by LVMWD standards.

Utilities-2: All irrigated landscaping shall be maintained with recycled water.

Utilities-3: Landscaping shall be heavily mulched and planted with drought tolerant vegetation.

Utilities-4: Although the project is not a "regionally significant project" (more than 500 dwelling units) as defined by Senate Bill (SB) 610, and is therefore not subject to the SB 610 enhanced CEQA water conservation requirements, the project shall incorporate dual plumbing to accommodate the use of recycled water for non-potable interior uses, if feasible.

LVMWD's Tapia Water Reclamation Facility treats wastewater from the project area. This facility is located approximately one mile south of the project site and has a wastewater treatment capacity of 16 million gallons per day (mgd). LVMWD currently reports that the facility treats an average of 9.5 mgd, leaving an additional 6.5 mgd capacity. Based on a Los Angeles County Sanitation District wastewater generation factor of 160 gallons per day (gpd) for multi-family residential land uses, the proposed project's 78 units would generate an estimated 12,480 gallons per day (gpd). This represents less than one percent of the Tapia Water Reclamation Facility's remaining capacity. Wastewater from the project site would be conveyed via an existing sewer line within Las Virgenes Road. No new wastewater infrastructure would be required as a result of implementing the project; therefore impacts would be less than significant.

c) Would the project 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?

Less Than Significant Impact. The project includes two retention basins with bulk flow inlets at the eastern edge of the development area. These basins would detain and convey runoff water from undeveloped slopes to the east into the development area drainage system, which ties into the LVMWD drainage within Las Virgenes Road. A stormwater detention device would be constructed onsite, below a parking area, that would temporarily hold project runoff water generated from the developed area before it is released into the district drainage facilities within Las Virgenes Road. This drainage system has been designed such that runoff volumes would not increase with implementation of the proposed project. See Section 5.9 *Hydrology and Water Quality* for capacities of detention basins and runoff calculations. Therefore, impacts to the existing storm water drainage infrastructure within Las Virgenes Road would be less than significant.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less Than Significant Impact. Refer to response 5.17-b.

e) Would the project result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. Refer to response 5.17-b.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. The project area currently has solid waste transported by private contractors to the Calabasas Landfill for disposal. The City's 2030 General Plan EIR reports that Calabasas Landfill is permitted to receive 3,500 tons of solid waste per day and as of 2008 was accepting 1,555 tons per day and is estimated to be operational through 2024.

In accordance with AB 939, Calabasas has achieved the 50% diversion rate of recyclable materials from the waste stream prior to the disposal of residual waste at the landfill. To facilitate project compliance with the City policies and goals regarding waste reduction, each proposed dwelling unit includes a designated storage area of adequate size to accommodate two trash bins for separating recyclable from disposable refuse. The average residence in Calabasas generates approximately 1.4 tons of solid waste per year to be disposed of at the landfill following diversion of recyclables. Therefore, the proposed project would be anticipated to generate 109 tons per year (0.30 tons per day) of solid waste for disposal in the Calabasas landfill, which would be less than one percent of the allowable 3,500 tons/day. Impacts to the Calabasas Landfill would therefore be less than significant.

g) Would the project comply with federal, state, and local statues and regulations related to solid waste?

Less than Significant Impact. Refer to response 5.17(f).

5.18 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of 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?

Less Than Significant Impact with Mitigation Incorporated. Mitigation has been incorporated into the project to reduce potentially significant impacts to biological resources on the project site to less than significant levels. Biological issues are discussed in detail in Section 5.4 and Appendices B and F of this document. The project would not significantly affect cultural resources, and potential effects to paleontological resources would be fully mitigated, as analyzed in Section 5.5. With implementation of the identified mitigation measures, degradation of the quality of the environment, or reduction in habitat, plant, fish or wildlife community would not occur.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact. The proposed project, along with planned development in the area, would not result in cumulative impacts related to traffic and circulation based on the City's thresholds of significance, as analyzed in Section 5.16. The project's traffic study has identified that payment of fees for a fair-share payment towards the implementation of study area improvements would further reduce cumulative impacts. Cumulative impacts related to greenhouse gas emissions (GHG) are addressed in Section 5.7. The project would not generate a cumulatively considerable quantity of GHGs based on SCAQMD recommended thresholds, and has been designed with some features to reduce the project's GHG impacts consistent with State and local regulations and policies. These would include construction of buildings to Title 24 standards for energy efficiency, and reductions in imported water usage and waste disposal.

As revealed by the previous discussions in Section 5.0 for each of the remaining environmental categories, impacts from the proposed project are considered to be less than significant, or would be reduced to less than significant after the incorporation of mitigation measures.

The project would incrementally contribute to cumulative impacts documented as occurring with development of the City of Calabasas, however, no residually significant impacts would result with implementation of the project. In the absence of residually significant impacts, the incremental accumulation of effects would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The project would result in environmental effects, however, these effects would not cause substantial adverse effects on human beings as discussed in this MND for each issue area described above. Also, project compliance with goals and policies established in the City of Calabasas General Plan, as shown in Section 5.10, would ensure that direct or indirect effects on human beings would be less than significant.

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Air Quality and Greenhouse Gas Emissions Impact Analysis

APPENDIX A

AIR QUALITY and GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

CALABASAS BLUE

CITY OF CALABASAS, CA

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Date:

May 24, 2012

Project No.: P12-020

CLIMATE AND METEOROLOGY

REGIONAL CLIMATE

The North Pacific high-pressure cell is the dominant climatic influence over the eastern North Pacific Ocean, particularly during the summer months. This high-pressure cell produces a predominantly northwesterly flow of maritime air over the California coastal waters. During the winter, the Pacific High weakens and moves south, resulting in weaker and less persistent northwesterly winds along the California coast than in the warmer half of the year.

As the air mass approaches the coast of California, this large-scale circulation pattern is modified by local influences. The differential heating between the desert and the adjacent Pacific Ocean modifies the prevailing winds, enhancing them during the warmer half of the year and weakening the winds during the colder portion. On a local and sub-regional basis, the airflow in California is channeled by its mountain ranges and valley. The coastal mountain ranges limit the flow of maritime air into the interior of California. This transition from a cool and damp marine environment to a dry and warm continental climate therefore occurs over a fairly short distance.

SOUTH COAST AIR BASIN

The South Coast Air Basin (SCAB) is a 6,600 square mile coastal plain bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Basin-wide conditions are characterized by warm summers, mild winters, infrequent rainfall, moderate onshore daytime breezes, and moderate humidity levels.

All seasons generally exhibit onshore flows during the day and offshore flows at night, after the land cools below the temperature of the ocean. The likelihood of strong offshore flows, including Santa Ana winds, is greater during winter than during summer (California Air Resources Board [ARB] 1984).

The topography and climate of Southern California combine to produce unhealthful air quality in the SCAB. Low temperature inversions, light winds, shallow vertical mixing, and extensive sunlight, in conjunction with topographical features such as adjacent mountain ranges that hinder dispersion of air pollutants, combine to create degraded quality, especially in inland valleys of the basin.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the Calabasas Blue project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (2/7/12)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

9. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

   Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (2/7/12)**

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in

2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. Draft standards were published. The proposed future 8-hour standard was 0.065 ppm. Environmental organizations generally praised this proposal. Most manufacturing, transportation or power generation groups opposed the new standard as economically unwise in an uncertain fiscal climate. In response to these concerns, the revision to the 8-hour federal ozone standard was placed on indefinite hold.

A new federal one-hour standard for nitrogen dioxide (NO_2) has also recently been adopted which is more stringent than the existing state standard. Despite the additional stringency of the federal NO_2 standard, air quality monitoring data in the SCAB suggests that this standard is met in the region. The federal primary standard for sulfur dioxide (SO_2) were similarly modified in 2010. Because California requires use of lower sulfur fuel and burns negligible amounts of sulfur-bearing coal, SO_2 is not a problem pollutant in the State.

BASELINE AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the project area are well documented from measurements made by the South Coast Air Quality Management District (SCAQMD). The SCAQMD monitoring station located on Gault Street in Reseda monitors most pollutants. The Reseda station does not monitor PM-10. Therefore PM-10 data was obtained from the Simi Valley air monitoring station. Table 3 is a 6-year summary of monitoring data for the major air pollutants compiled from the aforementioned air monitoring stations. Findings are summarized below:

a. Photochemical smog (ozone) levels occasionally exceed standards. The 8-hour state ozone standard has been exceeded an average of 11 percent of all days in the past five years near Reseda while the 1-hour state standard has been violated an average of six percent of all days. Year 2010 was the cleanest year of recent years. Preliminary data from 2011 showed some slight "backsliding" compared to a slightly cleaner 2010. While ozone levels are still high, they are much lower than 10 to 20 years ago.

b. Respirable dust (PM-10) levels occasionally exceed the state standard, but the less stringent federal PM-10 standard has never been violated for the same period.

c. The federal ultra-fine particulate (PM-2.5) standard of 35 $\mu g/m^3$ has been exceeded slightly more than one percent of measurement days in the last five years.

d. More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the project site. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NOx or CO without any threat of violating applicable AAQS.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3

Air Quality Monitoring Summary (2006-2010)
(Number of Days Standards Were Exceeded, and Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2006	2007	2008	2009	2010
Ozone					
1-Hour > 0.09 ppm (S)	34	21	23	15	11
8-Hour > 0.07 ppm (S)	55	43	39	31	40
8- Hour > 0.075 ppm (F)	34	28	25	19	19
Max. 1-Hour Conc. (ppm)	0.158	0.129	0.123	0.135	0.122
Max. 8-Hour Conc. (ppm)	0.109	0.105	0.103	0.100	0.091
Carbon Monoxide					
1-hour > 20. ppm (S)	0	0	0	0	0
8- Hour > 9. ppm (S,F)	0	0	0	0	0
Max 1-hour Conc. (ppm)	4.8	3.7	3.9	3.7	3.0
Max 8-hour Conc. (ppm)	3.5	2.8	2.9	3.3	2.6
Nitrogen Dioxide					
1-Hour > 0.18 ppm (S)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.073	0.081	0.091	0.070	0.075
Inhalable Particulates (PM-10)					
24-hour > 50 $\mu g/m^3$ (S)	1/60	4/60	2/61	1/62	0/xx
24-hour > 150 $\mu g/m^3$ (F)	0/60	0/60	0/61	0/62	0/xx
Max. 24-Hr. Conc. ($\mu g/m^3$)	56.	117.	80.	77.	35.
Ultra-Fine Particulates (PM-2.5)					
24-Hour > 35 $\mu g/m^3$ (F)	1/92	1/95	2/113	1/110	1/100
Max. 24-Hr. Conc. ($\mu g/m^3$)	44.0	43.3	50.5	54.4	40.7

xx = number of monitoring days not reported on CARB website

Source:
Gault Street Air Monitoring Station, Reseda, SCAQMD: Ozone, CO, PM-2.5, NO_2
Simi Valley VCAPCD: PM-10

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification sets a later attainment deadline, but also requires the air basin to adopt even more stringent emissions controls.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2008[a]	2010[b]	2015[b]	2020[b]
NOx	917	836	667	561
ROG	632	596	545	525
CO	3,344	3,039	2,556	2,281
PM-10	308	314	328	340
PM-2.5	110	110	111	113

[a]2008 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, California Emissions Projection Analysis Model, 2009

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result.

The currently available AQMP was adopted in June 2007, after extensive public review. The 2007 AQMP recognizes the interaction between photochemical processes that create both ozone and the smallest airborne particulates (PM-2.5). The 2007 AQMP is therefore a coordinated plan for both pollutants. Key emissions reductions strategies in the updated air quality plan include:

- Ultra-low emissions standards for both new and existing sources (including on-and-off-road heavy trucks, industrial and service equipment, locomotives, ships and aircraft).
- Accelerated fleet turnover to achieve benefits of cleaner engines.
- Reformulation of consumer products.
- Modernization and technology advancements from stationary sources (refineries, power plants, etc.)

Projects such as the proposed Calabasas Blue project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing general development. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned

growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

c. Results in a cumulatively considerable net increase of any criteria pollutants 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. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Except for the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust generated by heavy construction equipment, there are no secondary impact indicators associated with project construction and maximum occupancy. For PM-2.5 exhaust emissions, recently adopted policies require the gradual conversion of delivery fleets to diesel alternatives, or the use of "clean" diesel if their emissions are demonstrated to be as low as those from alternative fuels. Because health risks from toxic air contaminants (TAC's) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief portion of a project lifetime, and only in dilute quantity.

SENSITIVE RECEPTORS

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors. The nearest sensitive receptors to the Calabasas Blue project are the Stone Creek homes approximately 185 feet to the west, across Las Virgenes Road and the Colony of Calabasas homes approximately 420 feet to the north. The students at the New Village Leadership Academy would similarly be considered sensitive receptors.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new homes and infrastructure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM-10 emissions during site grading and other disturbance are shown in the CalEEMod.2011.1.1 computer model to be about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "PM-2.5") was adopted in 1997. A limited amount of construction activity particulate matter is in the PM-2.5 range. PM-2.5 emissions are estimated to comprise 10-20 percent of PM-10.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out on parked cars, outdoor furniture or landscape foliage rather than any adverse health hazard. The deposition distance of most soiling nuisance particulates is less than 100 feet from the source (EPA, 1995) under normal wind conditions. There are no sensitive receptors within 100 feet from the project construction site perimeter.

Exhaust emissions will result from on and off-site heavy equipment. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Initial clearing and grading activities will shift towards construction and paving, etc. Grading is expected to require 118,400 cubic yards (CY) of export. At 20 CY for a tractor and double trailer earth hauler, it will require 5,920 loads (11,840 truck trips) to move such a volume of dirt.

The CalEEMod was developed by the SCAQMD and provides a model to calculate both construction emissions and operational emissions from a residential land use project. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions. The CalEEMod 2011.1.1 computer model was used to calculate emissions from the indicated default prototype construction equipment fleet and schedule anticipated by CalEEMod. The equipment fleet used in the analysis shown below is CalEEMod's default fleet for a residential land use consisting of 81 residential units.

CalEEMod Equipment Fleet

Clearing 10 Days	4 Tractor/Loader/Backhoes
	3 Dozers
Grading (40 days)	1 Excavator
	1 Dozer
	1 Grader
	3 Tractor/Loader/Backhoes
Construction (230 days)	1 Crane
	1 Forklift
	1 Generator Set
	3 Tractor/Loader/Backhoes
	1 Welder
Paving (20 days)	2 Pavers
	2 Paving equipment
	2 Rollers

Utilizing this indicated equipment fleet the following worst case daily emissions are calculated by CalEEMod and are listed below.

Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	**ROG**	**NOx**	**CO**	**SO_2**	**PM-10**	**PM-2.5**	**CO_2 (e)**
2013							
Unmitigated	11.0	88.3	63.9	0.1	45.1	13.9	9,545.6
Mitigated	8.5	66.5	52.5	0.1	40.2	5.1	9,545.6
2014							
Unmitigated	33.8	33.7	27.5	0.1	2.9	2.7	4,907.1
Mitigated	33.8	33.7	27.5	0.1	2.9	2.7	4,907.1
SCAQMD Thresholds	75	100	550	150	150	55	-

Source: CalEEMod.2011.1.1 output in appendix, includes on-road materials delivery as well as demolition haul and construction crew commuting

A substantial portion of the heaviest daily construction emissions will result from on-road hauling of excess soils. An average of almost 300 loads of material would need to be hauled during an assumed 40 day (2 work-month) grading schedule. The Calabasas Landfill is the assumed destination for this material. Because of its proximity, the one-way haul distance is only two (2) miles. However, the landfill changes the same tipping fee for inert soil as for refuse. A multi-million dollar disposal cost could prompt grading contractors to find alternate disposal sites with longer hauling distances. If longer hauling distances are selected, the grading period may need to be extended to maintain peak daily construction activity emissions at less than significant levels.

With the currently assumed disposal scenario (Calabasas Landfill) and with use of best management practices for dust control, peak daily construction activity emissions will be below SCAQMD CEQA thresholds. Required dust mitigation measures are provided in the appendix. Mitigation applied to the CalEEMod was as follows:

- Water exposed surfaces 3 times daily
- Use dozers with diesel particulate filters (DPF)

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. The majority of diesel exhaust would occur during the grading phase, which would be a period of several months. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a period of months due to the lack of chronic health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute measurably to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant concentration data is currently published for 1, 2 and 5 acre sites for varying distances. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following tables should be used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Maximum Daily Disturbed Acreage

Equipment Type	Acres/8-hr-day
Tractor	0.5
Graders	0.5
Rubber Tired Dozers	0.5
Scrapers	1

Based on this table, the proposed will result in a maximum of 2.5 acres disturbed during peak construction grading activity (1 dozer x 0.5+ 1 grader x 0.5 + 3 tractors x 0.5 = 2.5 acres disturbed).

The closest sensitive uses to the north are 420 feet from the northernmost Calabasas Blue perimeter and the closest residences to the west, across Las Virgenes, are approximately 185 feet to the closest Calabasas Blue perimeter. LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distance such that a conservative receptor distance of 50 meters was used for this project. Per LST guidance, only on-site construction activity is considered in the LST analysis. On-site construction emissions are provided in the CalEEMod output files and do not include sources such as on-road haul, worker commuting or vendor delivery emissions. Therefore, the following thresholds and emissions are determined (pounds per day).

LST and Project Emissions

	CO	NOx	PM-10	PM-2.5
LST 2.5 acres, 50 meters	1,009	143	20	7
Max On-Site Emissions	33	40	8	5

CalEEMod Output in Appendix (maximum mitigated emissions from on-site construction)

LSTs were compared to the maximum daily construction activities. As seen above, on-site emissions are below the LST for construction. LST impacts are less-than-significant.

OPERATIONAL IMPACTS

The proposed residential project will generate 471 average daily trips (ADT). Residential uses also generate small quantities of area source emissions derived from organic compounds from cleaning products, landscape maintenance, etc. The contribution of these sources is small and incorporated into the analysis below.

Operational emissions for proposed residential were calculated using CalEEMod 2011.1.1. for an assumed project build-out year of 2014 as follows:

Proposed Residential Daily Operational Impacts

	Operational Emissions (lbs/day)						
Source	**ROG**	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Area	10.6	0.5	33.7	0.1	4.3	4.3	2,100.4
Energy	0.1	0.5	0.2	0.0	0.0	0.0	647.2
Mobile	2.4	5.7	24.2	0.0	4.7	0.3	4,173.3
Total	**13.1**	**6.7**	**58.1**	**0.1**	**9.0**	**4.6**	**6,290.9**
SCAQMD Threshold	55	55	550	150	150	55	-
Exceeds Threshold?	No	No	No	No	No	No	NA

Source: CalEEMod Output in Appendix

Project development will not cause the SCAQMD's recommended threshold levels to be exceeded. Operational emissions will be at a less-than-significant level.

MICROSCALE IMPACT ANALYSIS

There is a direct relationship between traffic/circulation congestion and CO impacts since exhaust fumes from vehicular traffic are the primary source of CO. CO is a localized gas that dissipates very quickly under normal meteorological conditions. Therefore, CO concentrations decrease substantially as distance from the source (intersection) increases. The highest CO concentrations are typically found in areas directly adjacent to congested roadway intersections. These areas of vehicle congestion have the potential to create pockets of elevated levels of CO which are called "hot spots ".

Micro-scale air quality impacts have traditionally been analyzed in environmental documents when the air basin was a non-attainment area for carbon monoxide (CO). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots", i.e., locations where emission concentrations expose individuals to elevated risks of adverse health effects, anywhere in SCAB.

To verify this conclusion, a CO screening analysis was performed at all intersections within the project area for which the project traffic report provided data. One-hour CO concentrations were calculated on the sidewalks adjacent to these intersections. The significance of localized project impacts depends on whether the project would cause substantial concentrations of CO. A project is considered to have significant impacts if project-related mobile-source emissions result in an exceedance of the California one-hour and eight-hour CO standards, which are:

- 1-hour = 20 ppm
- 8-hour = 9 ppm

Calculations were made for existing traffic and future time frames for the morning and evening peak hours. Combining future project build-out traffic with existing conditions represents a worst-case analysis. The results of the microscale impact analysis are shown below.

One-Hour CO Concentrations (ppm) *

Intersections	Existing	Existing + Project	Future + Proj
AM Peak Hours			
Las Virgenes Rd/ US 101 NB Ramps	3.7	3.7	3.8
Las Virgenes Rd/ US 101 SB Ramps	4.2	4.2	4.2
Las Virgenes Rd/ Agoura Rd	4.1	4.1	4.1
Las Virgenes Rd/ Oak Glen-Proj Dwy	3.8	3.8	3.8
Las Virgenes Rd/ Lost Hills Rd	3.6	3.6	3.6
PM Peak Hours			
Las Virgenes Rd/ US 101 NB Ramps	3.9	3.9	3.9
Las Virgenes Rd/ US 101 SB Ramps	4.2	4.2	4.2
Las Virgenes Rd/ Agoura Rd	3.8	3.8	3.8
Las Virgenes Rd/ Oak Glen-Proj Dwy	3.6	3.6	3.6
Las Virgenes Rd/ Lost Hills Rd	3.7	3.9	3.9

*including 3.0 ppm background concentration

8-Hour CO Concentrations (ppm) *

Intersections	Existing	Existing + Project	Future + Proj
Las Virgenes Rd/ US 101 NB Ramps	3.1	3.1	3.1
Las Virgenes Rd/ US 101 SB Ramps	3.3	3.3	3.3
Las Virgenes Rd/ Agoura Rd	3.2	3.2	3.2
Las Virgenes Rd/ Oak Glen-Proj Dwy	3.0	3.0	3.0
Las Virgenes Rd/ Lost Hills Rd	3.0	3.1	3.1

*including 2.6 ppm background concentration

The existing peak one-hour local CO background level in 2010 in the project area vicinity was 3.0 ppm. With project implementation, in the existing time frame, inclusive of the local concentration, maximum one-hour concentration is estimated to be 4.2 ppm, which is well below the one-hour standard of 20 ppm. The maximum ambient 8-hour CO concentration in 2010 was 2.6 ppm. Maximum with project 8-hour CO concentration of 3.3 ppm (inclusive of the background concentration) were compared to the 9 ppm significance threshold. Micro-scale air quality impacts are not significant.

ODORS

The LVMWD office headquarters are located adjacent to the project site. However, water treatment does not occur at this site and therefore there are no associated odors. The nearest facility with a potential for odor generation is the LVMWD solids composting facility located 0.9 miles south of the project site. This facility is an in-vessel composting facility with air emissions controlled and treated before release. The facility is considered state-of-the-art and has won numerous awards. The public is periodically invited into the facility to pick up bags of finished compost (at no cost to local residents) for use in their yards or gardens. Given the distance separation between the project site and the composting facility, and the degree of odor control practices, odor impact potential is considered negligible.

CONSTRUCTION EMISSIONS MITIGATION

As identified above, construction activities are not anticipated to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin. The AQMD staff recommends that the lead agency minimize or eliminate significant adverse air quality impacts by adding the mitigation measures provided below:

- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow,
- Provide dedicated turn lanes for movement of construction trucks and equipment on-and-off site,
- Reroute construction trucks away from congested streets or sensitive receptor areas,
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM-10 generation,
- Ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers specifications,
- Use coatings and solvents with a VOC content lower than that required under AQMD Rule 1113,
- Construct of build with materials that do not require painting when feasible,
- Use pre-painted construction materials,
- Give preference to contractors who use 2010 and newer diesel haul trucks (e.g. material delivery trucks and soil import/export),
- During project construction all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 2 emissions standards, or higher.
- Establish a preference for contractors using DPF, particularly on dozers.

In addition, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin for PM-10/PM-2.5. Recommended mitigation includes:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Stabilize previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.

- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect

sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

Greenhouse Gas Emissions Significance Thresholds

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO_2e for residential projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis.

Construction Activity GHG Emissions

The build-out timetable for this project is estimated by CalEEMod to be approximately 14 months. During project construction, the CalEEMod computer model predicts that the constructions activities will generate the annual CO_2(e) emissions identified in Table 13.

Table 13

Construction Emissions (Metric Tons CO_2(e))

Year 2013	672
Year 2014	73
Overall Total	**745**

*CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level from 745 metric tons CO_2(e) is 25 metric tons per year. GHG impacts from construction are considered less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO_2(e) emissions are summarized in the CalEEMod output files found in the appendix of this report.

The total operational and annualized construction emissions are identified below.

Proposed Residential Operational Emissions

Consumption Source	**MT CO_2(e) tons/year**
Area Sources	61
Energy Utilization	210
Mobile Source	656
Solid Waste Generation	17
Water Consumption	36
Annualized Construction	25
Total	**1,005**

Total project GHG emissions are less than the proposed significance threshold of 3,500 MT. GHG emissions for the proposed project are not considered significant and are less than significance thresholds. Therefore, no mitigation measures are required.

APPENDIX

CalEEMod2011.1.1 Computer Model Output

- **Daily Emissions (lbs per day)**
- **Annual Emissions (tons per year)**

Calabasas Blue

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Condo/Townhouse	81	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	9	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Grading 40 days

Grading - 118400 CY export

Vehicle Trips - Trip length from project traffic report.

Construction Off-road Equipment Mitigation -

Trips and VMT - 2 mile one way trip

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					
2013	11.01	88.28	63.88	0.09	41.36	3.94	45.11	9.93	3.94	13.88	0.00	9,526.67	0.00	0.90	0.00	9,545.60
2014	33.82	33.69	27.46	0.05	0.84	2.74	2.94	0.01	2.74	2.74	0.00	4,897.05	0.00	0.48	0.00	4,907.07
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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					
2013	8.45	66.47	52.52	0.09	37.32	2.85	40.17	3.88	2.77	5.10	0.00	9,526.67	0.00	0.90	0.00	9,545.60
2014	33.82	33.69	27.46	0.05	0.84	2.74	2.94	0.01	2.74	2.74	0.00	4,897.05	0.00	0.48	0.00	4,907.07
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	10.62	0.48	33.74	0.07		0.00	4.32		0.00	4.32	571.60	1,470.18		2.28	0.03	2,100.41
Energy	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
Mobile	2.40	5.68	24.17	0.04	4.42	0.26	4.68	0.06	0.22	0.28		4,169.98		0.16		4,173.31
Total	**13.08**	**6.66**	**58.12**	**0.11**	**4.42**	**0.26**	**9.04**	**0.06**	**0.22**	**4.64**	**571.60**	**6,283.45**		**2.45**	**0.04**	**6,920.93**

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	10.62	0.48	33.74	0.07		0.00	4.32		0.00	4.32	571.60	1,470.18		2.28	0.03	2,100.41
Energy	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
Mobile	2.40	5.68	24.17	0.04	4.42	0.26	4.68	0.06	0.22	0.28		4,169.98		0.16		4,173.31
Total	**13.08**	**6.66**	**58.12**	**0.11**	**4.42**	**0.26**	**9.04**	**0.06**	**0.22**	**4.64**	**571.60**	**6,283.45**		**2.45**	**0.04**	**6,920.93**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Use Oxidation Catalyst for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2013

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					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	9.90	79.99	45.35	0.07		3.93	3.93		3.93	3.93		7,997.69		0.89		8,016.38
Total	**9.90**	**79.99**	**45.35**	**0.07**	**18.07**	**3.93**	**22.00**	**9.93**	**3.93**	**13.86**		**7,997.69**		**0.89**		**8,016.38**

3.2 Site Preparation - 2013

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.16	0.00	0.23	0.01	0.24	0.00	0.01	0.01		193.08		0.01		193.31
Total	**0.10**	**0.10**	**1.16**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**193.08**		**0.01**		**193.31**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.05	0.00	7.05	3.87	0.00	3.87						0.00
Off-Road	2.22	14.58	11.27	0.07		1.22	1.22		1.22	1.22	0.00	7,997.69		0.89		8,016.38
Total	**2.22**	**14.58**	**11.27**	**0.07**	**7.05**	**1.22**	**8.27**	**3.87**	**1.22**	**5.09**	**0.00**	**7,997.69**		**0.89**		**8,016.38**

3.2 Site Preparation - 2013

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.16	0.00	0.23	0.01	0.24	0.00	0.01	0.01		193.08		0.01		193.31
Total	**0.10**	**0.10**	**1.16**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**193.08**		**0.01**		**193.31**

3.3 Grading - 2013

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					6.62	0.00	6.62	3.36	0.00	3.36						0.00
Off-Road	6.36	48.81	31.00	0.05		2.73	2.73		2.73	2.73		5,240.06		0.57		5,252.04
Total	**6.36**	**48.81**	**31.00**	**0.05**	**6.62**	**2.73**	**9.35**	**3.36**	**2.73**	**6.09**		**5,240.06**		**0.57**		**5,252.04**

3.3 Grading - 2013

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	4.57	39.38	31.92	0.04	34.54	1.02	35.56	0.03	0.94	0.97		4,125.71		0.23		4,130.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.08	0.97	0.00	0.20	0.01	0.20	0.00	0.01	0.01		160.90		0.01		161.09
Total	**4.65**	**39.46**	**32.89**	**0.04**	**34.74**	**1.03**	**35.76**	**0.03**	**0.95**	**0.98**		**4,286.61**		**0.24**		**4,291.63**

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					2.58	0.00	2.58	1.31	0.00	1.31						0.00
Off-Road	3.80	27.01	19.64	0.05		1.83	1.83		1.83	1.83	0.00	5,240.06		0.57		5,252.04
Total	**3.80**	**27.01**	**19.64**	**0.05**	**2.58**	**1.83**	**4.41**	**1.31**	**1.83**	**3.14**	**0.00**	**5,240.06**		**0.57**		**5,252.04**

3.3 Grading - 2013

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	4.57	39.38	31.92	0.04	34.54	1.02	35.56	0.03	0.94	0.97		4,125.71		0.23		4,130.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.08	0.97	0.00	0.20	0.01	0.20	0.00	0.01	0.01		160.90		0.01		161.09
Total	**4.65**	**39.46**	**32.89**	**0.04**	**34.74**	**1.03**	**35.76**	**0.03**	**0.95**	**0.98**		**4,286.61**		**0.24**		**4,291.63**

3.4 Building Construction - 2013

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	5.17	34.66	23.45	0.04		2.28	2.28		2.28	2.28		4,040.62		0.46		4,050.31
Total	**5.17**	**34.66**	**23.45**	**0.04**		**2.28**	**2.28**		**2.28**	**2.28**		**4,040.62**		**0.46**		**4,050.31**

3.4 Building Construction - 2013

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.47	0.89	0.00	0.08	0.05	0.13	0.00	0.05	0.05		244.51		0.01		244.65
Worker	0.32	0.32	3.74	0.01	0.76	0.03	0.78	0.01	0.02	0.03		622.13		0.04		622.89
Total	**0.45**	**1.79**	**4.63**	**0.01**	**0.84**	**0.08**	**0.91**	**0.01**	**0.07**	**0.08**		**866.64**		**0.05**		**867.54**

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	5.17	34.66	23.45	0.04		2.28	2.28		2.28	2.28	0.00	4,040.62		0.46		4,050.31
Total	**5.17**	**34.66**	**23.45**	**0.04**		**2.28**	**2.28**		**2.28**	**2.28**	**0.00**	**4,040.62**		**0.46**		**4,050.31**

3.4 Building Construction - 2013

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.47	0.89	0.00	0.08	0.05	0.13	0.00	0.05	0.05		244.51		0.01		244.65
Worker	0.32	0.32	3.74	0.01	0.76	0.03	0.78	0.01	0.02	0.03		622.13		0.04		622.89
Total	**0.45**	**1.79**	**4.63**	**0.01**	**0.84**	**0.08**	**0.91**	**0.01**	**0.07**	**0.08**		**866.64**		**0.05**		**867.54**

3.4 Building Construction - 2014

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	4.74	32.06	23.20	0.04		2.02	2.02		2.02	2.02		4,040.61		0.42		4,049.51
Total	**4.74**	**32.06**	**23.20**	**0.04**		**2.02**	**2.02**		**2.02**	**2.02**		**4,040.61**		**0.42**		**4,049.51**

3.4 Building Construction - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.34	0.81	0.00	0.08	0.05	0.13	0.00	0.04	0.04		245.11		0.01		245.23
Worker	0.30	0.29	3.45	0.01	0.76	0.03	0.78	0.01	0.02	0.03		611.33		0.03		612.04
Total	**0.42**	**1.63**	**4.26**	**0.01**	**0.84**	**0.08**	**0.91**	**0.01**	**0.06**	**0.07**		**856.44**		**0.04**		**857.27**

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	4.74	32.06	23.20	0.04		2.02	2.02		2.02	2.02	0.00	4,040.61		0.42		4,049.51
Total	**4.74**	**32.06**	**23.20**	**0.04**		**2.02**	**2.02**		**2.02**	**2.02**	**0.00**	**4,040.61**		**0.42**		**4,049.51**

3.4 Building Construction - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.34	0.81	0.00	0.08	0.05	0.13	0.00	0.04	0.04		245.11		0.01		245.23
Worker	0.30	0.29	3.45	0.01	0.76	0.03	0.78	0.01	0.02	0.03		611.33		0.03		612.04
Total	**0.42**	**1.63**	**4.26**	**0.01**	**0.84**	**0.08**	**0.91**	**0.01**	**0.06**	**0.07**		**856.44**		**0.04**		**857.27**

3.5 Paving - 2014

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	5.20	32.09	20.70	0.03		2.74	2.74		2.74	2.74		2,917.65		0.47		2,927.48
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**5.20**	**32.09**	**20.70**	**0.03**		**2.74**	**2.74**		**2.74**	**2.74**		**2,917.65**		**0.47**		**2,927.48**

3.5 Paving - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.08	0.89	0.00	0.20	0.01	0.20	0.00	0.01	0.01		158.10		0.01		158.29
Total	**0.08**	**0.08**	**0.89**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**158.10**		**0.01**		**158.29**

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	5.20	32.09	20.70	0.03		2.74	2.74		2.74	2.74	0.00	2,917.65		0.47		2,927.48
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**5.20**	**32.09**	**20.70**	**0.03**		**2.74**	**2.74**		**2.74**	**2.74**	**0.00**	**2,917.65**		**0.47**		**2,927.48**

3.5 Paving - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.08	0.89	0.00	0.20	0.01	0.20	0.00	0.01	0.01		158.10		0.01		158.29
Total	**0.08**	**0.08**	**0.89**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**158.10**		**0.01**		**158.29**

3.6 Architectural Coating - 2014

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	33.32					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**33.77**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

3.6 Architectural Coating - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.06	0.06	0.71	0.00	0.16	0.01	0.16	0.00	0.00	0.01		126.48		0.01		126.63
Total	**0.06**	**0.06**	**0.71**	**0.00**	**0.16**	**0.01**	**0.16**	**0.00**	**0.00**	**0.01**		**126.48**		**0.01**		**126.63**

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	33.32					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24	0.00	281.19		0.04		282.03
Total	**33.77**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**	**0.00**	**281.19**		**0.04**		**282.03**

3.6 Architectural Coating - 2014

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.06	0.06	0.71	0.00	0.16	0.01	0.16	0.00	0.00	0.01		126.48		0.01		126.63
Total	**0.06**	**0.06**	**0.71**	**0.00**	**0.16**	**0.01**	**0.16**	**0.00**	**0.00**	**0.01**		**126.48**		**0.01**		**126.63**

4.0 Mobile Detail

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	2.40	5.68	24.17	0.04	4.42	0.26	4.68	0.06	0.22	0.28		4,169.98		0.16		4,173.31
Unmitigated	2.40	5.68	24.17	0.04	4.42	0.26	4.68	0.06	0.22	0.28		4,169.98		0.16		4,173.31
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	470.61	470.61	470.61	1,336,589	1,336,589
Total	470.61	470.61	470.61	1,336,589	1,336,589

4.3 Trip Type Information

	Miles			Trip %		
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
Condo/Townhouse	10.80	7.30	7.50	40.20	19.20	40.60

5.0 Energy Detail

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	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
NaturalGas Unmitigated	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	lb/day										lb/day					
Condo/Townhouse	5467.97	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
Total		**0.06**	**0.50**	**0.21**	**0.00**		**0.00**	**0.04**		**0.00**	**0.04**		**643.29**		**0.01**	**0.01**	**647.21**

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	lb/day										lb/day					
Condo/Townhouse	5.46797	0.06	0.50	0.21	0.00		0.00	0.04		0.00	0.04		643.29		0.01	0.01	647.21
Total		**0.06**	**0.50**	**0.21**	**0.00**		**0.00**	**0.04**		**0.00**	**0.04**		**643.29**		**0.01**	**0.01**	**647.21**

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	10.62	0.48	33.74	0.07		0.00	4.32		0.00	4.32	571.60	1,470.18		2.28	0.03	2,100.41
Unmitigated	10.62	0.48	33.74	0.07		0.00	4.32		0.00	4.32	571.60	1,470.18		2.28	0.03	2,100.41
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	0.17					0.00	0.00		0.00	0.00						0.00
Consumer Products	1.60					0.00	0.00		0.00	0.00						0.00
Hearth	8.62	0.40	26.81	0.06		0.00	4.28		0.00	4.28	571.60	1,458.00		2.26	0.03	2,087.96
Landscaping	0.23	0.08	6.93	0.00		0.00	0.04		0.00	0.04		12.18		0.01		12.45
Total	**10.62**	**0.48**	**33.74**	**0.06**		**0.00**	**4.32**		**0.00**	**4.32**	**571.60**	**1,470.18**		**2.27**	**0.03**	**2,100.41**

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	0.17					0.00	0.00		0.00	0.00						0.00
Consumer Products	1.60					0.00	0.00		0.00	0.00						0.00
Hearth	8.62	0.40	26.81	0.06		0.00	4.28		0.00	4.28	571.60	1,458.00		2.26	0.03	2,087.96
Landscaping	0.23	0.08	6.93	0.00		0.00	0.04		0.00	0.04		12.18		0.01		12.45
Total	**10.62**	**0.48**	**33.74**	**0.06**		**0.00**	**4.32**		**0.00**	**4.32**	**571.60**	**1,470.18**		**2.27**	**0.03**	**2,100.41**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Calabasas Blue

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Condo/Townhouse	81	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	9	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Grading 40 days

Grading - 118400 CY export

Vehicle Trips - Trip length from project traffic report.

Construction Off-road Equipment Mitigation -

Trips and VMT - 2 mile one way trip

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					
2013	0.86	5.96	4.54	0.01	0.93	0.34	1.27	0.12	0.34	0.46	0.00	670.22	670.22	0.07	0.00	671.62
2014	0.42	0.67	0.50	0.00	0.01	0.05	0.06	0.00	0.05	0.05	0.00	73.14	73.14	0.01	0.00	73.32
Total	**1.28**	**6.63**	**5.04**	**0.01**	**0.94**	**0.39**	**1.33**	**0.12**	**0.39**	**0.51**	**0.00**	**743.36**	**743.36**	**0.08**	**0.00**	**744.94**

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					
2013	0.86	5.96	4.54	0.01	0.79	0.34	1.13	0.05	0.34	0.39	0.00	670.22	670.22	0.07	0.00	671.62
2014	0.42	0.67	0.50	0.00	0.01	0.05	0.06	0.00	0.05	0.05	0.00	73.14	73.14	0.01	0.00	73.32
Total	**1.28**	**6.63**	**5.04**	**0.01**	**0.80**	**0.39**	**1.19**	**0.05**	**0.39**	**0.44**	**0.00**	**743.36**	**743.36**	**0.08**	**0.00**	**744.94**

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	0.63	0.02	1.77	0.00		0.00	0.09		0.00	0.09	8.60	51.62	60.22	0.03	0.00	61.19
Energy	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	208.86	208.86	0.01	0.00	210.15
Mobile	0.43	1.05	4.35	0.01	0.73	0.05	0.77	0.01	0.04	0.05	0.00	655.22	655.22	0.03	0.00	655.78
Waste						0.00	0.00		0.00	0.00	7.56	0.00	7.56	0.45	0.00	16.95
Water						0.00	0.00		0.00	0.00	0.00	30.80	30.80	0.16	0.00	35.61
Total	**1.07**	**1.16**	**6.16**	**0.01**	**0.73**	**0.05**	**0.87**	**0.01**	**0.04**	**0.15**	**16.16**	**946.50**	**962.66**	**0.68**	**0.00**	**979.68**

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	0.63	0.02	1.77	0.00		0.00	0.09		0.00	0.09	8.60	51.62	60.22	0.03	0.00	61.19
Energy	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	208.86	208.86	0.01	0.00	210.15
Mobile	0.43	1.05	4.35	0.01	0.73	0.05	0.77	0.01	0.04	0.05	0.00	655.22	655.22	0.03	0.00	655.78
Waste						0.00	0.00		0.00	0.00	7.56	0.00	7.56	0.45	0.00	16.95
Water						0.00	0.00		0.00	0.00	0.00	30.80	30.80	0.16	0.00	35.61
Total	**1.07**	**1.16**	**6.16**	**0.01**	**0.73**	**0.05**	**0.87**	**0.01**	**0.04**	**0.15**	**16.16**	**946.50**	**962.66**	**0.68**	**0.00**	**979.68**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2013

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					0.09	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.40	0.23	0.00		0.02	0.02		0.02	0.02	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.05**	**0.40**	**0.23**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.82	0.00	0.00	0.83
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.82**	**0.82**	**0.00**	**0.00**	**0.83**

3.2 Site Preparation - 2013

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					0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.40	0.23	0.00		0.02	0.02		0.02	0.02	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.05**	**0.40**	**0.23**	**0.00**	**0.04**	**0.02**	**0.06**	**0.02**	**0.02**	**0.04**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.82	0.00	0.00	0.83
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.82**	**0.82**	**0.00**	**0.00**	**0.83**

3.3 Grading - 2013

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					0.13	0.00	0.13	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.13	0.98	0.62	0.00		0.05	0.05		0.05	0.05	0.00	95.05	95.05	0.01	0.00	95.27
Total	**0.13**	**0.98**	**0.62**	**0.00**	**0.13**	**0.05**	**0.18**	**0.07**	**0.05**	**0.12**	**0.00**	**95.05**	**95.05**	**0.01**	**0.00**	**95.27**

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	0.10	0.78	0.75	0.00	0.62	0.02	0.64	0.00	0.02	0.02	0.00	73.73	73.73	0.00	0.00	73.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	2.75	0.00	0.00	2.75
Total	**0.10**	**0.78**	**0.77**	**0.00**	**0.62**	**0.02**	**0.64**	**0.00**	**0.02**	**0.02**	**0.00**	**76.48**	**76.48**	**0.00**	**0.00**	**76.57**

3.3 Grading - 2013

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					0.05	0.00	0.05	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.13	0.98	0.62	0.00		0.05	0.05		0.05	0.05	0.00	95.05	95.05	0.01	0.00	95.27
Total	**0.13**	**0.98**	**0.62**	**0.00**	**0.05**	**0.05**	**0.10**	**0.03**	**0.05**	**0.08**	**0.00**	**95.05**	**95.05**	**0.01**	**0.00**	**95.27**

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	0.10	0.78	0.75	0.00	0.62	0.02	0.64	0.00	0.02	0.02	0.00	73.73	73.73	0.00	0.00	73.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	2.75	0.00	0.00	2.75
Total	**0.10**	**0.78**	**0.77**	**0.00**	**0.62**	**0.02**	**0.64**	**0.00**	**0.02**	**0.02**	**0.00**	**76.48**	**76.48**	**0.00**	**0.00**	**76.57**

3.4 Building Construction - 2013

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	0.54	3.62	2.45	0.00		0.24	0.24		0.24	0.24	0.00	382.95	382.95	0.04	0.00	383.87
Total	**0.54**	**3.62**	**2.45**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**	**0.00**	**382.95**	**382.95**	**0.04**	**0.00**	**383.87**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	23.11	23.11	0.00	0.00	23.12
Worker	0.03	0.04	0.37	0.00	0.07	0.00	0.07	0.00	0.00	0.00	0.00	55.54	55.54	0.00	0.00	55.61
Total	**0.04**	**0.19**	**0.47**	**0.00**	**0.08**	**0.01**	**0.08**	**0.00**	**0.00**	**0.01**	**0.00**	**78.65**	**78.65**	**0.00**	**0.00**	**78.73**

3.4 Building Construction - 2013

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	0.54	3.62	2.45	0.00		0.24	0.24		0.24	0.24	0.00	382.95	382.95	0.04	0.00	383.87
Total	**0.54**	**3.62**	**2.45**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**	**0.00**	**382.95**	**382.95**	**0.04**	**0.00**	**383.87**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	23.11	23.11	0.00	0.00	23.12
Worker	0.03	0.04	0.37	0.00	0.07	0.00	0.07	0.00	0.00	0.00	0.00	55.54	55.54	0.00	0.00	55.61
Total	**0.04**	**0.19**	**0.47**	**0.00**	**0.08**	**0.01**	**0.08**	**0.00**	**0.00**	**0.01**	**0.00**	**78.65**	**78.65**	**0.00**	**0.00**	**78.73**

3.4 Building Construction - 2014

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	0.04	0.30	0.22	0.00		0.02	0.02		0.02	0.02	0.00	34.81	34.81	0.00	0.00	34.89
Total	**0.04**	**0.30**	**0.22**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**34.81**	**34.81**	**0.00**	**0.00**	**34.89**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	2.11	0.00	0.00	2.11
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.96	4.96	0.00	0.00	4.97
Total	**0.00**	**0.01**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**7.07**	**7.07**	**0.00**	**0.00**	**7.08**

3.4 Building Construction - 2014

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	0.04	0.30	0.22	0.00		0.02	0.02		0.02	0.02	0.00	34.81	34.81	0.00	0.00	34.89
Total	**0.04**	**0.30**	**0.22**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**34.81**	**34.81**	**0.00**	**0.00**	**34.89**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	2.11	0.00	0.00	2.11
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.96	4.96	0.00	0.00	4.97
Total	**0.00**	**0.01**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**7.07**	**7.07**	**0.00**	**0.00**	**7.08**

3.5 Paving - 2014

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	0.05	0.32	0.21	0.00		0.03	0.03		0.03	0.03	0.00	26.46	26.46	0.00	0.00	26.55
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.32**	**0.21**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.55**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	1.35	0.00	0.00	1.35
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

3.5 Paving - 2014

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	0.05	0.32	0.21	0.00		0.03	0.03		0.03	0.03	0.00	26.46	26.46	0.00	0.00	26.55
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.32**	**0.21**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.55**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	1.35	0.00	0.00	1.35
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

3.6 Architectural Coating - 2014

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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.42	2.42	0.00	0.00	2.43
Total	**0.32**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.42**	**2.42**	**0.00**	**0.00**	**2.43**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.03
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.03**	**1.03**	**0.00**	**0.00**	**1.03**

3.6 Architectural Coating - 2014

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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.42	2.42	0.00	0.00	2.43
Total	**0.32**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.42**	**2.42**	**0.00**	**0.00**	**2.43**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.03
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.03**	**1.03**	**0.00**	**0.00**	**1.03**

4.0 Mobile Detail

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	0.43	1.05	4.35	0.01	0.73	0.05	0.77	0.01	0.04	0.05	0.00	655.22	655.22	0.03	0.00	655.78
Unmitigated	0.43	1.05	4.35	0.01	0.73	0.05	0.77	0.01	0.04	0.05	0.00	655.22	655.22	0.03	0.00	655.78
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	470.61	470.61	470.61	1,336,589	1,336,589
Total	470.61	470.61	470.61	1,336,589	1,336,589

4.3 Trip Type Information

	Miles			Trip %		
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
Condo/Townhouse	10.80	7.30	7.50	40.20	19.20	40.60

5.0 Energy Detail

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						0.00	0.00		0.00	0.00	0.00	102.36	102.36	0.00	0.00	103.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	102.36	102.36	0.00	0.00	103.00
NaturalGas Mitigated	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	106.50	106.50	0.00	0.00	107.15
NaturalGas Unmitigated	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	106.50	106.50	0.00	0.00	107.15
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	tons/yr										MT/yr					
Condo/Townhouse	1.99581e+006	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	106.50	106.50	0.00	0.00	107.15
Total		**0.01**	**0.09**	**0.04**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**106.50**	**106.50**	**0.00**	**0.00**	**107.15**

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	tons/yr										MT/yr					
Condo/Townhouse	1.99581e+006	0.01	0.09	0.04	0.00		0.00	0.01		0.00	0.01	0.00	106.50	106.50	0.00	0.00	107.15
Total		**0.01**	**0.09**	**0.04**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**106.50**	**106.50**	**0.00**	**0.00**	**107.15**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Condo/Townhouse	351911					102.36	0.00	0.00	103.00
Total						**102.36**	**0.00**	**0.00**	**103.00**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Condo/Townhouse	351911					102.36	0.00	0.00	103.00
Total						**102.36**	**0.00**	**0.00**	**103.00**

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	0.63	0.02	1.77	0.00		0.00	0.09		0.00	0.09	8.60	51.62	60.22	0.03	0.00	61.19
Unmitigated	0.63	0.02	1.77	0.00		0.00	0.09		0.00	0.09	8.60	51.62	60.22	0.03	0.00	61.19
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.29					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.27	0.01	0.51	0.00		0.00	0.08		0.00	0.08	8.60	49.60	58.20	0.03	0.00	59.13
Landscaping	0.04	0.01	1.26	0.00		0.00	0.01		0.00	0.01	0.00	2.01	2.01	0.00	0.00	2.06
Total	**0.63**	**0.02**	**1.77**	**0.00**		**0.00**	**0.09**		**0.00**	**0.09**	**8.60**	**51.61**	**60.21**	**0.03**	**0.00**	**61.19**

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	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.29					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.27	0.01	0.51	0.00		0.00	0.08		0.00	0.08	8.60	49.60	58.20	0.03	0.00	59.13
Landscaping	0.04	0.01	1.26	0.00		0.00	0.01		0.00	0.01	0.00	2.01	2.01	0.00	0.00	2.06
Total	**0.63**	**0.02**	**1.77**	**0.00**		**0.00**	**0.09**		**0.00**	**0.09**	**8.60**	**51.61**	**60.21**	**0.03**	**0.00**	**61.19**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					30.80	0.16	0.00	35.61
Unmitigated					30.80	0.16	0.00	35.61
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Condo/Townhouse	5.27748 / 3.3271					30.80	0.16	0.00	35.61
Total						**30.80**	**0.16**	**0.00**	**35.61**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Condo/Townhouse	5.27748 / 3.3271					30.80	0.16	0.00	35.61
Total						**30.80**	**0.16**	**0.00**	**35.61**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					7.56	0.45	0.00	16.95
Unmitigated					7.56	0.45	0.00	16.95
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Condo/Townhouse	37.26					7.56	0.45	0.00	16.95
Total						**7.56**	**0.45**	**0.00**	**16.95**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Condo/Townhouse	37.26					7.56	0.45	0.00	16.95
Total						**7.56**	**0.45**	**0.00**	**16.95**

9.0 Vegetation

Biological Assessment

APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT

Calabasas Blue Residential Project
City of Calabasas, California

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August 20, 2012

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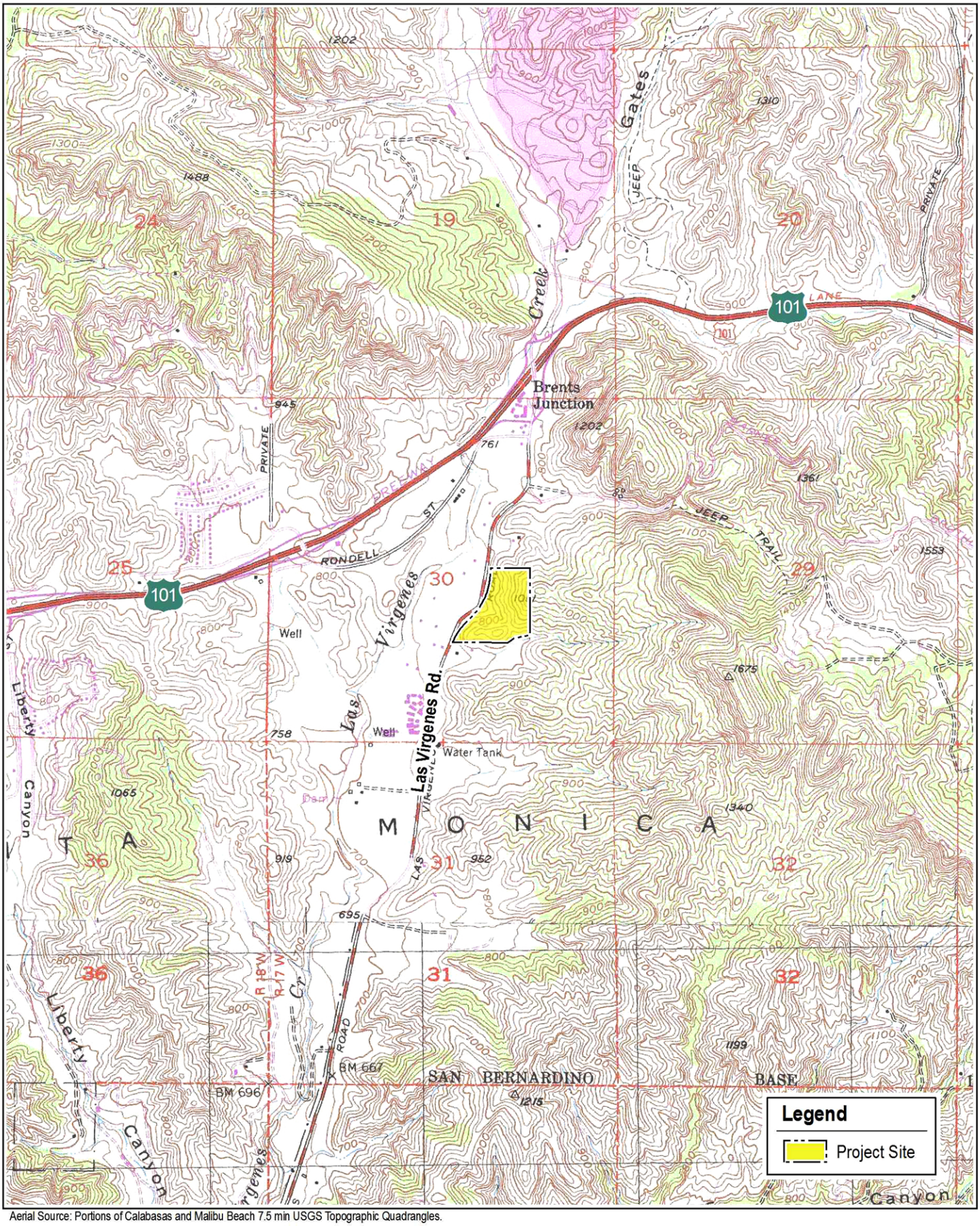
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Appendix 2	Potential for Occurrence of Special-Status Vascular Plant Species
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1.0 INTRODUCTION

Envicom Corporation has prepared this biological resource assessment for the proposed Calabasas Blue Residential Project site (hereinafter the "site") located in western Los Angeles County within the City of Calabasas, California. Calabasas Blue LLC proposes to develop a 78-unit multi-family residential project at the site. The site is situated on the eastern side of Las Virgenes Road, south of the 101 Freeway opposite Oak Glen and Willow Glen Street and consists of two vacant parcels (APNs 2069-011-005, 006) totalling approximately 21 acres (See **Figure 1**, Location Map). The parcels are located on the USGS Calabasas quadrangle in the NW ¼ of the SE ¼ of Section 30, Township 1.N., Range 17.W.

This report provides an assessment of baseline biological conditions for use in preparation of a biological impact analysis for the proposed project. The report first covers literature reviewed and biological surveys conducted to characterize the resources and conditions at the site, followed by a discussion of vegetation and plant communities, natural communities of special concern, observed plant species, special-status plant species, protected trees, jurisdictional areas, observed wildlife, special-status wildlife, and habitat linkages and wildlife movement. A vegetation map identifying plant communities and landcover at the site has been prepared and representative photographs of habitat conditions at the site are provided. Finally, lists of plant and wildlife species observed, and an analysis of the potential for occurrence of special-status plant and wildlife species at the site are provided as appendices to the report.



Aerial Source: Portions of Calabasas and Malibu Beach 7.5 min USGS Topographic Quadrangles.

BIOLOGICAL RESOURCES ASSESSMENT - CALABASAS BLUE RESIDENTIAL PROJECT SITE

ENVICOM CORPORATION

Location Map

0 1,000 2,000 Feet

FIGURE 1

2.0 METHODS

A literature review was performed in preparation for field surveys that included information available in peer reviewed journals, standard biological references (e.g., Baldwin et al. 2012; Sawyer, Keeler-Wolf, and Evens 2009; Reid 2006; Stebbins 2003; and Raven, Thompson, Prigge 1986), and relevant lists and databases pertaining to the status and known occurrences of sensitive and special-status resources. Other sources of information included aerial photographs, topographic maps, soil survey maps, climatic data, relevant policy and planning documents, and previous biological studies of the site. The following sources were among those reviewed in preparation for field surveys, or that were consulted during preparation of this report (for a complete list see the references section):

- Biogeographic Information and Observation System (BIOS), California Department of Fish and Game (CDFG), data as of May 11, 2012;
- Biological Impact Analysis for Entrada at Malibu, City of Calabasas, California, Dudek, August 21, 2006;
- California Natural Diversity Database (CNDDB) Rarefind 3 report for the 7.5' USGS Calabasas quadrangle and eight surrounding quadrangles, CDFG, data as of May 11, 2012;
- City of Calabasas 2030 General Plan Conservation Element, City of Calabasas, December 2008;
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California report for the 7.5' USGS Calabasas quadrangle and eight surrounding quadrangles, CNPS, data as of May 11, 2012;
- FWS Critical Habitat Mapper for Threatened and Endangered Species, U.S. Fish and Wildlife Service (USFWS), data as of May 11, 2012;
- Initial Study Review Biological Resources Study and Oak Tree Report, Envicom Corporation, May 16, 2003;
- List of Special Vascular Plants, Bryophytes, and Lichens, CDFG, May 2012;
- List of Vegetation Alliances and Associations (Natural Communities List), CDFG, September 2010;
- Native Grassland Survey Results for Entrada at Malibu Canyon, City of Calabasas, County of Los Angeles, California, Dudek, July 25, 2006; and,
- Special Animals, CDFG, January 2011.

A biological survey of the site was conducted on May 15, 2012 by James Anderson, biologist at Envicom Corporation. The survey involved a search for protected and regulated biological resources, including rare, threatened, and endangered plant and wildlife species, special habitats, sensitive natural communities, jurisdictional wetland/non-wetland Waters of the U.S., jurisdictional streambed/riparian habitat, and locally protected resources, as well as to evaluate the importance of the site for wildlife movement. The survey area included the project site as well as a 50-foot buffer around the site. The entire survey area was accessible. The survey was conducted between the hours of 8:30 a.m. and 5 p.m. in warm conditions (70s to high-80s °F) with no clouds and no wind to light wind. The survey was performed by slowly walking numerous transects across the site and by investigating particular areas thoroughly as necessary. The survey methodology resulted in a thorough investigation of all plant communities and habitat types on the property. A complete inventory of vascular plants and wildlife observed at the site was recorded, with all species identified to the taxonomic level necessary to determine their status. Vascular plant species determinations were made using The Jepson Manual: Vascular Plants of California, 2nd edition. Vertebrate wildlife species observed at and in the vicinity of the site were identified by direct observation, sign (e.g., tracks, scat, or burrows), or vocalization. Wildlife species identification relied upon Reid (2006), Sibley (2009), and Stebbins (2003). Species nomenclature conforms to Baldwin. B. et al. (2012) for vascular plants, American Ornithologists' Union (2011) for birds, Baker et al. (2003) for mammals, and Stebbins (2003) for reptiles. Common plant names are from the Jepson Online Interchange.

A second field visit was conducted on the afternoon of May 18, 2012 to perform vegetation and land cover mapping using high-resolution aerial imagery of the site from October 2007. Natural community classifications were correlated with the Vegetation Classification of the Santa Monica Mountains Natural Recreation Area and Environs in Ventura and Los Angeles Counties, California (CDFG/CNPS, January 2006) and the List of Vegetation Alliances and Associations (Natural Communities List) (CDFG, September 2010). The locations of special-status species and sensitive natural communities were georeferenced using a Trimble GeoXT GPS unit to sub-meter accuracy. Several photographs were taken as a record of site conditions at the time of the survey.

3.0 ENVIRONMENTAL SETTING

The site is undeveloped with no improvements other than a remnant, unpaved roadbed that provides access into the property from Las Virgenes Road. Adjacent land uses include a single-family residential neighborhood to the north, Las Virgenes Road and residential neighborhoods to the west, Las Virgenes Municipal Water District (LVMWD) facilities and offices to the south, and open space to the east. Fuel modification is conducted along portions of the southern, northern, and western edges of the site. There is a reservoir on LVMWD property near the site's southern boundary.

The site is located in the central drainage area of the Las Virgenes Creek tributary of the Malibu Creek watershed of the Santa Monica Mountains. Site elevations range from approximately 745 to 1,050 feet (227 to 320 meters) above mean sea level (AMSL). The northern portion of the property is distinguished by a lower-lying west-facing hill that ascends approximately 300 feet southeast from Las Virgenes Road cresting at 1,050 feet AMSL. From the central portion of the site, a north-facing slope ascends approximately 150 feet from Las Virgenes Road to an east-west trending ridge defined by two hills that occupy the southern portion of the property. As the site is west facing, slopes are generally dry and exposed. There are steep roadcuts along part of the site's western boundary. Average high/low summer temperatures in the site vicinity are 95/55°F, average high/low winter temperatures are 70/40°F, and precipitation is approximately 15-17 inches per year. Soils are clay loams, derived from Upper Miocene marine sedimentary deposits of diatomaceous shale, sandstone, and siltstone comprising the Modelo Formation. Surface exposures of sandstone are infrequent on the site. No evident stream channels are found on the site, and no riparian vegetation. Vegetation is predominately non-native grassland with patches of coastal sage scrub and native grassland, as well as oak savanna.

The site is within a lower elevation transitional zone of hills between the north slope of the Santa Monica Mountains and interior urban valleys. Vegetation of the surrounding area consists of a mosaic of coastal sage scrub, non-native grassland, live oak woodlands, oak savannas, and chaparral.

4.0 BIOLOGICAL RESOURCES

4.1 VEGETATION

The vegetation at the site consists predominately of non-native herbs, with patches of coastal sage scrub and native grassland. There is open oak woodland with an herbaceous understory (oak savanna) in the northeastern part of the site, as well as a few isolated oak trees and large elderberry shrubs. The composition and condition of the vegetation reflects a history of ranching and grazing, as well as physical environmental conditions including geology, soils, and climate. For photographs providing an overview of the type and condition of the vegetation at the site, see **Plate 1 - Photos 1A, 1B,** and **1C.** A discussion of the flora and habitats at the site are organized by plant community type, which have been classified using the State Vegetation Classification system.

4.1.1 Plant Communities

Seven native and two non-native plant communities occur at the site, as shown on **Table 1** and on **Figure 2**, Vegetation Map. 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 (CDFG/CNPS, January 2006), and the List of Vegetation Alliances and Associations (Natural Communities List) (CDFG, September 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 G1 through G3, or S1 through S3, respectively, are considered to be 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 1.

The following four plant communities at the site are considered to be rare or sensitive:

- Sawtooth Goldenbush–California Sagebrush Shrubland (*Hazardia squarrosa – Artemisia californica*)
- Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*)
- Creeping Wild Rye Grassland (*Elymus triticoides*)
- Purple Needlegrass Grassland (*Stipa pulchra*)



Photo 1A – View to the northeast of the northern half of the site showing extensive non-native grassland, the site's predominant habitat. A small oak savanna containing coast live oak (*Quercus agrifolia*) and valley oak (Qu*ercus lobata*) in the northeastern portion of the site is also shown.



Photo 1C – View facing south of the southwestern portion of the site. The slope in the background contains disturbed sawtooth goldenbush shrubland and, just above the access road, the largest and highest quality native perennial grassland at the site. A patch of California buckwheat (*Erigonum fasciculatum*) has colonized a relatively flat, disturbed area which is visible in the center of the photo, surrounded by hoary mustard (*Hirschfeldia incana*) and other non-native grasses and forbs.



Photo 1E – A patch of native creeping wildrye grassland (*Elymus triticoides*) is shown, occurring on a broad hilltop in the southern portion of the site.



Photo 1B – View facing downslope and southwest from the eastern edge of the site. Hills in the southern portion of the site as well as an old access road are visible. The scrub community on the north-facing slope in the center of the photo is sensitive sawtooth goldenbush - California sagebrush shrubland (*Hazardia squarrosa – Artemisia californica*).



Photo 1D – View of coastal sage scrub dominated by California sagebrush along the eastern boundary of the site in the site's northeastern corner. A coast live oak is also shown.



Photo 1F – Perennial native purple needlegrass (*Stipa pulchra*) bunches are shown interspersed with non-native grasses and forbs, representative of the condition of the purple needlegrass grassland at the site.

Representative Photographs of Habitat and Site Conditions



Aerial Source: GoogleEarth Pro, 2011.

Legend

— – – Existing Property Boundary

Woodlands

- OW — Coast Live Oak / Annual Grass-Herb Woodland *(Quercus agrifolia)*

Shrublands

- Ac — California Sagebrush Shrubland *(Artemisia californica)*
- HA — Sawtooth Goldenbush - California Sagebrush Shrubland *(Hazardia squarrosa - Artemisia californica)**
- Hs — Sawtooth Goldenbush Shrubland *(Hazardia squarrosa)*
- Ef — California Buckwheat Grassland *(Eriogonum fasciculatum)*

Native Grasslands

- Et — Creeping Wild Rye Grassland *(Elymus triticoides)* *
- Sp — Purple Needlegrass Grassland *(Stipa pulchra)**

Non-Native Grasslands

- NG — Non-Native Grasses and Forbs Mapping Unit

Individual Trees / Shrubs

- Qa — Coast Live Oak *(Quercus agrifolia)*
- Ql — Valley Oak *(Quercus lobata)*
- Sn — Blue Elderberry *(Sambucus nigra* ssp. *caerulea)*

Notable Plant Species

- Catalina Mariposa-Lily *(Calochortus catalinae)* **
- Coulter's Matilija Poppies *(Romneya coulteri)*

Other

- SV — Sparsely Vegetated (Ruderal)
- A — Asphalt

* **CDFG Natural Community of Special Concern**
** **Denotes the number of individuals at that location**

Vegetation Map

0 75 150 Feet

FIGURE 2

Table 1
Plant Communities at Calabasas Blue Project Site

Habitat Class	Plant Community*	Conservation Status Rank	Acreage On-site
Woodland	Coast Live Oak / Annual Grass-Herb Woodland (*Quercus agrifolia*) [71.060.09]	G5S4	1.53
Shrubland	California Sagebrush Shrubland (*Artemisia californica*) [32.010.01]	G5S5	0.27
	Sawtooth Goldenbush–California Sagebrush Shrubland (*Hazardia squarrosa-Artemisia californica*) [32.055.02]**	G3S3	0.58
	Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*) [32.055.00]	G3S3	1.45
	California Buckwheat Shrubland (*Eriogonum fasciculatum*) [32.040.02]	G5S5	0.23
Native Herbaceous	Creeping Wild Rye Grassland (*Elymus tritidoides*)[1] [41.080.01]**	G4S3	0.21
	Purple Needlegrass Grassland (*Stipa pulchra*)[2] [41.150.00]**	G4S3	0.38
Non-Native Herbaceous	Non-Native Grasses and Forbs Mapping Unit	n/a	17.08
	Sparsely Vegetated (Ruderal)	n/a	0.04
Other Landcover	Asphalt	n/a	n/a
		TOTAL ACREAGE	**21.77**

* Numbers in brackets are unique codes for each plant community, as provided in *List of Vegetation Alliances and Associations* (*Natural Communities List*) (CDFG, September 2010).
** CDFG Natural Community of Special Concern (Sensitive Plant Community).

Coast Live Oak / Annual Grass-Herb Woodland (Quercus agrifolia) [G5S4] [71.060.09]

This plant community is characterized by dominance of coast live oak (*Quercus agrifolia)* in the tree canopy and a largely non-native herbaceous understory. Valley oak (*Quercus lobata*) is present at low cover. The tree layer contains at least 10% absolute cover of oak trees. The shrub layer is sparse and consists of California sagebrush (*Artemisia californica*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), purple sage (*Salvia leucophylla*), and sawtooth goldenbush (*Hazardia squarrosa*). The herbaceous layer contains a diversity of non-native annual grasses and forbs, including wild oat (*Avena fatua*), rip-gut brome (*Bromus diandrus*), hoary mustard (*Hirschfeldia incana*), and tecolote (*Centaurea melitensis*). Native herbs are not well represented, but include species such as (*Bloomeria crocea*), narrow-leaf milkweed (*Asclepias fascicularis*), American bird's foot trefoil (*Acmispon americanus*), and succulent lupine (*Lupinus succulentus*). This community occurs on upper slopes in the northeastern portion of the property (See Figure 2 and Photo 1A). This plant community is not considered sensitive by the CDFG or by City policy. The individual oak trees within the oak woodland are protected under the City's Oak Tree Ordinance, as discussed under a separate heading below.

[1] *Elymus triticoides* was formerly named *Leymus triticoides*.
[2] *Stipa pulchra* was formerly named *Nassella pulchra*.

California Sagebrush Shrubland (*Artemisia californica*) [32.010.01]

The California sagebrush shrubland at the project site is dominated by California sagebrush, and also contains low cover of purple sage (**Photo 1D**). California sagebrush shrubland occurs in the northeastern portion of the property (See Figure 2). In areas where shrub cover is dense, the understory is covered with the litter of shrubs and is otherwise depauparate, while non-native herbs such as mustard and tecolote have penetrated openings, particularly along the margins of this habitat. This community receives a G5S5 conservation status rank and is therefore not considered sensitive by the CDFG.

Sawtooth Goldenbush – California Sagebrush Shrubland (*Hazardia squarrosa-Artemisia californica*) (G3S3) [32.055.02]

Sawtooth goldenbush – California sagebrush shrubland occurs on a moderately steep northwest-facing slope in the southern portion of the project site (See Figure 2 and Photo 1B). The sawtooth goldenbush – California sagebrush shrubland is co-dominated by sawtooth goldenbush and California sagebrush and contains a generally sparse herbaceous layer consisting of various native and non-native herbs, including native giant wild rye (*Elymus condensatus*), black mustard (*Brassica nigra*), and non-native brome grasses (*Bromus* spp.). Purple sage and coyote bush are also present, but at very low cover (<1%). Sawtooth goldenbush – California sagebrush shrubland is a CDFG natural community of special concern. This community is substantially intact, and lacks evidence of significant disturbance such as an open character or moderate cover of non-native species. There are a total of 0.58 acres of this community onsite.

Sawtooth Goldenbush Shrubland (*Hazardia squarrosa*) (G3S3) [32.055.00]

Sawtooth goldenbush shrubland at the project site contain at least 10% cover of sawtooth goldenbush in the shrub layer and dense cover of non-native invasive herbs, such as black mustard, summer mustard, Italian thistle (*Carduus pycnocephalus*), and annual brome grasses (See Figure 2). Other native shrubs are also present, but sparingly, including coast goldenbush (*Isocoma menziesii*) and California sagebrush. Although sawtooth goldenbush shrubland receives a G3S3 conservation status rank, site investigation reveals that, in this case, the areas mapped as sawtooth goldenbush shrubland lack significant resource value and are too severely disturbed by invasive species to warrant being provided protected status.

California Buckwheat Shrubland (*Eriogonum fasciculatum*) [32.040.02]

California buckwheat shrubland occurs in a relatively flat, previously cleared or graded area at the site, and on steep roadcuts adjacent to Las Virgenes Road (See Figure 2 and Photo 1C). Native deerweed (*Acmispon glaber*), golden yarrow (*Eriophyllum confertiflorum*), and common non-native species are also prevalent on the steep roadcuts. This community is not considered sensitive by the CDFG.

Creeping Wild-Rye Grassland (*Elymus tritidoides*) [G4S3] [41.080.01]

Creeping wild-rye grassland occurs at the project site as dense patches of dominant creeping wild-rye grass with rip-gut brome (*Bromus diandrus*) and/or other non-native herbs, growing in relatively flat areas and slight depressions. Creeping wild-rye is a perennial and rhizomatous native grass that often occurs in mesic habitats, including areas that are seasonally saturated. This plant community is apparently rare in the Santa Monica Mountains region and, in California, non-native grasses and agriculture probably replaced many of the native stands. The CDFG considers creeping wild-rye grassland to be a natural community of special concern. There are four patches of creeping wild-rye grassland at the project site; two occur along a broad hilltop/ridgeline, and two smaller patches are in a relatively flat area in the central portion of the site (See Figure 2 and **Photo 1E**), which total 0.21 acres.

Purple Needlegrass Grassland (*Stipa pulchra*) [G4S3] [41.150.00]

Purple needlegrass grassland is an herbaceous community that contains a significant component (typically >10% relative cover or >5% absolute cover) of native perennial purple needlegrass. This once extensive grassland community of California's valleys and foothills has been reduced in extent by urban development and agriculture.

Remaining stands typically contain a significant component of non-native annual grasses and forbs. Stands in the Santa Monica Mountains are usually small in extent. The CDFG considers purple needlegrass grassland to be a natural community of special concern. There are seven patches of purple needlegrass grassland at the project site, ranging in size from 0.002 to 0.24 acres (See Figure 2) and totaling 0.38 acres (**Photo 1F**). The patches also range in value, and most of the patches of purple needlegrass at the site are substantially invaded by non-native species such as bromes and mustards, and contain few additional native species. The most significant patch of purple needlegrass grassland in both size and value occurs in the southwestern portion of the site, just upslope from an old roadbed close to Las Virgenes Road. Native wildflowers such as purple clarkia (*Clarkia purpurea*), elegant clarkia (*Clarkia unquiculata*), Catalina mariposa lily (*Calochortus catalinae*) [California Rare Plant Rank 4], common golden-star (*Bloomeria crocea*), speckled clarkia (*Clarkia cylindrica*), owl's clover (*Castilleja exerta*), and blow-wives (*Achyrachaena mollis*) were identified in this area.

Non-Native Grasses and Forbs Mapping Unit

This mapping unit is used for convenience, and may contain multiple non-native herbaceous vegetation types, consisting of various non-native annual grasses and forbs. Selected common non-native herbs present in these areas include annual brome grasses, wild oat, hoary mustard, black mustard, tecolote, foxtail barley (*Hordeum murinum*), glabrous cat's ear (*Hypochaeris glabra*), Italian thistle, and rattail fescue (*Festuca myuros*). Although strongly dominated by non-natives, a few native shrub species including coyote bush (*Baccharis piluraris*), California sand-aster (*Corethrogyne filaginifolia*), California sagebrush, Parry's rabbitbush (*Ericameria parryi*), sawtooth goldenbush, and chaparral morning glory (*Calystegia macrostegia*) are found in these areas, as well as various native herbs, such as slender tarplant (*Deinandra fasciculata*), turkey mullein (*Croton setiger*), American bird's-foot trefoil, succulent lupine, Catalina mariposa lily [CRPR 4], and common golden-star. Due to their non-native condition, areas mapped as non-native grasses and forbs are clearly not sensitive. This non-native dominated herbaceous community is the most prevalent plant community on-site. The non-native grass/forbland habitats at the site are shown in Photos 1A, 1B, and 1C.

Sparsely Vegetated (Ruderal)

Areas mapped as sparsely vegetated consist primarily of non-native ruderal species. These areas have been graded or cleared of vegetation, and may be mowed or otherwise disturbed on a regular basis. Selected species observed include hoary mustard, Russian thistle (*Salsola tragus*), Canadian horseweed (*Erigeron canadensis*), Buenos Aires horseweed (*Erigeron bonariensis*), telegraph weed (*Heterotheca grandiflora*), bur-clover (*Medicago polymorpha*), small-flowered cheeseweed (*Malva parviflora*), and red-stemmed filaree (*Erodium cicutarium*). These areas generally lack native species. Due to their non-native condition, these areas are clearly not sensitive.

4.1.2 Plant Communities/Habitats Listed in CNDDB

A review of the California Department of Fish and Game's Natural Diversity Database (CNDDB) Rarefind 3 application reveals 13 Sensitive Plant Communities/Habitats have been reported by other observers in the Calabasas Quadrangle area, or within adjacent quadrangles. These Sensitive Plant Communities/Habitats include:

- California Walnut Woodland;
- Cismontane Alkali Marsh;
- Southern California Coastal Lagoon;
- Southern California Steelhead Stream;
- Southern Coast Live Oak Riparian Forest;
- Southern Coastal Salt Marsh;
- Southern Cottonwood Willow Riparian Forest;
- Southern Mixed Riparian Forest;

- Southern Riparian Scrub;
- Southern Sycamore Alder Riparian Woodland;
- Southern Willow Scrub;
- Valley Needlegrass Grassland; and
- Valley Oak Woodland.

Only Valley Needlegrass Grassland, which is referred to herein as Purple Needlegrass Grassland, occurs at the project site, as discussed above. The remainder of the CNDDB-listed communities and habitats are absent from the site.

4.2 PLANT SPECIES

4.2.1 Plant Species Observed

A total of 95 vascular plant taxa were identified during the May 15, 2012 survey of the site, including 72 dicots and 23 monocots. Sixty (60) of the plants observed were native and 35 were non-native, representing moderate diversity of native species and a significant percentage of non-natives. A complete list of the vascular plant species observed within the survey area is provided in Appendix 1. Ornamental species in landscaped areas along the northern and southern boundary of the site are not included in this list. Biological surveys of the site were also conducted by Dudek in July 2006 and by Envicom Corporation in April and May of 2003.

4.2.2 Special-Status Plant Species

Special-status plant species either have unique biological significance, limited distribution, restricted habitat requirements, particular susceptibility to human disturbance, or a combination of these factors. For the purposes of this assessment, special-status plant species are those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. 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 CDFG under the California Endangered Species Act (CESA); and plants occurring on List 1B (which includes rare, threatened, or endangered species in California and elsewhere) and on List 2 (plants considered rare, threatened, or endangered in California, but more common elsewhere) of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants.

No plant species listed as rare, threatened, or endangered were found during the May 2012 survey or during the surveys of the site by Dudek or Envicom Corporation in 2006 and 2003, respectively. Prior to the May 2012 field survey, the CDFG Natural Diversity Database (CDFG 2012) was reviewed for reported occurrences of special-status "elements" on the Calabasas quadrangle and eight adjacent quadrangles, to assess which special-status species could potentially occur at the site. Special-status species not reported by the CNDDB that are anticipated to occur in the region were also considered. The analysis of the potential for occurrence of special-status plants is presented in Appendix 2, including growth form, blooming period, protection status, primary habitat associations, and an assessment of the potential for occurrence as high, moderate, low, or none. 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 May 2012 field survey, as well as the negative results of prior surveys of the site in 2006 and 2003, most potentially occurring species can be confirmed as absent or their potential for occurrence can be considered much reduced. The only special-status plant species with potential to occur at the site are chaparral ragwort (*Senecio aphanactis*) [CRPR 2.2], round-leaved filaree (*California macrophylla*) [CRPR 1B.1], and Braunton's milkvetch (*Astragalus brauntonii*) [FE], although their potential for occurrence is low, at best. The chaparral ragwort and round-leaved filaree are small annual herbs known to occur in coastal scrub or foothill grassland habitats and could be difficult to locate within dense vegetation at the site, and could have gone undetected, if present. Site surveys were sufficient to confirm the absence of Braunton's milkvetch plants at the site. However, this species is a short-lived perennial with seeds that remain dormant in the soil for long periods between

fires or mechanical disturbance, which stimulates germination of the seeds. It is a soil specialist, requiring carbonate soils high in calcium, manganese, with some potassium. Given that NRCS soils maps show the soils at the site are comprised of up to 15% calcium carbonate, this species is considered to have low potential to occur as a dormant seed bank. However, it is not known from the vicinity of the project site or this part of the Santa Monica Mountains.

4.2.3 California Rare Plant Rank 4 Species

Two species with a California Rare Plant Rank (CRPR) 4, namely Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4.2] and Coulter's Matilija poppy (*Romneya coulteri*) [CRPR 4.2] were found at the site during the May 2012 botanical survey, as well as during previous surveys of the site. The locations of these two species are shown on Figure 2, Vegetation Map. Twelve (12) Catalina mariposa lilies were found in coastal sage scrub and non-native grassland habitats at the site and an undetermined number of Coulter's Matilija poppies occur as a small patch in a landscaped area along the property's southern boundary.

Plants with a CRPR of 4 are not rare, but rather are included on a "watch list" of species with limited distribution. However, while plants in this category cannot be called "rare" from a statewide perspective, and very few, if any, are eligible for state listing, many of them are significant locally. For this reason, the California Native Plant Society (CNPS) strongly recommends that CRPR 4 plants be evaluated for consideration during preparation of environmental document, which may be particularly appropriate for: the type locality of a CRPR 4 plant; populations at the periphery of a species' range, areas where the taxon is especially uncommon; areas where the taxon has sustained heavy losses; or, population exhibiting unusual morphology or occurring on unusual substrates.

Coulter's Matilija poppy, although native to southern California, has been introduced to the Santa Monica Mountains region (Raven, P., 1986). Therefore, this species does not occur at the site in its native habitat, and was likely planted or has otherwise spread to the site. The Catalina mariposa lily is not locally rare, is fairly common in suitable habitats within the Santa Monica Mountains region, and is not otherwise locally significant based on the CNPS criteria outlined above.

4.3 PROTECTED TREES

Oak trees and scrub oak habitat (species in the genus *Quercus*) within the City of Calabasas are protected by the City's Oak Tree Ordinance. There are coast live oaks (*Quercus agrifolia*) and valley oaks (*Quercus lobata*) of ordinance size on the property, as well as a few smaller saplings and seedlings that do not meet criteria for protection under the ordinance. The approximate locations of the protected oak trees are shown on the vegetation map. Although the presence of protected trees on the property was confirmed during surveys conducted to prepare this assessment, documentation of the species, location, and condition of protected trees that would require protection pursuant to the City's ordinance was outside the scope of this study. Refer to the Oak Tree Study by Mr. James Dean A.S.L.A, dated July 20, 2012, for a study of the trees on the property with respect to their protection under the City's oak tree protection ordinance.

4.4 JURISDICTIONAL WATERS / HABITAT

There are no stream channels, wetlands, or riparian vegetation at the project site. Therefore, there are no federally protected wetland or non-wetland Waters of the U.S. or state protected streambed or riparian habitat at the site.

4.5 WILDLIFE SPECIES

4.5.1 Wildlife Observed

Wildlife species observed during surveys of the site by Envicom in 2012 and 2003 primarily have been species common or relatively common to the region. A list of these species is included as Appendix 3. This list represents only a sample of the non-special-status wildlife species that can be expected to utilize habitats at the site for cover, foraging, and reproduction. Furthermore, in general, this list includes species that are more easily detected during daytime surveys. Several species (e.g., reptiles, birds, small mammals) undoubtedly reproduce at the site, and a

wide range of larger or mobile species can be expected to utilize the site's resources routinely, such as foraging raptors, and medium to large-sized mammals, such as for example coyotes, deer, bobcats, and skunks. Bird species observed consisted primarily of year-round and summer residents, and potential migrants. Several species of birds likely nest at the site in any given year. Three bird species observed during surveys of the site by Envicom in 2003 are on the CDFG's watch list, including rufous-crowned sparrow, Cooper's hawk, and sharp-shinned hawk. Although not observed in 2012, these species are expected to utilize the habitats at the site.

4.5.2 Special-Status Wildlife

For the purposes of this assessment, special-status wildlife species are those species that are listed, proposed for listing, or that meet the criteria for listing as endangered, threatened, or rare under the FESA or CESA; and those that are listed on the CDFG's Special Animals list with a designation of CSC (California Species of Special Concern)[3] or CFP (California Fully Protected)[4].

No species listed as endangered, threatened, California Fully-Protected, or as a California Species of Special Concern have been observed at the site. However, a considerable number of additional wildlife species, including special-status species that were not observed during site surveys, are anticipated to occur in the vicinity, and on the subject property, even if in some cases only infrequently, in transit, or on a temporary basis. The analysis of the potential for occurrence of special-status wildlife at the site is presented in Appendix 4, which includes the species' protected status, primary habitat associations, and an assessment of their potential for occurrence (high, moderate, low, or none). The potential for occurrence was undertaken through research of the CDFG Natural Diversity Database (CDFG 2012) using the Rarefind application for special-status "elements" on the Calabasas quadrangle and eight adjacent quadrangles. The potential for occurrence analysis provides a speculative assessment of the potential for the occurrence at the site of special-status animals on the basis of their known distribution and habitat requirements. Only the species with at least some potential to occur at the site are included on this list.

According to the CDFG's CNDDB Rarefind 3 application, no special-status invertebrates are known to occur on-site. Also, there is no potential for special-status fishes or amphibians to occur due to lack of aquatic or suitable mesic habitats. The use of the site by special-status vertebrate wildlife species is limited to species of reptiles, birds, and mammals listed as California Fully Protected or Species of Special Concern by the State of California. No species listed as threatened or endangered under the Federal Endangered Species Act or the California Endangered Species Act is expected to have any reasonable potential to occur at the site, with the one exception of the bank swallow (CT), although its potential for occurrence is very low. One special-status reptile, eleven special-status birds, and eight special-status mammals have potential to occur at the site, with varying probability.

Special-status species expected to occur at the site include coast horned lizard (CSC), white-tailed kite (CFP), and northern harrier (CSC). Additional species that may occur include loggerhead shrike (CSC), golden eagle (CFP), burrowing owl (CSC), short-eared owl (CSC), grasshopper sparrow (CSC), Vaux's swift (CSC), bank swallow (CT)[5], black swift (CSC), and olive-side flycatcher (CSC). Five species of special-status bats listed as CSC have potential to forage aerially over the property (see Appendix 4 for a list of potentially-occurring bat species), but are

[3] CSC (California Species of Special Concern): Animals that are not listed under the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

[4] CFP (California Fully Protected): This designation originated from the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians, reptiles, and birds. Most fully protected species have also been listed as threatened orendangered species under the more recent endangered species laws and regulations. California Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

not expected to roost at the site. Among mammals other than bats, another three special-status species with potential to occur include the San Diego black-tailed jackrabbit (CSC), San Diego desert woodrat (CSC), and the American badger (CSC).

Many of the special-status wildlife species with potential to occur onsite likely would occur only rarely or occasionally. These species include residents, migrants and winter and other rare and uncommon visitors that may occasionally forage on the site, such as golden eagle, short-eared owl, Vaux's swift, northern harrier, olive-side flycatcher, black swift, bank swallow, and all five of the bat species. Several other special-status species with potential to occur onsite may be 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 horned lizard, burrowing owl, white-tailed kite, loggerhead shrike, San Diego black-tailed jackrabbit, San Diego desert woodrat, and 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. All of these species are still relatively wide-ranging in California, and the site does not provide particularly important or valuable habitat for any of the species. Only a few individuals would have the potential for their entire home range or territory to be within the site; most likely, coast horned lizard or San Diego desert woodrat. Other potentially occurring special-status species would use undeveloped portions of the site and adjacent offsite habitat within the surrounding area, much of which is protected as open space, as resident and foraging habitat.

4.6 HABITAT LINKAGES AND WILDLIFE MOVEMENT

Wildlife must to be able to access essential habitat for water, foraging, breeding, and cover. Examples of barriers or impediments to movement (access) include housing and other urban development, roads, fencing, unsuitable habitat, or open areas with little vegetative cover.

The term wildlife movement corridor is used to describe physical connections that allow wildlife to move between patches of suitable habitat in both undisturbed landscapes, as well as environments fragmented by urban development. Large areas of suitable habitat and corridors between these areas are necessary to maintain healthy ecological and evolutionary processes. For example, wildlife movement corridors are necessary for dispersal and migration, to ensure the mixing of genes between populations, and so wildlife can respond and adapt to environmental stress.

Wildlife crossings are generally small, narrow areas allowing wildlife to pass through an obstacle or barrier, such as a roadway to reach another patch of habitat. These can be critical at both the local and regional level. Wildlife crossings include culverts, drainage pipes, underpasses, tunnels, and, more recently, crossings created specifically for wildlife movement over highways.

The City of Calabasas General Plan, the Santa Monica Mountains National Recreation Area (SMMNRA) Land Protection Plan (March 1998), and the South Coast Missing Linkages Project: A Linkage Design for the Santa Monica Mountains-Sierra Madre Connection (Penrod, K. et. al., 2006) were reviewed to determine if the site is within an area that has been identified as an important wildlife corridor or an important linkage necessary for maintaining connectivity between large areas of core natural habitat. The site was also evaluated in conjunction with surrounding habitats for its potential importance to wildlife movement through field investigation and review of recent aerial photographs of the area.

The site is bounded by residential uses and paved roads on the west, a residential development on the north, and developed Las Virgenes Municipal Water District property on the south. The site is contiguous to the east with the natural habitat, much of which is protected as natural open space.

The City of Calabasas General Plan (Figure IV-1, Significant Ecological Areas, Linkages, and Corridors) identifies the project site as within a wildlife linkage. The wildlife linkage within the Calabasas city limits encompasses a wide swath of natural habitats located to the east of Las Virgenes Road that extend from the southern city limits near Mulholland Road to the 101 Freeway, as well as north of the 101 Freeway. This area is also part of the Santa Monica-Sierra Madre Connection, a landscape-scale linkage important for facilitating wildlife movement and maintaining habitat connectivity between the Santa Monica Mountains and inland habitats, including the Simi Hills and Sierra Madre Mountains (Penrod, K. et. al., 2006). The site is also identified as part of an important habitat linkage in the SMMNRA Land Protection Plan. The site does not contain an important wildlife crossing, such as culvert or underpass.

Given the site's inclusion within an important habitat linkage, or movement corridor, as well as its undeveloped condition and contiguity with other areas of natural habitat, a wide range of wildlife species are expected to use the site for movement to access essential habitat to meet their life history requirements for refuge, breeding, and foraging. In conjunction with other natural habitats within the linkage, the site is important for maintaining connectivity between large areas of natural habitat, which is necessary for dispersal of wildlife (and plants) from the short to long-term.

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Appendix 1
Vascular Plant Species Observed, May 15, 2012

* indicates a non-native or introduced species

GROUP **Family** ***Scientific Name***	**Common Name**
FLOWERING PLANTS-DICOTS	
Adoxaceae	
Sambucus nigra ssp. *caerulea* [<= *Sambucus mexicana*]	blue elderberry
Apiaceae	
**Foeniculum vulgare*	fennel
Lomatium utriculatum	spring-gold lomatium
Apocynaceae	
Asclepias fascicularis	narrow-leaf milkweed
Asteraceae	
Achyrachaena mollis	blow-wives
Artemisia californica	California sagebrush
Baccharis pilularis	coyote brush
**Carduus pycnocephalus*	Italian thistle
**Centauria melitensis*	tocalote
**Cirsium vulgare*	bull thistle
Corethrogyne filaginifolia [<= *Lessingia f.* var. *f.*]	California-aster
Deinandra fasciculata [<= *Hemizonia f.*]	fascicled tarweed
Ericameria palmeri	Palmer's goldenbush
**Erigeron bonariensis* [<= *Conyza b.*]	Buenos Aires horseweed
Erigeron canadensis [<= *Conyza c.*]	Canadian horseweed
Erigeron foliosus	fleabane
Eriophyllum confertiflorum	golden-yarrow
Pseudognaphalium californicum [<= *Gnaphalium c.*]	California everlasting
Hazardia squarrosa	sawtooth goldenbush
**Helminthotheca echioides* [<= *Picris e.*]	bristly ox-tongue
**Hypochaeris glabra*	smooth cat's-ear
Isocoma menziesii	coastal goldenbush
**Lactuca serriola*	prickly lettuce
Malacothrix saxatilis	cliff-aster
Pseudognaphalium microcephalum [<= *Gnaphalium canescens* ssp. *m.*]	white everlasting
Rafinesquia californica	California chicory
**Silybum marianum*	milk thistle
**Sonchus asper*	prickly sow-thistle
**Sonchus oleraceus*	common sow-thistle
Stebbinsoseris heterocarpa	brown microseris
Stephanomeria sp.	wand-chicory
Uropappus lindleyi	silver-puffs
Boraginaceae	
Amsinckia menziesii var. *intermedia*	common fiddleneck
Phacelia cicutaria	caterpillar phacelia

GROUP **Family** ***Scientific Name***	**Common Name**
Brassicaceae	
**Brassica nigra*	black mustard
**Hirschfeldia incana*	hoary mustard
**Sisymbrium officinale*	hedge mustard
Chenopodiaceae	
Chenopodium californicum	California goosefoot
**Salsola tragus*	Russian-thistle
Convolvulaceae	
Calystegia macrostegia	Chaparral morning-glory
Cucurbitaceae	
Cucurbita foetidissima	stinking gourd
Euphorbiaceae	
**Chamaesyce albomarginata*	white-margin spurge
Croton setiger	turkey-mullein
Fabaceae	
Acmispon americanus [<= *Lotus purshianus*]	Pursh's lotus
Acmispon glaber [<= *Lotus scoparius*]	deerweed
Acmispon maritimus [<= *Lotus salsuginosus*]	succulent lotus
Astragalus didymocarpus	two-seeded milkvetch
Lathyrus vestitis	wild sweetpea
Lupinus bicolor	miniature lupine
Lupinus succulentus	succulent lupine
**Medicago polymorpha*	bur-clover
**Melilotus indicus*	sourclover
Fagaceae	
Quercus agrifolia	coast live oak
Quercus lobata	valley oak
Geraniaceae	
**Erodium cicutarium*	red-stem filaree
Lamiaceae	
**Marrubium vulgare*	horehound
Salvia leucophylla	purple sage
Malvaceae	
**Malva parviflora*	cheeseweed
Montiaceae	
Calandrinia ciliata	red-maids
Myrsinaceae	
**Anagallis arvensis*	scarlet pimpernel
Nyctaginaceae	
Mirabilis laevis var. *crassifolia*	wishbone bush
Onagraceae	
Clarkia bottae	Botta's clarkia
Clarkia purpurea ssp. *quadrivulnera*	four-spot godetia

GROUP **Family** ***Scientific Name***	**Common Name**
Clarkia unguiculata	elegant Clarkia
Orobanchaceae	
Castilleja exserta	purple owl's clover
Papaveraceae	
**Romneya coulteri*	Coulter's matilija-poppy
Polygonaceae	
Eriogonum elongatum	wand buckwheat
Eriogonum fasciculatum	California buckwheat
**Rumex crispus*	curly dock
Solanaceae	
Datura wrightii	jimson weed
Verbenaceae	
Verbena lasiostachys	western verbena
Zygophyllaceae	
**Tribulus terrestris*	puncture vine
FLOWERING PLANTS-MONOCOTS	
Agavaceae	
Hesperoyucca whipplei ssp. *intermedia* [<= *Yucca w.*]	Whipple's yucca
Arecaceae	
**Washingtonia* sp.	fan palm
Liliaceae	
Bloomeria crocea	golden-star
Calochortus catalinae	Catalina mariposa lily
Poaceae	
**Avena fatua*	fat oat
Bromus carinatus	California brome
**Bromus diandrus*	ripgut grass
**Bromus hordeaceus*	soft-chess
**Bromus madritensis* ssp. *rubens*	red brome
Elymus condensatus [<= *Leymus c.*]	giant wildrye
Elymus glaucus	blue wildrye
Elymus triticoides	creeping wildrye
Festuca microstachys [<= *Vulpia*] *microstachys*	
**Festuca myuros* [<= *Vulpia m.*]	rattail fescue
**Festuca perennis* [<= *Lolium multiflorum*]	Italian ryegrass
**Hordeum murinum*	foxtail barley
Melica californica	California melic
Melica imperfecta	coast melic grass
**Poa annua*	annual bluegrass
Stipa lepida [<= *Nassella l.*]	foothill needlegrass
**Stipa miliacea* [<= *Piptatherum miliaceum*]	mountain-millet

GROUP **Family** ***Scientific Name***	**Common Name**
Stipa pulchra [<= *Nassella p.*]	purple needlegrass
Themidaceae	
Dichelostemma capitatum	blue dicks

Appendix 2
Potential for Occurrence of Special-Status Vascular Plant Species

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*)	perennial herb	May - June	Rocky, volcanic breccia in chaparral and cismontane woodland at elevations between 200 to 500 meters.	FT/1B.2	No potential to occur. Suitable habitats are absent.
Beach spectaclepod (*Dithyrea maritima*)	perennial rhizomatous herb	March - May	Coastal dune and sandy coastal scrub habitats at elevations between 3 and 50 meters.	CT/1B.1	No potential to occur. Suitable habitats are absent.
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)	perennial herb	April - June	Open, rocky slopes; often in shallow clays over serpentine or in rocky areas with little soil; coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland at elevations between 5 an 450 meters.	1B.1	No potential to occur. Suitable habitats are absent.
Braunton's milkvetch (*Astragalus brauntonii)*	perennial herb	January – August	Recent burns or disturbed areas, usually sandstone with carbonate layers in closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland at elevations between 4 and 640 meters. A soil specialist in saline, somewhat alkaline soils high in calcium, manganese, with some potassium.	FE/1B.1	Low potential for occurrence as dormant seedbank. Soils at the site potentially contain calcium carbonate (Wasner, A., 2006). Field surveys adequate to confirm absence of aboveground plants at the site. Species is not known from vicinity of the project site or this part of the Santa Monica Mountains.
California orcutt grass (*Orcuttia californica*)	annual herb	April – August	Vernal pools at elevations between 15 an 660 meters.	FE/CE/1B.1	No potential to occur. Suitable habitats are absent.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Chaparral nolina (*Nolina cismontana*)	perennial evergreen shrub	May – July	Sandstone or gabbro substrates in chaparral and coastal scrub at elevations between 140 and 1275 meters.	1B.2	No potential to occur. Field surveys adequate to verify absence of species at the site.
Chaparral ragwort (*Senecio aphanactis*)	annual herb	January – April	Chaparral, cismontane woodland, and coastal scrub habitats at elevations between 15 and 800 meters, sometimes on alkaline soils.	2.2	Low potential for occurrence.
Coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	annual herb	March – May	Coastal bluff scrub, coastal dunes, and coastal prairie habitats at elevations between 1 and 50 meters, often in vernally mesic areas.	FE/CE/1B.1	No potential to occur. Suitable habitats are absent.
Conejo buckwheat (*Eriogonum crocatum*)	perennial herb	April - July	Conejo volcanic outcrops in rocky chaparral, coastal scrub, and valley and foothill grassland habitats at elevations between 50 and 580 meters.	CR/1B.2	No potential to occur. Suitable habitats are absent.
Conejo dudleya (*Dudleya parva*)	perennial herb	May - June	Rocky or gravelly areas on clay or volcanic substrates in coastal scrub and valley and foothill grassland habitats at elevations between 60 and 450 meters.	FT/1B.2	No potential to occur. Suitable habitats are absent.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	annual herb	February - June	Found in coastal salt marshes and swamps, playas, and vernal pools at elevations between 1 and 1220 meters.	1B.1	No potential to occur. Suitable habitats are absent.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Coulter's saltbush (*Atriplex coulteri*)	perennial herb	March – October	Alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland habitats at elevations between 3 and 460 meters.	1B.2	No potential to occur. Suitable habitats are absent.
Dune larkspur (*Delphinium parryi* ssp. *blochmaniae*)	perennial herb	April – May	Maritime chaparral and coastal dunes at elevations between 0 and 200 meters.	1B.2	No potential to occur. Suitable habitats are absent.
Estuary sea-blite (*Suaeda esteroa*)	Perennial herb	May – January	Coastal salt marshes and swamps at elevations between 0 and 5 meters.	1B.2	No potential to occur. Suitable habitats are absent.
Lyon's pentachaeta (*Pentachaeta lyonii*)	annual herb	March – August	Rocky, clay substrates in coastal scrub, valley and foothill grassland, and openings in chaparral at elevations between 30 and 630 meters.	FE/CE/1B.1	No potential to occur. Suitable habitats are absent.
Malibu baccharis (*Baccharis malibuensis*)	perennial deciduous shrub	August	Chaparral, cismontane woodland, coastal scrub, and riparian woodland at elevations between 150 and 305 meters.	1B.1	No potential to occur. Field surveys adequate to confirm absence of species at the site.
Many-stemmed dudleya (*Dudleya multicaulis*)	perennial herb	April – July	Chaparral, coastal scrub, and valley and foothill grassland at elevations between 15 and 790 meters, in heavy, often clayey soils or grassy slopes.	1B.2	No potential to occur. Suitable habitats are absent.
Marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*)	perennial herb	April – July	On sheer rock surfaces and rocky volcanic cliffs in chaparral at elevations between 150 and 520 meters.	FT/CR/1B.2	No potential to occur. Suitable habitats are absent.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Ojai navarretia (*Navarretia ojaiensis*)	annual herb	May – July	Valley and foothill grassland and openings in chaparral and coastal scrub at elevations between 275 and 620 meters.	1B.1	No potential to occur. Project site is outside the known range of this species.
Parish's brittlescale (*Atriplex parishii*)	annual herb	June - October	Alkali meadows, vernal pools, chenopod scrub and playas usually on drying alkali flats with fine soils at elevations between 4 and 140 meters.	1B.1	No potential to occur. Suitable habitats are absent.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	annual herb	April – June	Sandy or rocky openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland at elevations between 40 and 1705 meters.	1B.1	No potential to occur. Project site is outside known range of this species.
Plummer's mariposa lily (*Calochortus plummerae*)	perennial bulbiferous herb	May – July	Occurs on rocky or sandy sites, usually of granitic or alluvial material in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland at elevations between 100 and 1700 meters.	1B.2	No potential to occur. Suitable habitats are absent.
Round-leaved filaree (*California macrophylla*)	annual herb	March – May	Cismontane woodland and valley and foothill grassland on clay soils at elevations between 15 and 1200 meters.	1B.1	Low potential for occurrence.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Salt spring checkerbloom (*Sidalcea neomexicana*)	perennial herb	March - June	Alkali springs and marshes in chaparral, coastal scrub, lower montane coniferous forest, playas, and Mojavean desert scrub at elevations between 15 and 1530 meters.	2.2	No potential to occur. Suitable habitats are absent.
Salt-marsh bird's beak (*Chloropyron maritimum* spp. *maritimum*)	annual herb (hemiparasitic)	May – October	Coastal dunes and coastal salt marshes and swamps at elevations between 0 and 30 meters.	FE/CE/1B.2	No potential to occur. Suitable habitats are absent.
San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)	annual herb	April - July	Sandy soils in coastal scrub and valley and foothill grassland at elevations between 3 and 1035 meters.	FC/CE/1B.1	No potential to occur. Suitable habitats are absent.
Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*)	perennial herb	March – June	Volcanic or sedimentary, rocky substrates in chaparral and coastal scrub at elevations between 150 and 1675 meters.	FT/1B.2	No potential to occur. Suitable habitats are absent.
Santa Susana tarplant (*Deinandra minthornii)*	perennial deciduous shrub	July - November	Rocky sandstone habitats in chaparral and coastal scrub at elevations between 280 and 760 meters.	CR/1B.2	No potential to occur. Suitable habitats are absent.
Slender mariposa-lily (*Calochortus clavatus* var. *gracilis*)	perennial bulbiferous herb	March - June	Shaded foothill canyons in chaparral, coastal scrub, and valley and foothill grassland at elevations between 320 and 1000 meters.	1B.2	No potential to occur. Field surveys adequate to confirm absence of species at the site.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
Slender-horned spineflower (*Dodecahema leptoceras*)	annual herb	April – June	Flood deposited terraces and washes in chaparral, cismontane woodland, and coastal scrub (alluvial fan sage scrub) at elevations between 200 and 760 meters.	FE/CE/1B.1	No potential to occur. Suitable habitats are absent.
Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*)	perennial rhizomatous herb	January – September	Meadows and seeps along streams and seepage areas at elevations between 50 and 610 meters.	2.2	No potential to occur. Suitable habitats are absent.
Southern tarplant (*Centromadia parryi* ssp. *australis*)	annual herb	May - November	Margins of marshes and swamps, vernally mesic valley and foothill grassland, and sometimes on vernal pools at elevations between 0 and 425 meters.	1B.1	No potential to occur. Suitable habitats are absent.
Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*)	perennial herb	June - October	Coastal dunes, coastal scrub, and edges of brackish or coastal salt marshes and swamps at elevations between 1 and 35 meters.	FE/CE/1B.1	No potential to occur. Suitable habitat is absent at the site.
Verity's dudleya (*Dudleya verityi*)	perennial herb	May – June	Volcanic, rocky substrates in chaparral, cismontane woodland, and coastal scrub at elevations between 60 and 120 meters.	FT/1B.1	No potential to occur. Suitable habitats are absent.

Federally Protected Species
FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range.
FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future.
FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as endangered or threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.
State Protected Species
CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species." CR (California Rare): A species, subspecies, or variety of plant is rare under the Native Plant Protection Act when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. Animals are no longer listed as rare; all animals listed as rare before 1985 have been listed as threatened. California Native Plant Society (CNPS) Rare Plant Rank CNPS List 1A: Plants presumed extinct in California CNPS List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere. CNPS List 2: Plants Rare, Threatened, or Endangered in California but more common elsewhere. CNPS List 3: A review list for plants for which there is inadequate information to assign them to one of the other lists or to reject them. CNPS List 4: A watch list for plants that are of limited distribution in California. CNPS Threat Rank The CNPS Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment, as follow: • 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat) • 0.2-Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat) 0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)					

Appendix 3
Vertebrate Wildlife Species Observed, April 11, 2003, May 6, 2003, and May 15, 2012

* by direct observation, sign, or vocalization

Common Name	*Scientific Name*	May 15, 2012	April 11 & May 6, 2003
BIRDS			
acorn woodpecker	*Melanerpes formicivorus*	√	
ash-throated flycatcher	*Myiarchus cinerascens*		√
American crow	*Corvus brachyrhynchos*	√	√
Anna's hummingbird	*Calypte anna*	√	
Bewick's wren	*Thryomanes bewickii*	√	
black phoebe	*Sayornis nigricans*		√
Bullock's oriole	*Icterus bullockii*		√
bushtit	*Psaltriparus minimus*	√	
California thrasher	*Toxostoma redivivum*	√	
California towhee	*Pipilo crissalis*	√	√
Cassin's kingbird	*Tyrannus vociferans*		√
cliff swallow	*Petrochelidon pyrrhonota*	√	√
Cooper's hawk	*Accipiter cooperii*		√
European starling	*Sturnus vulgaris*	√	√
gull (unidentified)	--	√	
hooded oriole	*Icterus spurius*	√	
house finch	*Carpodacus mexicanus*	√	√
house wren	*Troglodytes aedon*	√	
lark sparrow	*Chondestes grammacus*		√
Lazuli bunting	*Passerina amoena*		√
lesser goldfinch	*Carduelis psaltria*	√	
mourning dove	*Zenaida macroura*		√
northern mockingbird	*Mimus polyglottos*	√	
red-tailed hawk	*Buteo jamaicensis*	√	√
red-winged blackbird	*Agelais phoeniceus*	√	
rufous-crowned sparrow	*Aimophila ruficeps*		√
savanna sparrow	*Passerculus sandwichensis*		√
sharp-shinned hawk	*Accipiter striatus*		√
song sparrow	*Melospiza melodia*	√	√
spotted towhee	*Pipilo maculatus*	√	
turkey vulture	*Cathartes aura*	√	
western kingbird	*Tyrannus verticalis*	√	
western scrub jay	*Apehelocoma californica*	√	
wrentit	*Chamaea fasciata*	√	
MAMMALS			
Botta's pocket gopher	*Thomomys bottae*	√	√
California ground squirrel	*Spermophilus beecheyi*	√	
coyote (scat)	*Canis latrans ochropus*	√	
desert cottontail (scat)	*Sylvilagus audubonii sanctidiegi*	√	√

Appendix 4
Potential for Occurrence of Special-Status Wildlife Species

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
Fish			
There is no potential for occurrence of special-status fishes due to lack of suitable habitat.			
Amphibians			
There is no potential for occurrence of special-status amphibians due to lack of suitable habitat.			
Reptiles			
Coast horned lizard (*Phrynosoma blainvillii*)	--/CSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Microhabitat requirements include open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	High potential to occur.
Birds			
Bank swallow (*Riparia riparia*)	--/CT	Very uncommon spring transient and rare fall transient, and casual winter transient along the coast, formerly a fairly common summer resident, now virtually extirpated as a breeder in the region (Garrett and Dunn 1981).	Very low potential to occur as a transient; not nesting.
Black swift (*Cypseloides niger*)	--/CSC	Rare and irregular transient through coastal district, nesting at a few steep waterfall locations in the San Gabriel, San Bernardino, and San Jacinto mountains (Garrett and Dunn 1981). Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto Mts., and in coastal bluffs and mountains from San Mateo Co. south probably to San Luis Obispo Co. Nests in moist crevice or caves on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats (Zeiner et al. 1990b).	Low potential to occur as a transient; not nesting.
Burrowing owl (*Athene cunicularia*) (burrow sites and some wintering sites)	--/CSC	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. Now extirpated from most of the coastal	Low potential to occur as a transient; not wintering or nesting.

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
		slope of the Los Angeles region (Garrett et al 2006). Now occurs mainly as a transient and winter visitor to coastal southern California.	
Golden eagle (*Aquila chrysaetos*) (nesting and wintering)	--/CFP	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.	Moderate potential to forage at the site; not nesting.
Grasshopper sparrow (*Ammodramus savannarum*)	--/CSC	Uncommon and very local summer resident on grassy slopes and mesas west of the deserts; noted only rarely in migration and in winter. For breeding, grasshopper sparrows require fairly continuous native grassland with occasional taller weedy stems or shrubs for singing perches (Garrett and Dunn 1981). Reported as casual in winter, uncommon spring and summer, and rare in fall in the Santa Monica Mountains.	Low potential to occur.
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	--/CSC	Very rare in open areas on the coastal slope of southern California; rare to uncommon in migration and winter. Only a few pairs of this once-abundant predator are still found in our coastal lowlands; small numbers of migrants augment this population from July to March in the Los Angeles region (Garrett et al. 2006). Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Low potential to occur.
Northern harrier (*Circus cyaneus*) (nesting)	--/CSC	Uncommon migrant and winter visitor (mid-September to early April) to extensive open freshwater and saltwater marshes, grasslands and agricultural fields. Breeding populations have been virtually extirpated from the coastal lowlands in the Los Angeles area (Garrett et al. 2006).	High potential to occur while foraging; not nesting.

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
Olive-sided flycatcher (*Contopus cooperi*)	--/CSC	Summer resident (May to early September) mainly in conifer, mixed, and canyon woodlands of San Gabriel Mtns., and very locally closer to coast where tall pines and eucalyptus augment native trees in the Los Angeles region (Garrett et al 2006).	Low potential to occur as a transient; not nesting.
Short-eared owl (*Asio flammeus*)	--/CSC	Uncommon and local winter visitant along the coast, where it formerly nested. Wintering locations include Point Mugu, Sepulveda basin (Garrett and Dunn 1981). Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands (Zeiner et al. 1990b).	Low potential to occur as a transient; not nesting.
Vaux's swift (*Chaetura vauxi*)	--/CSC	Common migrant from mid-April to mid-May, and again from late August to early October; small flocks sometimes winter in coastal lowlands, but absent from the Los Angeles region from early June to early August (Garrett et al 2006). There is moderate high potential for this species to occur at any of the components, transient only, and not nesting.	Moderate potential to occur as a transient; not nesting.
White-tailed kite (*Elanus leucurus*) (nesting)	--/CFP	Uncommon resident in open grasslands, valley oak savannas, marshes, and agricultural areas throughout the lowlands of the Los Angeles region (Garrett et al. 2006).	High potential to forage at the site; not nesting.
Mammals			
Pallid bat (*Antrozous pallidus*)	--/CSC	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 potential to occur while foraging, but not reproducing, hibernating, or roosting at the site.
Spotted bat (*Euderma maculatum*)	--/CSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests.	Moderate potential to occur while foraging, but not reproducing,

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
		Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	hibernating, or roosting at the site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	--/CSC	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 potential to occur while foraging, but not reproducing, hibernating, or roosting at the site.
Western mastiff bat (*Eumops perotis californicus*)	--/CSC	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.	Moderate potential to occur while foraging, but not reproducing, hibernating, or roosting at the site.
Western red bat (*Lasiurus blossevillii*)	--/CSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Moderate potential to occur while foraging, but not reproducing, hibernating, or roosting at the site.
American badger (*Taxidea taxus*)	--/CSC	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 potential to occur while foraging, but probably not burrowing and inhabiting the site.
San Diego black-tailed hare (*Lepus californicus bennetii*)	--/CSC	Intermediate canopy stages of shrub habitats and open shrub / herbaceous and tree / herbaceous edges. Coastal sage scrub habitats in southern California.	Moderate potential to occur.
San Diego desert woodrat (*Neotoma lepida intermedia*)	--/CSC	Coastal scrub of southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. Particularly abundant in rock outcrops and rocky cliffs and slopes.	Preferred rocky habitats are absent, but suitable patches of coastal scrub exist at the site. Moderate potential to occur.

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
Federally Protected Species FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range. FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future. FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as endangered or threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities. FSC (Federal Species of Concern): A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as "Category-2 Candidate" species. State Protected Species CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease. CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species." CSC (California Species of Special Concern): Animals that are not listed under the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. CFP (California Fully Protected): This designation originated from the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians, reptiles, and birds. Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. California Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.			

Geotechnical Site Evaluation

APPENDIX C

GEOTECHNICAL SITE EVALUATION
TRACT NO. 60488
CALABASAS BLUE
AN 80 UNIT RESIDENTIAL TOWNHOUSE / FLAT PROJECT
4240 LAS VIRGENES ROAD
CITY OF CALABASAS, CALIFORNIA

prepared for

Calabasas Blue
25340 Prado de los Arboles
Calabasas, CA 91302

GORIAN & ASSOCIATES, INC.

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April 24, 2012

Calabasas Blue
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Work Order: 2928-0-0-100

Attention: Ms. Deirdre Waitt

Subject: **GEOTECHNICAL SITE EVALUATION, TRACT NO. 60488, CALABASAS BLUE, AN 80 UNIT RESIDENTIAL TOWNHOUSE / FLAT PROJECT, 4240 LAS VIRGENES ROAD, CITY OF CALABASAS, CALIFORNIA.**

1. INTRODUCTION

The following report contains the results of our update geotechnical site evaluation addressing the revised Calabasas Blue an 80 unit residential townhouse / flat project at 4240 Las Virgenes Road in Calabasas, California (Site). The layout of the proposed development is shown on the 40 scale *Vesting Tentative Tract Map* by Diamond West, Inc. (dated 04/03/12). This map serves as the basis of our update evaluation and is the base map for our attached Geotechnical Map (Plate 1) showing the site, proposed development, and approximate points of exploration.

This report was based on discussions and correspondence with Ms. Waitt of Calabasas Blue as well as Messrs. Dustin Woomer, AICP and Mike Harrison, P.E. of Diamond West, Inc. (DWI), the project design civil engineer. In addition, information/data from the following main documents were reviewed as a baseline for our evaluation.

- Architectural renderings of the current proposed project by Mainstreet Architects and Planners, Inc.
- The previous geotechnical evaluation report entitled *Grading Plan Review Report, Tract No. 060488, Entrada, Calabasas Los Angeles County, California* by GeoLabs Westlake Village [GWV] (October 11, 2007).
- The previous geotechnical evaluation report entitled *Preliminary Geologic and Soils Engineering Investigation, Proposed Residential Development-43 Single-Family Residences, APN 2069-011-005, 006-Las Virgenes Road, Calabasas, California* by SubSurface Designs, Inc. [SSD] (April 3, 2002).

Gorian and Associates, Inc. reviewed the referenced reports (a complete listing of references used is attached) by others regarding the Site and supplemented the previously obtained data with our own subsequent site observations, field exploration, and geotechnical laboratory testing. We accept and use the data and recommendations contained in the referenced reports as a basis for the on-going tract design and future construction from the standpoint of acting as the geotechnical consultant of record.

This evaluation and report were prepared as a stand alone document to address the current proposed development and supersedes the referenced geotechnical reports addressing the Site and previous proposed developments. Based on our site evaluation, the Site is suitable for residential construction from a geotechnical standpoint provided recommendations presented herein are implemented in the project design and construction. Descriptions of the site and geologic units along with our conclusions and recommendations are presented within the text of this report.

Remedial grading will be necessary to prepare the site for the proposed development. The remedial grading will consist of the removal of a landslide and subsequent buttressing of the north facing slope along the southern boundary of the Site. Also, grading will be necessary to remove the upper soils within the lower portions of the property and to undercut the bedrock areas to provide a minimal thickness of engineered compacted fill below the proposed residential buildings. Setback of the buildings from the ascending slopes will be needed per the City of Calabasas Building Code. Detail grading and site preparation recommendations are presented later in the text of this report.

2. PROPOSED DEVELOPMENT

The proposed development is in a tentative tract design stage and the current development scheme includes construction of a multifamily residential complex with twelve three-story buildings. The residential buildings will have two living floors and one tuck under parking level. In addition, a pool and recreation building area, and attendant parking and drive areas are proposed within the development. Access to the site will be from Las Virgenes Road adjacent to and west of the site.

Given the amount of hillside property on the Site, creation of level building pad areas will require substantial grading as well as retaining wall construction. North and west facing cut slopes are proposed at 2(horizontal):1(vertical) slope gradients at maximum heights of 90 and 26 feet, respectively. However, localized cut slopes within the detention areas are proposed at a 1(horizontal):1(vertical) gradient with armored slope faces to a maximum height of roughly 12 feet. Fill slopes are proposed at a maximum gradient of 2(horizontal):1(vertical). The proposed design fill depth is approximately 25 feet, exclusive of remedial grading.

3. GEOTECHNICAL CONSIDERATIONS

Based on our experience in the vicinity of the site as well as our review of the SubSurface Designs (2003) and the GeoLabs Westlake Village (2007) report, the Site is underlain by complex geologic structure, an existing landslide, and variable thicknesses of topsoil/colluvial soils on the tall natural slopes surrounding the site. These features have an impact on surficial / gross slope stability and building to slope setback constraints. In addition, a geotechnical issue affecting development of the hillside property is surficial slope stability. The geotechnical aspects of these considerations are addressed within the text of this report.

4. SCOPE OF SERVICES

In accordance with our Proposal Number 5503-10, dated January 23, 2012 (authorized February 6, 2012) and Contract Amendment Request-01, dated March 4, 2012 (authorized March 5, 2012) Gorian and Associates, Inc. conducted the following scope of services for our geotechnical site update evaluation. This evaluation was conducted by or under the supervision of a State licensed geotechnical engineer and certified engineering geologist. This evaluation included the following:

4.1. ARCHIVAL REVIEW

Available pertinent data in our office was reviewed with respect to the proposed development along with readily available geotechnical reports for the site and adjacent areas on file at the city of Calabasas. A list of the reports reviewed for this evaluation is included on the attached References section.

4.2. SITE RECONNAISSANCE AND EXPLORATION

Field exploration by this firm was initiated by an overall site reconnaissance by the undersigned geotechnical engineer and engineering geologist. A geologist from our office also performed supplemental geologic mapping of existing exposures on site to field check previously acquired surficial geologic data presented in reference reports. The emphasis of the field reconnaissance and mapping program was to acquire additional data with respect to surficial slope stability issues.

In accordance with our Contract Amendment Request, additional subsurface data and soil samples (for subsequent geotechnical laboratory testing) were obtained from the slopes above the site. To further refine previous surficial slope stability analyses of the Site a total of seventeen test pits were excavated at selected locations using a subcontractor supplied hand labor crew. The test pits ranged in depth from 6.5 feet (GAI-5 and GAI-14) to 3 feet (GAI-6, GAI-7, and GAI-15) below the existing ground surface. In-situ Pocket Penetrometer testing was performed at various depths in the pits to obtain unconfined compressive strength data for use in the surficial stability reevaluation. In addition, seven relatively undisturbed drive samples of the encountered soils were obtained at selected depths for geotechnical laboratory testing (shear strength testing). The excavation operations were monitored and logged by a geologist from our office. Upon completion of logging and sampling operations, the test pits were backfilled with the excavated spoils. However, the backfill could settle through time. The Site owner or owner's representative should periodically check the site and backfill any depressions should they develop. The logs of the current as well as previous subsurface exploration on the Site by SDS (2002) and GWV (2007) are presented in Appendix A.

4.3. LABORATORY TESTING

A limited program of laboratory testing was performed on earth material samples obtained during our recent subsurface exploration. To supplement previous geotechnical laboratory shear test data for the Site direct shear tests were performed on each of the seven undisturbed samples in addition to in-situ moisture content and dry density determinations. Current shear test results, as well as all the laboratory test results from the previous geotechnical evaluations (SDS 2002 and GWV 2007) are presented in Appendix B. Moisture content and dry density test results (as well as in-situ pocket penetrometer test results) are presented on the Subsurface Logs contained in Appendix A.

4.4. GEOLOGIC ANALYSES

The results of the archival research and supplemental geologic mapping and subsurface exploration are presented on the attached Updated Geotechnical Map (Plate 1) utilizing the previously mentioned current proposed Tentative Tract Map as its base. The Updated Geotechnical Map depicts the approximate distribution of earth units and pertinent Geotechnical Cross Sections GAI 1-1' through GAI 6-6' (Plate 2). The Cross sections were constructed to illustrate the proposed building areas in relation to the geologic hazards and graphically depict the subsurface geologic structure.

An updated seismic hazard evaluation was also performed and updated geotechnical input for seismic resistant design per the 2010 California Building Code minimums were determined.

4.5. SLOPE STABILITY ANALYSES

The results of the prior and current field and laboratory testing programs were used in supplemental slope stability analyses to evaluate proposed building site stability for both static, earthquake (pseudostatic), and surficial stability conditions.

4.6. GEOTECHNICAL ENGINEERING ANALYSIS AND REPORT PREPARATION

The results of the archival review, field exploration programs, and laboratory testing programs were used to evaluate the geotechnical engineering factors affecting the current development plan. The results of our findings are provided in this geotechnical report.

This geotechnical report was prepared to summarize the site's geologic setting, description of geologic units, geologic structure (including bedding orientation, faults and landslides), groundwater conditions, seismicity, stability analyses, and geotechnical conclusions and recommendations for revised site development and construction. This report includes Logs of Subsurface Data (Appendix A), Updated Geotechnical Map (Plates 1 and 1A), Geotechnical Cross Sections (Plate 2-4), Laboratory Testing (Appendix B) including methods and results, Results of Slope Stability Analyses (Appendix C), and typical construction details (Appendix D).

5. SITE LOCATION AND PHYSIOGRAPHY

The Site, Tract 060488, is on the eastern side of Las Virgenes Road near the intersections of Oak Glen Street and Willow Glen Streets in the City of Calabasas, California (See Location Map, Figure 1). The property is comprised of relatively shallow to steep hillside terrain with north, southwest and northwest facing slopes and intersecting gently sloping drainages. Natural slope gradients vary from nearly level in the areas adjacent Las Virgenes Road to generally 2(horizontal):1(vertical) to 1½(horizontal):1(vertical) on the slopes away from the road. Maximum on-site total relief is roughly 275 feet with an additional 25 vertical feet of relief extending off-site, see GAI 1-1'. Drainage of the site is accomplished by sheet and rill flow to the drainages that in turn flow to the west and ultimately into a storm drain inlet structure in the southwestern portion of the site adjacent Las Virgenes Road.

Current site access is in the southwest along an existing unimproved road that climbs along the north facing slope to a saddle in the southeast portion of the Site. Several other unimproved access roads traverse the site extending from Las Virgenes Road to the upper reaches of the property and appear to have been graded in association with creating access for previously conducted geotechnical exploration by others. The cut-fill access road grading created several locally oversteep 1(horizontal):1(vertical) cuts slopes as well as localized areas of spill fills on the downhill sides of the roads.

Other than fence lines and the previously mentioned storm drain inlet structure the site is vacant of any improvements/structures. An artificial fill deposit consisting of a stockpile of soil and large bedrock boulders is in the broad east west trending drainage on the site.

6. SITE GEOLOGY

The site is underlain by bedrock of the mid Miocene-age Topanga Formation mantled locally with Quaternary-age alluvium, colluvium/topsoil (undifferentiated) and recent artificial fill soils. A landslide has been identified in the southern portion of the Site on a north facing natural hillside. General descriptions of these units are presented below with exploratory specific details presented in the attached Logs of Subsurface Data (Appendix A). The regional geologic setting is shown on the attached Regional Geologic Map (Figure 2).

6.1. TOPANGA FORMATION (Ttuc)

The sedimentary bedrock formation referred to the mid-Miocene age Topanga Formation (after Dibblee, 1992) underlies the entire Site. Overlain by thin to thick sections of surficial soils, the bedrock is generally poorly exposed on site. However, a few localized natural exposures are present within steeper slope areas and the bedrock is locally exposed on existing cut slopes. As observed in the few natural outcrops and (mainly) in subsurface exploratory excavations, the bedrock generally consists of light yellowish brown to yellowish brown silty fine-grained sandstone interbedded with yellowish brown to gray to brown clayey siltstone to claystone. The sandstone typically is thin to thickly bedded and in a damp and dense yet locally friable condition. The clayey siltstone to claystone units are typically thinly bedded to fissile and in a damp to moist condition. All the bedrock units are weathered to slightly weathered near surface but become fresher with depth. Fracturing is common and although most fractures are tight, some iron oxide staining and gypsum crystal growth were observed coating/filling fractures. Minor organics (carbon) were also observed within various finer grained (siltstone/claystone) beds.

A generalized description as to the areal distribution of the different bedrock lithologies is well stated in the GWV (2007) report:

"Sandstone outcrops are along the upper slopes within the northern portion of the property. SSD's explorations (DH-1 and DH-02) suggest a higher percentage of sandstone beds within that area and the more resistant nature of those materials probably resulted in the slightly steeper topography. GWV's explorations (BA-1, BA-2, and BA-3 suggest the bedrock materials within the lower portions of the slopes primarily consist of interbedded siltstone and claystone.

Explorations by SSD and GWV suggest the north facing slope in the southern portion of the property primarily consists of siltstone [and claystone]. The bedrock within that area is primarily thinly bedded. GWV's explorations (BA-4 and BA-5) suggest there is a higher percentage of moderately hard sandstones within the west trending ridge in the southwestern portion of the site."

We concur with this general description based on our observation of existing outcrops and bedrock float during the site reconnaissance and mapping programs.

Structurally, regional geologic mapping (Dibblee 1992, Weber 1984) indicates the overall upper Topanga Formation in the area is generally inclined northeasterly at moderate dips (22° to 45°) with local areas of tight folding. On site mapping and previous subsurface explorations indicate the majority of the Site is within an area of complexly folded and contorted bedding; likely the result of plastic deformation and penecontemporaneous soft sediment deformation. In the upper reaches of the property, sandstone outcroppings and obtained bedding data appear to indicate well defined bedding is generally devoid of plastic deformation. The bedrock in the northeastern portion of the property is generally inclined towards the southwest at steep to near vertical angles (50° to 85°). To the south and west of this area the bedrock is generally contorted and highly variable in bedding orientation and angle of inclination. Based on a review on the attached Geotechnical Cross Sections, although the bedding is highly variable, the typical orientation of the bedrock is generally inclined into the slope in a favorable manner.

6.2. ALLUVIUM (Qal)

Quaternary-age alluvial deposits overly the bedrock in the lower portion of the site adjacent Las Virgenes Road and extend to the relatively flat lower reaches at the mouth of drainages. With coloring described as reddish brown to brown and yellowish brown, the alluvium consists of various admixtures of silty to clayey sands, sandy silts, and silty clay. SSD reported the alluvium was about 5 feet to 27 feet thick within the western and south-central portions of the site, respectively. The alluvium encountered by GWV in the area of the northwest trending main drainage swale at the property's lowest elevation was found to have a maximum thickness of 28 feet.

6.3. TOPSOIL / COLLUVIUM [undifferentiated]

Surficial soil referred to as topsoil/colluvium [undifferentiated] typically mantles the bedrock and alluvial deposits. While topsoil is specifically a residual, in-place soil profile development, the product of the weathering of the underlying parent material (bedrock or alluvium) and colluvium (or slopewash) is specifically an accumulation of topsoil and or bedrock/alluvial deposits subjected to down slope creep processes or minor erosion, these two surficial soil deposits are undifferentiated for the purpose of this evaluation. From a practical standpoint, however, topsoil is typical on slopes where bedrock is only 2 to 3 feet from the surface whereas thicker soil accumulations (topsoil and colluvium) are generally in drainages/draw areas with locally subdued topography. As encountered in the subsurface explorations, the topsoil/colluvium generally consists of yellowish brown clayey silt with fine sand to clayey silt to silty clay in a damp to moist and stiff to very stiff condition. SSD and GWV classified their Natural Soil (Qns) and Colluvial/Slopewash Deposits (Qc) as clayey to silty sands. Based on our supplemental test pits, the colluvium is typically very porous in the upper 18 to 24 inches then slightly porous below with local concentrations of calcium carbonate veinlets. The colluvium commonly contains roothairs and locally rodent

burrows. Some scattered gravel to cobble size angular to subangular clasts of sandstone, siltstone and claystone were observed, as were rare small boulders of sandstone (GAI-11).

6.4. ARTIFICIAL FILL (af)

No artificial fill was encountered during our recent subsurface exploration operations; however, some artificial fill deposits were recognized to exist on the Site. Minor amounts of non-engineered spill fills were generated along the down slope side of the previous exploratory access roadway grading. Artificial fill deposits, presumably compacted, were also mapped associated with the existing Las Virgenes Road improvements including the existing drainage inlet structures. As previously described, large boulders of bedrock have been placed on the ground surface in the broad east west trending drainage in the southern portion of the site. Artificial fill deposits were reported by Geolabs (GWV, 2007) in the lowest reaches of the site in association with the aforementioned boulders. GWV reports the fill was generated from grading operations on the west facing cut slope in the southwestern corner of the property along Las Virgenes Road and is on the order of 4 feet in thickness.

Additional deeper deposits of artificial fill may exist on the site but were not mapped or investigated as they are concealed. Regardless, any existing non-engineered fill deposits are considered not suitable for structural support and should be removed prior to placement of any structural/engineered fill.

6.5. GROUNDWATER

No groundwater was encountered during our recent subsurface exploration to the maximum depth explored 6.5 feet (GAI-5 and GAI-14). However, groundwater was encountered during previous site exploration operations by other geotechnical consultants. The following table was taken from the GWV 2007 report and is included herein for clarity.

Table: Groundwater Observations

Boring Number	Seepage BGS (feet)	Groundwater Elevation (feet)
DH-01 (SSD)	51	856
DH-03 (SSD)	26	802
DH-04 (SSD)	39	749
DH-05 (SSD)	33	746
DH-06 (SSD)	27	717
BA-1 (GWV)	14.5	767.5
BA-2 (GWV)	25.5	776.5
BA-3 (GWV)	11	778
BA-6 (GWV)	30	746
GWV-2 (GWV)	30	727

6.6. LANDSLIDES (Qls)

A rotational type bedrock landslide was first identified on-site in 2002 by Subsurface Designs, Inc. (SSD, 2002) and reinvestigated in 2007 by GWV on the north facing slope of the generally east-west trending ridge in the southern portion of the site (GWV, 2007). SSD excavated boring DH-04 through the bedrock derived landslide debris and encountered a slide plane at 32 feet below existing ground surface (bgs) with light gray clay inclined 15° towards the northwest. The base of the slide was observed at 33 feet bgs, also with light gray clay, inclined 30° towards the northeast. GWV excavated BA-6 and encountered the slide plane at 43 feet bgs where thin plastic clay layer was noted. The slide plane was

reported to be inclined towards the northeast at 33°. Furthermore, to define the upper limit (head) of the landslide, GWV excavated a trench (T-1) at the headward portion of the landslide and found a rupture surface inclined towards the northwest at 67°.

Based on the above downhole geologic data and additional cross section construction and analysis, the base of landslide slide plane was re-interpreted/structure contoured. The resulting data was then used to update GWV's Cross Section 4-4' (attached herewith as GAI 5-5'). The original section 4-4' indicates the landslide is 43 feet deep at BA-6, however the projection of DH-04 to section 4-4' makes the slide plane appear deeper than it really is based on the structure contours of the slide. The updated 4-4' and our new sections utilize the structure contours generated and the result constrains the landslide dimensions. The current interpreted landslide configuration is illustrated on our sections GAI 4-4' through GAI 6-6'.

6.7. FAULTING AND SEISMICITY

The Site is in the Santa Monica Mountains, a seismically active region prone to 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, etc. The hazard of fault-rupture is generally thought to be associated with a relatively narrow zone along well-defined preexisting active or potentially active faults. No doubt there are and will be exceptions to this, because it is not possible to predict the precise location of a new fault where none existed before (CDMG, 1975).

Active or potentially active faults are not known to cross the Site and the site is not currently within an Alquist-Priolo Earthquake Fault Zone as defined by the State Geologist (Bryant and Hart, 2007). The potential for ground rupture due to faulting onsite during the lifetime of the project is considered remote.

Nevertheless, the property will be subject to ground motion from occasional earthquakes in the region. Significant earthquakes have occurred within a 40-mile radius of the Site within the last 40 years. The 1994 Northridge earthquake produced strong ground motion at the Site and a peak horizontal acceleration of approximately 0.38 (g) for the soil (soft bedrock) site (Chang, et al., 1994). It is likely significant earthquakes will occur in this area within the life expectancy of the proposed project and the Site will experience strong ground shaking from these events.

Based on the latest United States Geological Survey (USGS) interactive web application, *2008 Interactive Deaggregations (Beta)* <http://eqint.cr.usgs.gov/seaggint/2008/>, probabilistic seismic hazard analyses (PSHA) predict the Design Basis Earthquake will be on the order of 0.39g for the soft rock (vs=475 m/sec) conditions of the Site (Lat. 34.137°N, Long. 118.702°W). The Design Basis Ground Motion is defined as having a 10% chance of being exceeded in 50 years is based on probabilistic analyses. The mean magnitude from this PSHA is 6.8 (Mw) with a mean distance of 17.9 km from the property with a modal magnitude of 7.0 (Mw) and a modal distance of 12.4 km from the property. These USGS values were utilized in our evaluation.

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 due to its distant proximity to the ocean and large bodies of water. The potential for liquefaction and seismic induced settlement is discussed in the following section.

7. LIQUEFACTION

Liquefaction is a seismic phenomenon were saturated soils lose strength when severely shaken and develop excess pore pressures. This phenomenon is currently understood to be of concern in the upper 50 feet of the subsurface profile.

The low lying areas of the Site directly adjacent Las Virgenes Road are shown to be within an area susceptible to seismic induced liquefaction on the California Geological Survey (CGS) Seismic Hazard Zones Map for the Calabasas Quadrangle. However, previous recommendations were to remove the upper 10 feet of the alluvial soils and replaced the alluvium with engineered fill. That recommendation remains applicable for this site evaluation. Groundwater was found within the bedrock and not within the alluvial soils. Therefore due to the lack of groundwater in the alluvial soil and recompaction of the majority of the alluvium, the potential for liquefaction of the alluvial soils within the building areas appears to be low as previously concluded by GWV (2007). This also includes the potential for lateral deformation and/or dry sand settlement. Additional subsurface exploration can be performed if required at the appropriate design stage to provide supplemental data concerning the low potential for liquefaction.

8. SLOPE STABILITY

Gross stability of the ascending natural slopes was previously addressed in the referenced reports. The slopes were found to have gross stability factors of safety above 1.5. To analyze the proposed cuts into the base of the ascending natural slopes additional stability analyses were performed for this evaluation. The analyzed sections are GAI 2-2', 3-3', 4-4', and 6-6'. The static and pseudo-static slope stability analyses were performed using the modified Bishop Method via the computer program GSTABL7™ and user interface STEDwin™. GSTABL7 is a 2-dimensional, limit equilibrium slope stability program developed by Garry H. Gregory, P.E., which works in conjunction with STEDwin, a Graphical User Interface developed by Harald W. Van Aller, P.E.

Material strength for the bedrock was obtained from the prior report by GWV, 2007 which is a friction angle of 30 degrees and cohesion of 500 pounds per square foot. Strengths within the alluvial and fill soils are a friction angle of 30 and 28 degrees and cohesion of 100 and 300 pounds per square foot, respectively.

The stability of slopes is commonly stated in terms of the calculated factor of safety. Pseudo-static analyses were completed using a horizontal acceleration coefficient of 0.15. The analyses for gross slope stability exceed the generally accepted lower limit factor of safety of 1.5 for static stability and 1.1 for pseudostatic stability. The results are presented in Appendix C.

Previous surficial stability analyses of the natural slopes above the then proposed development area by GWV (2007) was performed based on five shear test results from seven 18 inch deep shallow test pits (S-1, S-2, S-4, S-5, and S-6) as well as 3 feet deep TP-1 and TP-3. Utilizing a standard 4 foot thick saturated soil section and shear strengths from their test pits, five of the seven surficial stability calculations resulted in factors of safety less than the minimum 1.5 requirement. Surficial stability was re-analyzed as part of this evaluation.

Surficial stability of the natural slopes for the current site evaluation was analyzed by subdividing the slopes into general drainage areas with slope and draw subareas as shown on Plate 1A, Surficial Slope Map. Seventeen supplemental test pits (GAI-1 through -17) were excavated on the slopes and draws to obtain additional soil/bedrock data within these zones. Excavated to depths ranging from 3 to 6.5 feet, in-situ tests and undisturbed samples were obtained for laboratory shear testing as described in Section 4.2.

Evaluation of surficial stability within each area/subarea (see Plate 1A) was performed using the soil data (soil/bedrock profile, soil classifications, visual/tactile observations, in-situ and laboratory test results) from all of the applicable on-site exploratory test pits and borings. The traverse used to define the representative slope inclination of the analyzed subareas is shown as a line on Plate 1A. Soil thicknesses considered in the calculations are also indicated. The analyses were performed using the pro-

cedure presented in Campbell, Soil Slips, Debris Flows and Rainstorms in the Santa Monica Mountains and Vicinity, Southern California. The soil shear strengths used are indicated on the calculation sheets presented in Appendix C along with the thickness of the analyzed surficial soils. The thickness of the surficial soils was determined from all of the exploration points on the slopes (the logs of these test holes are presented in Appendix A). The results of all but one of these analyses indicate the natural slopes exceeded the generally accepted lower limit factor of safety of 1.5 for surficial slope stability. This is also evidenced by the lack of surficial slumping on these slopes including areas where previous evaluations had factors of safety less than 1.5 or even less than 1. However, the preponderance of tested surficial materials has cohesion of less than 250 pounds per square foot. Soils with cohesion of less than 250 pounds per square foot should be considered prone to erosion per the City of Calabasas, (2010).

The exception to the above regarding surficial slope stability is in Draw C-4 indicated on Plate 1A. Within this draw the surficial stability is less than 1.5 (FS = 1.2) due to the localized combination of thicker soil profile and steepness of slope.

While surficial slope stability analyses in general meet or exceed the minimum Factor of Safety standard, it is recognized that the proposed development lays directly adjacent very high natural slopes (specifically the west-southwest facing slope above the eastern limit of proposed development) and as stated above, the soils on the natural slopes are erodible. Consequently, it is prudent to consider additional protection measures for the easternmost portion of the proposed development. Protection measures include construction of deflection devices and development of containment/catchment areas.

The erosion potential of slopes is generally considered in "bulk and burn" hydrology calculations. Construction of additional catchment/detention areas beyond typical bulk and burn quantity requirements would enhance development protection. The potential for additional materials such as soil slips or debris flows are difficult to accurately quantify. In an effort to quantify possible additional erosional/soil slip materials the lower reaches of each of the drainages were observed and subsurface exploration data studied. It was determined that for Areas A, B, and E, the expected normal soil accumulation thickening occurs toward the bottom of the draws. However, within lower portions of the Areas C and D draws, subtle lobate bulges are evident in the topography. The upper 2 to 3.5 feet of soils within the lobate bulges are described as very porous but become significantly less porous and increase in stiffness/denseness below, locally with calcium carbonate deposits. The bulges and porosity noted suggest these may be areas of previous rapid deposition or zones of accumulation as shown on Plate 1A. As a conservative estimate of possible additional slope erosion material to be considered in the design of the development, a quantity of approximately 1,700 cubic yards is calculated assuming a 3 foot average thickness for these zones of previous accumulation.

Based on conversations with the project design civil engineers (DWI, personal communication) the catchment/detention basins shown east of the building pad areas provide storage of approximately 1,500 cubic yards for the D and E Areas and 200 cubic yards for the A, B, and C areas. Furthermore, each basin has a bulk-flow inlet capable of handling 1,000 cubic yards above the storage areas volumes. From a geotechnical perspective, these catchment/detention areas do function to increase development protection.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1. GENERAL

The Site was evaluated from a geotechnical standpoint for the proposed construction as previously described in Section 2. Existing on site adverse geologic conditions such as the landslide and unsuitable soils may be remediated following recommendations presented in the following sections. Therefore, the Site may be developed from a geotechnical perspective, provided the geotechnical recommen-

dations presented in the following sections are incorporated into the design and construction of the proposed development.

The following recommendations also include previous recommendations provided by GWV (2007) where appropriate for the proposed site development. These recommendations should be reviewed with respect to changes in the proposed development (building layout) or site conditions, should they occur.

Grading should be performed in conformance with current City of Calabasas Grading Codes, under the geotechnical observations and testing of this firm.

9.2. GEOTECHNICAL SEISMIC DESIGN

Seismic ground motion parameters were evaluated using a simplified code based approach and ground motion procedures for seismic design. The simplified code based approach follows the procedures in the 2010 California Building Code (CBC) based on ASCE/SEI 7-05 Section 11.4.

Seismic ground motion values are initially determined based on site class B (rock) conditions. The values are adjusted to obtain the maximum considered earthquake (MCE) spectral acceleration values for the site based on its site class of C (considering the underlying Modelo Formation bedrock). The seismic design parameters for the site's coordinates (latitude 34.1377° North and longitude 118.7020° West) were obtained from the USGS web based spectral acceleration response maps and calculator: (http://earthquake.usgs.gov/hazards/designmaps/).

2010 CBC CHAPTER 16 TABLE/FIGURE NO.	SEISMIC PARAMETER	VALUE PER CALIFORNIA BUILDING CODE
Figure 1613.5 (3)	Short Period Mapped Acceleration (S_s)	1.55g
Figure 1613.5 (4)	Long Period Mapped Acceleration (S_1)	0.64g
Table 1613.5.2	Site Class Definition	C
Table 1613.5.3 (1)	Site Coefficient (F_a)	1.0
Table 1613.5.3 (2)	Site Coefficient (F_v)	1.3
Equation 16-37	$S_{MS} = F_a S_s$	1.55g
Equation 16-38	$S_{M1} = F_v S_1$	0.83g
Equation 16-39	$S_{DS} = 2/3 S_{MS}$	1.03g
Equation 16-40	$S_{D1} = 2/3 S_{M1}$	0.55g

Parameters presented herein should be used with the understanding site acceleration could be higher than addressed by code based parameters. The purpose of the building code earthquake provisions is to primarily safeguard against major structural failures and loss of life, not to limit damage nor maintain function. Therefore, values provided in the building code should be considered minimum design values. Cracking of walls and possible structural damage should be anticipated in a significant seismic event.

9.3. SITE PREPARATION AND GRADING

9.3.1. General

Remedial grading will be necessary to provide uniform support for the proposed structures and site development. This grading is necessary to remove the unsuitable upper soils and landslide, and construct the stability fill within the north facing slope. Recommendations for the remedial grading and grading to build the design development are presented below. All aspects of site grading including site preparation, fill placement, keying and benching should be in accordance with the City of Calabasas' grading ordinance or the recommendations of this report, whichever are more restrictive.

9.3.2. Site Clearing

Prior to starting earthwork, areas to be graded should be stripped of vegetation, trash, and debris. Minor vegetation may be blended with the soils during processing until it is not discernable from the fill. Roots over one-half inch in diameter should be included with removal of brush or trees.

9.3.3. Soil Removal

Removal of the upper soils will be necessary in all areas of grading. The removal should include the existing fill (af), topsoil/colluvium, and unsuitable alluvial deposits, landslide debris, and the upper weathered portion of the bedrock profiles. In addition, the removals should be such that the building area is supported on at least ten feet of engineered fill. The removals should be within all areas of grading and to a minimum of 5 feet (or the depth of fill, whichever is greater) beyond the building limits, whichever is the greater. Exceptions to the removals are:

- Removals of alluvial deposits should extend to at least ten feet below existing grade or to bedrock, whichever is the lessor.
- Removals for the swimming pool should extend at least three feet below the planned bottom of the pool.

Isolated zones of groundwater may be encountered within the alluvial removals in the westerly portion of the site adjacent Las Virgenes Road (also see Section 9.3.7). Therefore, localized dewatering may be necessary depending upon the volume of water encountered. Dewatering should be provided by the grading contractor.

After the removals are completed as addressed above, the exposed soils should be observed by a representative of this office to evaluate if additional removals are necessary. Fill soils should not be placed until completion of the geotechnical observation. Observation of the removal areas by Gorian and Associates, Inc. does not waive inspections that may be required by the local grading department inspector. The City of Calabasas may require a representative from the City observe the bottom of the soil removal areas.

9.3.4. Landslide Removal

The landslide (Qls) shown on Plate 1 should be removed to firm in-place native soils/bedrock. Additional removals of the soils/bedrock below the landslide should be performed as previously discussed. After removal of the landslide the north facing slope along the southern boundary of the development will require the construction of a stabilization fill.

9.3.5. Soil Removal On Slopes

Cut slopes in the alluvial areas or areas of recently deposited soils will possibly expose unsuitable soils. These soils should be removed from the slope to firm in-place bedrock. The slope may be reconstructed as a stabilization fill out to the design slope grade. This condition will likely be encountered as the north facing slope at the southern project boundary extends to the east and wraps northward. The tops of all cut slopes exposing topsoil/colluvium should be rounded.

9.3.6. Remedial Slope Repair

The cut-fill access road grading above the area of development created several locally oversteep 1(horizontal):1(vertical) cuts slopes as well as localized areas of spill fills on the downhill sides of the roads. The loose fill should be removed from the slope to the natural slope contours and the cut portion of the road repaired using compacted fill. Prior to placing the fill the area should be cleaned of loose materials and a keyway should be established and the fill benched into the slope. The size and shape of the keyway should be as directed by this firm in the field. The repair should bring the slope back to the native configuration.

9.3.7. Transition Pads

Removals are recommended where transitions between contrasting materials (such as bedrock/alluvium) cross the footprint of a structure. For transition pads which incorporate both cut and fill materials, the cut portions within building areas should be undercut to a minimum of 5 feet (or the depth of fill, whichever is greater) beyond the building limits and capped with certified compacted fill. The undercut should be a minimum ten feet below proposed pad grade or one-third of the maximum fill thickness, whichever is deeper. The purpose of the undercut is to reduce the potential for significant differential settlement or uplift between these contrasting materials. For reference a Building Pad Over-excavation Detail is attached in Appendix D.

9.3.8. Construction Dewatering Considerations

Groundwater seepages were encountered in the borings for previous exploration as discussed under Section 6.5 Groundwater. The groundwater data available indicates the groundwater could possibly be encountered at or near the contact with bedrock. Fluctuations in the groundwater elevation should always be anticipated in dewatering or below grade excavations. Therefore, localized dewatering may be necessary depending upon the volume of water encountered. Dewatering should be provided by the grading contractor. Handling of collected water should be in conformance with permits/requirements for the Site.

9.3.9. Shrinkage and Subsidence

Shrinkage or bulking is the volume loss or gain respectively of soils and bedrock excavated and placed as fill and subsidence is the loss due to stripping of vegetation and densification of the surface soils and densification of the underlying soils (below the zone of in-place recompaction). Additional estimates of the shrinkage and subsidence can be provided for the design level evaluation of the site. The following preliminary estimated bulking, shrinkage and subsidence factors are based upon available data (GWV, 2007), and using previous experience on similar projects, for the various site materials. Shrinkage of the soil deposits including the landslide is estimated at 5 to 10 percent and bulking of the bedrock may be 0-8 percent assuming an average relative compaction of 93 percent. Subsidence may range form 1 to 2 tenths of a foot. These values are estimates only and if a more accurate determination of estimated shrinkage amount is critical for the balance of cut and fill quantities, values can be reevaluated during the early stages of site grading.

9.3.10. Hard Rock

Hard rock was encountered (as refusal in Borings BA-4 and BA-5) during drilling onsite within the Topanga Formation. Indurated sandstone beds within the Topanga Formation may be present that could be difficult to excavate with conventional grading equipment. Therefore, test ripping by the grading contractor is suggested in the bedrock to evaluate equipment requirements. In addition, local cemented / limy zones could produce rock unsuitable for placement in engineered compacted fill (i.e., oversized rock).

Rock 12 inches or less in size may be used in engineered compacted fill, providing the following procedures are implemented. Rock should not be permitted to nest with unfilled voids. The fill should contain less than 30% of material from 6 to 8 inch maximum diameters. The rock fills should be placed in maximum 12 inch thick lifts, at slightly over optimum moisture content (of the matrix material), and compacted with vibratory and/or heavy construction equipment.

9.3.11. Bottom Stabilization

Seepages and groundwater was encountered within the bedrock as discussed in Section 6.5 Groundwater. Therefore, high moisture contents above the optimum value may be encountered at the bottom of the removals or deep cuts. Therefore, some type of stabilization of the removal bottom may be necessary prior to placement of compacted fill depending upon the encountered condition. Stabilization

methods include the use of geotextile fabric, lime treatment, placement of gravel/rock or other approved alternative.

9.3.12. Subdrain

Typically, subdrains are placed within drainages or canyons prior to the placement of fill. However, the anticipated soil and bedrock removals will eliminate any drainage within the development area. Therefore, the need for subdrains should be determined by an engineering geologist from this office after the removals are completed. Backdrains will be required behind all stabilization fills and retaining walls.

Subdrains if required should be constructed in areas of engineered compacted fill exceeding 10 feet in thickness. The location and outlets of subdrains should be evaluated when the locations and extent of the artificial fill and soil/bedrock removals are known. A subdrain at the bottom of the detention/catchment area may be warranted during the final design stage evaluations.

The subdrains should consist of a minimum 6 inch diameter perforated PVC (Schedule 40) pipe, or equivalent (such as corrugated slotted pipe). Where the length exceeds 500 feet, an 8 inch diameter perforated pipe should be used. Perforations should be no more than 1/4 inch diameter. The subdrains should be encased in 9 cubic feet of drain material per lineal foot of pipe installed in a trench cut made into bedrock or firm native soils exposed at the bottom of the removal area. The drain material should consist of 3/4 to 1 inch gravel or equivalent wrapped with filter cloth (such as Supac 4NP or Mirafi 140S or equivalent).

A cutoff wall should be provided 20 feet in from where the subdrain outlet pipe will be exposed as the surface. The outlet pipe should be a non-perforated pipe of the same size and strength (or greater) than the subdrain pipe As soon as possible after grading is completed around the subdrain outlet, the outlet should be located, protected from future damage, and covered with a slotted cap. Subdrain outlets should be established by survey to aid in relocation. To protect the outlet, as a minimum, it should be extended 1 foot past the slope face and marked with a steel post and/or encased in concrete. For reference two Canyon Subdrain Outlet Typical Details are attached in Appendix D.

9.3.13. Processing

Once the soil removals and undercutting recommended above have been completed, the bottoms of the removal and undercut areas should be observed by this office. Deeper removals may be required if uncertified fill or loose or soft zones are encountered. Prior to placing fill, the exposed surfaces should be processed. Processing consists of scarifying to a depth of 6 to 8 inches, conditioning to near optimum moisture content, and compacting to at least 90 percent relative compaction.

9.3.14. Fill Placement

Fill should be free of trash, debris, and significant vegetation, placed in thin lifts, moisture conditioned to slightly above the optimum moisture content, and compacted to at least 90 percent relative compaction. Material exceeding 12 inches in maximum dimension should be excluded from the fill. However, it may be desirable to keep rock larger than 3 inches outside of the upper 5 feet of the building area. Fill placed within building pad areas should be mixed and blended.

Based on the groundwater levels recorded during prior site exploration, as well as our experience with similar developments in the site vicinity, soils at the bottom of recommended removal areas may have moisture contents well above the optimum value. For wet soils to be used as fill, for some treatment will be necessary such as air drying, soil mixing, or lime treatment.

9.3.15. Fill Compaction
Fill soils should be compacted to a minimum of 90 percent relative compaction. Relative compaction is the ratio of the in-place dry soil density to the maximum dry soil density as determined in general accordance with ASTM test method D 1557.

9.3.16. Keying and Benching
Fills placed on slopes steeper than a 5(horizontal):1(vertical) gradient should be keyed and benched (horizontal benches) into competent in-place soil (after the required removals are made) or bedrock. Keyways for fill slopes should be a minimum of 15 feet wide and tilted into the slope, and should be observed by this firm prior to placing fill. For reference, a Canyon Cleanout and Benching Typical Detail and a Removals Beyond the Toe of Proposed Fill Slopes Detail is attached in Appendix D.

9.3.17. Utility Trenches
Utility trench backfill within building, parking, and drive areas should be compacted to a minimum 90% relative compaction.

9.3.18. Temporary Excavations
Temporary excavations should conform to the requirements of CAL/OSHA. Excavations deeper than 4 feet should be shored or sloped. Surcharge loads should be setback sufficient distances from the tops of temporary excavations. Temporary excavations adjacent property line constraints should be shored.

During construction, the contractor is responsible for the excavation and maintenance of safe and stable slope angles considering the subsurface conditions and the methods of operation. Surcharge loads should be set back from the top of temporary excavations a minimum horizontal distance of 15 feet.

9.4. MANUFACTURED SLOPE CONSTRUCTION AND MAINTENANCE

9.4.1. General
Manufactured cut and fill slopes are shown on Plate 1 at a maximum gradient of 2(horizontal):1(vertical) except in the detention/catchment areas where several slopes are at a 1(horizontal):1(vertical) gradient. These steeper slopes will require armor facing. The following sections contain general recommendations for cut and fill slopes if considered for the site development. The grading plans should be reviewed by this office to evaluate possible adverse geologic conditions that may require flatter slope gradients or remedial measures.

9.4.2. Cut Slopes
Cut slopes may be constructed at a maximum gradient of 2(horizontal):1(vertical). All cut slopes should be observed by an engineering geologist from this office for adverse geologic conditions. Where topsoil/colluvium is present at the top of a cut slope, the top of the slope should be "laid back" or rounded.

9.4.3. Fill Slopes
Fill slopes may be constructed at a maximum gradient of 2(horizontal):1(vertical). Fill slopes should be keyed and benched into firm in-place soil or bedrock. Fill slope keyways should be a minimum of 15 feet wide and cut to a minimum depth of 2 feet at the toe into competent in-place materials. The keyway should be tilted into the slope and should be at least 2 feet deep at the heel (measured from below the slope toe elevation). The keyway should be observed by this office prior to placing fill.

Where possible, the outer slope faces should be overfilled and trimmed back to provide for firm, well-compacted surfaces. If the slopes are not overfilled and trimmed, it will be necessary to sheepsfoot and/or grid-roll the slopes. Slope faces should be tested and reworked as necessary to achieve the required 90 percent relative compaction. Select grading may be necessary so that fill slopes are

constructed with materials with adequate surficial stability. The outer portions of slopes should be constructed with material having at least 250 psf of cohesion and a friction angle of 30 degrees.

Depending on the conditions encountered during keying and benching operations, fill slopes should be constructed with a backdrain consisting of a 24 inch square section of rock (3/4 to 1 inch) wrapped in filter cloth. A perforated 4 inch diameter PVC schedule 40 pipe should be installed at the base of the gravel material with non-perforated outlet pipes. The outlets should be roughly 12 inches above the toe of slope or tied into the storm drain system. The outlets at the surface should be protected with a concrete monument and the ends covered with a slotted cap to prevent rodent entry. A Stabilization Fill Typical Detail showing recommended backdrain is attached in Appendix D for reference.

9.4.4. Stabilization Fill Slope

The north facing cut slope along the southern boundary should be overcut a minimum of 55 feet and reconstructed as a stabilization fill slope. The backcut should also extend through any adverse condition such as the landslide designated as Qls on Plate 1. The backcut may be made at a 1-1/2(horizontal):1(vertical) gradient. As the north facing slope becomes a west facing slope the backcut width may be reduced to 15 feet or as necessary to remove unsuitable soils.

The backcut should be observed by an engineering geologist from this office prior to construction of the stabilization fill. The keyway for the stabilization fill should be a minimum of 5 feet below the subgrade of the adjacent residential garages. The keyways should be tipped into the hillside as recommended for fill slopes. Backdrains should be provided at the heel of the keyway and at every terrace level. The backdrains should be constructed as recommended for fill slopes, see typical detail in Appendix D. Remaining construction of the stabilization fill should be per the recommendations for fill slopes.

9.4.5. Slope Maintenance

Slopes will require maintenance to reduce the risk of erosion and degradation with time due to natural or man-made conditions. Future performance of the slopes will depend on the control of the burrowing animals and maintenance of the brow ditches, drainage structures, and the slope vegetation as discussed below.

All graded or exposed natural slopes should be maintained with dense, deep rooting (minimum 2± feet deep), drought resistant ground cover and shrubs or trees. A reliable irrigation system should be installed on the slopes where necessary, adjusted so over watering does not occur, and periodically checked for leakage. Care should be taken to maintain a uniform, near optimum moisture content in the slopes, and to avoid over drying, or excess irrigation. Excess watering of slopes should be avoided to reduce the risk of erosion and surficial failures. Slopes should not be watered before forecasted rain.

All drainage structures (including those at the surface and buried) should be kept in good condition and clean the entire length to the outlet. Final grading of the site should provide positive drainage away from slopes, and water should not be allowed to pond or gather in a slope area. Burrowing animals, particularly ground squirrels, can destroy slopes; therefore, where present, immediate measures should be taken to evict them.

9.5. SOIL CORROSIVITY

Previously GWV anticipated the on-site soils to have high sulfate contents resulting in a moderate to severe corrosion potential for concrete. Therefore, appropriate measures should be implemented in the concrete design and placement for the site conditions. Additional testing may be performed during grading prior to the final concrete design. In addition, generally fine grading soils are corrosive to ferrous and copper metals, which should be protected from contact with the on-site soils. Additional recommendations regarding corrosion should be directed to a corrosion engineer.

9.6. SOIL EXPANSIVENESS

Based on previous expansion index testing (GWV), soils and bedrock at the site are in the low to moderately expansive in the 21–50 and 51–90 soil expansion index ranges, respectively. Additional expansion tests should be performed at the conclusion of grading to determine the final building pad expansion index.

Expansive soils contain clay particles that change in volume (shrink or swell) due to a change in the soil moisture content. The amount of volume change depends upon the soil swell potential, availability of water, and the soil restraining pressure. Swelling occurs when clay soils become wet due to excessive water. Excessive water can be caused by poor surface drainage, over-irrigation of lawns and planters, and sprinkler or plumbing leaks.

Due to the relatively light foundation loads anticipated, expansive clay soils can cause distress both as uplift and shrinkage or settlement. Construction on expansive soil has an inherent risk that should be acknowledged and understood by the builder and property owner. Recommendations presented in this report are intended to reduce the potential for expansive soil action. However, these recommendations are not intended, nor designed to provide complete and full mitigation of expansive soil conditions. Additional recommendations can be provided to further reduce the risk of expansive soil movement however additional costs will be incurred to implement these recommendations. Expansive soil movement can be on the order of 1 to 2 inches when exposed to excessive water or drying out. Therefore, the following should be maintained within the site.

a) Positive drainage should be continuously provided and maintained away from all structures. Water should not be allowed to pond or accumulate around the structure or the edges of hardscape allowing water migration into the subgrade.

b) Excessive watering or excessive drying of soils adjacent structures will cause movement and should be avoided.

c) Sprinkler or plumbing leaks should be immediately repaired so the subgrade soils underlying or adjacent the structures do not become saturated.

d) Water should not be allowed to pond or accumulate around the pool decking allowing water migration into the subgrade. All pool hardware fittings should be adequately water tight, and caulking should be maintained between hardscape joints, and the interfaces between the hardscape and the adjoining structure.

e) Information regarding the care and maintenance of improvements on expansive soils should be passed on to future owners, managers, and/or caretakers of the property.

9.7. FOUNDATION DESIGN

9.7.1. General

Foundations for the proposed structures may be supported entirely in engineered compacted fill prepared in accordance with the recommendations of the previous Site Preparation and Grading section.

9.7.2. Design Data

Conventional foundations may be designed as a minimum for the low to moderately expansive soils, 21–50 and 51–90 soil expansion index ranges, respectively. Footings may be designed using an allowable bearing pressure of 2,000 pounds per square foot (psf). The bearing pressure is for dead plus live loads and may be increased by one-third when considering wind or seismic loads. The provided allowable bearing capacity has a minimum factor of safety of 3.

Footings should have minimum widths of 12 and 18 inches for the one and three story structures, respectively, and a minimum width of 24 inches for column footings. Footing embedment should be a minimum 24 and 27 inches for low and moderately expansive soils, 21–50 and 51–90 soil expansion index ranges, respectively. The embedment should be measured below the lowest adjacent grade adjacent the footings, interior or exterior.

Steel reinforcement should be per the structural engineer's recommendations. However, minimum reinforcement for continuous footings should consist of one number 4 bar in the top and bottom (minimum total of two bars) for the low expansion range and two number 4 bars in the top and bottom (minimum total of four bars) for the moderate expansion range. The footings should be tied to the slabs by extending the slab reinforcement to within three inches of the footing bottom.

9.7.3. Lateral Resistance

Lateral forces on foundations may be resisted by passive earth pressure and base friction. For the sides of footings bearing against engineered compacted fill or competent native soils, the lateral passive earth pressure may be considered equal to that exerted by an equivalent fluid having a density of 250 pounds per cubic foot (pcf) with a maximum of 2,000 psf. Passive pressure may be increased by one third for short term loading. Base friction may be computed at 0.4 times the normal load. Lateral passive earth pressure should be reduced by one third when combined with base friction. A factor of safety of 1 is provided for these values.

9.7.4. Footings on or Adjacent Slopes

Footings 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. Changes to the slope, such as erosion, slumping, over watering and expansive soil action can affect the support of footings on or near descending slopes. Therefore, deepened footings or setbacks should be used for buildings and accessory structures sensitive to differential movement. Setbacks should be per Figure 1805.3.1 of the California Building Code with a minimum setback of 5 feet.

9.7.5. Estimated Settlements

Potential settlement of continuous and isolated footings is expected to be minor for static loading on the order of 1 inch or less, with a maximum differential settlement of 1/2± inch over a span of approximately 30 feet or between adjacent individual footings. This is provided building construction is started directly after excavation, footings are cast soon after the footing excavation, and construction is completed in a timely manner. Settlements due to static loading are expected to occur rapidly as the loads are applied.

Minor wall cracking could occur within the structure associated with expansion and contraction of the structural wood members due to thermal or moisture changes. In addition, wall or slab cracking may be associated with settlement or expansive soil movement. All structures settle during construction and some minor settlement of the structures can occur after construction during the life of the project. Additional settlement/soil movement could occur if the soils become saturated due to excessive water infiltration generally caused by excessive irrigation, poor drainage, etc.

9.7.6. Footing Excavations

Footings should be cut square and level, and cleaned of slough prior to casting concrete. Soil excavated from the footing trenches should not be spread over areas of construction unless properly placed and compacted. Footing excavations should be observed by a representative of this office prior to placing reinforcing steel. Footings should be cast as soon as possible to avoid deterioration of the footing subsoils. All cavities around footings and columns should be backfilled with soil compacted to 90% of the maximum dry soil density or concrete; crushed rock or gravel may be used for interior footings.

9.7.7. Premoistening

Footing subgrade soils should be premoistened to 3% over the optimum moisture content for a depth of 18 inches prior to concrete placement. All saturated soils should be removed from the footing excavation prior to casting the footings. This office should observe the subgrade soil moisture prior to placing concrete.

9.8. SLABS-ON-GRADE

9.8.1. Site Preparation

The subgrade for all slabs-on-grade, if disturbed during foundation and utility construction, should be conditioned prior to placement of aggregate materials. Loose soils should be removed to firm in-place material, the exposed subgrade processed, and the material replaced as engineered compacted fill or aggregate material.

9.8.2. Slab-on-Grade Design Data

Lightly loaded slabs-on-grade within the building interior should be a minimum of 4 inches thick. Reinforcement should consist of a minimum of No. 4 bars at 16 inches on center in both directions or per the structural engineer's design. In addition, interior slabs should be tied to the footings by extending the slab reinforcement to within 3 inches of the base of the footing. Slabs should be underlain by 4 inches of sand. The project structural engineer should determine the concrete compressive strength.

All exterior concrete slabs-on-grade (non-auto traffic) and walkways should be a minimum of 4 inches thick and underlain by a minimum of 4 inches of sand. In areas of heavy loading for truck traffic (including trash pickup areas and loading docks) the slab thickness should be increased to a minimum of 7 inches thick. Exterior slabs should be reinforced with a minimum of No. 3 bars on 24-inch centers in each direction. Reinforcement should be placed at mid-depth of the slab. Sidewalks may be constructed of non-reinforced concrete provided sidewalks are cut into square panels (i.e., 4 foot wide walks should be cut into 4 foot by 4 foot squares).

9.8.3. Post-Tensioned Slabs

Post-tensioned slabs may be designed using an allowable soil bearing pressure of 1000 pounds per square foot (psf) or a modulus of subgrade reaction "K" of 125 pounds per cubic inch at the surface of a properly prepared building pad. The structural engineer should determine slab thickness and stiffness using recognized design procedures. Presented below are geotechnical parameters for use in the design methodology in the Post-Tensioning Institute Design of Post-Tensioned Slabs-on-Ground, Third Edition. The parameters are provided to comply with recent code requirements that require the use of the third edition of the design manual in lieu of the second addition.

Post-Tensioned Slab Design Parameters

Expansion Potential	21-50	51-90
Minimum Edge Depth (inches)	18	18
Allowable Bearing Pressure (psf)	1,000	1,000
Edge Distance Penetration:		
e_m Center Lift (feet)	9	9
e_m Edge Lift (feet)	6	5
y_m Center Lift (inches)	¼	½
y_m Edge Lift (inches)	1	1-½

These parameters should be reviewed based on expansion data obtained during the rough grading of the building pads. The slab design recommendations are minimums and may not be adequate to repre-

sent worst case conditions such as adverse drainage and/or improper landscaping and maintenance. Also, the recommendations will not be adequate if the soils below the mat foundation become saturated or dry such that shrinkage occurs. The parameters are provided with the expectation that subgrade soils below the foundations are maintained in a relatively uniform moisture condition. Therefore, structures should have gutters and downspouts along with positive drainage away from the building perimeters. In addition, responsible irrigation of landscaping adjacent the foundation should be practiced since over irrigation of landscaping will cause problems.

9.8.4. Concrete Placement and Cracking

Minor cracking of concrete slabs is common and is generally the result of concrete shrinkage continuing after construction. Concrete shrinks as it cures resulting in shrinkage tension within the concrete mass. Since concrete is weak in tension, development of tension results in cracks within the concrete. Therefore, the concrete should be placed using procedures to minimize the 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). Concrete slump during concrete placement should not exceed the design slump specified by the structural engineer. Concrete slabs on grade should be provided with tooled crack control joints at 10-15 foot centers or as specified by the structural engineer. In addition, a post tensioned slab is an unreinforced slab until the cables are tensioned. Therefore, un-tensioned slabs should not be sufficiently loading until the cables are pulled.

9.8.5. Premoistening

Soils under lightly loaded slabs on-grade should be premoistened to 3% over the optimum moisture content for a depth of 18 inches. This office should observe the subgrade soil moisture prior to pouring the concrete.

9.8.6. Tile Flooring

Tile flooring can crack, reflecting cracks in the concrete slab below the tile. Therefore, if tile flooring is used, the slab designer should consider this in the design of concrete slabs-on-grade where tile will be placed. The tile installer should consider installation methods to reduce possible tile cracking. Placement of a vinyl crack isolation membrane between tile and concrete slabs on-grade (utilizing approved materials and techniques per Tile Council of America/Ceramic Tile Institute guidelines) is one such method to reduce possible cracking of tile.

9.8.7. Moisture Vapor Retarder Layer

An appropriate moisture vapor retarder layer should be installed and maintained below the slabs on grade. The intent of the moisture vapor retarder layer is to reduce moisture vapor transmission through the slab.

Ten-mil polyethylene plastic sheeting may be used as a minimum moisture vapor retarder layer placed mid-height in the sand below the slab. Edges of the sheeting should overlap at least 12 inches onto an adjacent sheet. Where necessary or where a heavier moisture vapor retarder layers is desired to reduce possible water vapor transmission, products specify designed as moisture retarders should be considered in the slab construction.

Perforations through the moisture vapor retarder such as at pipes, conduits, columns, grade beams, and wall footing penetrations should be sealed per the manufacture's specifications. Proper construction practices should be followed during construction of the slab on-grade. Repair and seal tears or punctures in the moisture barrier that may result from the construction process prior to concrete placement.

Minimizing shrinkage cracks in the slab-on-grade can further minimize moisture vapor emissions. A properly cured slab utilizing low-slump concrete will reduce the risk of shrinkage cracks in the slab as described herein.

The concrete contractor should be made aware of the moisture vapor retarder and requirement to protect the layer. Perforations made in the layer by the concrete contractor should be properly sealed prior to concrete placement. In addition, if the concrete is placed directly on top of the layer the concrete contractor should make the necessary changes in the concrete placement and curing. Placing concrete directly on top of the moisture vapor retarder layer allows the layer to be observed for damage directly prior to concrete placement.

The grade of the project should be kept as high as practical and the interior slabs should be maintained as high as practical above the exterior grades. Drainage should be maintained away from the structures. Provide proper drainage and elevation of ground adjacent the slab (that is the ground surface should be at least 6 inches below the wall plate). In addition, the landscaping should not be over watered resulting in excess moisture below the slab

The slabs should be tested for moisture content prior to the selection of the flooring and adhesives. Moisture in the slabs should not exceed the flooring manufacturer's specifications. The concrete surface should be sealed per the manufacturer's specifications if the moisture readings are excessive. It may be necessary to select floor coverings that are applicable to high moisture conditions.

9.9. RETAINING WALL DESIGN

9.9.1. Foundations

Continuous reinforced concrete retaining wall footings founded below level ground may be designed to impose a uniform allowable soil bearing pressure of 2000 psf. Retaining wall footings should be embedded a minimum of 24 inches into engineered compacted fill or competent native soils and have a minimum width of 24 inches. Deeper foundation embedment will be required for footings on or near descending slopes to conform to setback requirements. Footing reinforcement should be per the structural engineer's recommendations. Lateral pressure provided in Section 9.7 Foundation Design may be used for retaining wall design.

9.9.2. Active Pressures

Retaining walls should be designed to resist active pressure exerted by low to moderately expansive compacted backfill or retained soil. Retaining walls that may yield at the top may be designed for an equivalent fluid pressure of 44 and 60 pounds per cubic foot (pcf) for a level and 2(horizontal):1(vertical) sloping backfill, respectively. Retaining walls restrained at the top may be designed for an equivalent fluid pressure of 65 and 80 pcf for a level and 2(horizontal):1(vertical) sloping backfill, respectively, with a triangular distribution. However, these pressures should be reviewed prior to the design of the retaining walls. If highly expansive soils or bedrock are exposed in the backcut, a redesign of the retaining walls will be required using higher active pressures or the backcut removed and replaced with lessor expansive materials. Retaining wall backcuts should be observed by an engineering geologist from this office.

Where the walls are used for catchment/detention basins, the walls should be design for impact loading. Generally an equivalent fluid pressure of 120 pounds per cubic foot is used of impact design.

In addition to the active pressures discussed above, retaining walls are expected to experience additional surcharge pressure due to backfill inertia. An inverted triangular seismic pressure of 40 and 60 pounds per cubic foot should be used for level and 2(horizontal):1(vertical) sloping backfill, respectively.

The result 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.

Footings behind retaining walls should be embedded below a 2(horizontal):1(vertical) line extending up from the base of the wall or the wall should be designed to support the footing surcharge.

The above active pressures are not designed to resist expansion of the backfill. Therefore, if water is allowed to saturate backfill or backcut materials consisting of clayey soils, the expansion pressure could exceed the active pressures provided.

Retaining wall backcuts in bedrock should be observed for adverse geologic conditions by this office. The above active pressures are not designed to retain an adverse geologic condition.

9.9.3. Retaining Wall Drainage and Backfill

Retaining walls should be provided with drainage consisting of a composite drain board or a minimum 1 foot wide continuous section of clean gravel (½ to ¾ inch) or equivalent drain material wrapped in filter fabric. The drain material should extend from the base of the wall to within 2 feet of the top of wall. The upper 2 feet of exterior wall backfill should consist of compacted native soils. The drain material should be drained by a perforated drainpipe placed holes down on a maximum of 2 inches of drain material. The invert of the pipe should be a minimum of 6 inches below the lowest adjacent grade. Retaining walls should be waterproofed.

Wall backfill may consist of non to low expansive soils. The soil should be compacted to a minimum of 90 percent relative compaction using light equipment.

9.9.4. Temporary Cuts

Temporary cuts should be evaluated in detail for construction at the design level plans and prior to starting construction.

9.10. ALTERNATE RETAINING WALL DESIGN

Segmental retaining walls with geogrid reinforced backfill or soil nailed retaining walls with a gunite face may be used as alternates to conventional retaining walls. Segmental retaining walls will require a significantly deeper backcut to allow for the placement of geogrids to reinforce the compacted backfill. In addition, the backfill will generally be a select backfill to meet the design strength requirements. Soil nailed walls have the advantage of being a top down construction, which does not require placement of backfill within a backcut zone. Design parameters for either wall may be provided at the appropriate stage of design. The design of either type of wall should be performed by an engineer experience in this type of wall design and construction.

9.11. SWIMMING POOL

9.11.1. General

A swimming pool is proposed for the recreation area within the southern portion of the development, which is acceptable from a geotechnical standpoint if the following geotechnical recommendations are followed and incorporated into the design. Risks associated with pool construction, such as pool or deck movement, cannot be completely eliminated, especially if proper construction practices, drainage, maintenance of landscaping, pool plumbing and pool equipment are not provided. A representative of this office should review the pool plans and observe all geotechnical aspects of the pool construction addressed herein. Pools and decking should be designed as a minimum for medium expansive soils, 51-90 expansion index range.

9.11.2. Pool Excavation

All aspects of grading for the pool including site preparation, excavation, and fill placement should be per the City of Calabasas Building Code. Soils exposed in the pool excavation should be kept moist until the concrete placement. The concrete should be cast as soon as possible after excavation to avoid desiccation of the subgrade material. Completion of the pool excavation and construction should be performed in a timely manner so the excavation is open for a maximum of only two weeks. Soil excavated from the pool area should not be spread over areas of construction or slopes unless properly placed and compacted as previously described herein. Any portion of the slopes disturbed by the pool construction should be repaired under the supervision of the project geotechnical consultant.

9.11.3. Pool Walls and Foundations

The pool shell should be designed by the structural engineer for moderate expansive soils condition (51-90 expansion index range). Additionally, the pool walls should be designed for the active pressures presented for retaining wall design. The entire pool should be supported on uniform material.

Water should not be allowed to saturate the soils behind the walls as the expansion pressures could exceed the active pressure provided.

The pool walls near a structure should be designed to support loads imposed by the structure on the pool wall. Foundations below a 2(horizontal):1(vertical) line extending up from the base of the pool wall should not impose loads on the pool wall. A structural engineer should evaluate the impact of an adjacent structure on the pool wall and design pool walls accordingly.

9.11.4. Pool Plumbing

The pool piping should be designed with flexible joints to accommodate the possibility of movement without causing breaks in the plumbing. It is imperative that any leaks in the pool plumbing or drainage system be repaired immediately. Leaks in the plumbing can cause saturation of the soils adjacent the pool resulting in possible slope movement and/or slumping (failures).

9.11.5. Concrete Deck

Concrete decking and hardscape surrounding the swimming pool should be constructed on engineered compacted fill. Soil excavated from the swimming pool area or elsewhere, should not be used underneath the deck unless properly compacted and moisture conditioned. Joints between adjoining sections of pool decking and between the pool decking and the pool walls should be caulked. Periodic inspection by the association/manager and subsequent caulking, if necessary, are maintenance procedures that will help prevent water from migrating into the supporting subgrade. The decking should be constructed per the recommendations for exterior slabs and walkways as addressed herein.

9.12. SITE DRAINAGE

Positive drainage should be provided away from slopes and structures during and after construction. Planters near a structure should be constructed so irrigation water will not saturate the soils underlying the building footings and slabs. Site drainage should be in conformance with the grading plan or applicable building codes. Landscape planting and trees should be kept away from foundations or flatwork to avoid roots extending beneath foundations and slabs. Irrigation watering should not saturate soils below or adjacent foundations.

Gutters and downspouts should be installed to collect roof water that may otherwise infiltrate the soils adjacent to the structures. The downspouts should be drained into non-perforated PVC collector pipes that will carry the water away from the structure.

9.13. PLAN REVIEW

As the development process continues and finalized grading/foundation/pool plans and specifications are developed, they should be reviewed by Gorian and Associates, Inc. Additional geotechnical recommendations may be warranted at that time.

9.14. CONSTRUCTION OBSERVATIONS AND TESTING

All aspects of the construction addressed from a geotechnical standpoint (i.e., subgrades, fill placement, backfill, and footings) should be observed (and tested when appropriate) by this firm.

9.15. SECTION 111

It is the opinion of this office that if the project is constructed in accordance with our recommendations and properly maintained, the proposed structures will be safe against hazard from landslide, settlement, or slippage, and that the proposed building or grading construction will have no adverse effect on the geologic stability of property outside of the building site. The nature and extent of tests conducted for purposes of this declaration are, in the opinion of the undersigned, in conformance with generally accepted practice in the area. Test findings and statements of professional opinion do not constitute a guarantee or warranty, express or implied.

10. 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. disclaim responsibility and liability for problems that may occur if recommendations presented herein are not followed.

This report was prepared for Calabasas Blue and their 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 the scope of services performed as outlined herein. These interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. Therefore, persons using this report for bidding or construction purposes should perform such independent evaluations, as they deem necessary.

Grading and foundation work at the site should be performed per the current city of Calabasas Building Code. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed by this office.

The scope of the services provided by Gorian and Associates, Inc. and its staff, excludes responsibility and/or liability for work conducted by others. Such work includes, but is not limited to, means and methods of work performance, quality control of the work, superintendence, sequencing of construction and safety in, on, or about the jobsite.

-oOo-

Thank you for allowing our firm the opportunity to provide you geotechnical services on your project. Please contact us if you have questions concerning this geotechnical report or require additional information.

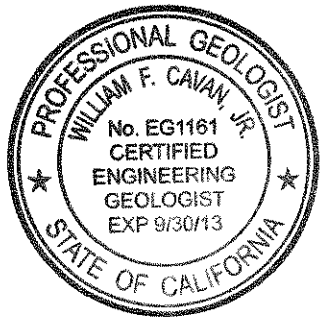
Respectfully,

Gorian and Associates, Inc.

By: Jerome J. Blunck, GE 151
Principal Geotechnical Engineer

By: William F. Cavan, Jr., CEG 1161
Principal Engineering Geologist





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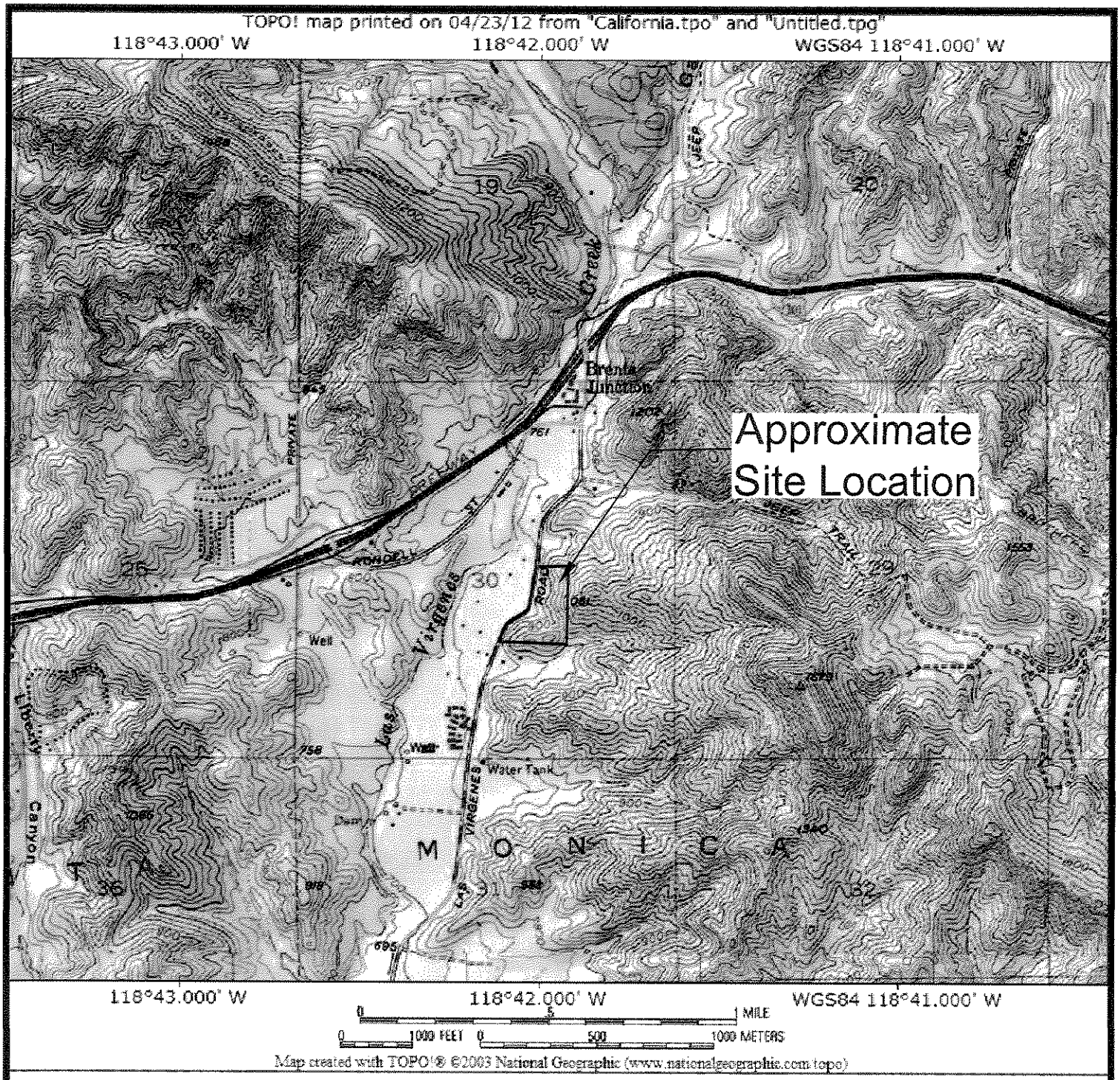
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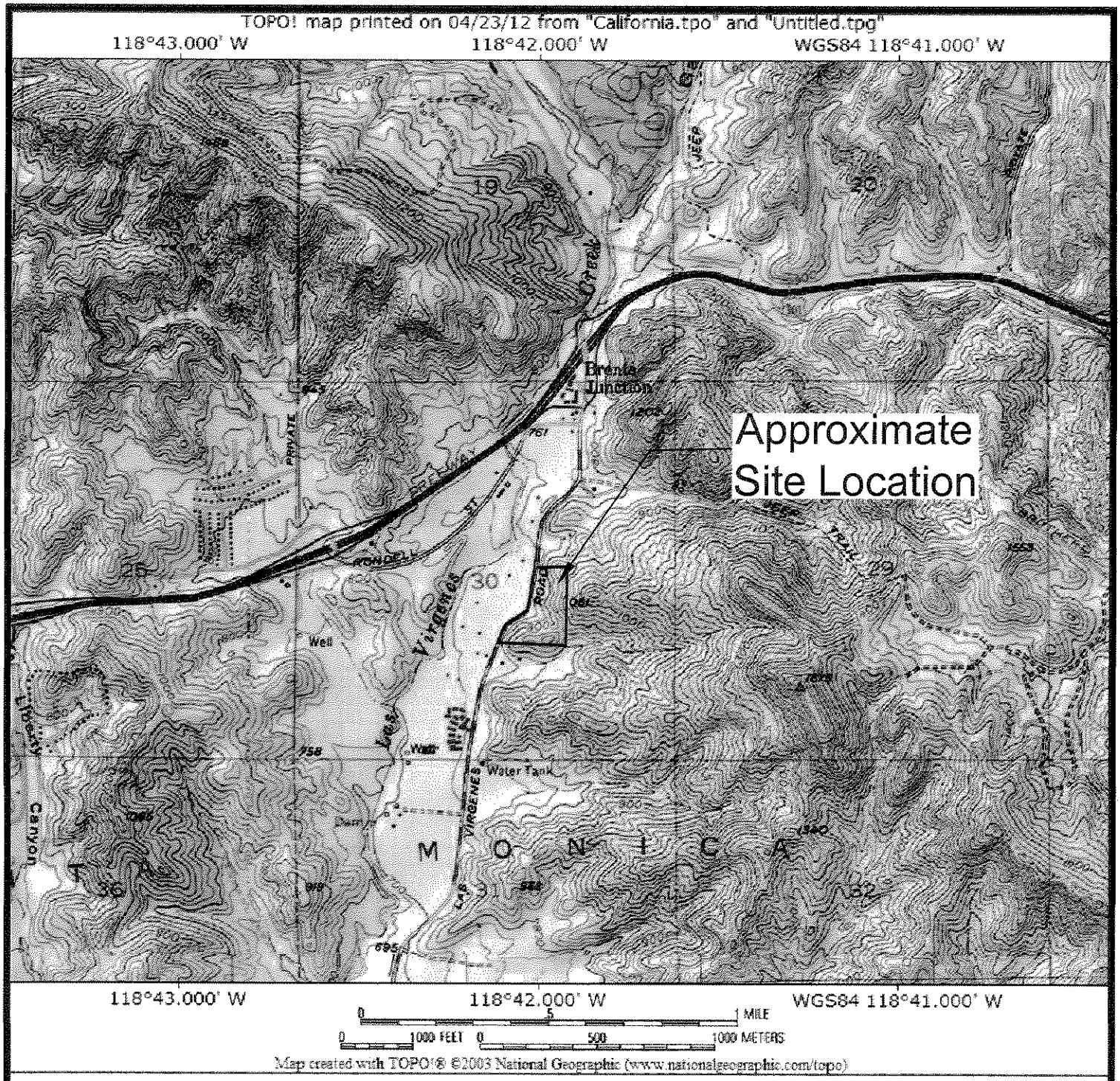
VICINITY MAP

Proposed Entrada Calabasas
4240 Las Virgenes Road
Calabasas, California

Source
USGS Calabasas Quadrangle, 7.5 minute Series (Topographic)

GORIAN & ASSOCIATES, INC.
APPLIED EARTH SCIENCES

Job No: 2928-0-0-100		Date: April 2012
Scale: 1" = 2000'	Drawn by:	Figure 1
	Approved by:	



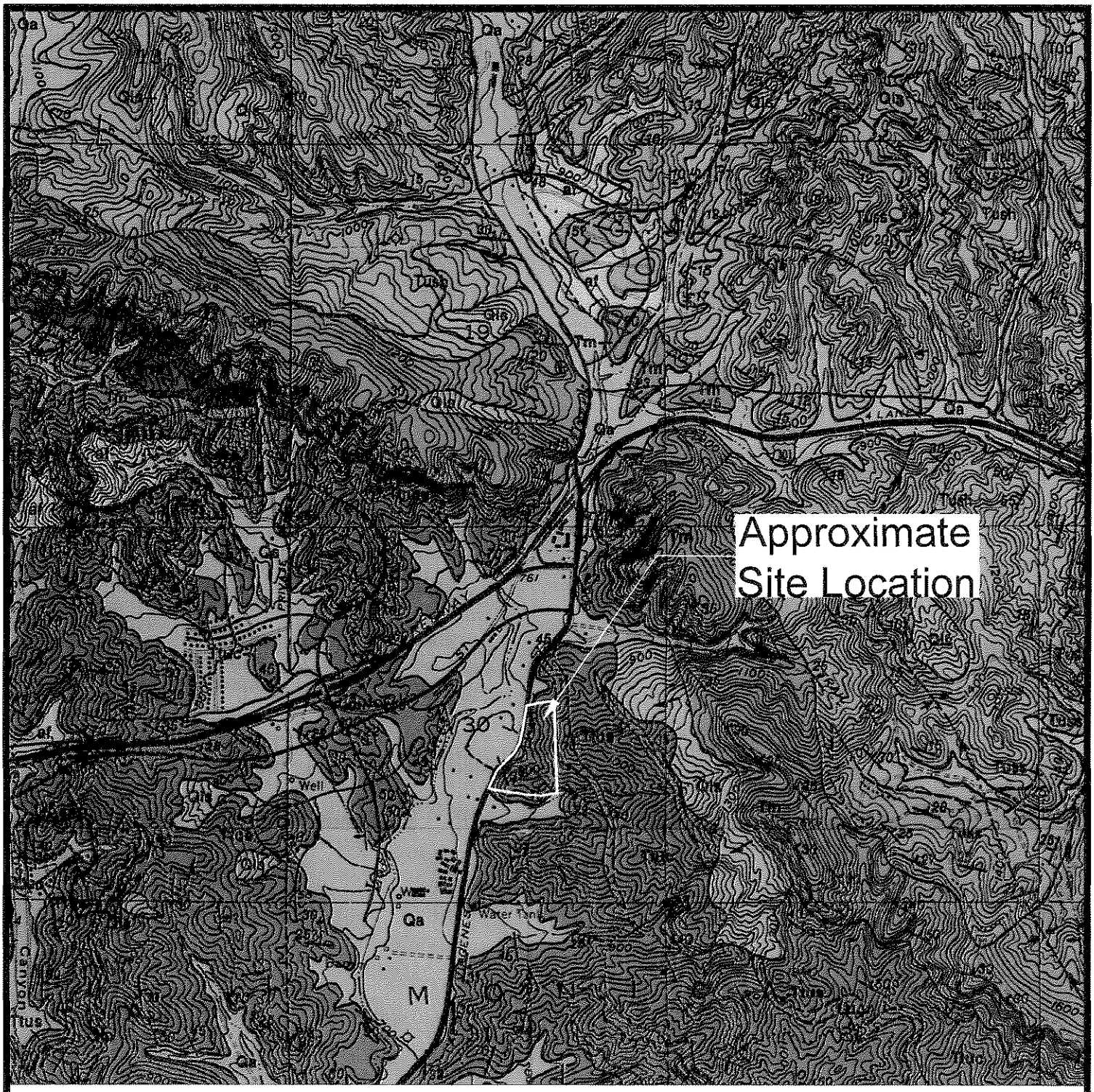
VICINITY MAP

Proposed Entrada Calabasas
4240 Las Virgenes Road
Calabasas, California

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USGS Calabasas Quadrangle, 7.5 minute Series (Topographic)

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APPLIED EARTH SCIENCES

Job No: 2928-0-0-100		Date: April 2012
Scale: 1" = 2000'	Drawn by:	Figure 1
	Approved by:	



Explanation

Qa - Surficial Sediments. Alluvial gravel, sand and clay of valley areas.

Ttuc - Upper Topanga Formation. Gray claystone, bedded, crumbly with ellipsoidal fractures.

Ttus - Upper Topanga Formation. Light gray sandstone, semi friable, thick bedded.

Source

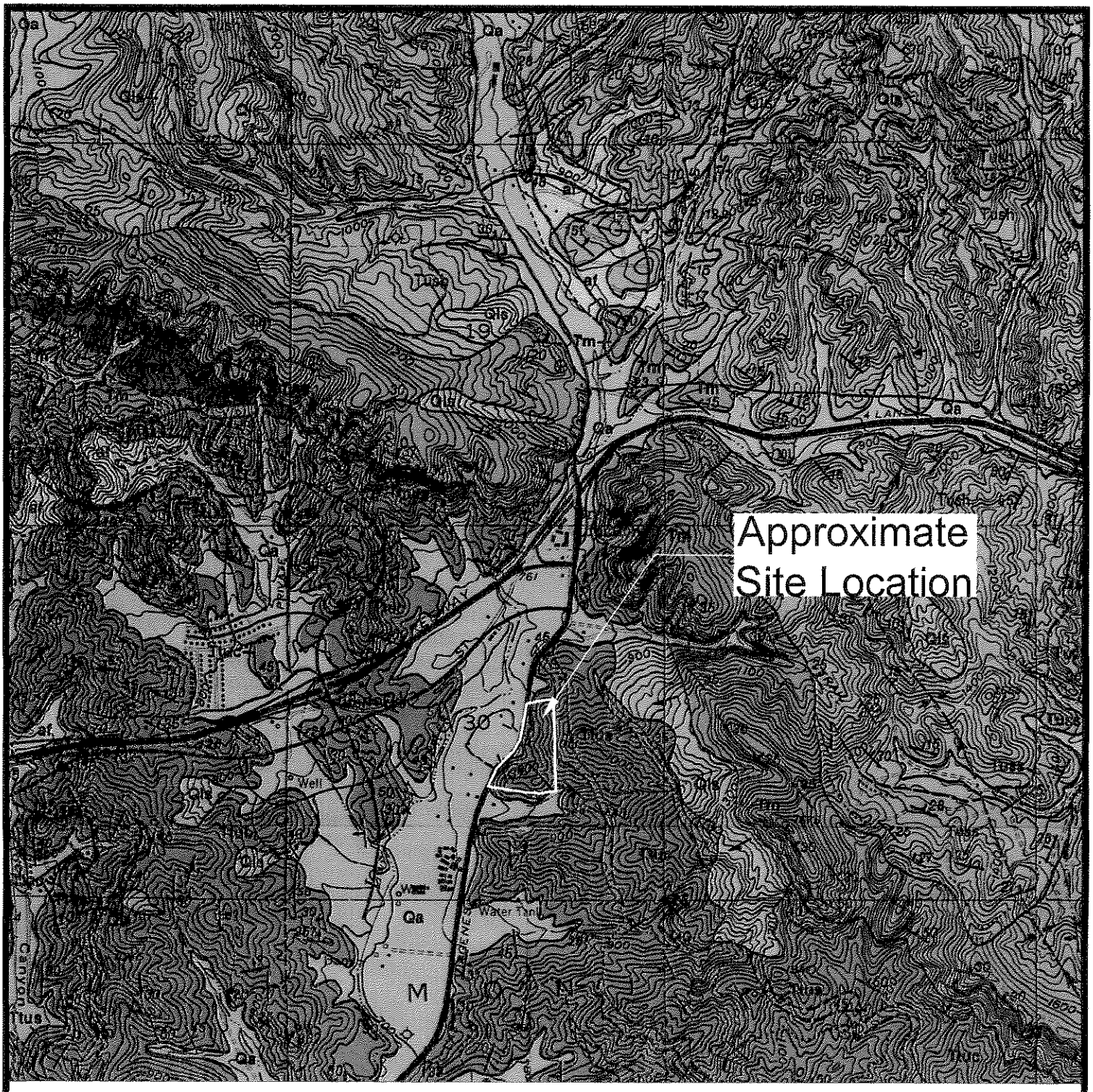
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Dibblee Geological Foundation Map # 37

REGIONAL GEOLOGIC MAP

Proposed Entrada Calabasas
4240 Las Virgenes Road
Calabasas, California.

GORIAN & ASSOCIATES, INC.
APPLIED EARTH SCIENCES

Job No: 2928-0-0-100		Date: April 2012
Scale:	Drawn by:	Figure 2
	Approved by:	



Explanation

Qa - Surficial Sediments. Alluvial gravel, sand and clay of valley areas.

Ttuc - Upper Topanga Formation. Gray claystone, bedded, crumbly with ellipsoidal fractures.

Ttus - Upper Topanga Formation. Light gray sandstone, semi friable, thick bedded.

Source

Dibblee, Thomas W. Jr., & Ehrenspeck, Helmut E., 1996. Geologic Map of the Calabasas Quadrangle, Los Angeles and Ventura Counties, California. Dibblee Geological Foundation Map # 37

REGIONAL GEOLOGIC MAP

Proposed Entrada Calabasas
4240 Las Virgenes Road
Calabasas, California.

GORIAN & ASSOCIATES, INC.
APPLIED EARTH SCIENCES

Job No: 2928-0-0-100		Date: April 2012
Scale:	Drawn by:	Figure 2
	Approved by:	

APPENDIX A

LOGS OF SUBSURFACE DATA

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-1

Page Number: 1

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 832'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
832 / 0					ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT (damp to moist, stiff). Very porous to 24", then slightly porous below. Roothairs common. Damp to 18", then moist below. Rodent borrows from 4' to 5'.	
830 / 2		9	12.6	84				Pocket Penetrometer Values @1'=4.0 @2'=2.5 @3'=1.0
828 / 4								
826 / 6							TOPANGA FORMATION: Light yellow brown silty fine-grained SANDSTONE (damp). Total Depth 6' No Caving No Groundwater	
824 / 8								
822 / 10								
820 / 12								
818 / 14								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-2

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 798½'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
798 0					ML-CL		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT to silty CLAY (damp to very moist, stiff to very stiff). Damp to 18", then moist to 2.5', then very moist below. Very porous to 18", then slightly porous below. Below 4' scattered sandstone gravels.	Pocket Penetrometer Values @1'>4.5 @2'>4.5 @3'=2.25
796 2								
794 4								
792 6							Total Depth 6' No Caving No Groundwater	
790 8								
788 10								
786 12								
784 14								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-3

Page Number: 1

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 787'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 786 2 784 4 782 6		12	11.5	86	ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT (damp, stiff). Very porous to 2', then slightly porous below. Damp to 1' then moist below. Scattered rodent borrows to 2', locally filled with light yellowish brown silty fine sand. Below 2' becoming very stiff with scattered fine to coarse gravels of sandstone.	Pocket Penetrometer Values @1>4.5 @2=3.0 @3>4.5
780 8 778 10 776 12 774 14 772							Total Depth 6' No Caving No Groundwater	

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-4

Page Number: 1

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 805'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 804					ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT (damp, stiff). Scattered cobbles of sandstone to 2'. Common rodent borrows. Very porous to 2.5', slightly porous below. Damp to 2', then moist below. Rodent borrows to 3'. Calcium carbonate veinlets below 3', some scattered fine to coarse sandstone gravels. Below 3' very stiff, moist.	Pocket Penetrometer Values @1'=>4.5 @2'=1.75 @3'=3.75 @4'=3.25
2 / 802								
4 / 800								
6 / 798							Total Depth 6' No Caving No Groundwater	
8 / 796								
10 / 794								
12 / 792								
14 / 790								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-5

Page Number: 1

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 837'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 836					ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT (damp, stiff). Upper 6" very porous, then slightly porous below. Damp to 3½' then moist below. Common fine to coarse gravels of sandstone, siltstone and claystone. Few cobbles of sandstone to 3'. Desiccation crack to 2½'.	Pocket Penetrometer Values @1'>4.5 @2'>4.5 @3'>4.5 @4'=3.25
2 / 834								
4 / 832								
6 / 830							Total Depth 6½' No Caving No Groundwater	
8 / 828								
10 / 826								
12 / 824								
14 / 822								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-6

Page Number: 1

Date(s) Excavated 3/7/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 780'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
780 0					ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT, trace fine sand (damp, stiff). Very porous to 2', then slightly porous below. Rodent borrows to 18". Scattered fine to coarse gravels of sandstone, roothairs.	Pocket Penetrometer Values @1'>4.5 @2'>4.5
778 2					ML		Yellowish brown clayey SILT (moist, stiff to very stiff). Common boulders of sandstone. Some calcium carbonate veinlets.	
							Total Depth 3' (Practical Refusal) No Caving No Groundwater	
776 4								
774 6								
772 8								
770 10								
768 12								
766 14								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-7

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 885'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 884		9	9.1	79	ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT, trace fine sand (damp, stiff). Common fine to coarse gravel and cobbles of sandstone, typically angular. Very porous to 18", then slightly porous below. Irregular contact with unit below. Rodent borrows to 18".	Pocket Penetrometer Values @1'=3.5 @2'=2.25
2 / 882							TOPANGA FORMATION: Light yellowish brown silty fine-grained SANDSTONE, interbedded with yellowish brown to brown clayey siltstone (damp). Siltstone thinly bedded, fissile.	
4 / 880							Total Depth 3' No Caving No Groundwater	
6 / 878								
8 / 876								
10 / 874								
12 / 872								
14 / 870								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-8

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 890'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
890 0					ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT, trace fine sand (damp, stiff). Common fine to coarse gravel and cobbles of sandstone, typically angular. Very porous to 18", then slightly porous below. Common roothairs throughout. Scattered calcium carbonate veinlets below 18". Irregular contact with unit below.	Pocket Penetrometer Values @1'=2.5 @2'=2.0
888 2							TOPANGA FORMATION: Light yellow brown silty fine-grained SANDSTONE (damp). Friable. Fractured, yet tight.	
886 4							Total Depth 4' No Caving No Groundwater	
884 6								
882 8								
880 10								
878 12								
876 14								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-9

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 835'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 834		5	7.2	82	ML		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown clayey SILT, trace fine sand (damp, stiff). very porous to 2', then slightly porous below. Scattered fine gravels of sandstone, few cobbles. Common roothairs to 2'. Below 2', some angular cobble clasts of sandstone. Rodent borrows to 3½'.	Pocket Penetrometer Values @1'=2.75 @2'=2.0 @3'=1.5
2 / 832								
4 / 830							TOPANGA FORMATION: Light yellow brown silty fine-grained SANDSTONE (damp). Friable.	
6 / 828							Total Depth 5½' No Caving No Groundwater	
8 / 826								
10 / 824								
12 / 822								
14 / 820								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-10

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 848'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
848 — 0					ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT, trace fine sand (damp, stiff). Common fine to coarse gravels and cobbles, rare boulders of sandstone to 2'. Very porous to 2', then slightly porous below. Common roots to roothairs, Robent borrows.	Pocket Penetrometer Values @1'>4.5 @2' 3.25 @3' 3.5
846 — 2					ML		Yellowish brown clayey SILT, trace fine sand (damp, stiff). Slightly porous, scattered rodent borrows. Some calcium carbonate veinlets.	
844 — 4							TOPANGA FORMATION: Light yellow brown silty fine-grained SANDSTONE (damp). Friable.	
							Total Depth 5' No Caving No Groundwater	
842 — 6								
840 — 8								
838 — 10								
836 — 12								
834 — 14								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-11

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 782'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
782 / 0		13	11.9	88	ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT (damp, stiff). Some calcium carbonate veinlets. Very porous to 18", then slightly porous below. Few fine to coarse gravels of sandstone. Roothairs.	Pocket Penetrometer Values @1'>4.5 @2'>4.5
780 / 2					ML-CL		Yellow brown clayey SILT, grading to silty CLAY (moist, very stiff). Slightly porous. Few cobbles, rare boulders of sandstone.	
778 / 4								
776 / 6							Total Depth 6' No Caving No Groundwater	
774 / 8								
772 / 10								
770 / 12								
768 / 14								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-12

Page Number: 1

Date(s) Excavated 3/8/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 815'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 814		17	10.4	90	ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT (damp, stiff). Common roothairs, rootlets. Very porous to 18", slightly porous below. Few fine gravels of sandstone.	Pocket Penetrometer Values @1'>4.5 @2'>4.5 @3'>4.5
2 / 812					CL		Yellow brown silty clay (moist, very stiff). Slightly porous. Few cobbles of sandstone, subangular.	
4 / 810							TOPANGA FORMATION: Light yellowish brown silty fine-grained SANDSTONE (damp).	
6 / 808							Total Depth 4½' No Caving No Groundwater	
8 / 806								
10 / 804								
12 / 802								
14 / 800								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-13

Page Number: 1

Date(s) Excavated 3/9/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 938'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
938 0							TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown silty fine SAND (damp, medium dense). Scattered fine to coarse gravels of sandstone. Some cobbles, typically angular. No observed porosity. Few roothairs.	Pocket Penetrometer Values @1'>4.5 @2'>4.5
936 2								
							TOPANGA FORMATION: Light yellow brown silty fine-grained SANDSTONE (damp). Friable.	
934 4							Total Depth 3½' No Caving No Groundwater	
932 6								
930 8								
928 10								
926 12								
924 14								

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-14

Page Number: 1

Date(s) Excavated 3/9/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 902'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk	Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
902 / 0						ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT, trace fine sand (damp, stiff). Very porous to 2', then slightly porous below. Rodent borrows to 3'. Common roothairs.	
	■		14	7.9	89				Pocket Penetrometer Values @1'>4.5 @2'>4.5 @3'>4.5
900 / 2									
						CL		Yellowish brown silty CLAY, trace fine sand (damp to moist, very stiff). Slightly porous. Few cobbles of sandstone.	
898 / 4									
896 / 6									
								Total Depth 6½' No Caving No Groundwater	
894 / 8									
892 / 10									
890 / 12									
888 / 14									

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-15

Page Number: 1

Date(s) Excavated 3/9/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 870'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
870 / 0					CL		TOPSOIL/COLLUVIUM (undifferentiated): Yellowish brown silty CLAY (damp, very stiff). No observed porosity. Roothairs to 2', desiccated to 2'.	
868 / 2							TOPANGA FORMATION: Light yellowish brown silty fine-grained SANDSTONE (damp).	Pocket Penetrometer Values @1'>4.5 @2'>4.5
							Total Depth 3' No Caving No Groundwater	
866 / 4								
864 / 6								
862 / 8								
860 / 10								
858 / 12								
856 / 14								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-16

Page Number: 1

Date(s) Excavated 3/9/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 842'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
842 — 0					ML		TOPSOIL/COLLUVIUM (undifferentiated): Olive clayey SILT (damp, stiff). Scattered fine to coarse gravels of sandstone. Some roothairs, rodent borrows. Gradational contact with unit below. Slighly porous to 1'.	
840 — 2							TOPANGA FORMATION: Highly weathered, light gray clayey SILTSTONE interbedded with light yellow brown fine-grained sandstone. Rodent borrows to 3'. Some calcium carbonate veinlets.	Pocket Penetrometer Values @1' 3.5
838 — 4							Grey clayey SILTSTONE interbedded with light yellowish brown fine-grained sandstone. Thinly bedded, fissile.	
836 — 6							Total Depth 4½' No Caving No Groundwater	
834 — 8								
832 — 10								
830 — 12								
828 — 14								

GORIAN & ASSOCIATES, INC.

Project: Calabasas Blue
Tract 60488

Work Order: 2928-0-0-100

SUBSURFACE LOG

Excavation
Number: GAI-17

Page Number: 1

Date(s) Excavated 3/9/12	Logged By CHD	Excavation Location See Geotechnical Map	Approximate Surface Elevation 817'±
Excavation Dimension 30"	Equipment Contractor Mike's Excavating	Equipment Type Hand Labor	Hammer Data Hand Sampler

Elevation / Depth (ft.)	Bulk Sample Type	Blow Counts	Moisture Content (% dry weight)	Dry Density (pcf)	USCS	Soil / Lithology	Description	Remarks
0 / 816					ML		TOPSOIL/COLLUVIUM (undifferentiated): Brown clayey SILT (damp, stiff). Very porous to 2', then slightly porous below. Few cobbles of sandstone. Roothairs throughout.	Pocket Penetrometer Values @1'>4.5 @2'>4.5
2 / 814							TOPANGA FORMATION: Pale yellow silty fine-grained SANDSTONE (damp). Friable.	
4 / 812							Total Depth 4' No Caving No Groundwater	
6 / 810								
8 / 808								
10 / 806								
12 / 804								
14 / 802								

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silt



Sandstone



Blank



Silty clay or clayey silt



Low plasticity clay



Sand



Siltstone

Soil Samplers



California sampler

Notes:

1. These logs are subject to the limitations, conclusions, and recommendations in this report.

APPENDIX A
BORING LOGS

SUBSURFACE DATA

LOG OF BORING BA-1

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 782'	DATE: 7/16/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Topsoil: Dark brown fine sandy SILT (ML) to silty fine SAND (SM),	
			X			scattered clay, poorly graded, medium dense, moist, porous (pinhole	
			X			to 0.1"), scattered organics (roots).	
			X			@2' - Alluvium: Mottled yellowish brown fine to coarse	
						SAND (SP) and dark brown SILT (ML) with scattered fine to medium	
5						sand, moderately graded, medium dense, moist.	
	6	C		10.4	115.0	@3' - Brown CLAY (CL) with scattered fine sand and gravel, graded,	
						stiff to very stiff, moist, trace organics.	
10						@7' - Yellowish brown silty fine to medium SAND (SM) with scattered	@10.5' B
	6	C		18.3	110.5	dark brown sandy CLAY(CL) and gravel, moderately	N17W/77NE
						graded, medium dense, moist, clay is plastic, scattered carbonate.	N65W/82NE
						@10.5' - Topanga Formation: Irregular erosional contact. Interbedded	@12.5' J
						gray and orange SILTSTONE and CLAYSTONE, pale brown fine	N47W/32SW
15						SANDSTONE, moderately indurated, moist, thickly	@14' B
						laminated, folded, reddish brown	N36W/48NE
						oxidation at claystone/sandstone contacts, contacts are wavy, abrupt.	@14.5' B
						@11' - Interbedded gray SILTSTONE and yellowish brown to pale	N15W/38NE
						brown fine SANDSTONE, moderately indurated, moist,	@15' J
20			X			laminated to very thinly bedded 0.3-2" thick, iron	N12E/61SE
			X			staining.	@17' B
			X			@14.5' - Seep along bedding in 6-8" thick sandstone bed, seep	N25W/39NE
			X			heaviest in SW quadrant and causing caving of fine grained beds in	@19' B
			X			NE quadrant (down-dip).	N25W/40NE
25			X			@17' - Interbedded sandstone and CLAYSTONE, beds to 4" thick,	JN59E/87SE
			X			sandstone is discontinuous.	BN8E/40SE
			X			@23' - Unoxidized material.	@21' J
			X			@27' - Gradational, along-bedding contact to unoxidized interbedded	N33E/70SE
			X			light gray fine to medium SANDSTONE and dark gray	BN62W/53NE
30			X			SILTSTONE, well indurated, moist, sandstone very thinly to medium	@22' B
						bedded, ripple cross lamination, joints showing minor offset,	N28W/54NE
						soft sediment deformation, scour and fill,	JN18W/60SW
						siltstone very thinly to thinly bedded.	@23' B
							N27W/42NE
35							@27' B
							N30W/37NE
							N31W/48NE
							@33' J
							N65E/Vertical
40							BN55W/64NE
45							

ADDITIONAL COMMENTS: Blows per 12"
C = Modified California Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

SUBSURFACE DATA

LOG OF BORING BA-1

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 782'	DATE: 7/16/07
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
						Hole logged to 44', no logging below heaving caving zone at 46'.	
45						Standing water on bottom of hole.	
50							
55							
60							
65							
						Total Depth - 67'	
						Seep at 14.5-16'	
						Caving from 14.5-22' and 46-49' (heavy)	
70						Backfilled with native	
75							
80							
85							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING BA-2

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 802'	DATE: 7/17/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Topsoil: Dark brown clayey fine to medium SAND (SC),	
			X			moderately graded, loose, dry, porous to 0.1" in diameter, organics	
			X			(rootlets).	
	4	C	X	7.4	113.9	@1.5' - Yellowish brown clayey fine to medium SAND (SC),	
						moderately graded, dense, moist, trace organics (rootlets), iron staining.	
5						@3.5' - Weathered Topanga Formation: Gradational contact to weathered	@5' B
						interbedded gray and reddish brown SILTSTONE, yellowish brown	N82E/42NW
						fine to medium SANDSTONE, and dark brown CLAYSTONE,	
	5	C		14.4	114.9	moderately indurated, moist, thickly laminated.	
						@6' - Yellowish brown fine to medium SANDSTONE, poorly	
10						graded, moderaetly indurated, moist, iron	@10' B
						staining, weathered.	N72W/47NE
			X			@7' - Mottled gray SILTSTONE, well indurated, moist.	
			X				
			X			@8' - Yellowish brown fine to coarse grained SANDSTONE,	@14' B
15			X			well indurated, moist, iron staining, weathered.	N54W/46NE
			X			@10.5' - Gray and brown interbedded SILTSTONE and CLAYSTONE,	
			X			yellowish brown fine to medium SANDSTONE,	
						moderately to well indurated, moist, iron staining, beds thickly laminated.	@18' B
							N25W/45NE
20	5	C		16.4	113.4	@18' - Topanga Formation: Unweathered, well indurated.	
						@19' - Moisture increase to wet.	
						@20' - Interbedded brown SILTSTONE, and pale	@23' B
						brown fine grained SANDSTONE, moderately to well indurated, wet,	N40W/57NE
25	6	C		16.8	113.2	iron staining at contacts, thickly laminated.	
						@25.5' - Along bedding seeps.	
							@27' B
							N28W/53NE
30							
	7	C		13.1	117.8	@31' - Unoxidized materials.	@31' B
							N18W/50NE
			X				
			X			@34.5' - Interbedded gray	
35	7	C	X	13.9	118.5	SILTSTONE, dark gray CLAYSTONE, and light gray cross-bedded	@35' B
			X			SANDSTONE, moderately indurated, moist, thickly laminated, trace	N6W/56NE
			X			organics (carbon).	
			X				
40	7	C		12.4	119.2		@40.5' B
							N14W/59NE
45							

ADDITIONAL COMMENTS: Blows per 12"
C = California Modified Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

SUBSURFACE DATA

LOG OF BORING BA-2

CLIENT: Standard Pacific					PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas					ELEVATION: 802'	DATE: 7/17/07
RIG TYPE: 24" Bucket					HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
						@43' - 3-4" thick light gray SANDSTONE bed.	
						@44' - Gas seeping out of S quadrant.	@44' B N15W/43NE
45							
						@46' - Light gray fine to medium grained	
						SANDSTONE with few gray CLAYSTONE interbeds, massive	@47.5' B
						and cross-bedded.	N21W/59NE
50	7	C		12.0	117.1		
						@51' - Interbedded gray SILTSTONE, dark gray CLAYSTONE, and	
						light gray cross-bedded SANDSTONE, moderately to well indurated,	
						moist, thickly laminated.	@53.5' B N30W/73NE
55							
							@56' B N14W/70NE
60	8	C		13.4	102.5		
65						Total Depth - 65'	
						Seeps from 25.5'	
						No caving	
						Backfilled with native.	
70							
75							
80							
85							

ADDITIONAL COMMENTS:

SUBSURFACE DATA LOG OF BORING BA-3

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 789'	DATE: 7/17/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Topsoil: Dark brown silty fine grained SAND (SM) with scattered clay,	
			X			moderately graded, medium dense, moist, porous to 0.1" in diameter,	
			X			scattered organics (rootlets).	
			X			@3.5' - Brown fine to medium sandy CLAY (CL) and clayey fine to	
						medium SAND (SC) with scattered subangular gravel, moderately	
5	4	C		18.6	108.6	graded, medium dense, moist, plastic, pores pinhole to 0.1"	
						in diameter, trace organics (rootlets).	
						@6' - Mottled brown and gray CLAY (CL) with scattered fine sand,	
						moderately graded, soft, moist, plastic, iron staining.	
						@9' - Topanga Formation: Gray, brown, and orange interbedded	
10	4	C		18.3	109.0	SILTSTONE and CLAYSTONE, moderately to well indurated, moist,	
						very thinly bedded.	@11' B
						@11' - Seep out of north wall, caving.	N80W/43NE
			X			@13' - Free water along bedding planes in south wall.	@13' B
			X				N74W/57NE
15	5	C	X	17.0	112.0		
			X			@16' - North wall saturated and soft.	
			X				@17' B
							N87W/52NE
						@19' - Unoxidized materials, north wall saturated and soft.	@19' J
20	7	C		14.4	115.8	@20' - Unoxidized interbedded	N46W/41NE
						gray SILTSTONE, dark gray CLAYSTONE, and light gray fine	
						SANDSTONE, modetately to well indurated, moist and wet where	@22'
			X			seeping, scour and fill channels, abrupt oxidized contacts between	BN74W/52NE
			X			beds, siltstone thickly laminated, sandstone thickly laminated to thinly	JN47W/47SW
25			X			bedded, laterally discontinuous.	JN46E/86SE
			X			@23' - 2-3' thick light gray to dark gray laminated SILTSTONE, steeply	@23' J
			X			dipping to the north, heavy caving, wedge failure along prominent	N26W/46SW
						intersecting joint planes parting off bedding.	N87W/31SW
30	7	C		11.9	115.1	Hole logged to 23', no downhole logging below heavy caving zone at	
						22-27'.	
						@30' - Interbedded dark gray clayey SILTSTONE, black	
						CLAYSTONE, and light gray fine SANDSTONE,	
35						moderately to well indurated, moist, soft sediment deformation, siltstone	
						thickly laminated, claystone thinly laminated, sandstone very thinly	
						bedded and cross-bedded.	
40	7	C		13.1	120.2		
45							

ADDITIONAL COMMENTS: Blows per 12"
C = Modified California Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

Logged by: RMP/GF Geolabs-Westlake Village PLATE BA-3.1

SUBSURFACE DATA

LOG OF BORING BA-3

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 789'	DATE: 7/17/07
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
45							
50	7	C		14.4	110.0		
55							
60	10	C		15.2	114.2		
65							
70						Total Depth - 67' Seeps at 11' and 19' Caving at 11', heavy caving from 22'-27' Backfilled with native	
75							
80							
85							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING BA-4

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 842'	DATE: 7/19/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Topsoil: Dark brown SILT (ML), poorly graded, soft, dry, porous to 0.1" in diameter, organics (rootlets).	
						@0.5' - Brown fine sandy SILT (SM), poorly graded, very stiff, dry.	
						@2' - Topanga Formation: Olive gray to olive brown SILTSTONE, moderately indurated, moist, very thinly bedded.	
5						@2.5' - 6-10" thick well indurated SANDSTONE.	@5' B N15E/31SE
						@5' - Pale brown silty fine to medium SANDSTONE,	@6' J
	5	C		6.8	120.7	modertaely indurated, moist, beds 6-8" thick, mud ripups clasts,	N40E/83NW
						interbedded with olive gray and olive	@8.5' B
10	7	C		11.5	108.3	brown SILTSTONE and CLAYSTONE, moderately indurated, moist,	N27E/26SE
						thickly laminated to thinly bedded,	@9' J
						fining upwards sequences, scour and fill.	N65E/78NW
						@6' - Discontinuous joint with minor offset in siltsone beds, carbonate	
15	10	C		15.6	112.5	mineralization < 1/4" thick.	
							@16' J
			X				N67E/80NW
			X			@9' - Thinly bedded CLAYSTONE and	BN12W/21NE
			X			SILTSTONE, interbeds of 1"-8" thick fine to medium	
20	10	C	X	10.7	117.3	SANDSTONE.	
						@16' - Discontinuous joint with about 1/4" displacement.	
						@17.5' - Interbedded CLAYSTONE, SILTSTONE, and	@22'
						SANDSTONE interbeds to 2" thick.	BN5E/27SE
							JN48E/85NW
25	10	C		14.0	115.1		JN78E/85SE
							JN84E/88NW
						@26' - Fine to medium grained SANDSTONE with mud	@27.5' B
						ripups to 4" in diameter.	N20E/26SE
						@27.5' - Interbedded CLAYSTONE, SILTSTONE,	
30						and SANDSTONE.	
	12	C		16.1	103.4	@31' - Interbedded olive gray, gray, and olive brown SILTSTONE and	
						CLAYSTONE, fine SANDSTONE, moderately indurated, moist,	
						very thinly bedded.	
35							
	10	C		12.2	113.7	@36' - Pale brown fine to medium SANDSTONE, olive	
						gray and brown SILTSTONE, moist, well indurated, well sorted.	
40						Total Depth - 38.5'	
						Refusal on sandstone	
						No groundwater	
						No caving	
						Backfilled with native	
45							

ADDITIONAL COMMENTS: Blows per 12"
C = Modified California Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

Logged by: RMP

Geolabs-Westlake Village

PLATE BA-4

SUBSURFACE DATA LOG OF BORING BA-5

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 815'	DATE: 7/19/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Topsoil: Dark brown fine sandy SILT (ML), poorly graded, very stiff, moist, pores to 0.1" in diameter, organics (roots).	
			X				
			X				
			X			@3.5' - Very stiff to hard.	
5	4	C		10.5	117.2	@5' - Gravel to 1.5' in length.	@9' B N56W/30NE
							@10.5' J N76E/64SE
						@5.5' - Brown to yellowish brown fine grained sandy SILT (ML) with scattered coarse sand and gravel, moderately graded, hard, moist,	N30W/85SW
10	6	C		10.6	118.5	iron staining, trace organics (rootlets).	@11'
						@7.5' - Extremely weathered bedrock clasts to 6" diameter with indistinct bedding.	BN60W/19NE Channel
						@8.5' - Topanga Formation: Gradational, bedding-parallel contact to interbedded gray and brown SILTSTONE, gray and organge	N47E/46SE @12' Channel
15						CLAYSTONE, and fine to medium SANDSTONE, moderately to well indurated, moist, fining upwards sequences, gradational and abrupt	N44E/59SE @13' J N13W/90
						contacts, weathering along contacts, scour and fill channels, trace organics.	Channels N27W/72NE
20	7	C	X	11.5	112.6		N57E/45-75SE @16.5'
			X				BN30W20NE
			X			@11' - Channel in SILTSTONE	JN20W/76SW
			X			and sandstone.	JN68E/90
						@12' - Channel in SANDSTONE, about 1' thick.	Channel
25	8	C		11.6	115.6		N26W/67NE
						@13' - SANDSTONE, well indurated, moist, hard, jointed, channelized.	@18' Channel
						@13.5' - Channel.	N57E/67SE
						@16.5' - Channel.	@18.5' J
30	8	C		16.7	102.9	@18' - Discontinuous channel.	N62E/88NW
							@20'2" B
						@20' - SILTSTONE.	N2E/22SE
						@20'2" - SANDSTONE, well graded.	@21.5' J
						@21.5' - Discontinuous joint in sandstone.	N35W/64SW
35				7.5	114.6	@25' - Channel.	@25'
						@28.5' - SANDSTONE, joints open 4" and weathered dark brown.	BN3W/25NE JN61E/90
							@28.5' J
						@29.5' - Interbedded SILTSTONE and SANDSTONE.	N73W/67NE
40	8	C		7.0	115.5	@40.5' - Yellowish brown silty fine to medium grained SANDSTONE.	N40E/90 @29' B N10E/14SE
							@33' B N2E/28SE
45							

ADDITIONAL COMMENTS: Total Depth - 40.5' refusal
No groundwater
No caving
Backfilled with native

Blows per 12"
C = Modified California Sampler
Kelly Bar Weight 0 - 15',
15 - 30',
30 - 45',
45 - 70',

Logged by: RMP Geolabs-Westlake Village PLATE BA-5

SUBSURFACE DATA LOG OF BORING BA-6

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 776'	DATE: 7/20/07
RIG TYPE: 24" Bucket						HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Topsoil: Dark brown fine sandy SILT (ML), poorly graded, hard, dry,	
			X			pinhole porosity, organics (roots).	
			X			@2' - Dark brown and yellowish brown sandy SILT (ML), scattered	
			X			carbonate.	
			X			@3' - Brown, scattered carbonate.	
5	4	C	X	12.1	113.6	@4.5' - Brown fine sandy SILT (ML), scattered	
						gray SILT (ML), poorly graded, very stiff, moist, scattered carbonate.	
						@8' - Landslide Debris: Remnant bedding. Gray SILT, orange CLAY and	@8.5' B
						yellowish brown fine silty SAND, moderately graded, medium dense,	N3E/34SE
10	4	C	X	17.1	107.9	moist, disturbed, weathered, indistinct overturned bedding, tight folding	Overturned
			X			at 8.5' and 9'.	N3W/37SW
			X				N17W/35NE
			X			@10' - Overturned bedding, discontinuous blocks, folding.	@10' B
			X				N1E/62SE
15	7	C	X	26.9	102.2	@10.5' - 6" thick black CLAY bed, scattered gypsum crystals.	Overturned
						@11' - 12" thick SAND bed with 2" thick SILT (SM) interlayer.	N10E/67NW
							@17' B
						@18' - South wall of boring massive yellowish brown silty fine	Overturned
						SAND, moderately graded, medium dense, moist, with gray and orange	N10E/59NW
20	5	C		20.6	107.9	mud ripups, indistinct bedding.	@20' B
						@21' - Abrupt contact to interbedded gray SILT, orange CLAY, and	Overturned
						yellowish brown silty fine SAND, graded, dense, moist, joint	N14E/46SE
						showing minor offset to 2-4" and gypsum crystals.	@21' J
							N45W/30NE
25	7	C		15.3	113.9		@23'4" J
							E-W/69S
							@25' B
							Overturned
							N6E/68SE
30	8	C		19.2	106.9	@30' - Sands wet and bedding jointed and soft.	
						@31' - Tight fold, overturned bedding, shear <mm thick, with	@31'
						subhorizontal slickenlines.	Overturned
							BN48E/72SE
							BN36W/22SW
35	8	C		18.5	107.6		SN87W/54SW
							Slicks
							N85W/2
							@34.5' B
							N17W/73NE
40	7	C		20.8	106.2		N42E/32SE
						@42.5' - Along bedding gradational contact to unoxidized, interebeded	
						dark gray CLAY, gray SILT, and light gray silty fine SAND, moderately	
						graded, medium dense, wet.	
45							

ADDITIONAL COMMENTS: Blows per 12"
C = Modified California Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

Logged by: RMP Geolabs-Westlake Village PLATE BA-6.1

SUBSURFACE DATA LOG OF BORING BA-6

CLIENT: Standard Pacific					PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas					ELEVATION: 776'	DATE: 7/20/07
RIG TYPE: 24" Bucket					HAMMER WEIGHTS: Kelly Bar Weights	DROP: 6"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
						@43' - Topanga Formation: Sheared contact, along basal slide plane,	@43' Slide Plane
						interbedded light gray SANDSTONE and gray SILTSTONE,	N33W/33NE
45	8	C		12.1	110.7	well indurated, wet, ripple cross lamination,	Slicks
						soft sediment deformation, shear	N5E/22
						1/4"-1" thick plastic CLAY (CH) with slickenlines.	@44' B
							N15W/35NE
						@49' - Jointed, soft, folded.	@49' B
50	8	C		15.9	107.5		N4E/54SE
							Overturned
							N51W/84NE
							N76W/63SE
							@50.5'
55	7	C		13.4	113.1		BN31W/54SW
							JN11E/57NW
							@54' B
							N36W/62SW
60							
	8	C		13.3	114.1		
65							
70						Total Depth - 65'	
						Groundwater at 30'	
						No caving	
						Backfilled with native	
75							
80							
85							

ADDITIONAL COMMENTS: Blows per 12"
C = Modified California Sampler
Kelly Bar Weights: 0 - 15',
15 - 30',
30 - 45',
45 - 70',

SUBSURFACE DATA

LOG OF BORING GWV-1

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 757'	DATE: 7/12/07
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X			Alluvium: 6" of dark brown topsoil, pores to 0.1" in diameter, organics (roots).	
			X				
	1/2/3	S	X	10.7		@2.5' - Brown silty fine SAND (SM), scattered clay, moderately graded, loose, moist, trace iron staining.	
			X				
			X				
5	4/8/12	C	X	13.3	115.0	@5' - Yellowish brown very sandy SILT (SP-SM), poorly graded, stiff, moist, plastic, trace orange and bluish gray staining.	
			X			@6.5' - Refusal on gravel.	
10						Refusal at 6.5'	
						No groundwater	
						Backfilled with native	
15							
20							
25							
30							
35							
40							
45							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING GWV-1a

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 757'	DATE: 7/12/07
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium:	
5							
	2/3/4	S				@7.5' - Brown sandy SILT (ML) with scattered clay, moderately graded, medium stiff, moist, plastic, overlying light yellowish brown silty fine to medium SAND (SM), poorly graded, loose, moist.	
10	15/50-5"	C		12.4	103.0	@10' - Yellowish brown silty fine SAND (SM) with scattered gravel, moderately graded, loose to medium dense, moist, high blowcounts due to gravel.	
15	13/15/18	S				@15' - Topanga Formation: Interbedded pale brown and yellowish brown fine SANDSTONE, gray, grayish brown, and olive brown SILTSTONE, poorly graded within beds, moderately to well indurated, moist, lamina to 1/4" thick, appears to be steeply dipping (approximately 60-70°).	
20							
25						Total Depth - 15' No groundwater Backfilled with native	
30							
35							
40							
45							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING GWV-2

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 757'	DATE: 7/12/07
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium: 12" of topsoil, dark brown, pores < 0.1" in diameter.	
	4/4/5	C		7.4	95.2	@2.5' - Brown silty fine SAND (SM) with scattered clay, moderately graded, loose, moist, trace iron staining.	
5	1/2/2	S		8.9		@5' - Brown silty fine SAND (SM) with scattered clay, moderately graded, very loose, moist.	
	11/7/8	C		12.4	115.0	@7.5' - Brown silty fine SAND (SM) to fine sandy SILT (ML), poorly graded, loose, moist, scattered coarse sand and carbonate nodules, trace iron staining.	
10	2/2/6	S		15.3		@10' - Light brown fine to medium sandy SILT (ML) with scattered coarse sand, graded, medium stiff, moist, carbonate nodules, trace iron staining.	
15	8/13/27	C		17.8	113.0	@15' - Weathered Topanga Formation: Interbedded weathered gray SILTSTONE, dark brown CLAYSTONE, and yellowish brown fine SANDSTONE, moderately indurated, poorly graded within beds, moist, subhorizontal lamina to 1/4" thick, scattered gypsum crystals and trace organics.	
20	4/5/10	S		20.0		@20' - As above, lamina appears to be dipping approximately 40-60°.	
25	7/10/16	C		18.9	109.0	@25' - Mottled and interbedded yellowish brown SANDSTONE, olive brown and grayish brown SILTSTONE, and gray CLAYSTONE, moderately indurated, poorly graded within beds, moist, sandstone beds are wet, beds highly disturbed, scattered gypsum crystals.	
						@28' - Topanga Formation:	
30	10/13/27	S		11.2		@30' - Gray fine SANDSTONE, interbedded with black CLAYSTONE and gray SILTSTONE, poorly graded within beds, moderately to well indurated, moist, lamina to 1/4", appears to be dipping about 30-40°, soft-sediment deformation.	
35							
40						Total Depth - 30' Groundwater 25' Backfilled with native	
45							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING GWV-3

CLIENT: Standard Pacific	PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas	ELEVATION: 749'	DATE: 7/12/07
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium: 6" topsoil, dark brown, pores to 0.1" in diameter.	
	3/5/5	S		12.5		@2.5' - Light brown fine sandy SILT (ML) to silty fine SAND (SM) with scattered coarse sand, poorly graded, loose, moist, trace iron staining.	
5	8/12/25	C		17.8	110.0	@5' - Weathered Topanga Formation: Interbedded brown clayey SILTSTONE with fine sand, pale brown fine SANDSTONE, and dark olive brown and orange CLAYSTONE, moderately indurated, moist, subhorizontal lamina to 1/16" thick, iron staining, carbonate nodules.	
	5/9/10	S		16.1			
10	10/13/17	C		16.8	110.0	@7.5' - Interbedded pale brown silty fine SANDSTONE and dark olive brown CLAYSTONE, moderately indurated, moist, lamina <1/4" thick, lamina < 1/4" thick, appears to dips about 50°, iron staining. @10' - Mottled dark olive brown, orange, and pale brown silty CLAYSTONE with fine sand, moderately indurated, moist, appears to dip approximately 30-40°.	
15	2/6/11	S		18.3		@15' - Mottled dark olive brown silty CLAYSTONE interbedded with pale brown fine SANDSTONE, moderately indurated, moist, subhorizontal to shallow dips (0-20°), lamina <1/4" thick, gypsum crystals, iron staining.	
20	8/19/27	C		11.1	123.0	@20' - Interbedded dark brown and reddish brown CLAYSTONE and pale brown to olive brown fine SANDSTONE, moderately indurated, moist, lamina <1/4" thick, bedding appears to be dipping 20-40°, gypsum crystals.	
25	7/10/12	S		19.6		@25' - Topanga Formation: Olive brown SILTSTONE and CLAYSTONE, interbedded with pale brown fine SANDSTONE, moderately indurated, moist, iron staining,overlying interbedded dark gray SILTSTONE, black CLAYSTONE, and light gray fine SANDSTONE, moderately indurated, moist, appears to be dipping > 60°, soft sediment deformation, lamina <1/4" thick.	
30							
35						Total Depth - 25' No groundwater Backfilled with native	
40							
45							

ADDITIONAL COMMENTS:

SUBSURFACE DATA

LOG OF BORING GWV-4

CLIENT: Standard Pacific						PROJECT: La Entrada	W.O.: 8892
LOCATION: Calabasas						ELEVATION: 749'	DATE: 7/12/07
RIG TYPE: 8" HSA						HAMMER WEIGHTS: 140 lbs.	DROP: 30"
	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium:	
	6/7/9	C	X	9.8	105.0	@2.5' - Brown silty fine grained SAND (SP), poorly graded, loose, moist, trace iron staining on sand grains.	
			X				
			X				
5	5/2/5	S	X	14.9		@5' - Brown silty fine grained SAND (SP), poorly graded, loose, moist, trace iron staining on sand grains.	
			X				
	5/11/17	C	X	15.1	114.0	@7.5' - Brown fine sandy CLAY (CL) with scattered coarse sand, moderately graded, very stiff, moist, plastic, trace iron staining.	
			X				
			X				
10	2/4/7	S	X	16.8		@10' - Brown silty CLAY (CL) with scattered fine sand, poorly graded, stiff, moist, plastic, trace iron staining.	LL=36 PI=22
15	7/9/14	C		18.9	111.0	@15' - Brown silty CLAY (CL) with scattered coarse sand, poorly graded, stiff, moist, plastic, trace iron staining.	LL=37 PI=23
20	5/8/10	S		20.9		@20' - Brown silty CLAY (CL), very stiff, moist, with scattered gravel to 1/4" in length, interbedded SILTSTONE and silty fine SANDSTONE in tip that appears to be dipping (about 50-60°). @20.5' - Topanga Formation:	
25	13/16/28	C		18.1	108.0	@25' - Interbedded yellowish brown silty fine grained SANDSTONE, dark yellowish brown and dark grayish brown CLAYSTONE, and brown SILTSTONE, moderately cemented, moist, appears to be dipping approximately 70°, lamina to 1/16" thick, very thin beds to 1/4" thick, trace organics.	
30							
35						Total Depth - 20' No groundwater Backfilled with native	
40							
45							

ADDITIONAL COMMENTS:

Logged by: RMP

Geolabs-Westlake Village

PLATE GWV-4

APPENDIX B
TRENCH LOGS

Hand Hole TP1

Depth (ft)	Description
3'	Colluvium: Medium brown sandy CLAY with occasional small ½" diameter sandstone fragments, dry to slightly moist at 1.5', medium stiff to stiff at 2.1'.

Hand Hole TP2

Depth (ft)	Description
1'	Colluvium: Medium brown sandy CLAY with angular sandstone fragments 1-2" diameter, refusal at 1', abundant porosity, rootlets, dry, soft to medium stiff.

Hand Hole TP3

Depth (ft)	Description
3'	Colluvium: Medium brown silty SAND and sandy SILT, moist, medium dense, medium stiff.

Hand Hole S1

Depth (ft)	Description
1.5'	Alluvium: Brown fine grained sandy clayey SILT, porous, moist, medium stiff.

Hand Hole S2

Depth (ft)	Description
1.5'	Alluvium: Brown fine grained sandy clayey SILT, porous, moist, medium stiff.

Hand Hole S3

Depth (ft)	Description
1.5'	Alluvium: Brown fine grained sandy clayey SILT, porous, moist, medium stiff.

Hand Hole S4

Depth (ft)	Description
1.5'	Colluvium: Light brown fine grained sandy clayey SILT, pinhole porosity, rootlets, moist, medium stiff.

Hand Hole S5

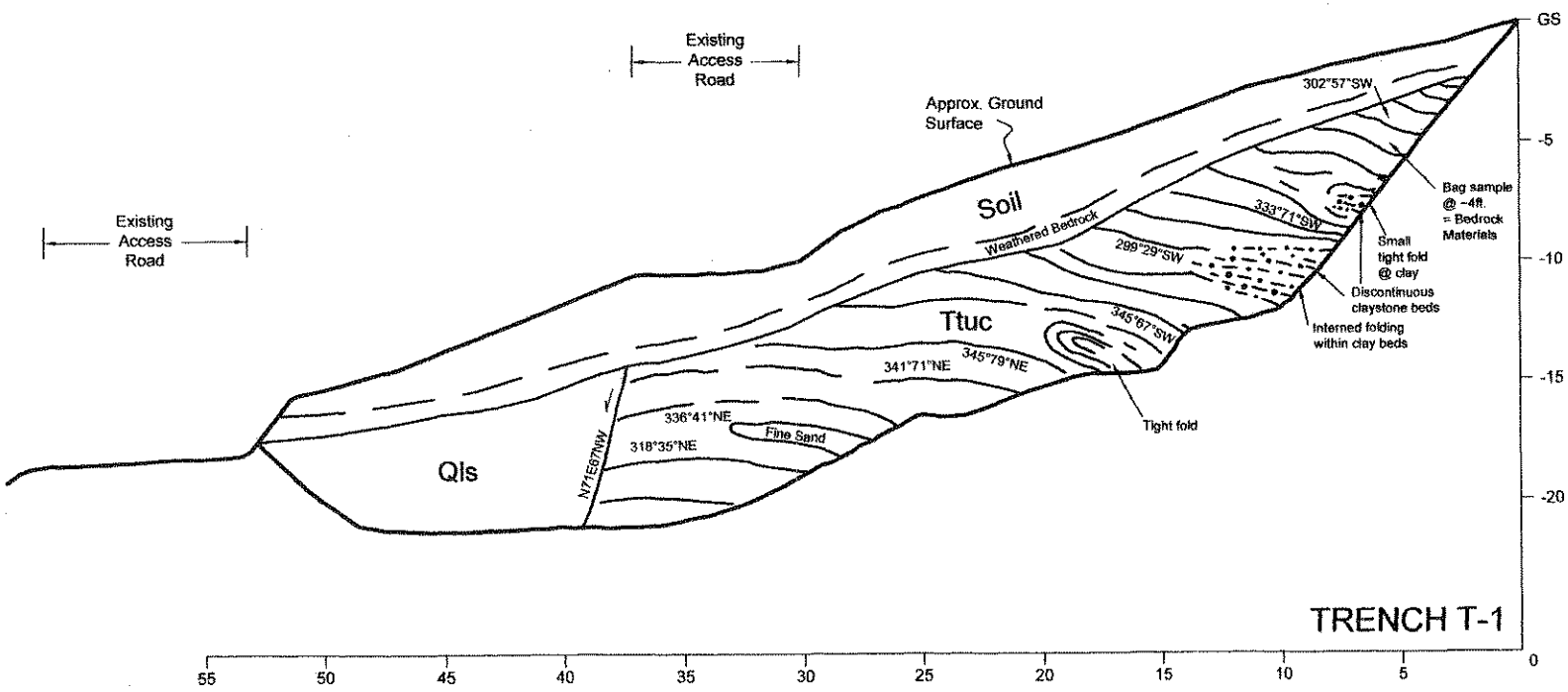
Depth (ft)	Description
1.5'	Colluvium: Light brown silty clayey fine to medium grained SAND, rootlets, moist, dense.

Hand Hole S6

Depth (ft)	Description
1.5'	Colluvium: Light brown silty clayey fine to medium grained SAND, rootlets, moist, dense.

Hand Hole S7

Depth (ft)	Description
1.5'	Colluvium: Tan clayey fine grained sandy SILT, pinhole porosity, rootlets, moist, medium stiff.



Soil - Dark olive gray CLAY (CL) with scattered coarse sand.

Bedrock (Ttuc) - Interbedded siltstone, sandstone and claystone.

Qls - Dark yellowish brown CLAY (CL) with scattered fine sand.

P:\8892\2007. Upcoming Grading Plan Review Report\Trench T-1.dwg

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 10/9/07 draft BY TC
SCALE 1"=5' W.O. 8892

APPENDIX B

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 01*	PAGE *1* OF *3*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *71.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		**Earth Fill (ef) - Silty Sand (SM)** Yellowish-brown and medium brown, mottled, slightly moist, loose to moderately compact; abrupt contact with underlying bedrock.
				4		**Bedrock - Upper Topanga Formation (Ttuc)** Interbedded Sandstone and Siltstone: light yellowish-brown, thin to medium bedded, moderately hard, moderately cemented, sandstone interbedded with grayish-brown to reddish-brown, thinly bedded, moderately to well indurated, tightly fractured siltstone; bedding is moderately to well developed and wavy; locally folded and faulted. 3.0' - bedding: N57E, 12NW 4.5' - axis of small kink fold 6.0' - bedding: N50W, 63NE
				6		
				8		
				10		9.0' - axis of overturned kink fold 9.5' - bedding: N40W, 25SW 10.0' - bedding: E-W, 20S 10.5' - bedding is well defined and continuous
		14	119	12		
				14		
				16		
				18		17.5' - bedding: N65E, 28SE 18.0' - fault: N02W, 58SW; polished, firm, thin, clay seam; offsets bedding
				20		19.0' - bedding: N12W, 53SW
		13	118	22		21.0' - discontinuous micro faults offsetting beds
				24		24.0' - bedding: N-S, 65W

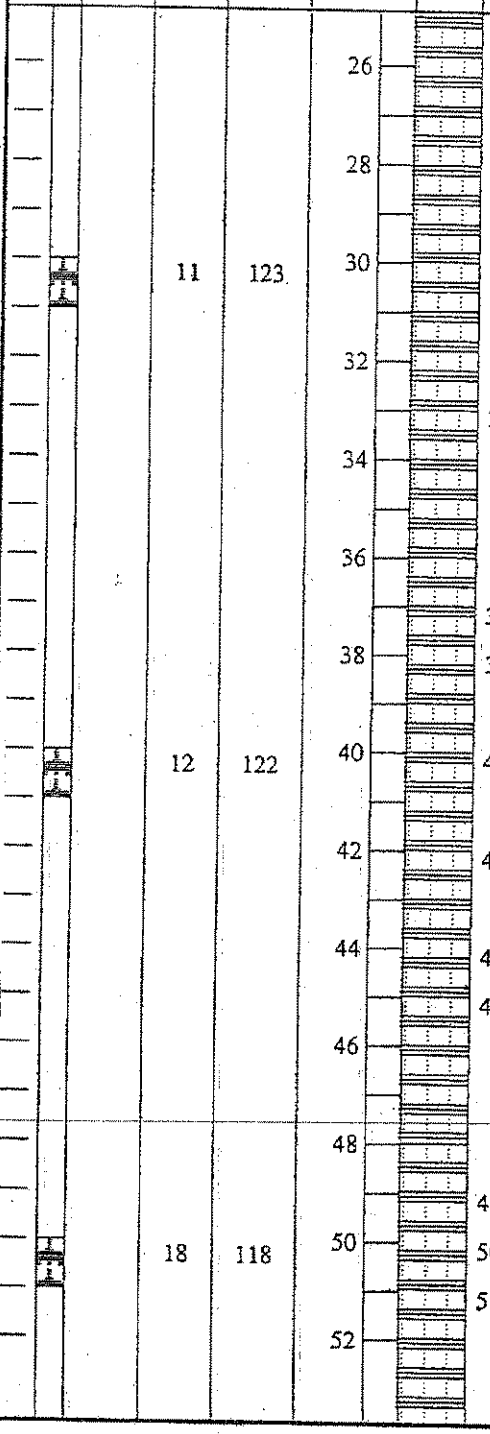
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Figure E.1

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.* | EXPLORATION NO: *DH 01* | PAGE *2* OF *3*



Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				26		26.0' - bedding: N05W, 61SW; bedrock is well indurated and tight
				28		
						29.0' - bedding: N10E, 50NW
		11	123	30		
				32		
						33.0' - bedding: N17W, 39SW
				34		
				36		
						37.0' - 10" thick, graded, fine to coarse-grained, sandstone bed
				38		38.0 - bedding becomes wavy, undulatory and slightly folded
		12	122	40		40.0' - fault: N42E, 50NW
				42		42.0' - bedding is very wavy and folded
				44		44.0' - fault: N40E, 56NW; thin clay seam, offset beds; scattered gypsum
						45.0' - bedding is slightly undulatory and continuous
				46		
				48		
						49.0' - bedding: N52E, 54NW
		18	118	50		50.0' - seepage on east side of hole
						51.0' - strong seepage around entire hole
				52		

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Figure E.2

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 01*	PAGE *3* OF *3*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				54		54.0' - bedding: N28E, 50NW
		12	124	56		56.0' - bedding: N30E, 59NW
						57.0' - bedding is well developed and planar
				58		
				60		
				62		
						63.0' - color changes to an unoxidized, bluish-gray.
				64		
				66		
				68		
		13	120	70		70.0' - end of boring
				72		Notes: 1) No caving. 2) Strong seepage at 51.0'. 3) Excavated and logged February 28, 2002. 4) Backfilled March 5, 2002.
				74		
				76		
				78		
				80		
				82		

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Figure E.3

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 02*	PAGE *1* OF *2*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *51.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		**Bedrock - Upper Topanga Formation (Ttuc)** Interbedded Sandstone and Siltstone: dark yellowish-brown, thinly bedded, moderately hard, moderately cemented, fine-grained sandstone with interbedded grayish-brown and reddish-brown, thinly bedded, moderately to well indurated siltstone; bedding is well defined, slightly undulatory and continuous. 3.0' - bedding: N52E, 44SE
				4		
				6		
				8		
		9	118	10		9.0' - bedding: N76E, 23SE; well developed and slightly wavy
				12		
				14		13.0' - bedding: N78E, 23SE
				16		
				18		
		10	114	20		19.0' - bedding: N78E, 76SE
				22		22.0' - scattered rootlets above a very hard sandstone bed
				24		23.0' - bedding: N80E, 34SE

Figure E.4

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.* | EXPLORATION NO: *DH 02* | PAGE *2* OF *2*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
		15	118	26		Sandstone - fine to coarse-grained; minor siltstone interbeds.
				28		
				30		Interbedded Sandstone and Siltstone
				32		32.0' - bedding is undulatory and continuous
				34		34.0' - bedding: N81E, 27SE
				36		
				38		38.0' - minor, discontinuous, micro faults offsetting beds
		4	119	40		
				42		
						43.0' - refusal; drilling terminated
				44		
				46		Notes: 1) No caving or groundwater. 2) Excavated and logged March 1, 2002. 3) Backfilled March 5, 2002.
				48		
				50		
				52		

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Figure E.5

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 03*	PAGE *1* OF *2*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *40.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		**Earth Fill (ef) - Silty Sand (SM)** Yellowish-brown and grayish-brown, mottled, slightly moist, moderately compact; abrupt, downslope contact with underlying bedrock.
				4		**Bedrock - Upper Topanga Formation (Ttuc)** Interbedded Sandstone and Siltstone: yellowish-brown, thin to medium bedded, moderately hard, moderately cemented, sandstone with interbeds of grayish-brown to reddish-brown, thinly bedded, moderately to well indurated, tightly fractured siltstone; bedding is moderately to well developed and wavy; locally folded and faulted. 4.5' - bedding: N20W, 56SW
				6		
				8		
				10		10.0' - bedding: N04E, 50SE
				12		
				14		14.0' - near vertical bedding; scattered gypsum stringers
	16	118		16		
				18		18.0' - bedding: N30W, 80NE
				20		19.0' - fault: N19E, 80NW; enters east side of hole; offsets near vertical beds with moderately dipping beds 20.0' - bedding: N64W, 28SW
				22		22.0' - gypsum stringers and nodules scattered throughout
				24		

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Figure E.6

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.* | EXPLORATION NO: *DH 03* | PAGE *2* OF *2*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				26		25.0' - minor south-dipping micro fault against near vertical fault; minor seepage. 26.0' - fault: N19E, 80NW; exits west side of boring
				28		27.0' - seepage on west side of hole 27.5' - bedding: N25W, 30SW 28.0' - seepage on north side of hole.
				30		30.0' - fault: N44E, 60NW; offsets beds
				32		32.0' - bedding: N48W, 54SW; color changes to bluish-gray
				34		
		13	124	36		36.0' - bedding: N52W, 53SW 37.0' - bedrock is well indurated
				38		
				40		
				42		Notes: 1) No caving. 2) Seepage from 26.0' to 27.0'. 3) Excavated and logged March 1, 2002. 4) Backfilled March 5, 2002.
				44		
				46		
				48		
				50		
				52		

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Figure E.7

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 04*	PAGE *1* OF *2*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *49.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		**Natural Soil (Qns) - Silty Sand (SM)** Reddish-brown, dry to slightly moist, moderately dense, porous; slightly gradational, downslope contact with underlying bedrock.
				4		**Landslide Debris (Qls)** Interbedded Sandstone and Siltstone; yellowish-brown, thin to medium bedded, friable, poorly cemented sandstone with interbedded grayish-brown and reddish-brown, thinly bedded, poorly to moderately indurated, fractured siltstone; relic bedding is poorly to moderately developed, disturbed, wavy, folded, and partially discontinuous. 4.0' - relic bedding: N44W, 78SW
				6		
				8		
				10		10.0' - bedding is very wavy, highly contorted and disturbed
				12		11.0' - relic bedding: N15W, 62SW
				14		13.0' - fault: N15W, 57SW; 1/8" thick clay seam along bedding; beds below change orientation.
				16		
				18		
		18	110	20		~~19.0' - relic bedding: N05W, 75SW~~ 20.0' - scattered gypsum crystals
				22		22.0' - 4" thick zone of disturbed siltstone, very clayey; dipping in downslope direction.
				24		

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Figure E.8

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 04*	PAGE *2* OF *2*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				26		25.0' - scattered gypsum crystals 26.0' - highly disturbed, moist, clayey to 33.0'; scattered sandstone and siltstone fragments.
				28		
				30		
				32		32.0' - slide plane: N80E, 15NW; 1/4" to 1/8" light gray, moist, sticky, clay gouge; striated.
						33.0' - base of slide: N80W, 30NE; 1/4" light gray, clay gouge
				34		**Bedrock - Upper Topanga Formation (Ttuc)**
		14	122	36		Interbedded Sandstone and Siltstone: dark bluish-gray, thin to medium bedded, well cemented, fine to medium-grained sandstone with interbeds of dark bluish-gray, well indurated, siltstone; bedding is well developed, slightly undulatory and continuous. 35.0' - bedding: N18W, 80SW
				38		36.0' - bedding: N36W, 59SW 36.0' - jointing: N20W, 41SW; N45E, 70NW 37.0' - bedding: N18W, 85SW
				40		39.0' - minor water seepage
						41.0' - bedding: N20W, 75SW
				42		42.0' - joint: N50E, 20NW
						43.0' - water seepage
				44		44.0' - bedrock well indurated
				46		
				48		
				50		Notes: 1) No caving. 2) Seepage at 39.0' and 43.0'. 3) Excavated and logged March 4, 2002. 4) Backfilled March 5, 2002.
				52		

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 05*	PAGE *1* OF *2*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *34.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		Alluvium (Qal) - Silty Sand (SM) Reddish-brown, moderately dense, porous, clayey; scattered rock fragments averaging 1/2" in dimension; gradational contact with underlying bedrock.
				4		
				6		
				8		
				10		
		15	116	12		
				14		
				16		
		18	111	18		
				20		Bedrock - Upper Topanga Formation (Ttuc) Interbedded Sandstone and Siltstone: yellowish-brown, thin to medium bedded, weak to moderately hard, moderately cemented sandstone with interbeds of grayish-brown to reddish-brown, thinly bedded, moderately to well indurated, tightly fractured siltstone; bedding is poorly to moderately developed and wavy; locally folded. 22.0' - bedding: N40W, 45NE
				22		
				24		

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Figure E.10

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.* | EXPLORATION NO: *DH 05* | PAGE *2* OF *2*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				26		
				28		27.0' - bedding: N50W, 38NE
		22	109	30		
				32		
		19	115	34		Notes: 1) No caving. 2) Standing water at 33.0'. 3) Excavated and logged March 4, 2002. 4) Backfilled March 5, 2002.
				36		
				38		
				40		
				42		
				44		
				46		
				48		
				50		
				52		

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GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGIST

Figure E.11

EXPLORATION LOG

PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 06*	PAGE *1* OF *2*
PROJECT NUMBER: *PIN 4065*	EXPLORATION EQUIPMENT: *Drill Rig*	
Comments: *See enclosed Geologic Map for location.*		

Logged By: *SAM*	Total Depth: *32.0'*
Date Started: *February 28, 2002*	Top Elevation (ft.):
Date Completed: *February 28, 2002*	Excavation Width: *24"*

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				2		Alluvium (Qal) - Silty Sand (SM) Reddish-brown, moderately dense, porous, clayey; scattered rock fragments averaging 1/2" in dimension; gradational contact with underlying bedrock.
		16	115	4		
				6		
				8		
				10		
				12		
				14		
		17	113	16		
				18		
				20		
				22		
				24		

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Figure E.12

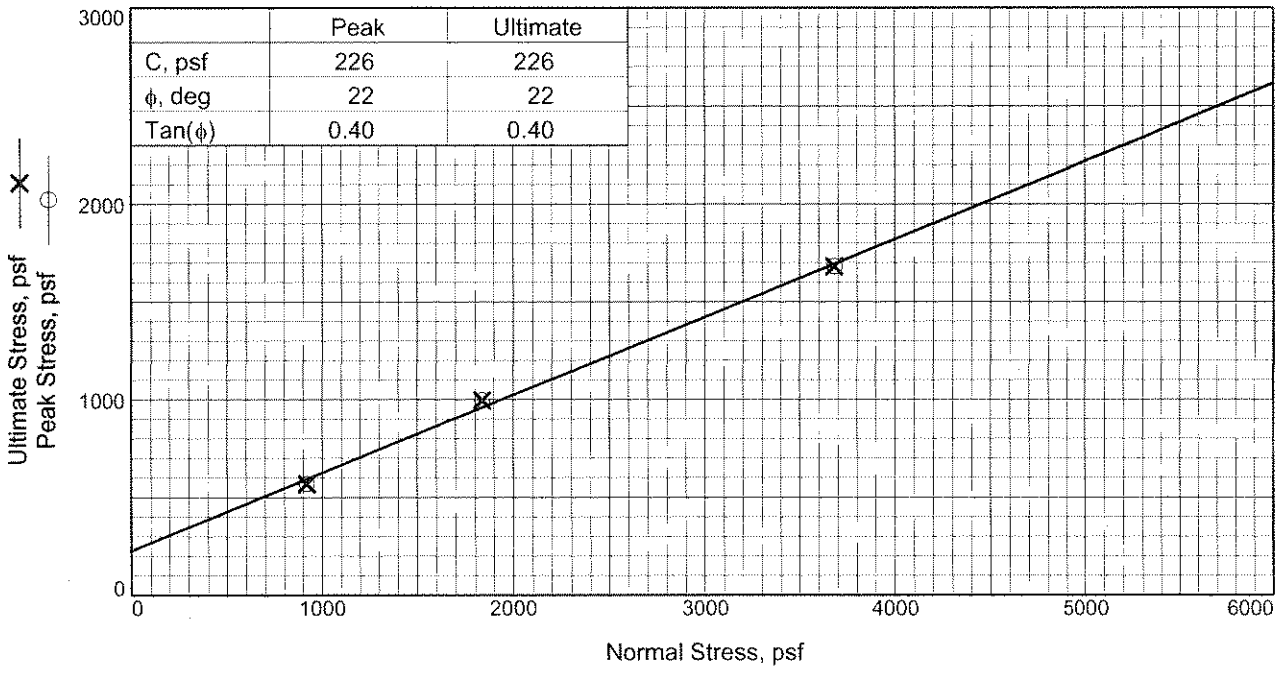
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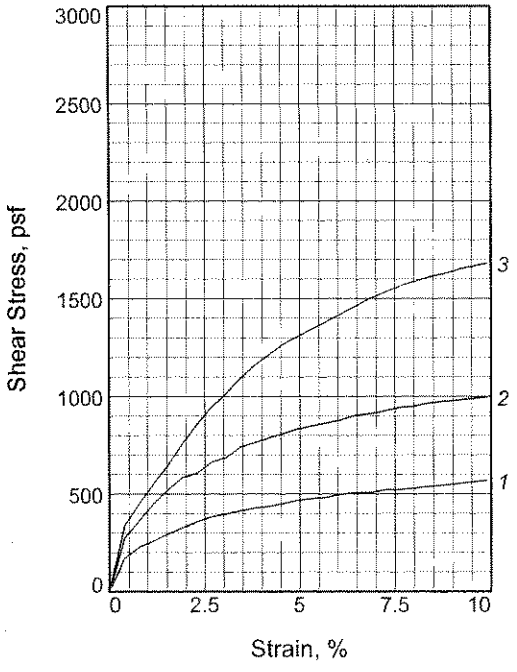
PROJECT NAME: *Klein/Las Virgenes Rd.*	EXPLORATION NO: *DH 06*	PAGE 2 OF 2

Sample Graphics	Blow Count (Per Foot)	Moisture Content (%)	Unit Dry Wt. (pcf.)	Depth (ft.)	Lithologic Graphics	LITHOLOGIC DESCRIPTION
				26		
						27.0' - strong water seepage
				28		Bedrock - Upper Topanga Formation (Ttuc)
						Interbedded Sandstone and Siltstone: yellowish-brown, thin to medium bedded, weak to moderately hard sandstone with interbeds of grayish-brown to reddish-brown, thinly bedded siltstone; weathered and wet.
				30		
				32		
						Notes: 1) No caving. 2) Standing water at 27.0' 3) Excavated and logged March 4, 2002. 4) Backfilled March 5, 2002.
				34		
				36		
				38		
				40		
				42		
				44		
				46		
				48		
				50		
				52		

APPENDIX B

LABORATORY TESTING





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		568	996	1681
Strain, %		9.9	9.9	9.9
Ultimate Stress, psf		568	996	1681
Strain, %		9.9	9.9	9.9
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

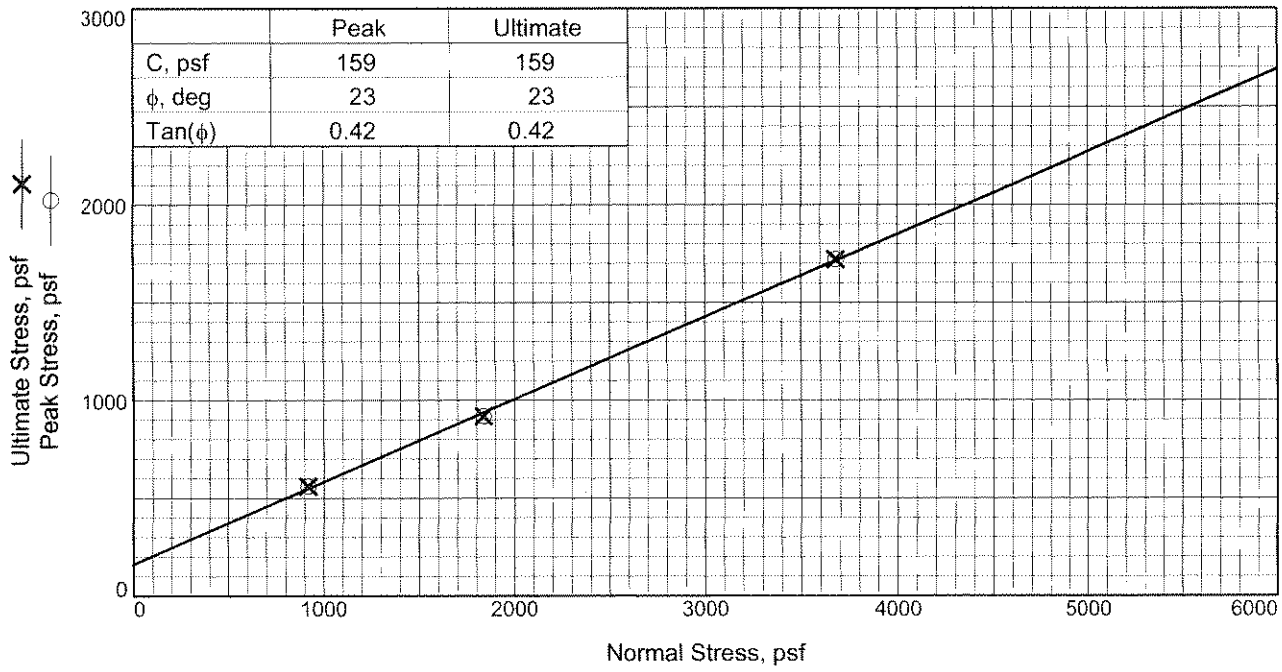
Client: Calabasas Blue

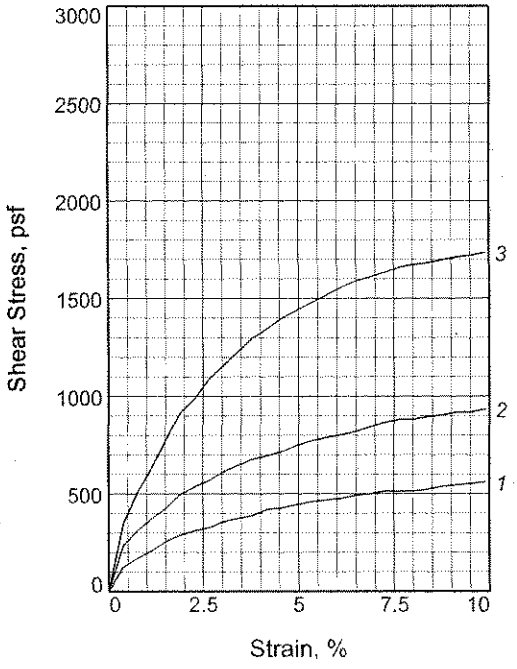
Project: Calabasas Blue
Tract 60488
Sample Number: GAI-1 **Depth:** 1½'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		560	918	1719
Strain, %		9.9	9.5	9.5
Ultimate Stress, psf		560	918	1719
Strain, %		9.9	9.5	9.5
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

Client: Calabasas Blue

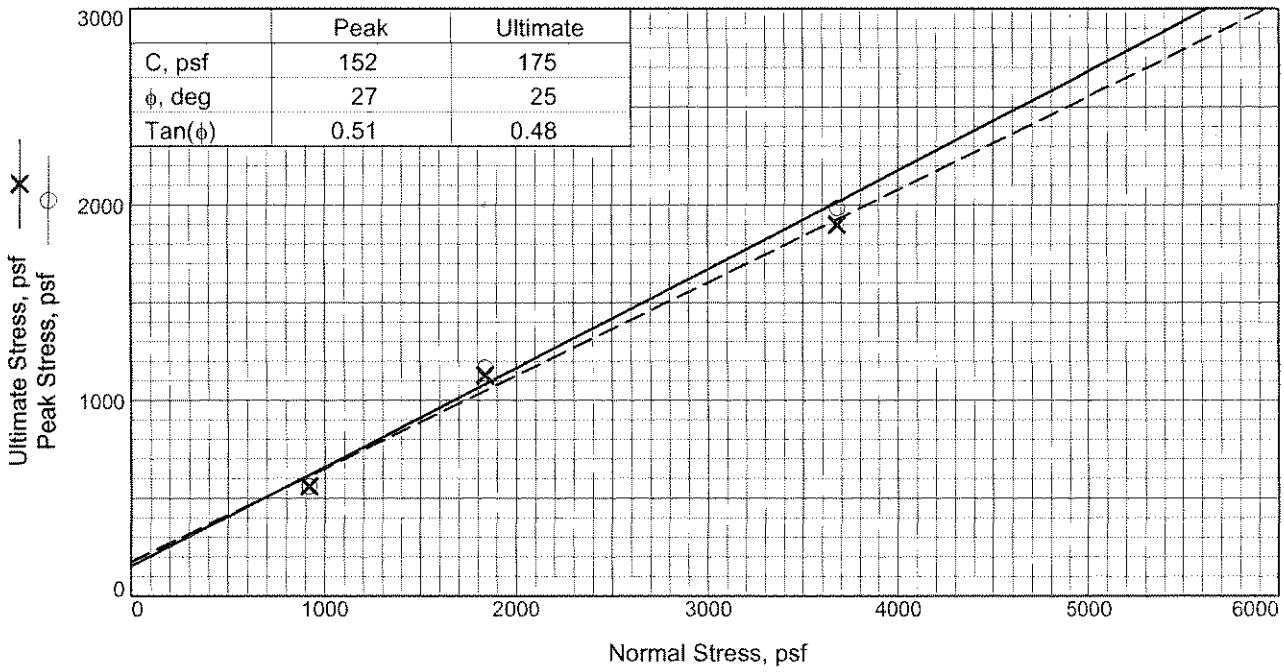
Project: Calabasas Blue
Tract 60488

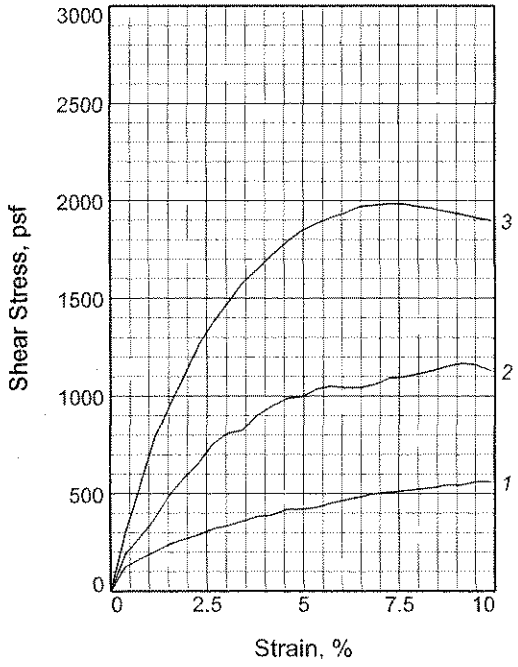
Sample Number: GAI-3 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		560	1167	1984
Strain, %		9.9	9.1	7.2
Ultimate Stress, psf		560	1128	1898
Strain, %		9.9	9.9	9.9
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

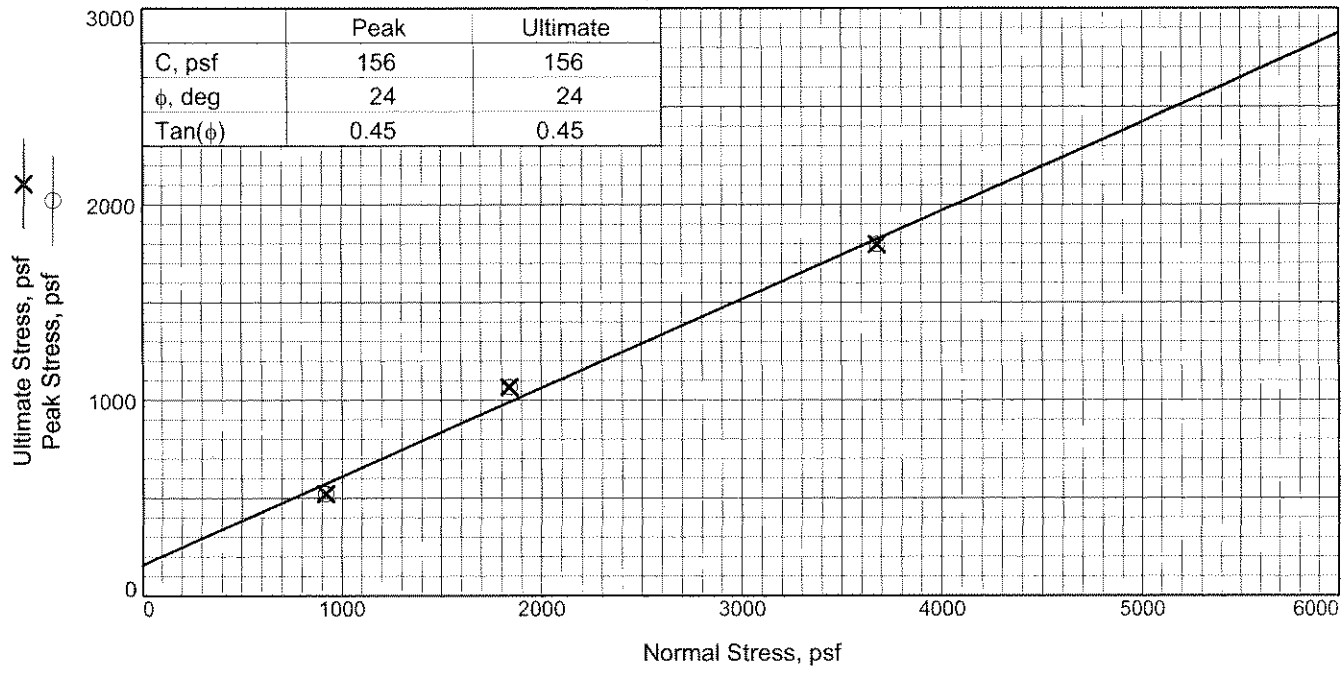
Client: Calabasas Blue

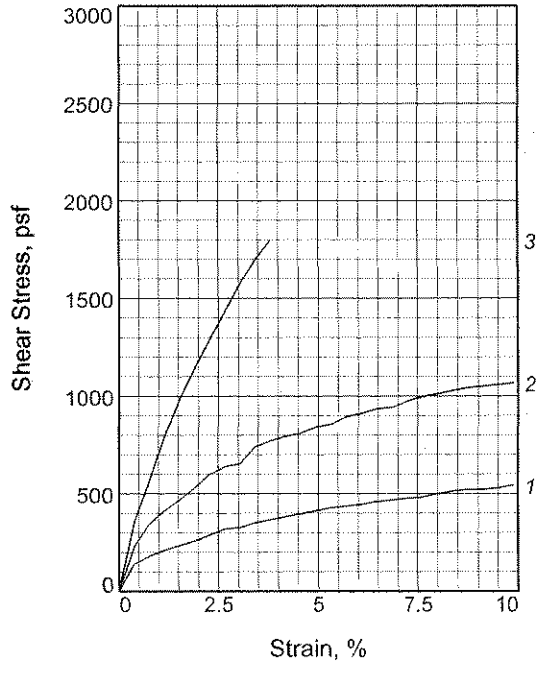
Project: Calabasas Blue
Tract 60488
Sample Number: GAI-7 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		521	1066	1797
Strain, %		9.1	9.9	3.8
Ultimate Stress, psf		521	1066	1797
Strain, %		9.1	9.9	3.8
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

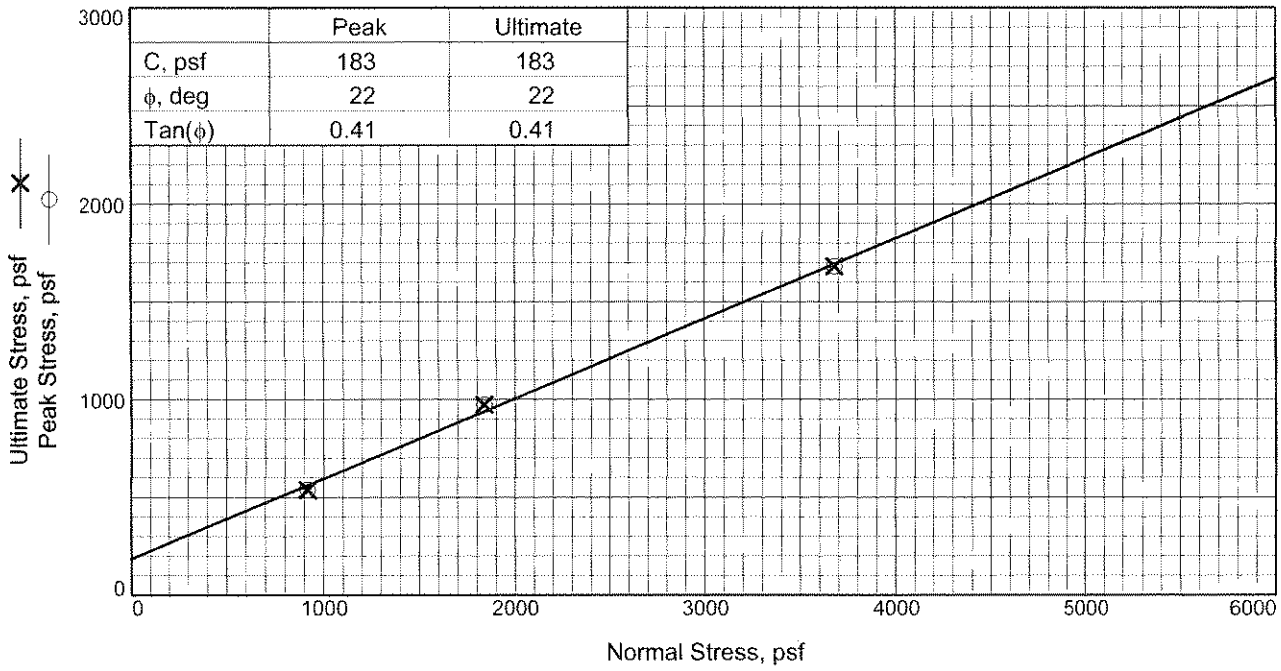
Client: Calabasas Blue

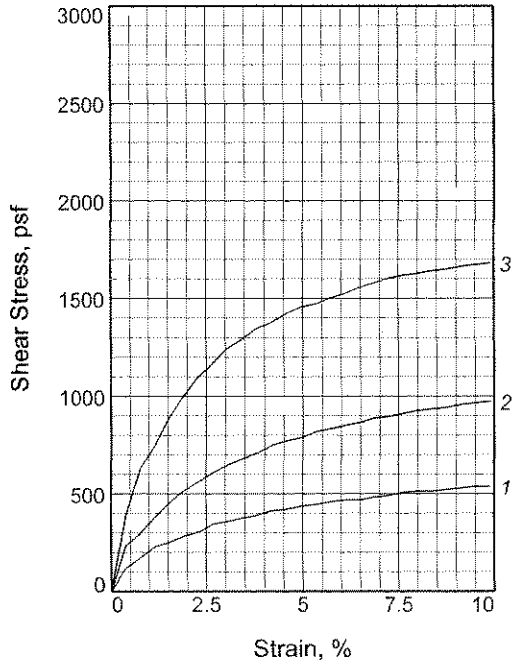
Project: Calabasas Blue
Tract 60488
Sample Number: GAI-9 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		537	973	1681
Strain, %		9.9	9.9	9.9
Ultimate Stress, psf		537	973	1681
Strain, %		9.9	9.9	9.9
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

Client: Calabasas Blue

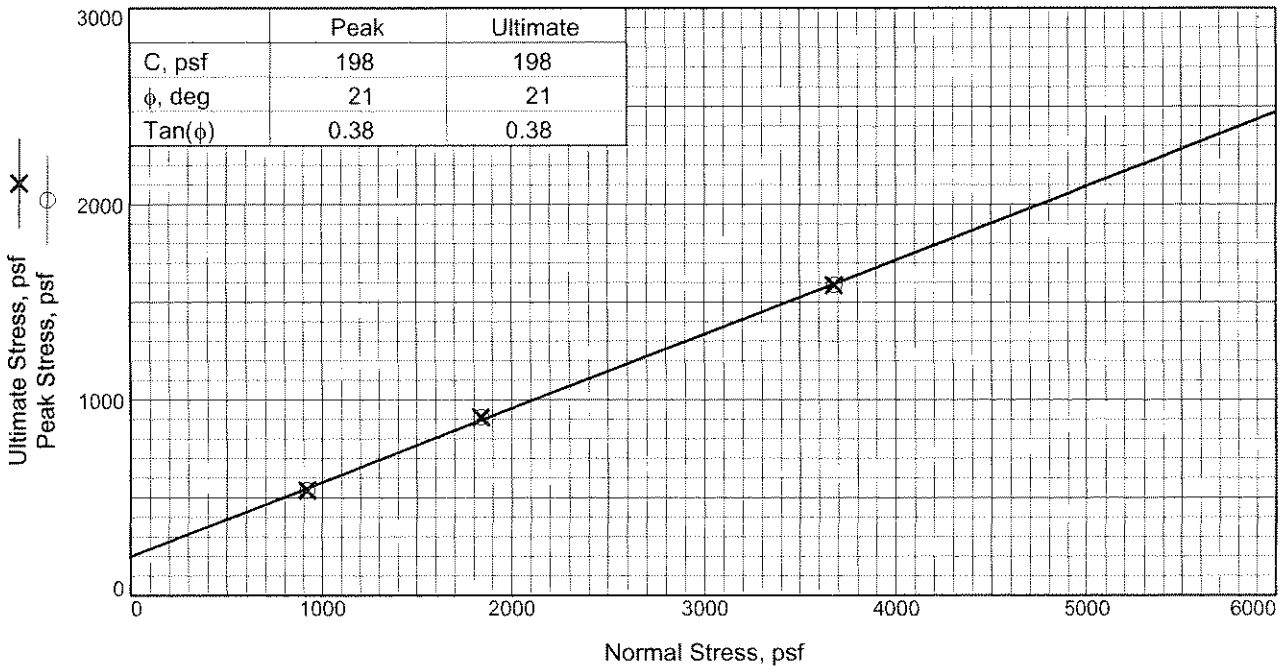
Project: Calabasas Blue
Tract 60488

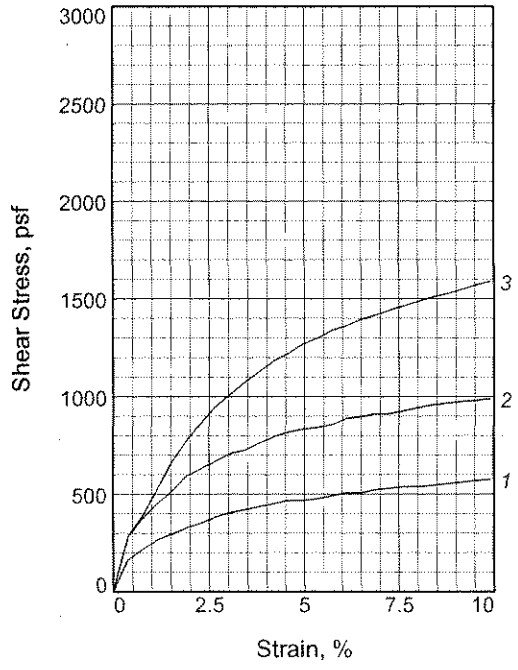
Sample Number: GAI-11 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		537	910	1587
Strain, %		8.0	6.9	9.9
Ultimate Stress, psf		537	910	1587
Strain, %		8.0	6.9	9.9
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

Client: Calabasas Blue

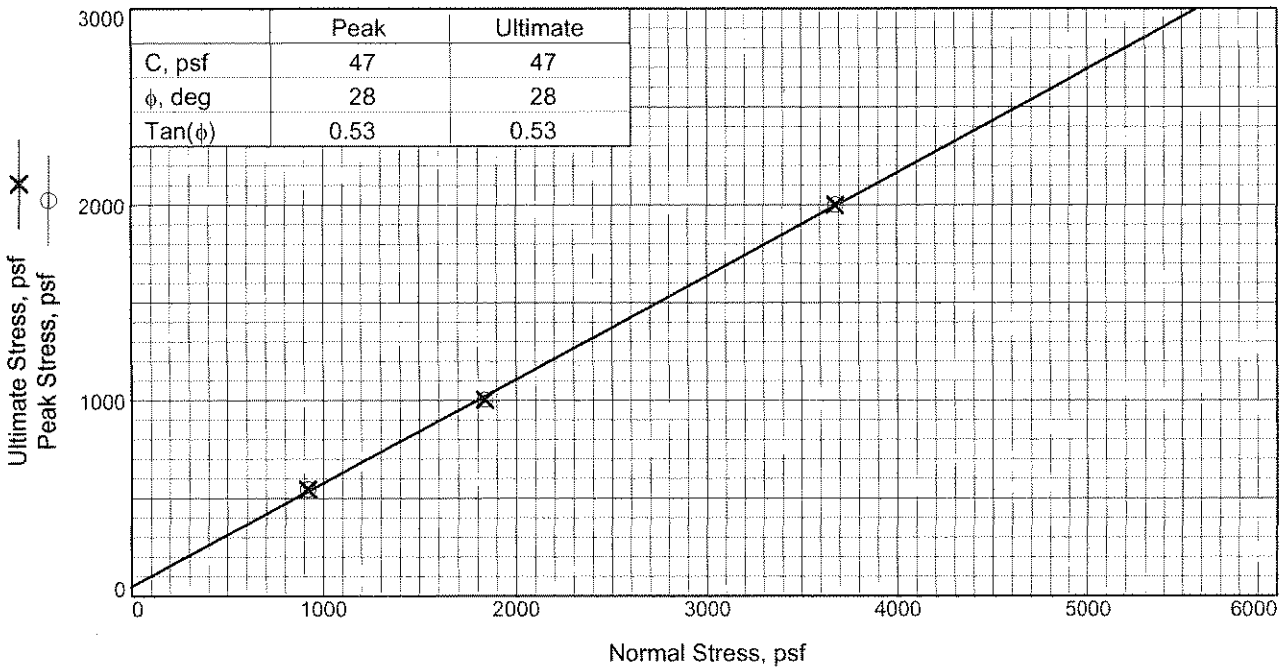
Project: Calabasas Blue
Tract 60488

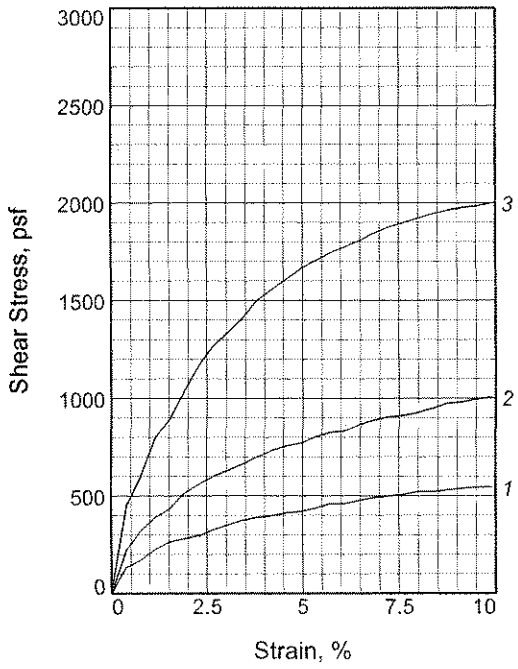
Sample Number: GAI-12 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.





Sample No.		1	2	3
Initial	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf	N/A	N/A	N/A
	Saturation, %	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
	Diameter, in.	2.63	2.63	2.63
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	N/A	N/A	N/A
	Dry Density, pcf			
	Saturation, %			
	Void Ratio			
	Diameter, in.			
	Height, in.			
Normal Stress, psf		920	1840	3680
Peak Stress, psf		545	1004	2000
Strain, %		9.9	9.9	9.9
Ultimate Stress, psf		545	1004	2000
Strain, %		9.9	9.9	9.9
Strain rate, in./min.		0.02	0.02	0.02

Sample Type: undisturbed, saturated
Description:

Assumed Specific Gravity=
Remarks:

Figure _____

Client: Calabasas Blue

Project: Calabasas Blue
Tract 60488

Sample Number: GAI-14 **Depth:** 1'

Proj. No.: 2928-0-0-100 **Date Sampled:**

DIRECT SHEAR TEST REPORT

GORIAN & ASSOCIATES, INC.

APPENDIX D
LABORATORY TESTING

Undisturbed and bulk samples of soil and rock materials encountered at the site were collected during the course of our field work. Selected laboratory tests completed on the retrieved samples and the results from SSD's findings are described below:

Moisture-Density

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

Shear Test

Shear tests were performed in a Direct Shear Machine of the strain control type. Tests were performed on undisturbed and remolded samples in an artificially saturated condition. The rate of deformation is approximately 0.01 inches per minute for the undisturbed samples and the less plastic fine-grained remolded samples. Samples BA3 @ 20 feet and BA6 @ 42.8 feet were sheared at a slower rate of 0.0025 in/min. Shearing occurred under a variety of confining loads in order to determine the Coulomb shear strength parameters.

Consolidation Test

Settlement predictions of the soil's behavior under load are made on the basis of consolidation tests. A one inch high sample is loaded in a geometric progression and the resulting deformation is recorded at selected time intervals. Porous stones are placed in contact with the sample (top and bottom) to permit addition and release of pore fluid. The sample is inundated at a selected load (typically near overburden pressure) during the progression. Results are plotted on the enclosed Consolidation-Pressure Curves.

Compaction and Expansion Tests

To determine the compaction characteristics of the onsite materials, compaction tests are performed in accordance with ASTM D 1557. The maximum dry density is reported in pounds per cubic foot and the optimum moisture content as a percentage of the maximum dry density. Expansion index tests were performed in accordance with the criteria in U.B.C. 18-2. The results those tests are included in the following table. The table also presents results from SSD (2002) analyses.

Table: Compaction and Expansion Results

Sample	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Expansion Index
BA-1@2.5'	Silty f-m SAND (SM)	121	10	48
BA-2@33'	Clayey SILTSTONE	122	12	65
GWV-3@5'	Clayey SILTSTONE	121	10	
DH-02@2' (SSD)	Remolded Bedrock (Ttuc)	116.5	14.5	40
DH-02@6' (SSD)	Bedrock (Ttuc)	118	12	8
DH-04@1' (SSD)	Natural Soil (Qns)	121.5	12	
DH-05@2' (SSD)	Alluvium (Qal)	124.5	12	60
DH-06@2' (SSD)	Alluvium (Qal)	122.5	12	58

Atterberg Limits and Particle Size Analyses

Selected fine-grained samples were subject to particle-size analyses, hydrometer analyses, and Atterberg Limit testing. The results of this testing is presented in the following table. Particle size analyses are presented on Plate LS.1 of Appendix D.

Table: Atterberg Limits Results

Sample	Liquid Limit	Plastic Limit	Plasticity Index
GWV-4@10' (Qal)	35.7%	13.7%	22
GWV-4@15' (Qal)	36.8%	14.1%	23

Corrosivity Testing

Selected samples were submitted to M.J. Schiff and Associates and Sierra Environmental Monitoring, Inc. for chemical testing to evaluate their corrosion potential. Results presented in

Appendix D are summarized herein. The following sections also presents results from SSD (2002) analyses.

Sulfates

Testing of materials obtained from our borings and results from similar materials at the adjacent developments indicate the onsite bedrock materials have relatively high levels of sulfates (> 0.1 % by weight), which indicates a moderate to severe corrosion potential for concrete. Near grading completion, additional testing should be performed to verify the potential for corrosion.

The following two tables 1) outlines the sulfate content within selected samples, and 2) references concrete requirements with respect to soils bearing soluble sulfates.

Table: Sulfate Results

Sample	Sulfate	Exposure Level
BA-1@2.5'	98 (ppm)	Negligible
BA-2@33'	3,110 (ppm)	Severe
BA-2@40'	0.12 (% by weight)	Moderate
BA-3@30'	0.2 (% by weight)	Moderate to Severe
TT-01@6' (SSD)	Not Detected	Negligible
TT-09@4' (SSD)	Not Detected	Negligible
TT-15@2' (SSD)	Not Detected	Negligible

Table: Requirements For Concrete Exposed To Sulfate-Containing Solutions

SULFATE EXPOSURE	WATER-SOLUBLE SULFATE (SO_4) IN SOIL, % by weight	SULFATE (SO_4) IN WATER, ppm	CEMENT TYPE	Maximum Water-Cementitious Materials Ratio, by Weight, Normal-Weight Aggregate Concrete[1]	Minimum f'_c Normal Weight and Lightweight Aggregate Concrete, psi[1] x 0.00689 for MPa
Negligible	0.00 - 0.10	0 - 150	--	--	--
Moderate[2]	0.10 - 0.20	150 - 1,500	II, IP(MS), IS(MS)	0.50	4,000
Severe	0.20 - 2.00	1,500 - 10,000	V	0.45	4,500
Very severe	Over 2.00	Over 10,000	V plus pozzolan[3]	0.45	4,500

[1] A lower water-cementitious materials ratio or higher strength may be required for low permeability or for protection against corrosion of embedded items or freezing and thawing (Table 19-A-2).
[2] Seawater
[3] Pozzolan that has been determined by test or service record to improve sulfate resistance when used in concrete containing Type V cement.

Chlorides

Test results indicate that chloride levels (12 to 18 ppm) are below levels of concern with

respect to corrosion.

pH levels

Test results presented indicate the onsite soils are slightly acidic to slightly basic (pH 6.3-7.3).

Soil Resistivity

Representative samples of the earth materials encountered at the site was tested for resistivity. Resistivity of soils is inversely proportional to corrosiveness. Thus, the analysis allows for determining whether the soils may have a deleterious affect on underground metallic structures. The resistivity results and a generally accepted correlation between resistivity and soil corrosiveness toward metals is provided below:

Based on the test results, the onsite soils are considered moderate to severely corrosive to ferrous metals when saturated. Appropriate mitigation measures should be obtained from an experienced corrosion engineer.

Table: Resistivity Results

Sample	As-Received Resistivity (ohm-cm)	Saturated Resistivity (ohm-cm)
BA-1@2.5' (Qal)	88,000	2,080
BA-2@33' (Qal)	7,200	480

Table: Correlation Between Resistivity And Soil Corrosiveness

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

Laboratory Test Summary

W.O. 8892

Depth	Geology	Sample Description	ST	w	DD	S	Max	Opt	EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: BA1 (TD= 67 ft, GW @ 14.5 ft)																		
2.5	Colluvium	silty f-m SAND (SC)	(B)				121	10	48									S-BA1.2.5
7	Colluvium	very clayey f-m SAND (SC)	(U)	10.4	115	61						0.46	31	127	134	72		S-BA1.7
11	Oxidized Topanga Formation	clayey SILT (ML)	(U)	18.3	111	96						0.51	34	131	132	69.4		S-BA1.11
Excavation: BA2 (TD= 65 ft, GW @ 25.5 ft)																		
3	Colluvium	fine sandy SILT (ML)	(U)	7.4	114	42						0.47	32	122	134	71.2		
8	Oxidized Topanga Formation	silty f-m SANDSTONE (SM)	(U)	14.4	115	85						0.45	31	131	135	72.1		S-BA2.8
20	Topanga Formation	silty CLAYSTONE (CL)	(U)	16.4	113	93						0.47	32	132	134	71.2		
25.5	Topanga Formation	silty CLAYSTONE (CL)	(U)	16.8	113	94						0.48	32	132	133	70.9		
31	Topanga Formation	clayey SILTSTONE (CL)	(U)	13.1	118	84						0.42	29	133	136	73.9		
33	Topanga Formation	clayey SILTSTONE (ML)	(B)				122	12	65									S-BA2.33
35	Topanga Formation	clayey SILTSTONE (ML)	(U)	13.9	119	91						0.41	29	135	137	74.4		S-BA2.35
40	Topanga Formation	silty CLAYSTONE (CL)	(U)	12.4	119	82						0.41	29	134	137	74.6		
50	Topanga Formation	clayey SILTSTONE (ML/CL)	(U)	12	117	75						0.43	30	131	136	73.4		
60	Topanga Formation	clayey SILTSTONE (ML/CL)	(U)	13.4	109	67						0.54	35	124	131	68.3		
Excavation: BA3 (TD= 67 ft, GW @ 11 ft)																		
5	Colluvium	silty CLAY (CL)	(U)	18.6	109	92						0.54	35	129	130	68		
10	Topanga Formation	clayey SILTSTONE (ML/CL)	(U)	18.3	109	92						0.53	35	129	131	68.4		
15	Topanga Formation	very clayey SILTSTONE (ML)	(U)	17	112	92						0.5	33	131	133	70.1		
20	Topanga Formation	very clayey SILTSTONE (ML/CL)	(U)	14.4	116	87						0.44	31	133	135	72.6		S-BA3.20
30	Topanga Formation	very clayey SILTSTONE (ML/CL)	(U)	11.9	115	70						0.46	31	129	134	72		
40	Topanga Formation	clayey SILTSTONE (ML/CL)	(U)	13.1	120	90						0.39	28	136	138	75.4		
50	Topanga Formation	very silty CLAYSTONE (CL)	(U)	14.4	110	74						0.52	34	126	131	68.9		
60	Topanga Formation	silty CLAYSTONE (CL)	(U)	15.2	114	88						0.46	32	132	134	71.7		
Excavation: BA4 (TD= 38.5 ft, No GW)																		
8	Oxidized Topanga Formation	f-m SANDSTONE (SM)	(U)	6.8	121	47						0.39	28	129	138	75.5		
10	Oxidized Topanga Formation	f-m SANDSTONE (SM)	(U)	11.5	108	57						0.54	35	121	130	68		
15	Oxidized Topanga Formation	clayey SILTSTONE (ML/CL)	(U)	15.6	113	86						0.49	33	130	133	70.5		
20	Oxidized Topanga Formation	f-m sandy SILTSTONE (ML)	(U)	10.7	117	67						0.43	30	130	136	73.4		
25	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(U)	14	115	83						0.45	31	131	135	72.2		
31	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(U)	16.1	103	70						0.62	38	120	127	64.9		
36	Oxidized Topanga Formation	f-m sandy SILTSTONE (ML)	(U)	12.2	114	69						0.47	32	128	134	71.1		

For abbreviation explanation see Legend on PLATE LS 4

GEOLABS-WESTLAKE VILLAGE

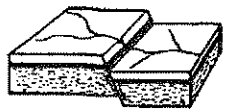


PLATE LS. 1

Depth	Geology	Sample Description	ST	w	DD	S	Max	Opt	EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: BA5 (TD= 40.5 ft, No GW)																		
5	topsoil	silty CLAY (CL)	(U)	10.5	117	66						0.43	30	130	136	73.5		
10	Oxidized Topanga Formation	clayey f-m SAND (SC)	(U)	10.6	119	69						0.41	29	131	137	74.2		
20	Oxidized Topanga Formation	silty f-m SANDSTONE (SM)	(U)	11.5	113	63						0.49	33	125	133	70.4		S-BA5.20
25	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(U)	11.6	116	70						0.44	31	129	135	72.6		
30	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(U)	16.7	103	72						0.62	38	120	127	64.6		
35	Oxidized Topanga Formation	silty f-m SANDSTONE (SM)	(U)	7.5	115	44						0.46	31	123	134	72		
40.5	Oxidized Topanga Formation	silty f-m SANDSTONE (SM)	(U)	7	116	42						0.45	31	124	135	72.4		
Excavation: BA6 (TD= 65 ft, GW @ 30 ft)																		
5	Colluvium	silty CLAY (CL)	(U)	12.1	114	69						0.47	32	127	134	71.3		
10	Landslide Debris	silty CLAY (CL)	(U)	17.1	108	83						0.55	36	126	130	67.5		
15	Landslide Debris	silty CLAY (CL)	(U)	26.9	102	100						0.64	39	130	126	64		
20	Landslide Debris	silty CLAY (SC)	(U)	20.6	108	100						0.55	36	130	130	67.5	C-BA6.20	
25	Landslide Debris	clayey SILT (ML)	(U)	15.3	114	88						0.47	32	131	134	71.5		
30	Landslide Debris	silty CLAY (CL)	(U)	19.2	107	91						0.56	36	127	129	67	C-BA6.30	
35	Landslide Debris	very silty CLAY (CL)	(U)	18.5	108	90						0.55	35	128	130	67.6		
40.5	Landslide Debris	silty CLAY (CL)	(U)	20.8	106	97						0.57	37	128	129	66.6	C-BA6.40.5	
42.8	Landslide Basal Surface	silty CLAY (CH)	(B)															S-BA6.42.8
45	Topanga Formation	very silty CLAYSTONE (CL)	(U)	12.1	111	64						0.51	34	124	132	69.6		
50	Topanga Formation	silty CLAYSTONE (CL)	(U)	15.9	108	77						0.55	36	125	130	67.5		
55	Topanga Formation	very silty CLAYSTONE (CL)	(U)	13.4	113	75						0.48	32	128	133	70.9		
61	Topanga Formation	clayey SILTSTONE (CL)	(U)	13.3	114	76						0.47	32	129	134	71.4		
Excavation: GWV1 (TD= 0 ft, GW @ 0 ft)																		
2.5	Alluvium	clayey SILT (ML)	(S)	10.7														
5	Alluvium	silty CLAY (CL)	(U)	13.3	115	78						0.46	31	130	134	72		
Excavation: GWV1A (TD= 15 ft, No GW)																		
7.4	Alluvium	silty f-m SAND (SM)	(S)	7.9														
7.5	Alluvium	fine sandy SILT (ML)	(S)	13.9														
10	Alluvium	clayey SILT (ML)	(U)	12.4	103	53						0.63	38	116	127	64.4		
15	Topanga Formation	silty CLAYSTONE (CL)	(B)	17.2														

For abbreviation explanation see Legend on PLATE LS 4

GEOLABS-WESTLAKE VILLAGE

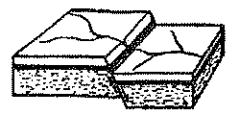


PLATE LS. 2

Depth	Geology	Sample Description	ST	w	DD	S	Max	Opt	EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: GWV2 (TD= 30 ft, GW @ 25 ft)																		
2.5	Alluvium	f-m SAND (SM)	(U)	7.4	95.2	26						0.76	43	102	122	59.5		
5	Alluvium	clayey f-m SAND (SC)	(S)	8.9														
7.5	Alluvium	f-m SAND (SM)	(U)	12.4	115	73						0.46	31	129	134	72		
10	Alluvium	clayey SILT (ML)	(S)	15.3														
15	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(U)	17.8	113	98						0.49	33	133	133	70.5		
20	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(S)	20														
25	Oxidized Topanga Formation	f-m sandy CLAYSTONE (CL/SC)	(U)	18.9	109	96						0.53	35	130	131	68.6		
30	Topanga Formation	clayey SILTSTONE (ML/CL)	(S)	11.2														
Excavation: GWV3 (TD= 25 ft, No GW)																		
2.5	Alluvium	silty CLAY (CL)	(S)	12.5														
5	Oxidized Topanga Formation	clayey SILTSTONE (ML/CL))	(U)	17.8	110	92	121	10				0.52	34	130	131	69		
7.5	Oxidized Topanga Formation	clayey SILTSTONE (ML)	(S)	16.1														
10	Oxidized Topanga Formation	fine sandy CLAYSTONE (CL)	(U)	16.8	110	85						0.53	35	128	131	68.5		
15	Oxidized Topanga Formation	silty CLAYSTONE (CL)	(S)	18.3														
20	Oxidized Topanga Formation	f-m sandy CLAYSTONE (CL)	(U)	11.1	123	82						0.36	27	136	139	76.9		
25	Topanga Formation	silty CLAYSTONE (CL)	(S)	19.6														
25.1	Topanga Formation	very silty CLAYSTONE (CL)		18.6														
Excavation: GWV4 (TD= 20 ft, No GW)																		
2.5	Alluvium	silty CLAY (CL)	(U)	9.8	105	44						0.6	37	115	128	65.6		
5	Alluvium	silty CLAY (CL)	(B)	14.9														
7.5	Alluvium	silty CLAY (CL)	(U)	15.1	114	87						0.47	32	131	134	71.6	C-GWV4.7.5	S-GWV4.7.5
10	Alluvium	silty CLAY (CL)	(B)	16.8						36	22							
15	Alluvium	silty CLAY (CL)	(U)	18.9	111	99				37	23	0.51	34	132	132	69.3	C-GWV4.15	S-GWV4.15
20	Alluvium	silty CLAY (CL)	(B)	20.9														
25	Oxidized Topanga Formation	fine sandy SILTSTONE (ML)	(U)	18.1	108	88						0.55	35	128	130	67.6		
Excavation: S1 (TD= 0 ft, No GW)																		
0	Alluvium	Brown f- sand clay silt	(U)	19.9	102	83						0.64	39	122	126	63.8		S-S1.0
Excavation: S2 (TD= 0 ft, No GW)																		
0	Alluvium	Brown f-sand clay silty	(U)	19.6	90.8	62						0.85	46	109	119	56.8		S-S2.0
Excavation: S3 (TD= 0 ft, No GW)																		
0	Alluvium	Brown f-sand clay silty	(U)	19.6	90.2	62						0.85	46	108	119	56.8		

For abbreviation explanation see Legend on PLATE LS 4

GEOLABS-WESTLAKE VILLAGE

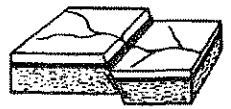


PLATE LS. 3

Depth	Geology	Sample Description	ST	w	DD	S	Max	Opt	EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: S4 (TD= 0 ft, No GW)																		
0	Alluvium	Light brown f-sand clay silty	(U)	18.3	97	68						0.72	42	115	123	60.9		S-S4.0
Excavation: S5 (TD= 0 ft, No GW)																		
0	Alluvium	Light brown silty clay f-m-sand	(U)	14.4	86	41						0.94	49	98.4	116	54		S-S5.0
Excavation: S6 (TD= 0 ft, No GW)																		
0	Alluvium	Ligth brown clay silty f-m sand	(U)	18.2	94.6	64						0.76	43	112	122	59.5		S-S6.0
Excavation: S7 (TD= 0 ft, No GW)																		
0	Alluvium	tan clay f-sand silt	(U)	20.2	96.8	74						0.73	42	116	123	60.5		
Excavation: TP1 (TD= 5.5 ft, No GW)																		
0.5	Colluvium	f-m sandy SILT (ML)	(U)	6.7	94.3	23						0.78	44	101	121	58.9		
1.5	Colluvium	f-m sandy SILT (ML)	(U)	7	83.2	19						0.99	50	89	115	52.8		S-TP1.1.5
Excavation: TP2 (TD= 5.5 ft, No GW)																		
0.3	Colluvium	clayey SILT (ML)	(U)	4.4	81.2	11						1.07	52	84.8	113	50.6		
Excavation: TP3 (TD= 5.5 ft, No GW)																		
0.3	Colluvium	clayey SILT (ML)	(U)	4.3	82.1	11						1.05	51	85.6	114	51.2		
1.5	Colluvium	fine sandy SILT (SM)	(U)	7.8	98.2	30						0.7	41	106	124	61.8		S-TP3.1.5

LEGEND

Depth = Sample Depth (ft) below ground surface
ST = Sample Type*
w = Initial Moisture Content (%)
DD = Initial Dry Unit Weight (pcf)
Max = Maximum Dry Unit Weight (pcf)
Opt = Optimum Moisture Content (%)
EI = Expansion Index
S = Degree of Saturation (%)
LL = Liquid Limit
PI = Plasticity Index
e = Void Ratio
n = Porosity (%)
WD = Initial Wet Unit Weight (pcf)
SD = Saturated Unit Weight (pcf)
BD = Bouyant (Submerged) Unit Weight (pcf) - Assuming water unit weight of 62.4 pcf
Consol = Consolidation Test Diagram (Plate No.)
Shear = Shear Test Diagram (Plate No.)

*** Sample Types: (U) = relatively Undisturbed; (S) = SPT; (B) = Bulk**

GEOLABS-WESTLAKE VILLAGE

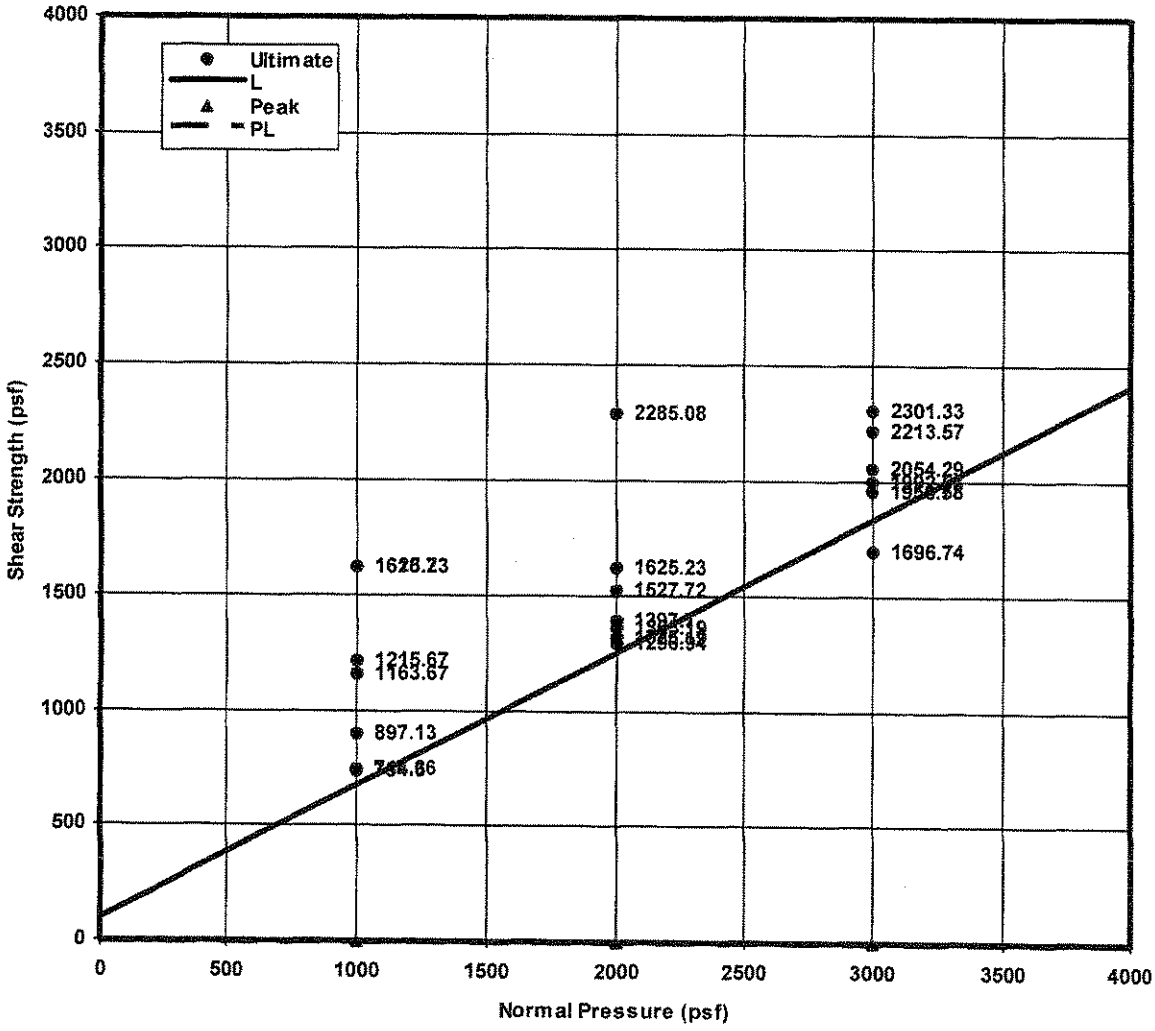


PLATE LS. 4

Standard Pacific

W.O. 8892

SHEAR TEST RESULTS



	Friction Angle	Cohesion
Ultimate Shear Strength:	30 deg	100 psf

Material: Qal

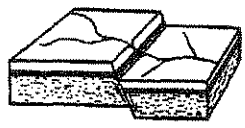
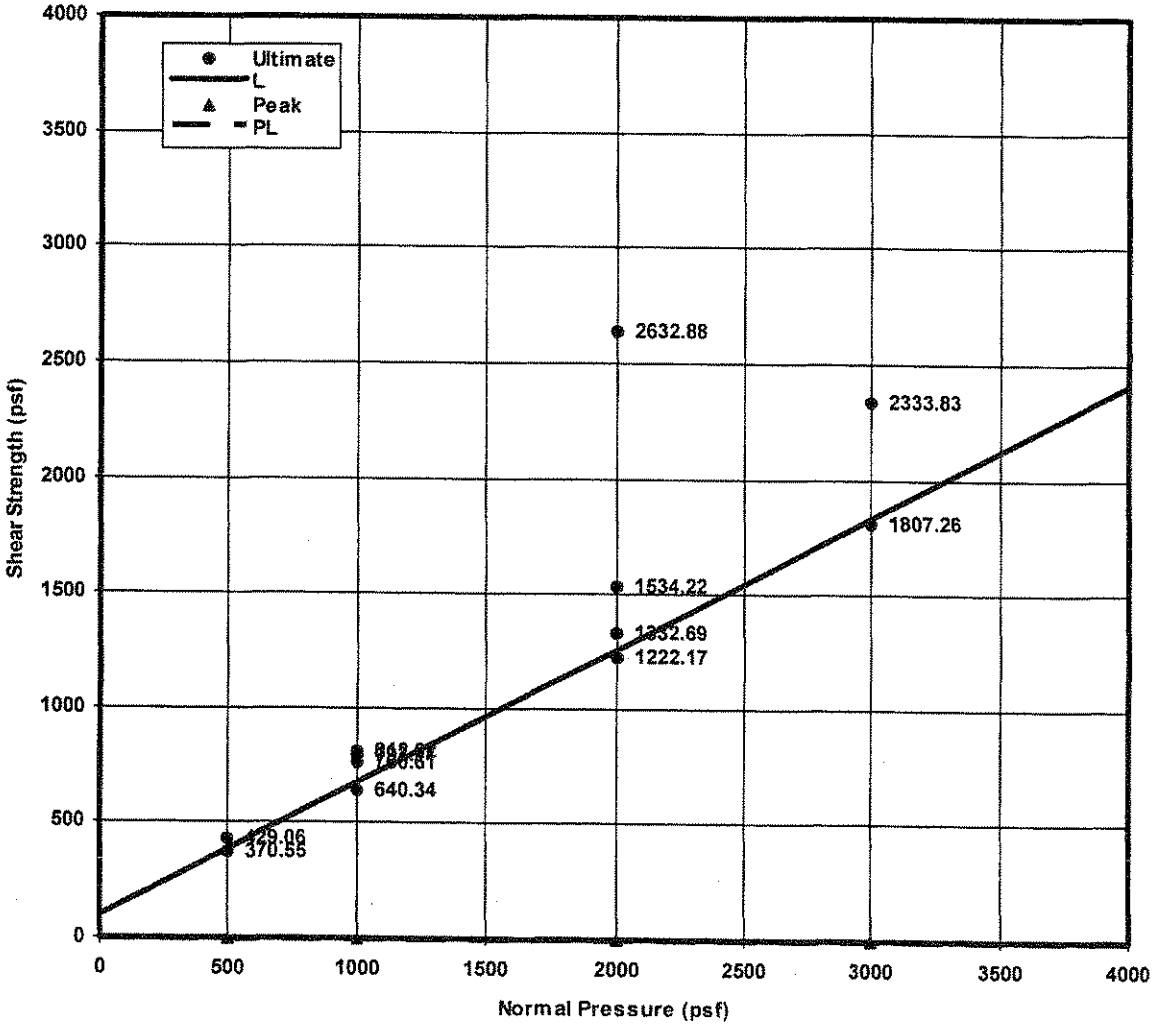


PLATE S-Qal

Standard Pacific

W.O. 8892

SHEAR TEST RESULTS



	Friction Angle	Cohesion
Ultimate Shear Strength:	30 deg	100 psf

Material: Qcol

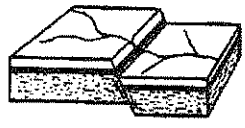
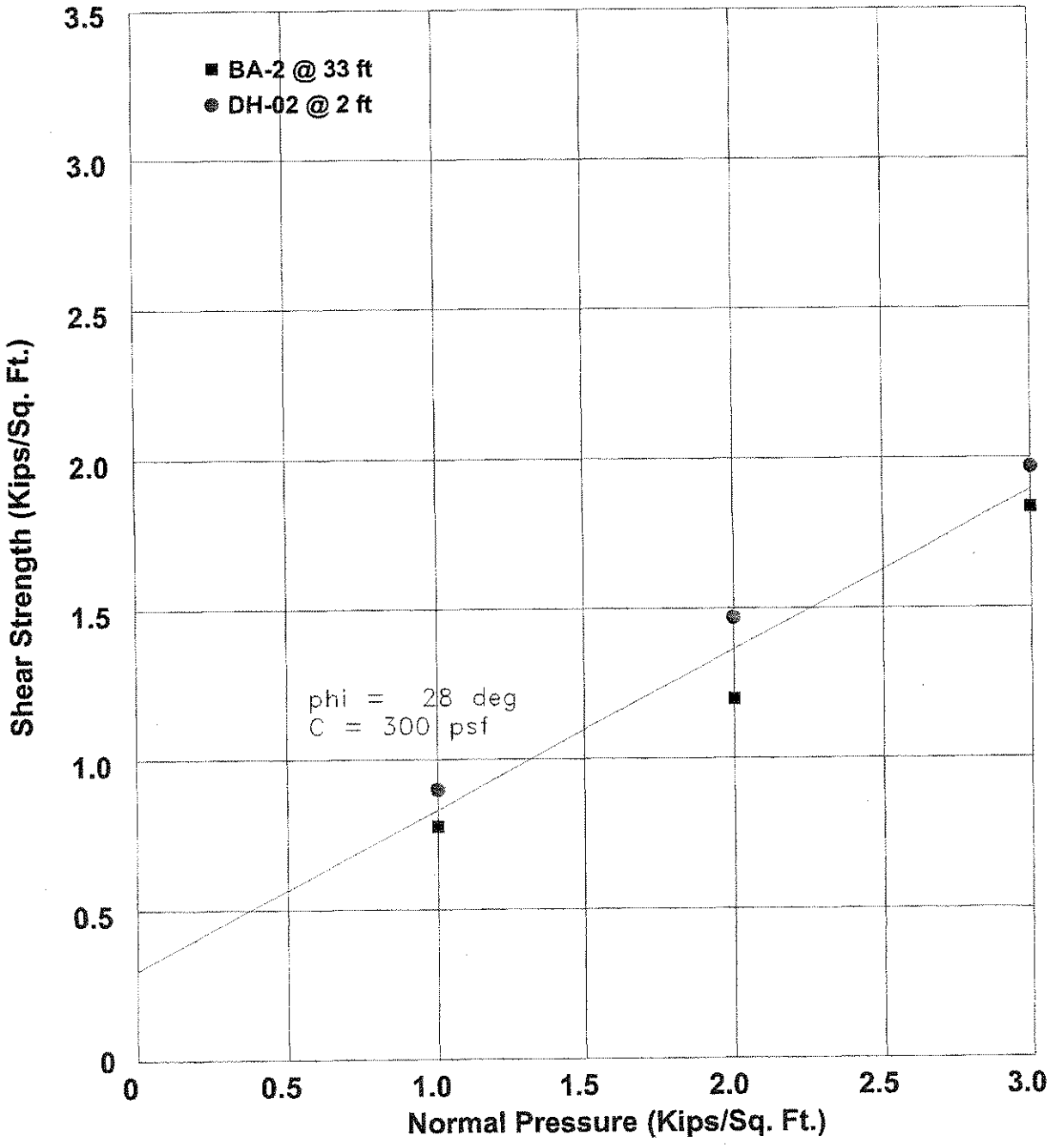


PLATE S-Qcol

SHEAR TEST RESULTS

Cumulative Plot - Remolded Samples



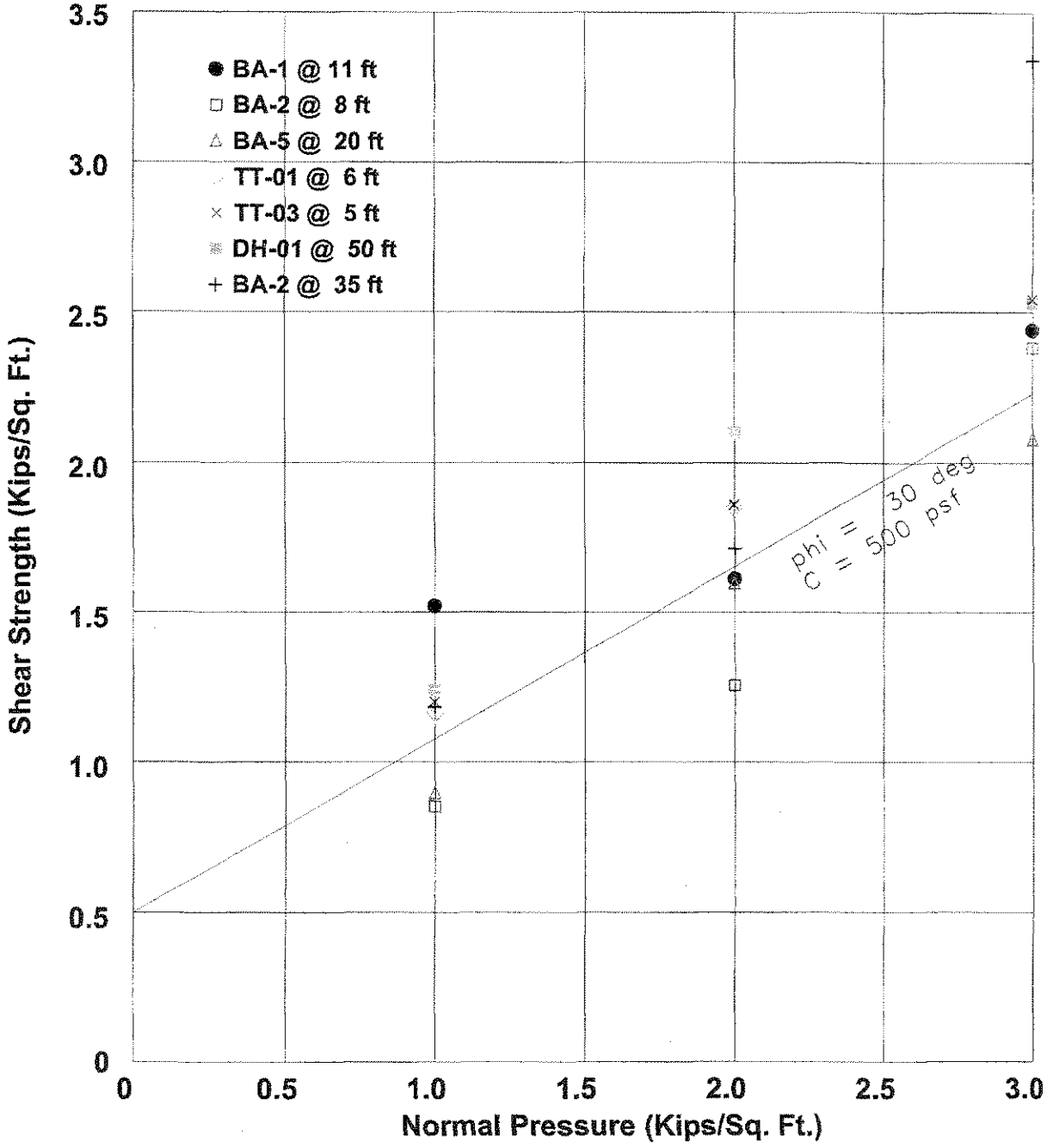
Project 8892 Entrada
Material Remolded Bedrock (Ttuc)
Strength Residual

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

PLATE S-Ttuc

SHEAR TEST RESULTS

Cumulative Plot - Undisturbed Samples



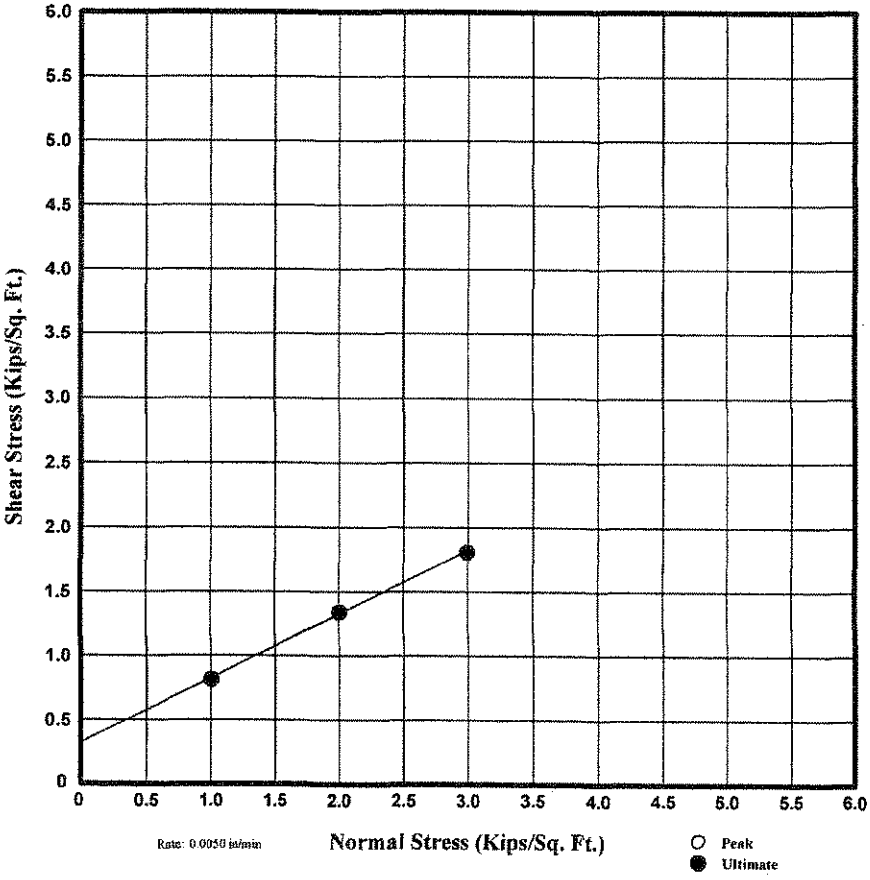
Project	**8892 Entrada**
Material	**Bedrock (Ttuc)**
Strength	**Ultimate**

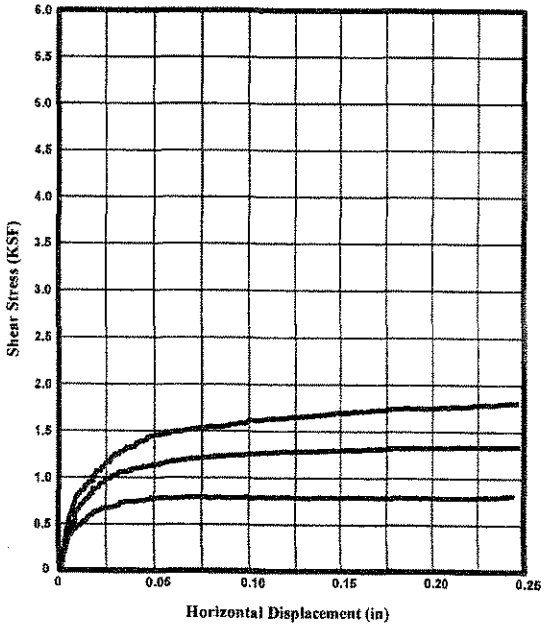
Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

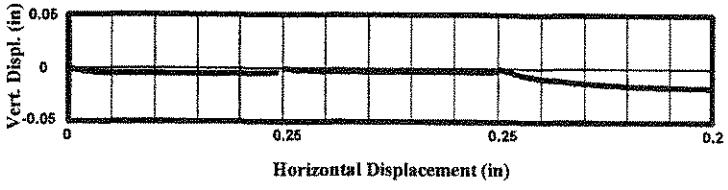
PLATE S-Ttuc.2

DIRECT SHEAR TEST RESULTS

SAMPLE REMOLDED TO 90% RELATIVE COMPACTION







Project	Tr 060488
W.O.	8892
Excavation	BA1
Depth	0 - 2 ft

Test Data	#1	#2	#3
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.8	--/1.3	--/1.8
H. Displ. (in)	--/0.25	--/0.25	--/0.25
V. Displ. (in)	--/-0.11	--/-0.14	--/-0.16
e (preshear)	0.37	0.34	0.32
Dry Density (pcf)	108.9		
Moisture (%)	21.7		

	Peak	Ultimate	Residual
Cohesion (ksf)		0.325	
Phi (deg)		26	

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S:\GEOTEST\shears\8892\BA1@0-2B.lst
S:\GEOTEST\shears\8892\BA1@0-2C.lst

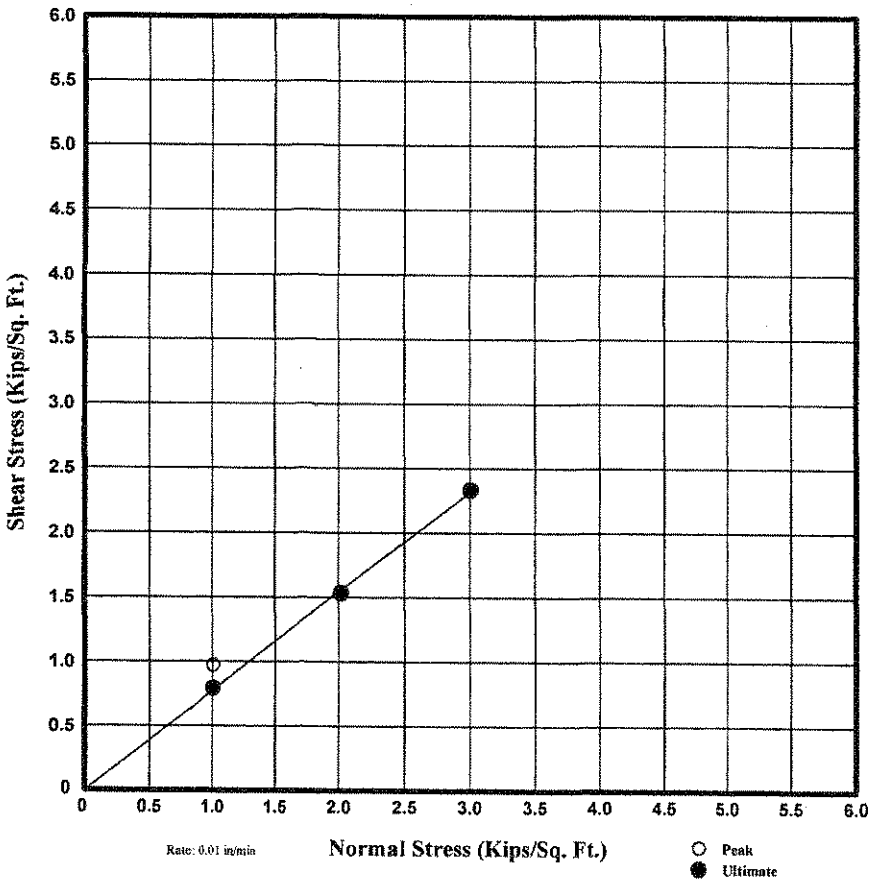
GEOLABS-WESTLAKE VILLAGE

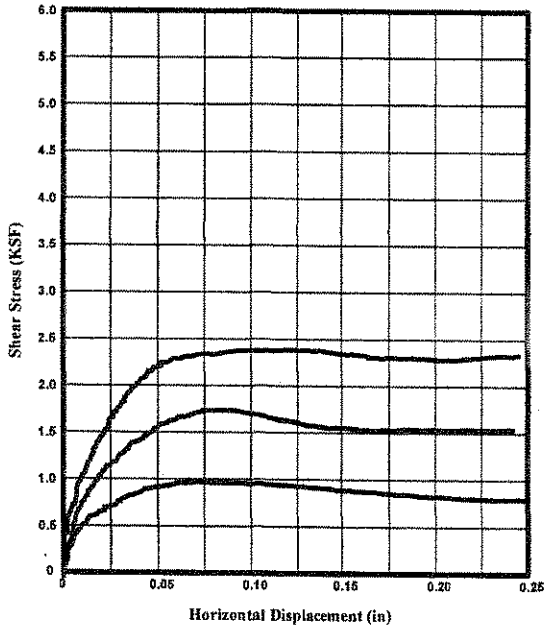


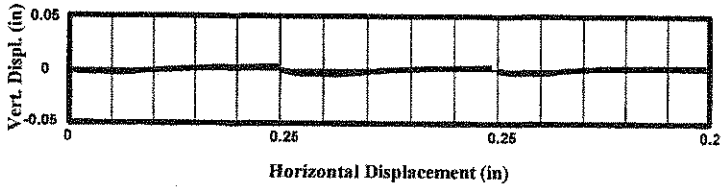
PLATE S-BA1.2.5

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0	
Phi (deg)		38	

Project	Tr 060488		
W.O.	8892		
Excavation	BA1		
Depth	7 ft.		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	1.0/0.8	--/1.5	--/2.3
H. Displ. (in)	0.07/0.25	--/0.24	--/0.25
V. Displ. (in)	0.00/-0.06	--/-0.15	--/-0.14
e (preshear)	0.36	0.24	0.24
Dry Density (pcf)	115		
Moisture (%)	22.4		

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GEOLABS-WESTLAKE VILLAGE

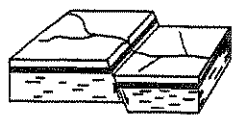
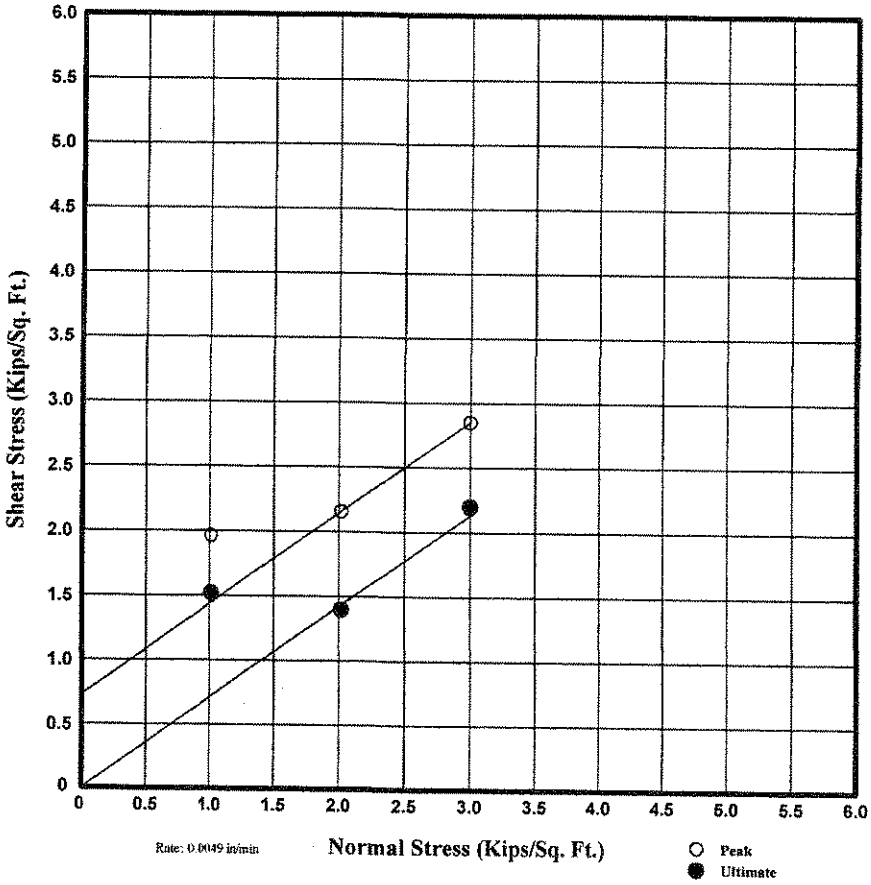
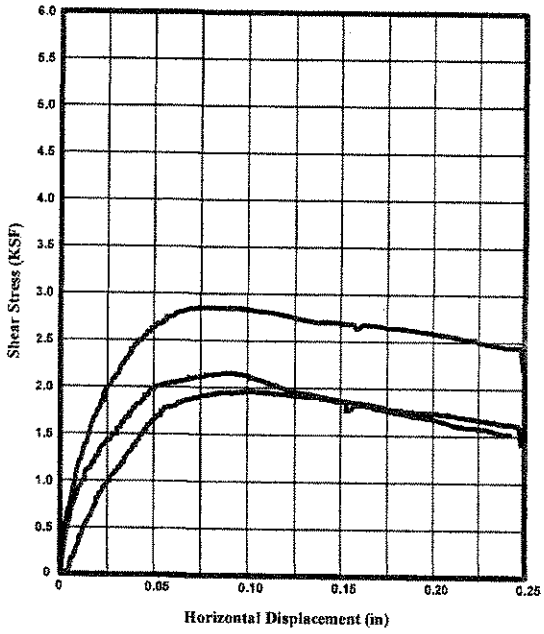


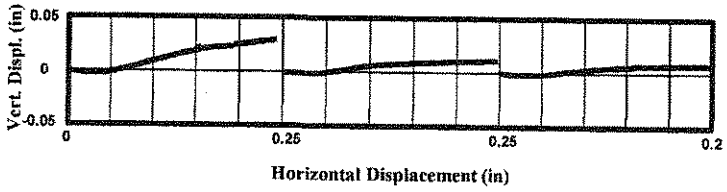
PLATE S-BA1.7

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)	0.725	0	
Phi (deg)	35	35	

Project	Tr 060488		
W.O.	8892		
Excavation	BA1		
Depth	11 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	2.0/1.5	2.2/1.4	2.8/2.2
H. Displ. (in)	0.10/0.24	0.09/0.25	0.08/0.25
V. Displ. (in)	0.01/-0.04	0.00/0.01	0.00/-0.08
e (preshear)	0.41	0.51	0.38
Dry Density (pcf)	110.5		
Moisture (%)	23.1		

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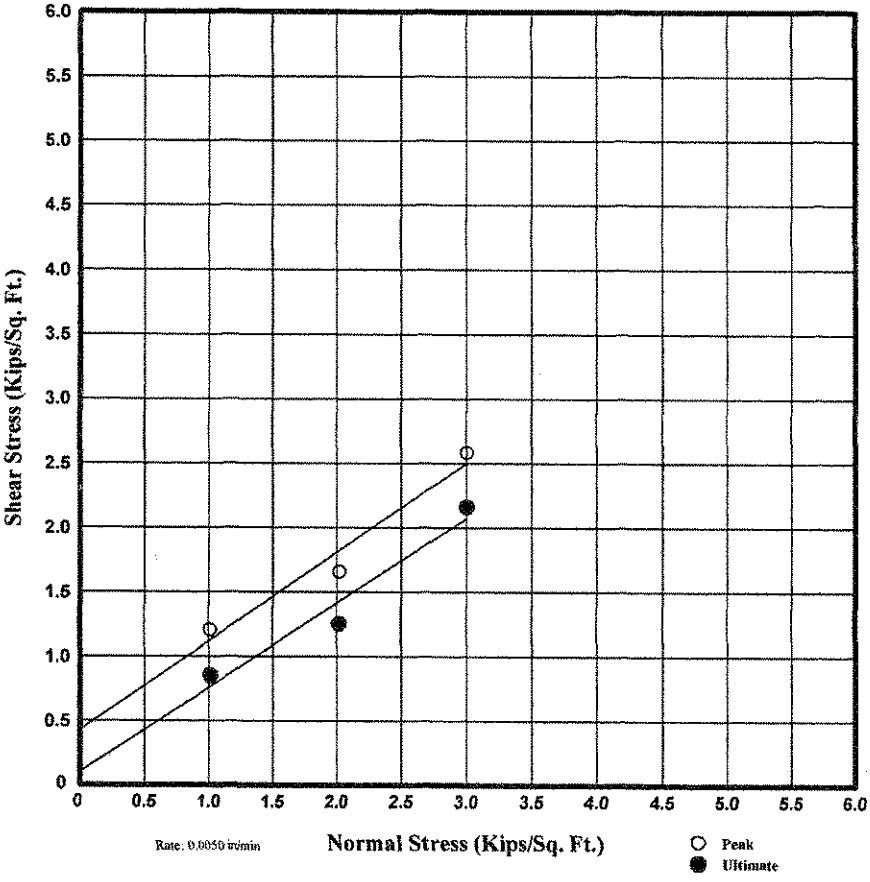
GEOLABS-WESTLAKE VILLAGE

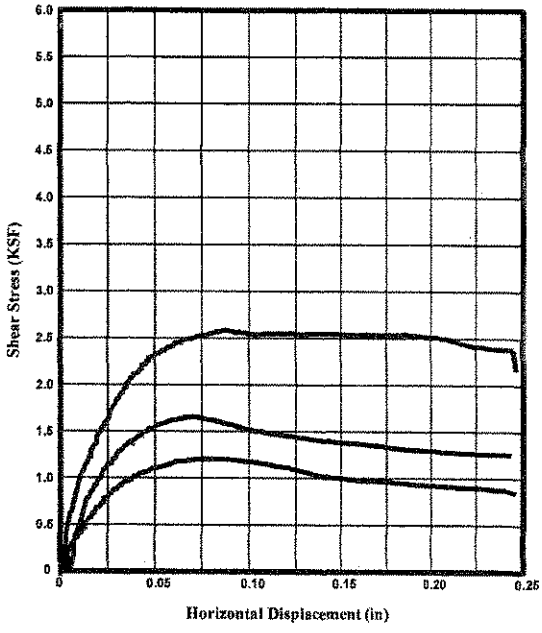


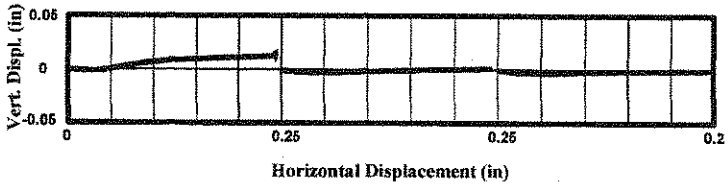
PLATE S-BA1.11

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)	0.425	0.1	
Phi (deg)	35	33	

Project	Tr 060488		
W.O.	8892		
Excavation	BA2		
Depth	8 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	1.2/0.9	1.7/1.3	2.6/2.2
H. Displ. (in)	0.08/0.25	0.07/0.24	0.09/0.25
V. Displ. (in)	0.00/-0.03	0.00/-0.10	0.00/-0.13
e (preshear)	0.40	0.30	0.27
Dry Density (pcf)	114.9		
Moisture (%)	25.7		

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GEOLABS-WESTLAKE VILLAGE

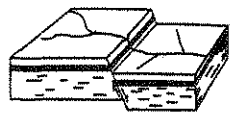
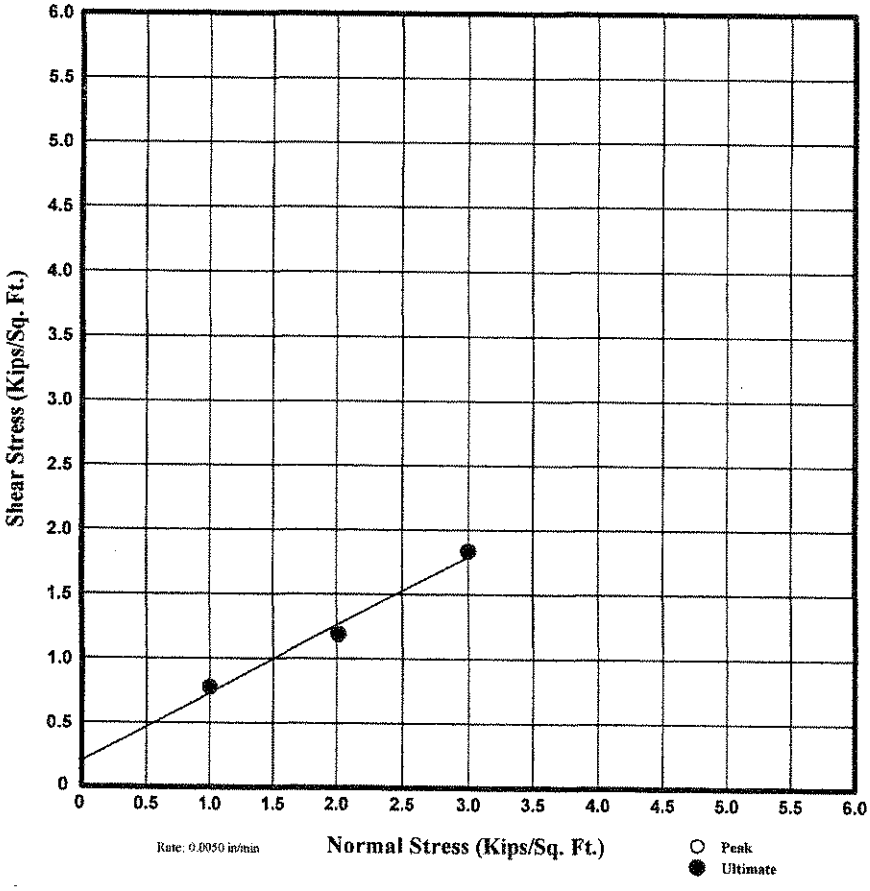
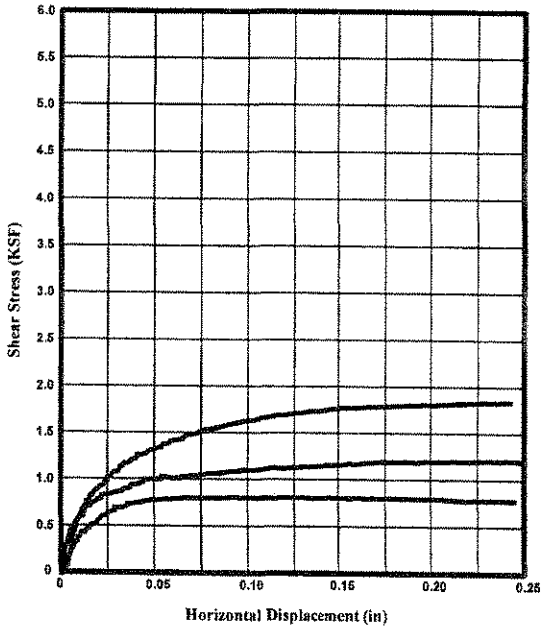


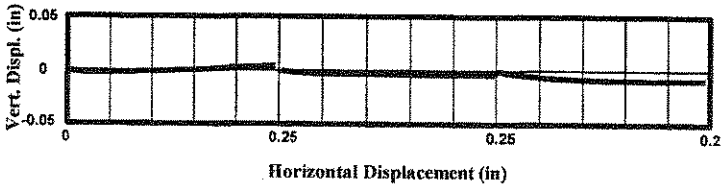
PLATE S-BA2.08

DIRECT SHEAR TEST RESULTS

SAMPLE REMOLDED TO 90% RELATIVE COMPACTION







	Peak	Ultimate	Residual
Cohesion (ksf)		0.2	
Phi (deg)		28	

Project	Tr 060488		
W.O.	8892		
Excavation	BA2		
Depth	33 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.8	--/1.2	--/1.8
H. Displ. (in)	--/0.25	--/0.25	--/0.24
V. Displ. (in)	--/-0.03	--/0.00	--/-0.14
e (preshear)	0.47	0.52	0.33
Dry Density (pcf)	109.8		
Moisture (%)	22		

S:\GEOTEST\shears\8892\BA2@33A.lst
S:\GEOTEST\shears\8892\BA2@33B.lst
S:\GEOTEST\shears\8892\BA2@33C.lst

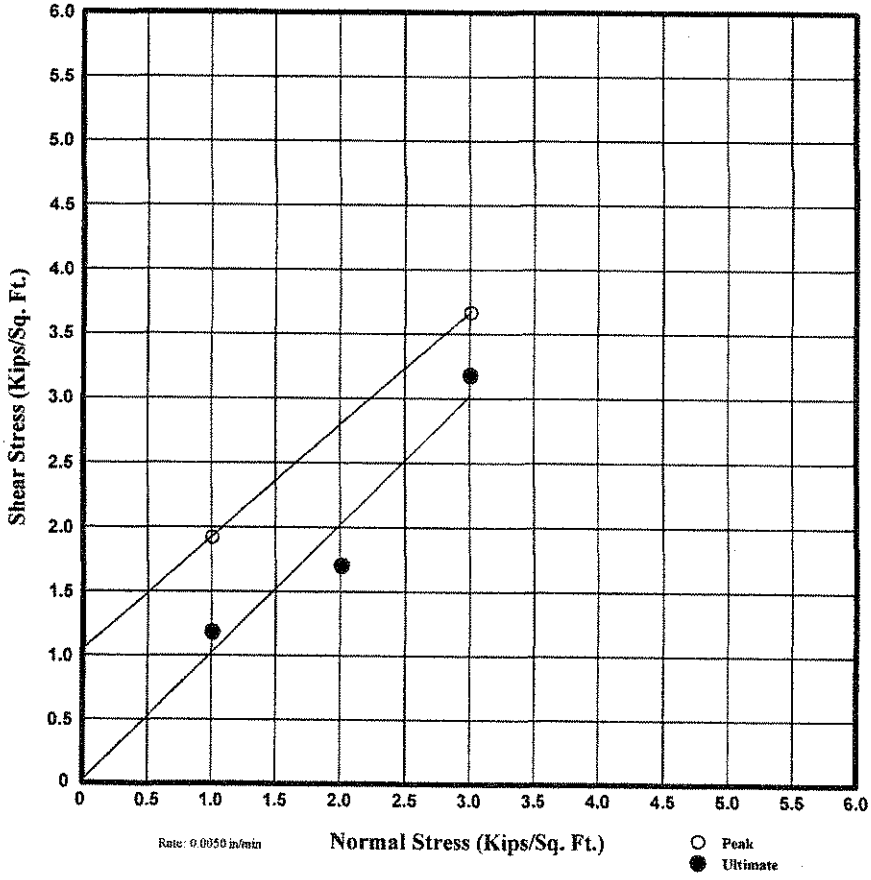
GEOLABS-WESTLAKE VILLAGE

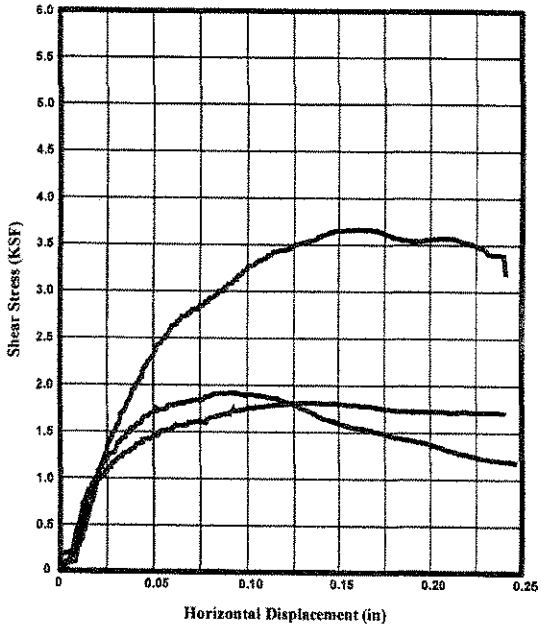


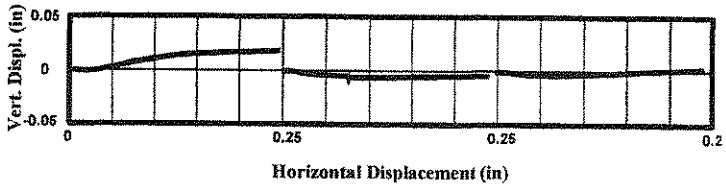
PLATE S-BA2.33

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)	1.05	0.025	
Phi (deg)	41	45	

Project	Tr 060488		
W.O.	8892		
Excavation	BA2		
Depth	35 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	1.9/1.2	--/1.7	3.7/3.2
H. Displ. (in)	0.09/0.25	--/0.24	0.16/0.24
V. Displ. (in)	0.01/-0.09	--/-0.06	0.00/-0.13
e (preshear)	0.25	0.33	0.23
Dry Density (pcf)	118.5		
Moisture (%)	20.6		

S:\GEOTEST\shears\8892\BA2@35A.lst
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GEOLABS-WESTLAKE VILLAGE

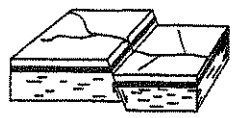
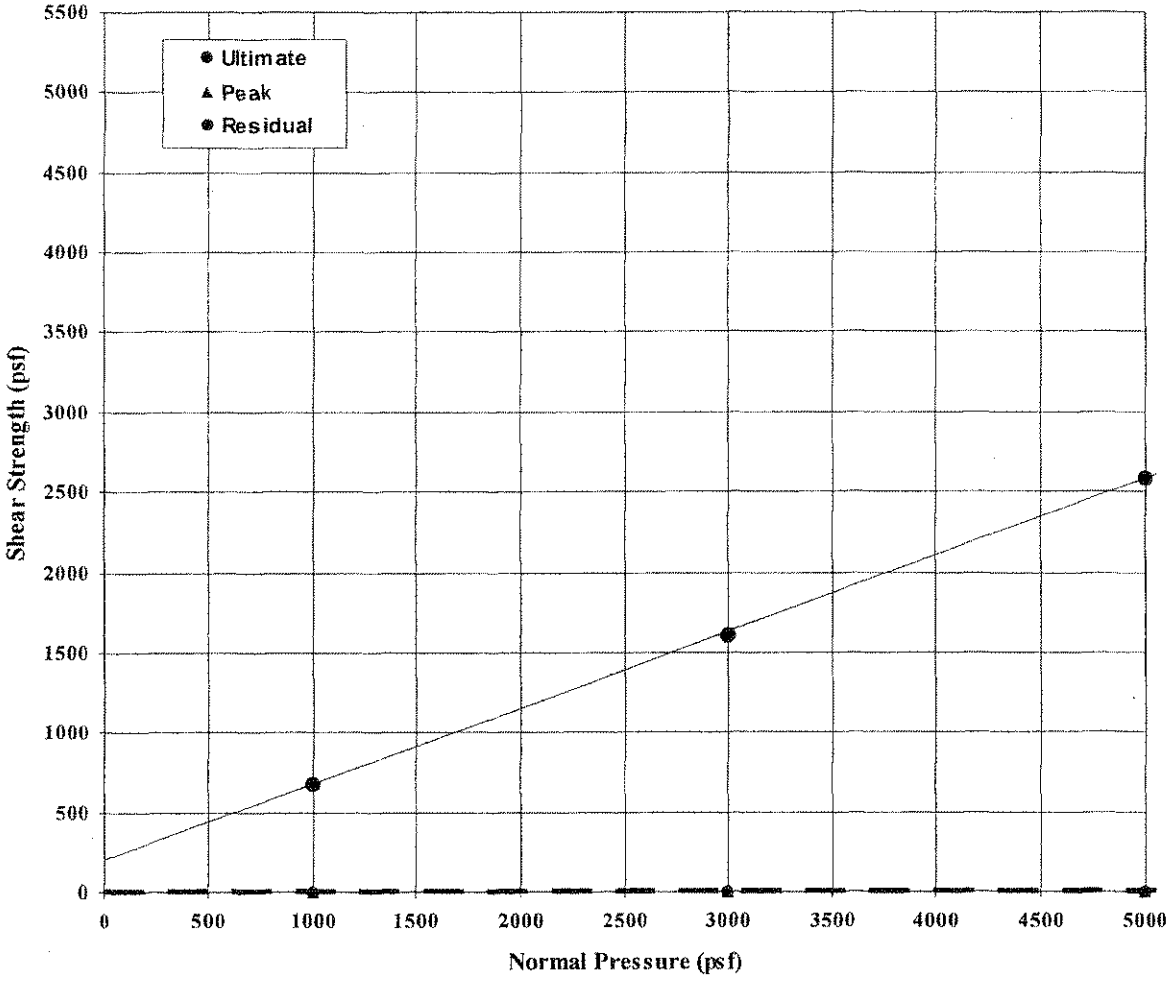


PLATE S-BA2.035

SHEAR TEST RESULTS

Bulk Sample Remolded to Specific Dry Density



	Friction Angle	Cohesion
Ultimate Shear Strength:		
Peak Shear Strength:		
Residual Shear Strength:	26 deg	200 psf
Displacement Rate:	0.0025 in/min	

Dry Density:	115.8 pcf
Moisture:	18.4 %

Sample Location: BA3
Sample Depth: 20 ft.
Geologic Unit: Topanga Formation
Material: very clayey SILTSTONE (ML/CL)



GEOLABS-WESTLAKE VILLAGE

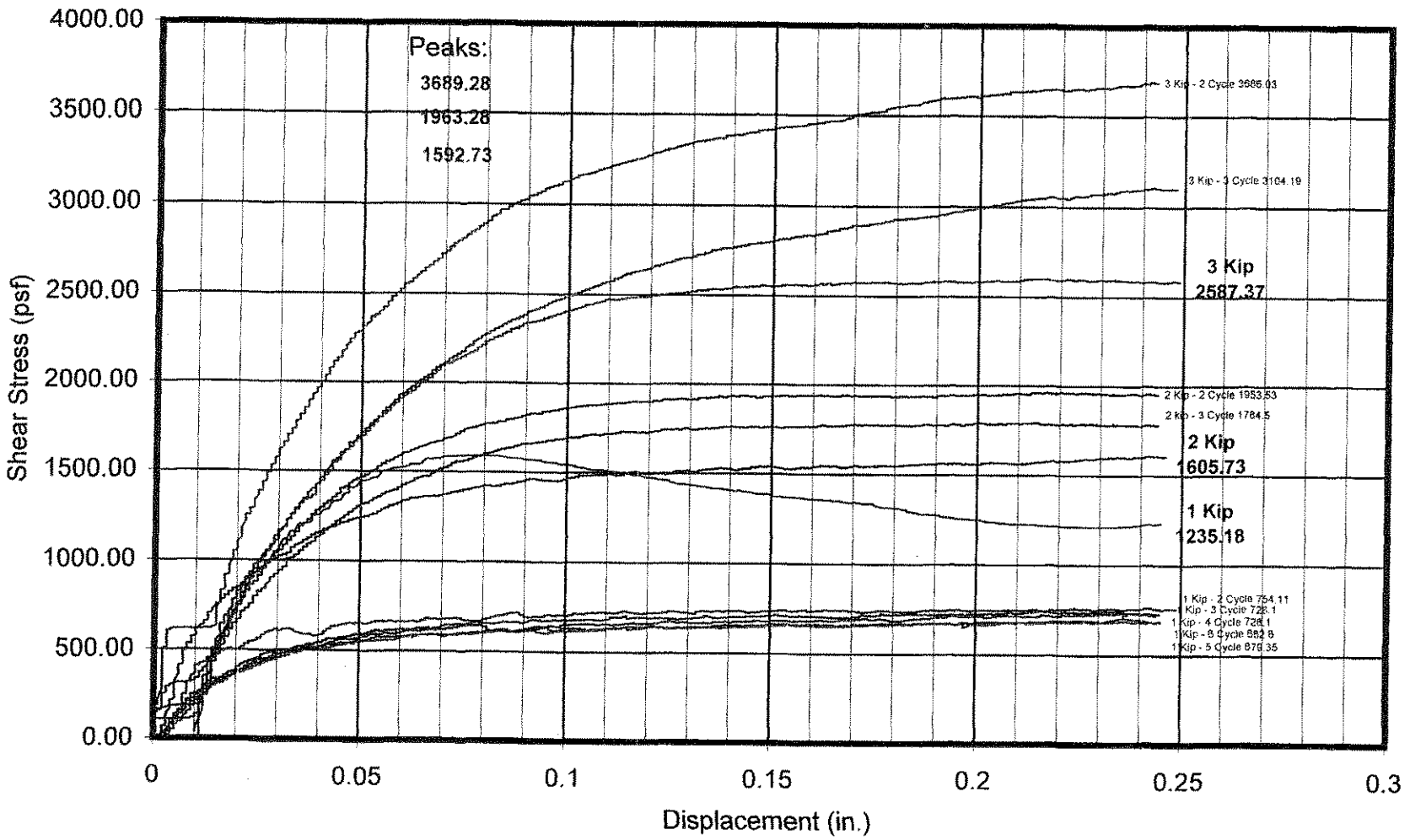
PLATE S-BA3.20

Excavation: BA3 Depth: 20 ft

Sample Description: Dark gray silty clay

Displacement Rate: 1st run at 0.0100 in/min rest run at 0.0025 in/min

SHEARS
1K, 3K, & 5K NORMAL LOADS
Remolded, Sat at 18.40%



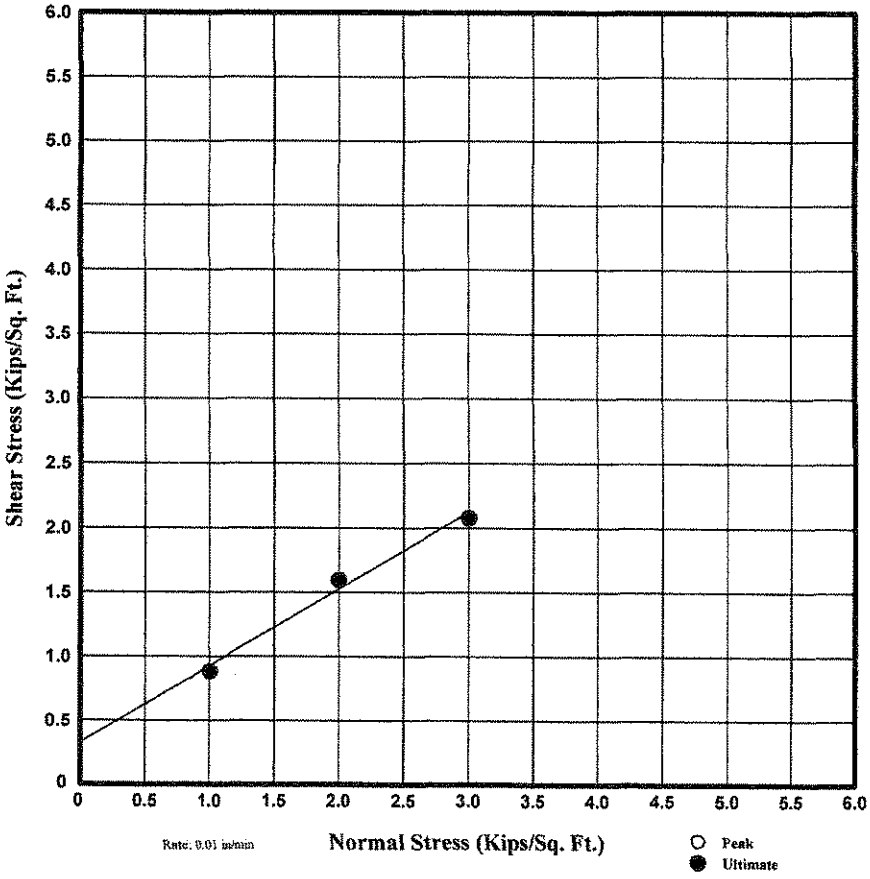
BA3 @ 20

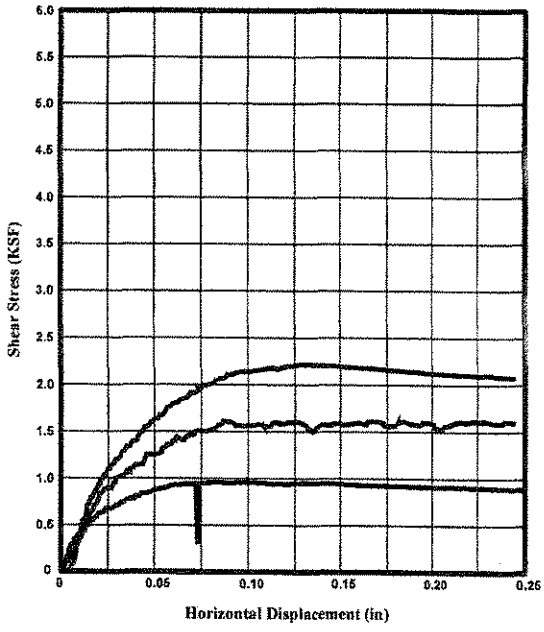
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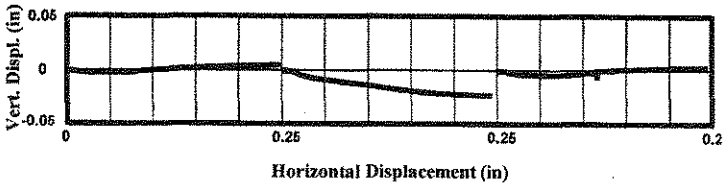
Work Order #: 8892

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.325	
Phi (deg)		31	

Project	Tr 060488		
W.O.	8892		
Excavation	BA5		
Depth	20 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.9	--/1.6	--/2.1
H. Displ. (in)	--/0.25	--/0.25	--/0.25
V. Displ. (in)	--/-0.11	--/-0.08	--/-0.11
e (preshear)	0.32	0.41	0.31
Dry Density (pcf)	112.6		
Moisture (%)	20.1		

S:\GEOTEST\shears\8892\BA5@20A.lst
S:\GEOTEST\shears\8892\BA5@20B.lst
S:\GEOTEST\shears\8892\BA5@20C.lst

GEOLABS-WESTLAKE VILLAGE



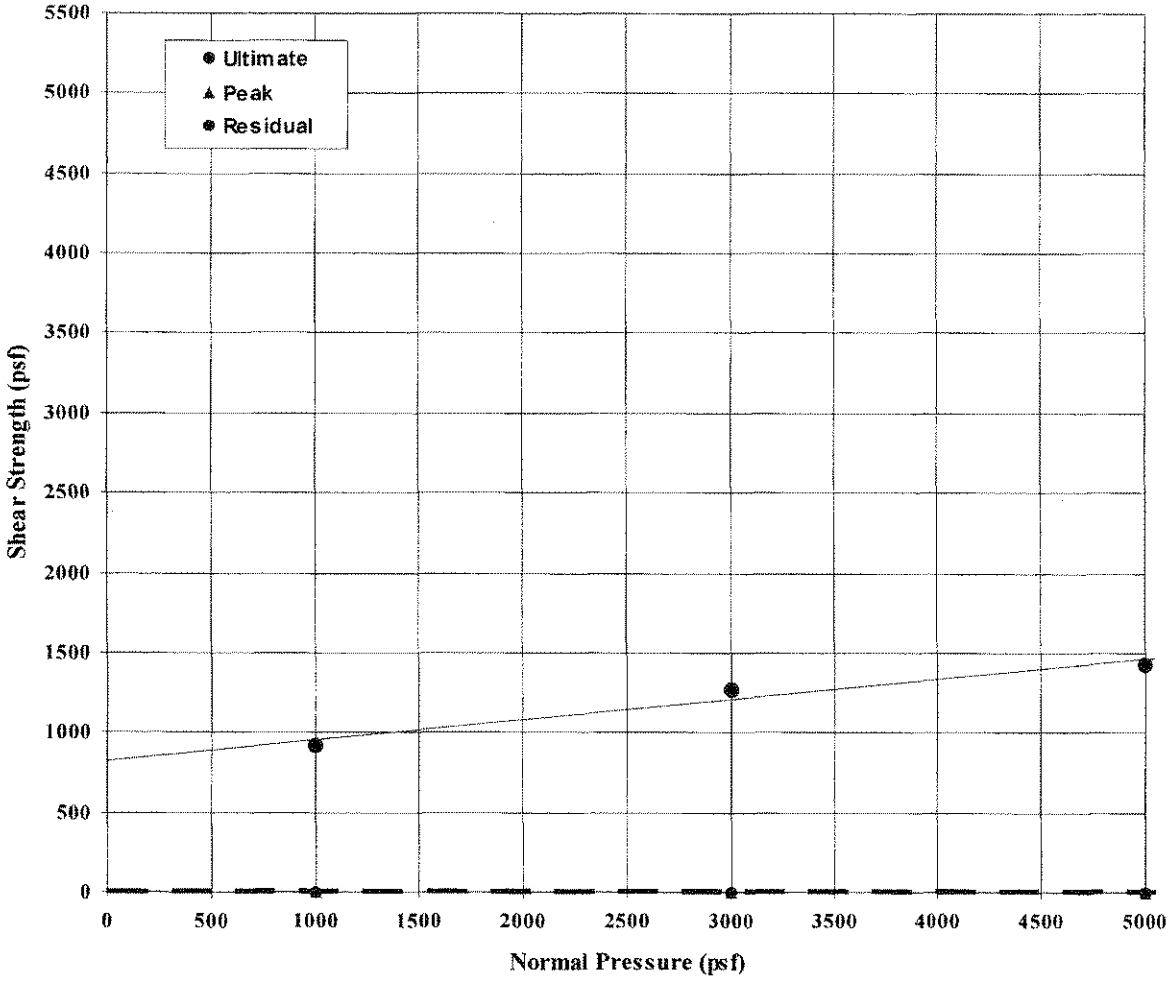
PLATE S-BA5.20

Standard Pacific

W.O. 8892

SHEAR TEST RESULTS

Bulk Sample Remolded to Specific Dry Density

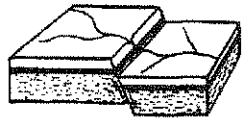


	Friction Angle	Cohesion
Ultimate Shear Strength:		
Peak Shear Strength:		
Residual Shear Strength:	7 deg	825 psf

Displacement Rate: 0.0025 in/min

Dry Density:	110.5 pcf
Moisture:	21.5 %

Sample Location: BA6
Sample Depth: 42.8 ft
Geologic Unit: Landslide Basal Surface
Material: silty CLAY (CH)



GEOLABS-WESTLAKE VILLAGE

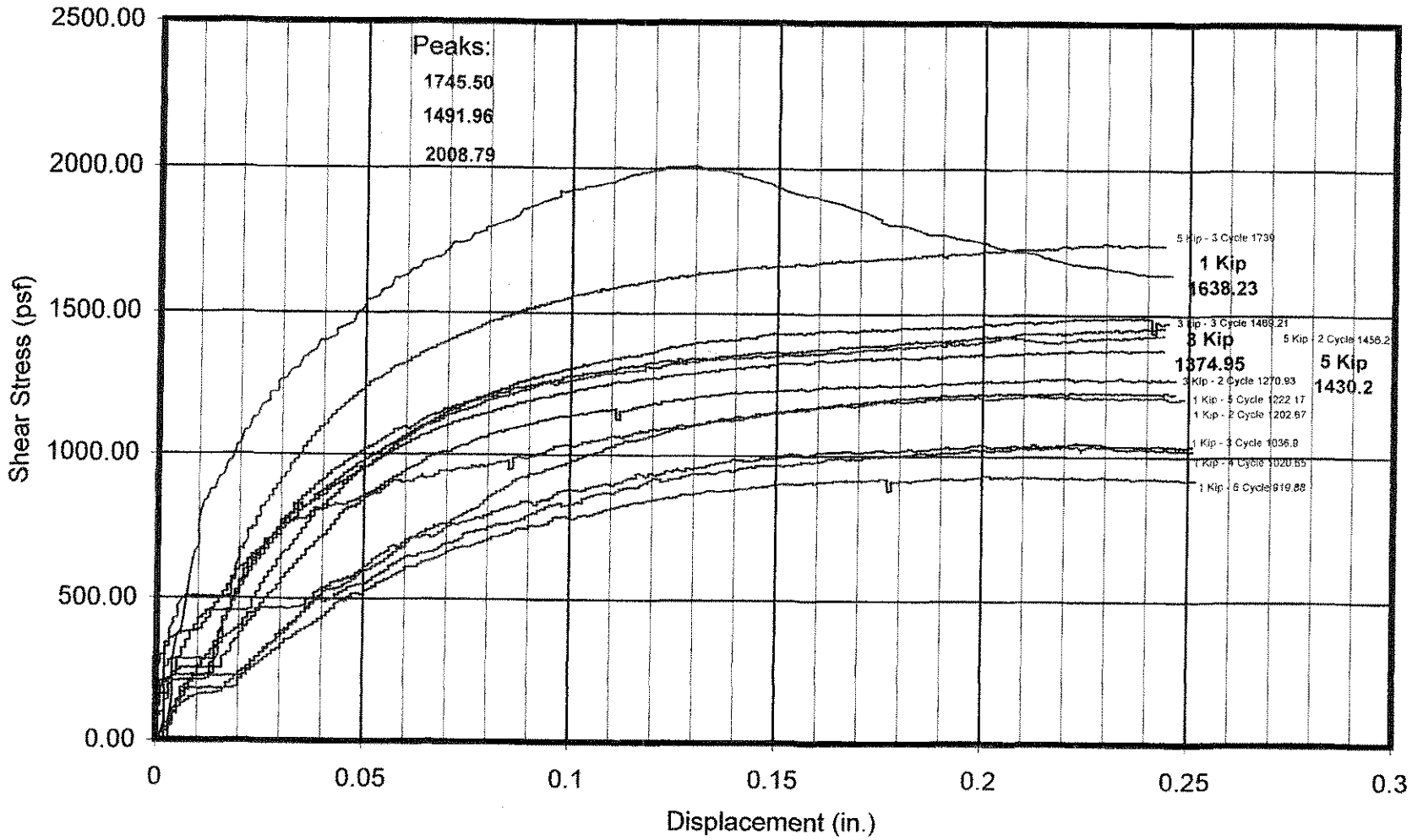
PLATE S-BA6.42.8

Excavation: BA6 Depth: 43 ft

Sample Description: Gray silty clay

Displacement Rate: 1st run at 0.0100 in/min rest run at 0.0025 in/min

SHEARS
1K, 3K, & 5K NORMAL LOADS
Remolded, Sat at 21.50%



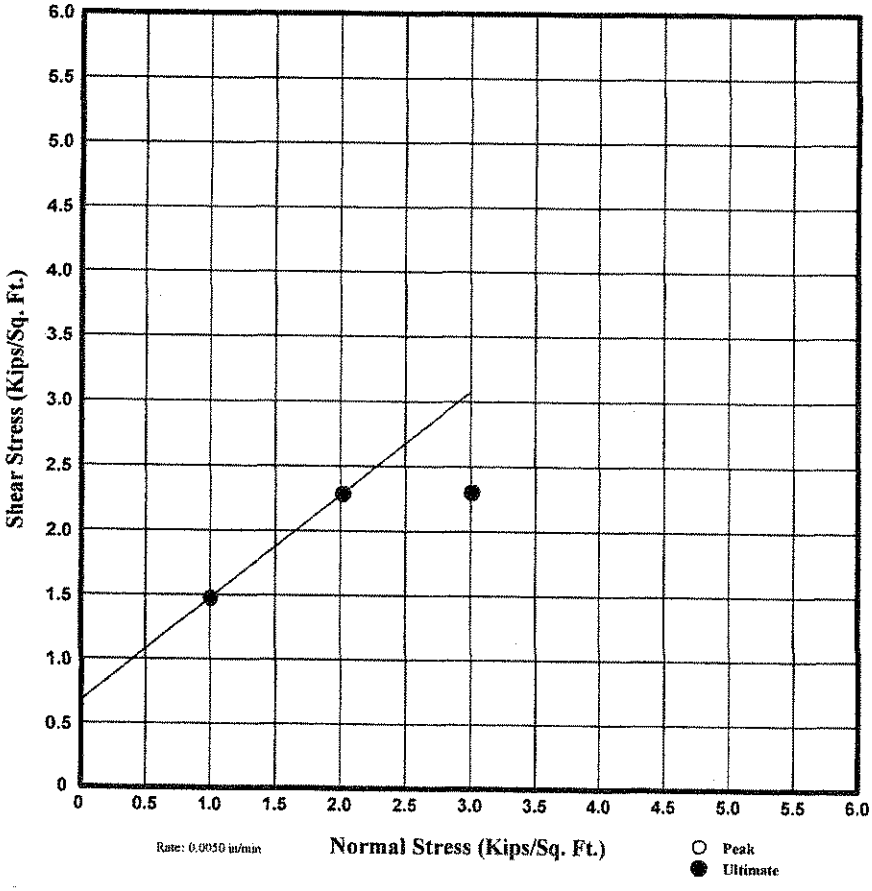
BA6 @ 43

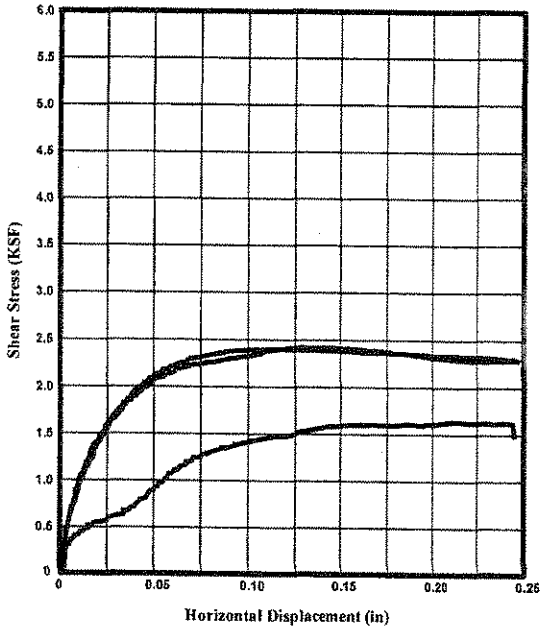
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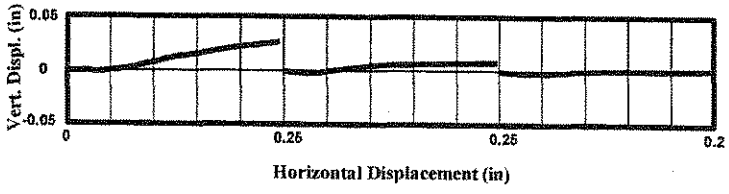
Work Order #: 8892

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.675	
Phi (deg)		39	

Project	Tr 060488		
W.O.	8892		
Excavation	GWV4		
Depth	7.5 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/1.5	--/2.3	--/2.3
H. Displ. (in)	--/0.25	--/0.25	--/0.25
V. Displ. (in)	--/-0.13	--/-0.13	--/-0.14
e (preshear)	0.24	0.26	0.26
Dry Density (pcf)	114		
Moisture (%)	19.9		

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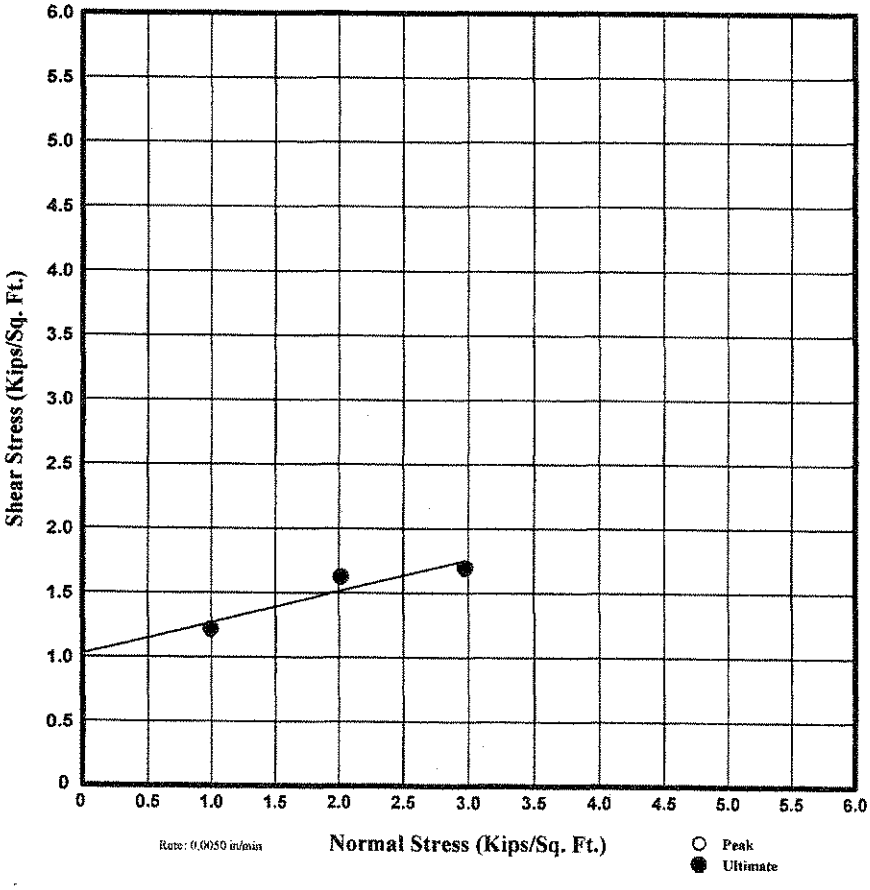
GEOLABS-WESTLAKE VILLAGE

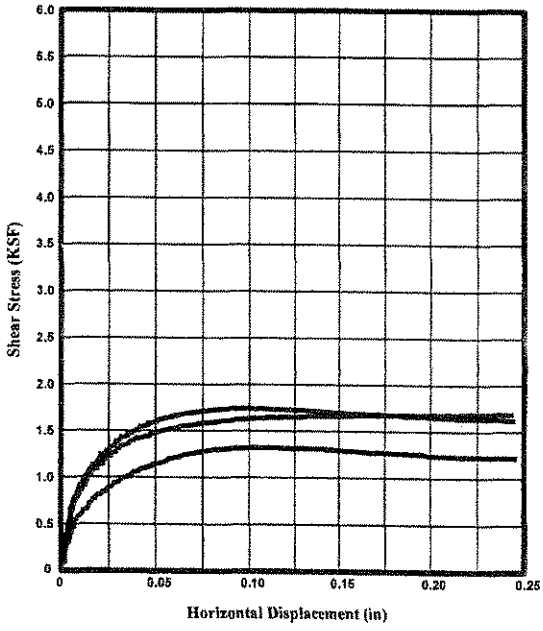


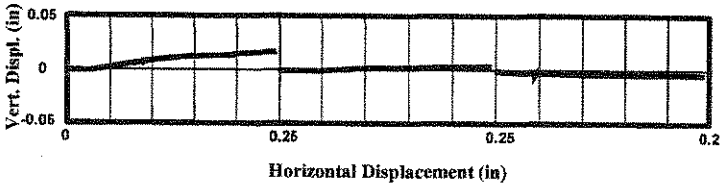
PLATE S-GWV4.7.5

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		1.025	
Phi (deg)		14	

Project	Tr 060488		
W.O.	8892		
Excavation	GWV4		
Depth	15 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/1.2	--/1.6	--/1.7
H. Displ. (in)	--/0.25	--/0.25	--/0.24
V. Displ. (in)	--/-0.13	--/-0.15	--/-0.17
e (preshear)	0.29	0.28	0.26
Dry Density (pcf)	110.6		
Moisture (%)	21.2		

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S:\GEOTEST\shears\8892\DH4@15C.lst

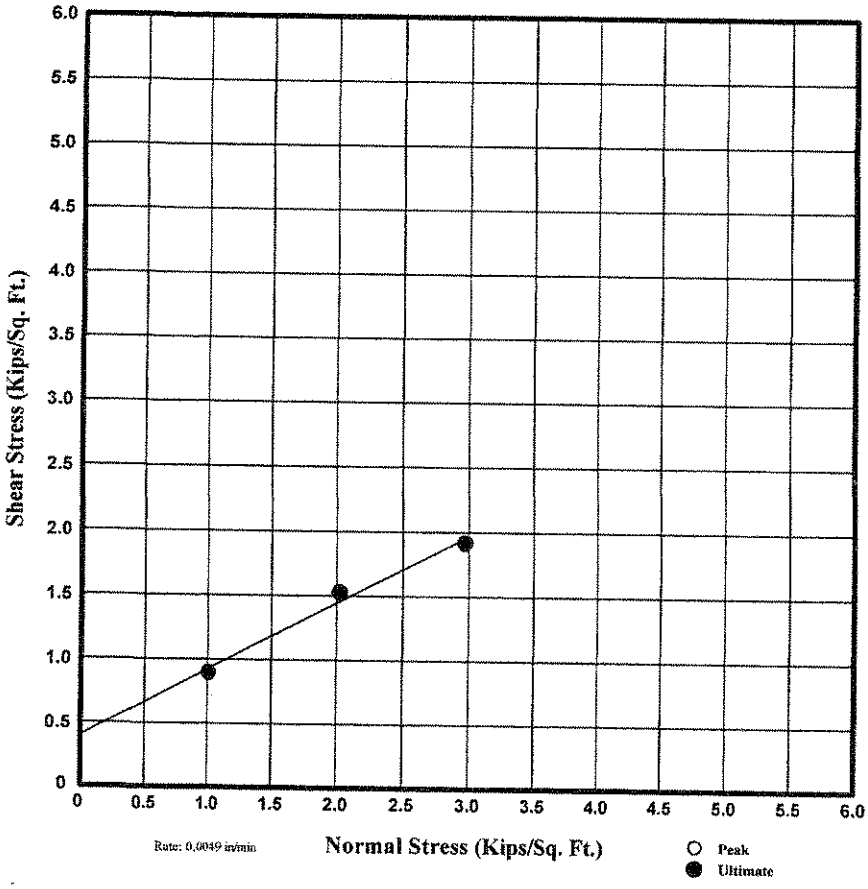
GEOLABS-WESTLAKE VILLAGE

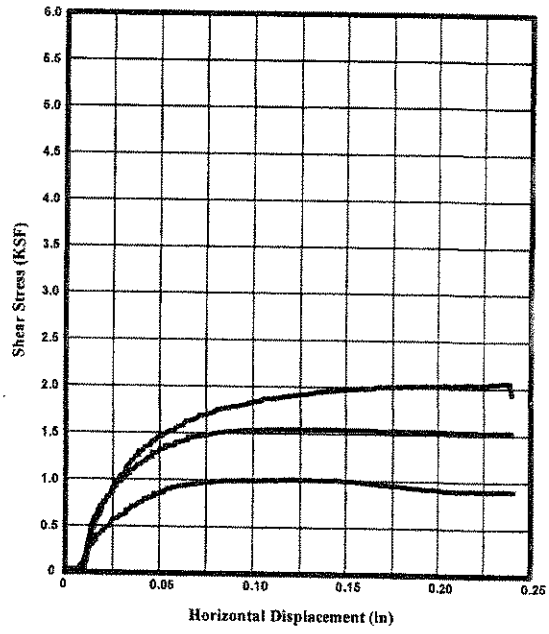


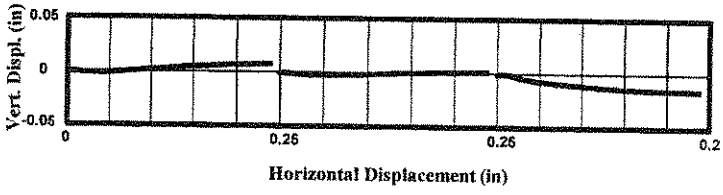
PLATE S-GWV4.15

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.4	
Phi (deg)		28	

Project	Tr 060488		
W.O.	8892		
Excavation	S1		
Depth	0 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.9	--/1.5	--/1.9
H. Displ. (in)	--/0.24	--/0.24	--/0.24
V. Displ. (in)	--/-0.19	--/-0.12	--/-0.19
e (preshear)	0.31	0.43	0.35
Dry Density (pcf)	102		
Moisture (%)	23.4		

S:\GEOTEST\shears\8892\S1-A.lst
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GEOLABS-WESTLAKE VILLAGE

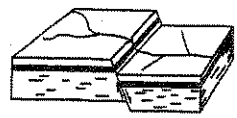
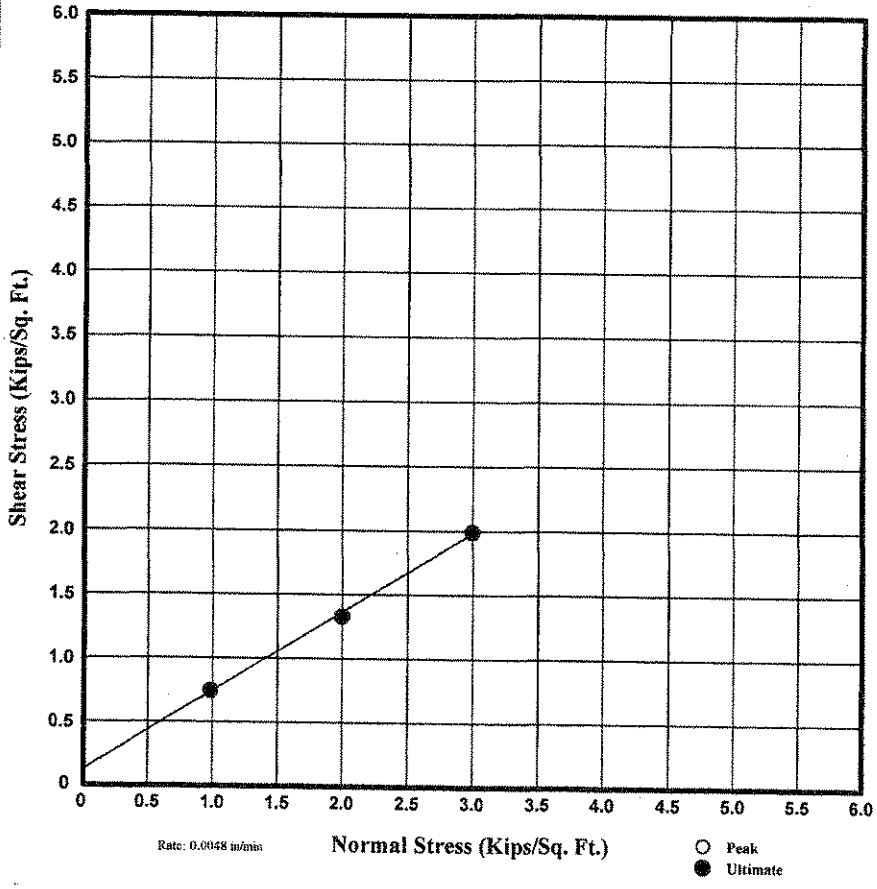
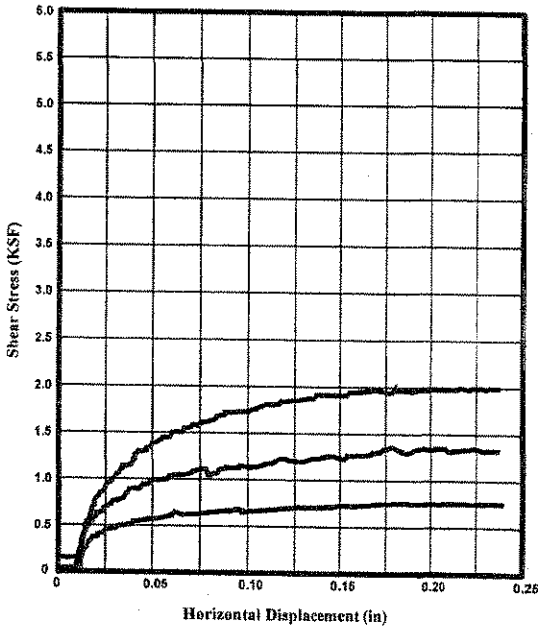


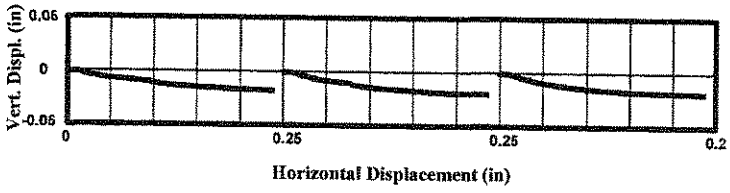
PLATE S-S1.0

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.125	
Phi (deg)		32	

Project	Tr 060488		
W.O.	8892		
Excavation	S2		
Depth	0 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.7	--/1.3	--/2.0
H. Displ. (in)	--/0.24	--/0.24	--/0.24
V. Displ. (in)	--/-0.10	--/-0.28	--/-0.34
e (preshear)	0.69	0.36	0.25
Dry Density (pcf)	90.8		
Moisture (%)	23.3		

S:\GEOTEST\shears\8892\S2-A.lst
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GEOLABS-WESTLAKE VILLAGE

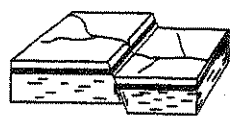
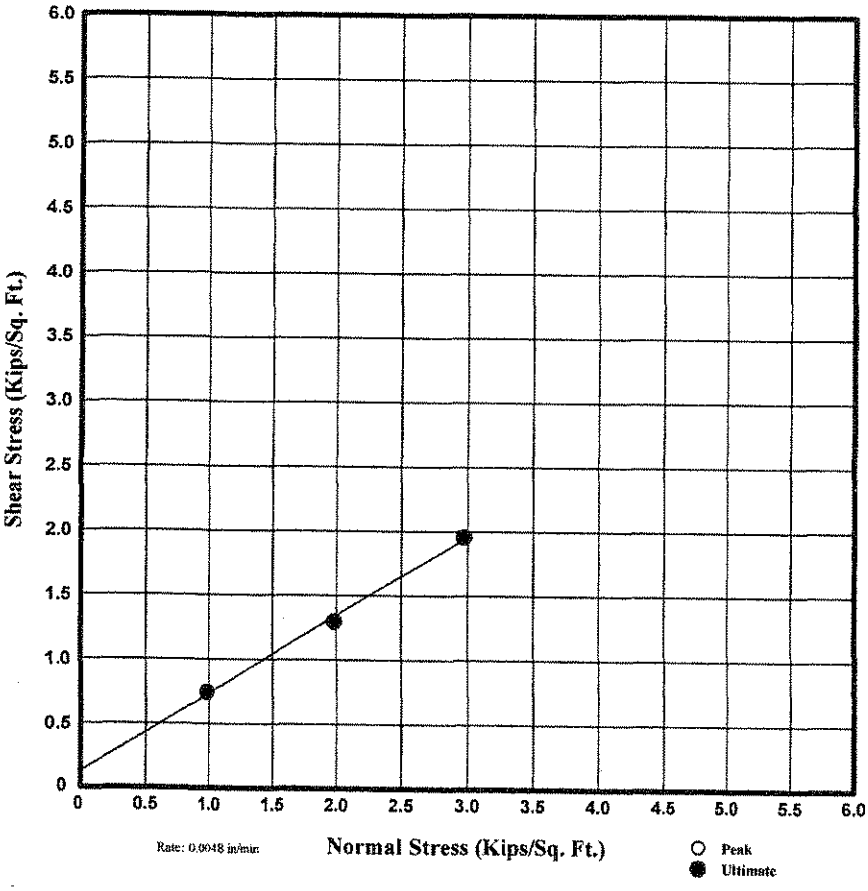
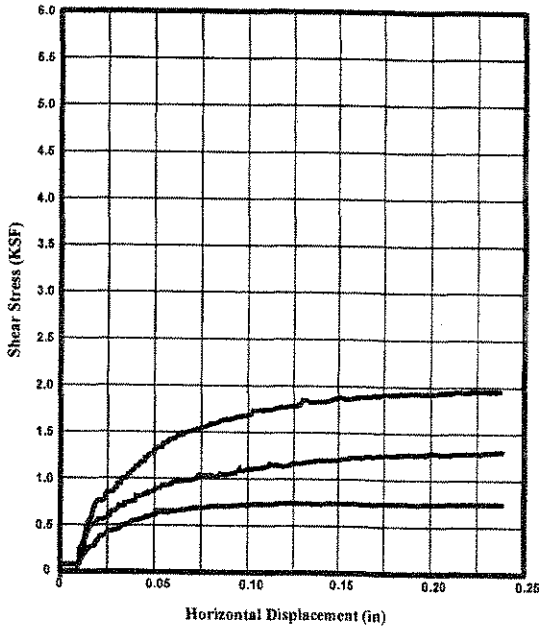


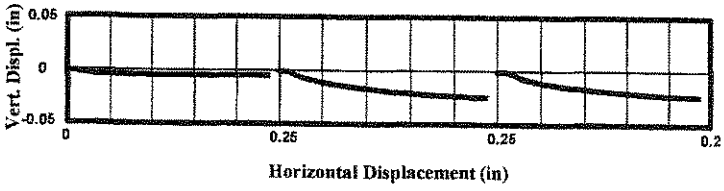
PLATE S-S2.0

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.125	
Phi (deg)		31	

Project	Tr 060488		
W.O.	8892		
Excavation	S4		
Depth	0 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/0.7	--/1.3	--/2.0
H. Displ. (in)	--/0.24	--/0.24	--/0.24
V. Displ. (in)	--/-0.14	--/-0.22	--/-0.26
e (preshear)	0.50	0.39	0.31
Dry Density (pcf)	97		
Moisture (%)	20.8		

S:\GEOTEST\shears\8892\S4-A.lst
S:\GEOTEST\shears\8892\S4-B.lst
S:\GEOTEST\shears\8892\S4-C.lst

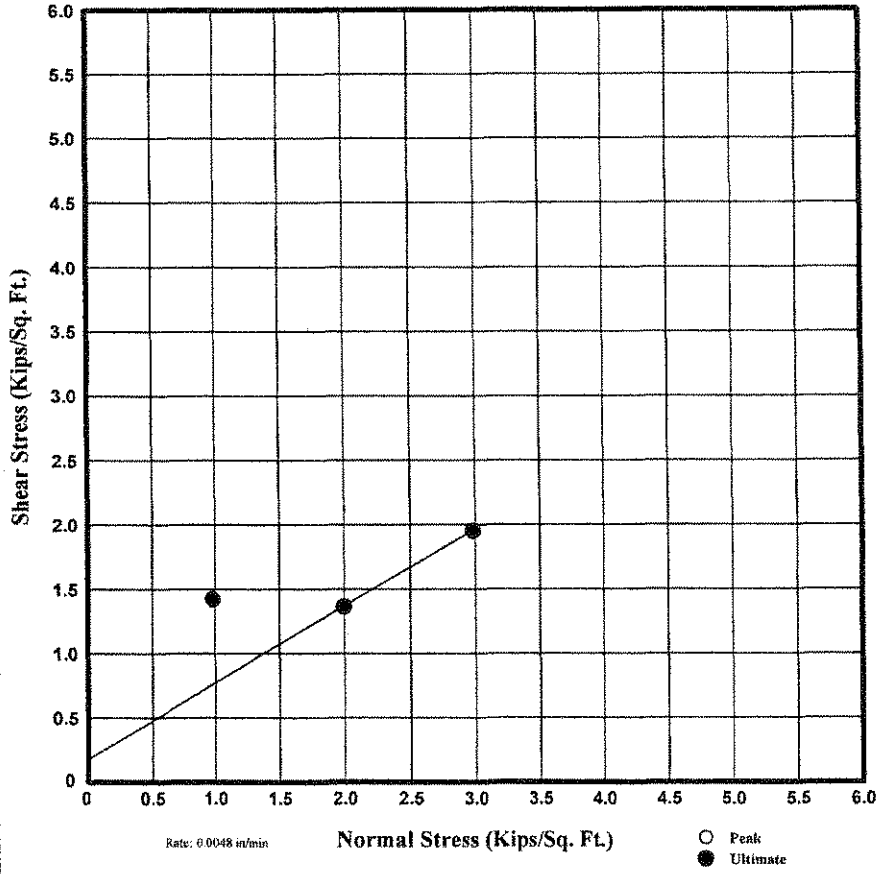


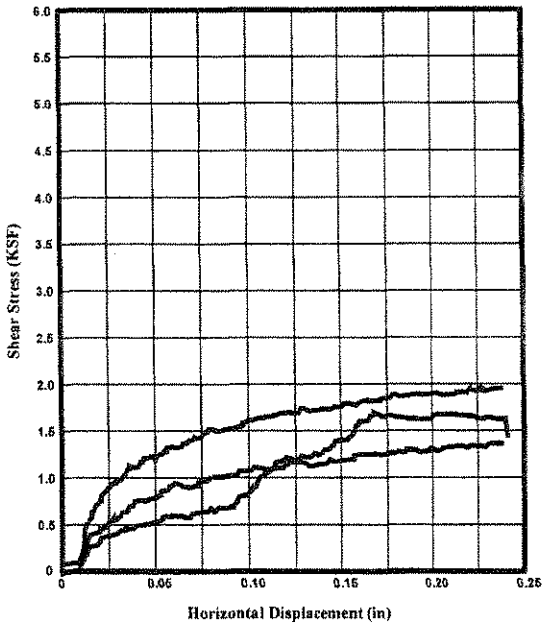
GEOLABS-WESTLAKE VILLAGE

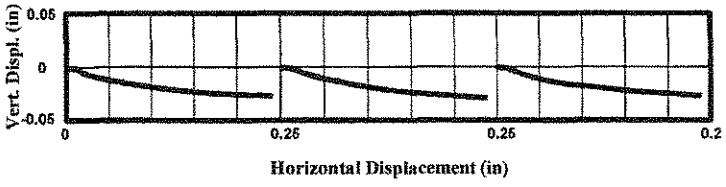
PLATE S-S4.0

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.175	
Phi (deg)		31	

Project	Tr 060488		
W.O.	8892		
Excavation	S.5		
Depth	0 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	--/1.4	--/1.4	--/2.0
H. Displ. (in)	--/0.24	--/0.24	--/0.24
V. Displ. (in)	--/-0.03	--/-0.30	--/-0.43
e (preshear)	0.94	0.41	0.16
Dry Density (pcf)	86		
Moisture (%)	22.5		

S:\GEOTEST\shears\8892\S5-A.lst
S:\GEOTEST\shears\8892\S5-B.lst
S:\GEOTEST\shears\8892\S5-C.lst

GEOLABS-WESTLAKE VILLAGE

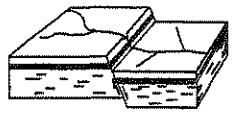
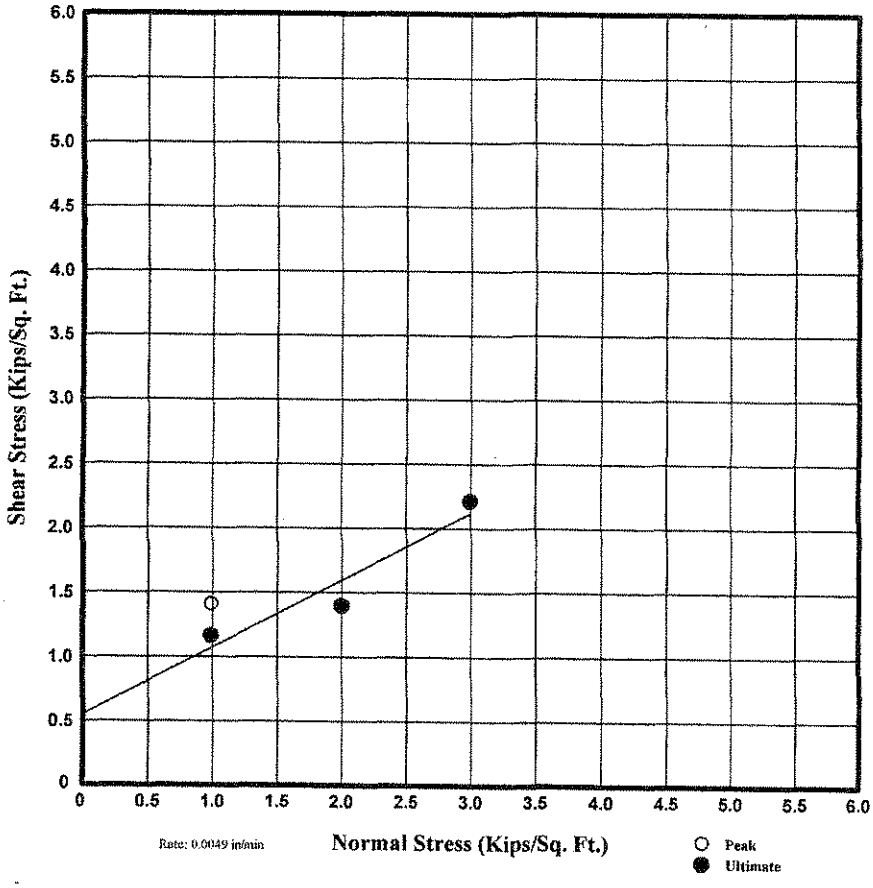
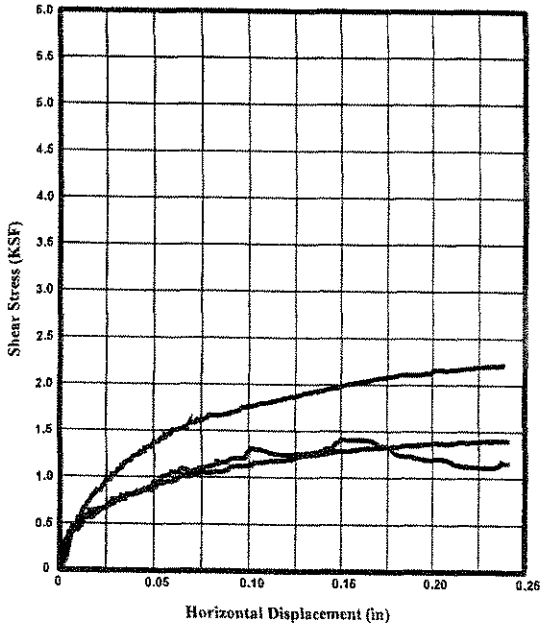


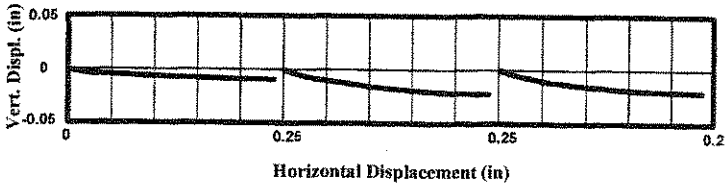
PLATE S-S5.0

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.55	
Phi (deg)		28	

Project	Tr 060488		
W.O.	8892		
Excavation	S6		
Depth	0 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	1.0	2.0	3.0
Shear stress (Peak/Ult. ksf)	1.4/1.2	--/1.4	--/2.2
H. Displ. (in)	0.15/0.24	--/0.24	--/0.24
V. Displ. (in)	-0.01/-0.22	--/-0.26	--/-0.26
e (preshear)	0.40	0.35	0.35
Dry Density (pcf)	94.6		
Moisture (%)	22.0		

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S:\GEOTEST\shears\8892\S6-B.lst
S:\GEOTEST\shears\8892\S6-C.lst

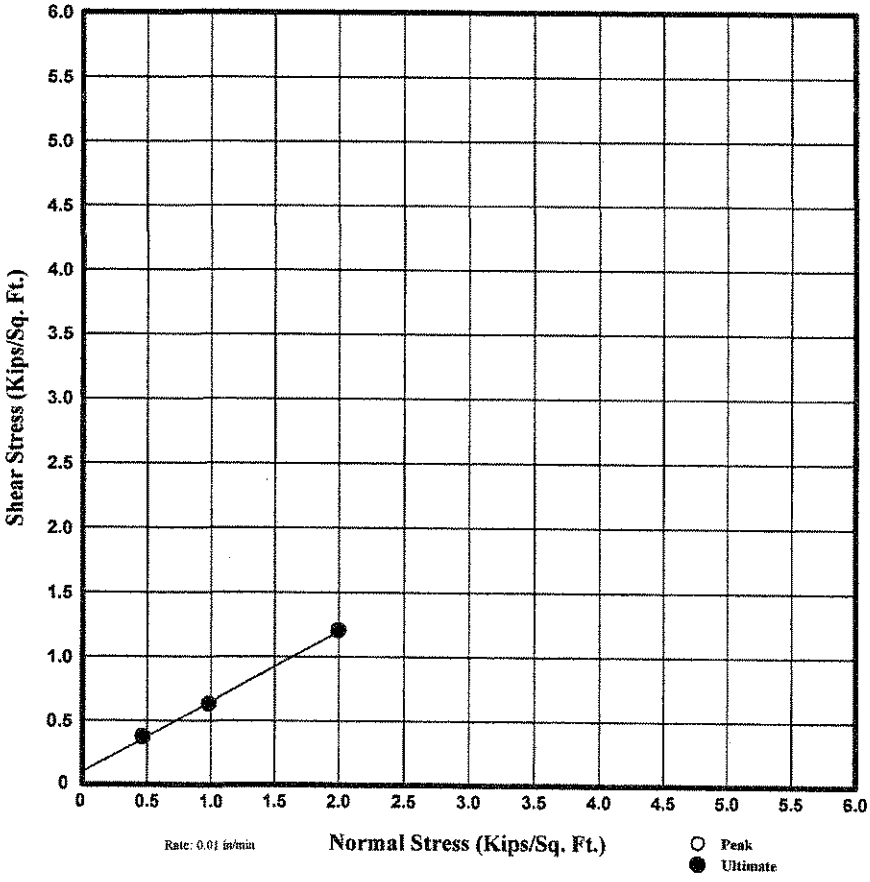


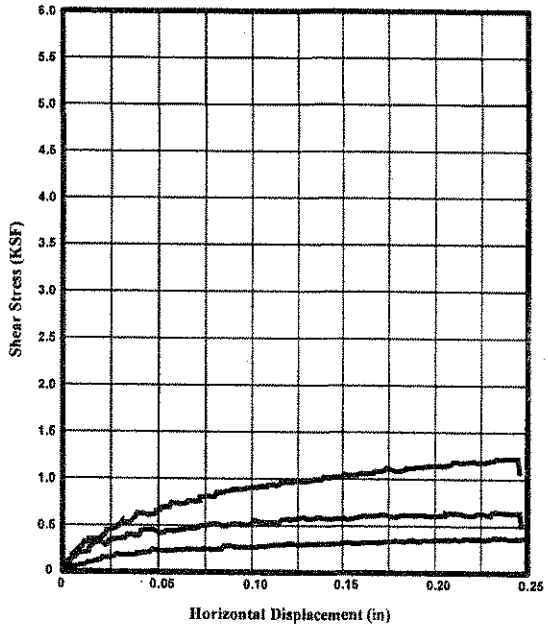
GEOLABS-WESTLAKE VILLAGE

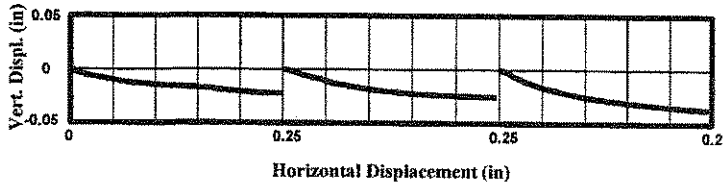
PLATE S-S6.0

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







Project	Tr 060488		
W.O.	8892		
Excavation	TP1		
Depth	1.5 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	0.5	1.0	2.0
Shear stress (Peak/Ult. ksf)	--/0.4	--/0.5	--/1.1
H. Displ. (in)	--/0.25	--/0.25	--/0.25
V. Displ. (in)	--/-0.16	--/-0.32	--/-0.40
e (preshear)	0.73	0.41	0.29
Dry Density (pcf)	83.2		
Moisture (%)	26.3		

	Peak	Ultimate	Residual
Cohesion (ksf)		0.1	
Phi (deg)		29	

S:\GEOTEST\shears\8892\TP1@1A.lst
S:\GEOTEST\shears\8892\TP1@1B.lst
S:\GEOTEST\shears\8892\TP1@1C.lst

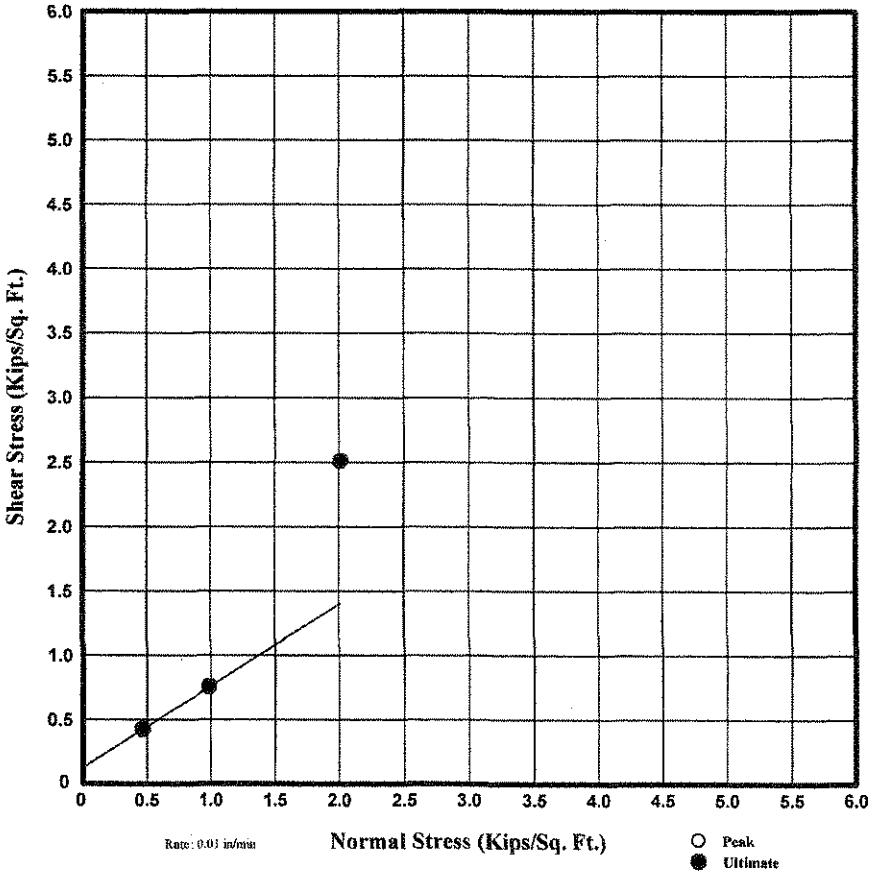
GEOLABS-WESTLAKE VILLAGE

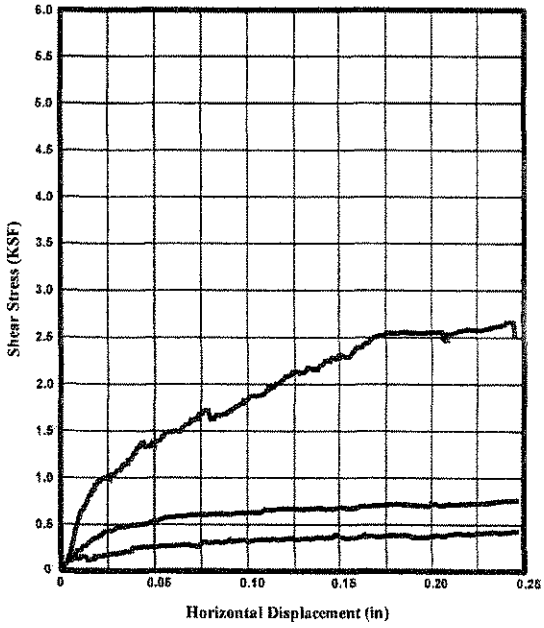


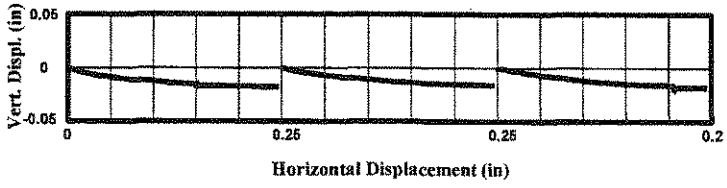
PLATE S-TP1.1.5

DIRECT SHEAR TEST RESULTS

UNDISTURBED SAMPLE







	Peak	Ultimate	Residual
Cohesion (ksf)		0.125	
Phi (deg)		32	

Project	Tr 060488		
W.O.	8892		
Excavation	TP3		
Depth	1.5 ft		
Test Data	**#1**	**#2**	**#3**
Norm. Pres.(ksf)	0.5	1.0	2.0
Shear stress (Peak/Ult. ksf)	--/0.4	--/0.8	--/2.5
H. Displ. (in)	--/0.25	--/0.25	--/0.25
V. Displ. (in)	--/-0.11	--/-0.19	--/-0.06
e (preshear)	0.55	0.41	0.63
Dry Density (pcf)	98.2		
Moisture (%)	25		

S:\GEOTEST\shears\8892\TP3@1A.lst
S:\GEOTEST\shears\8892\TP3@1B.lst
S:\GEOTEST\shears\8892\TP3@1C.lst

GEOLABS-WESTLAKE VILLAGE



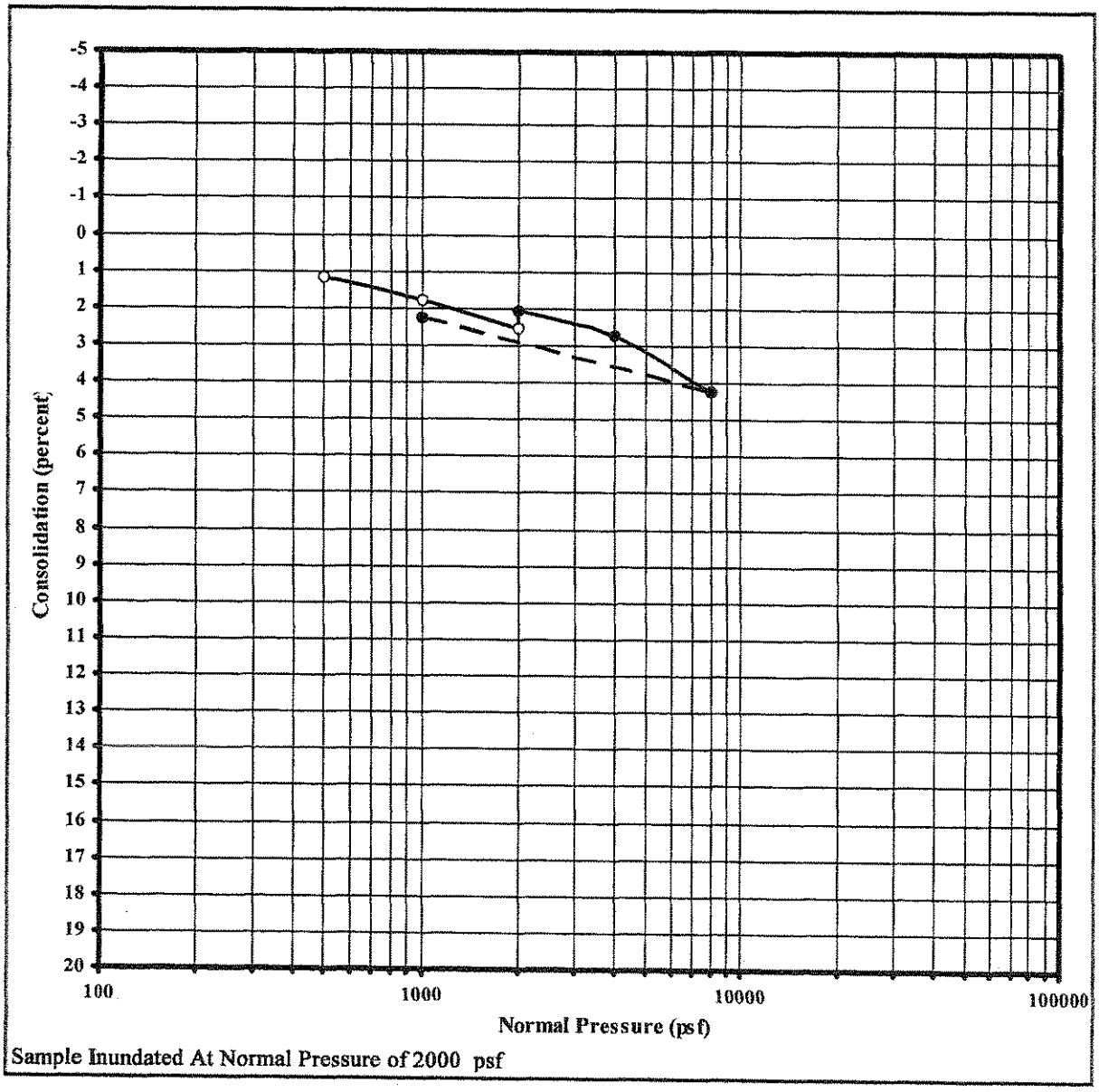
PLATE S-TP3.1.5

Standard Pacific

W.O. 8892

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 2000 psf

Sample Location: BA6

Sample Depth: 20 ft.

Initial Moisture: 20.6 %

Init. Dry Density: 107.9 pcf

Geologic Unit: Landslide Debris

Material: silty CLAY (SC)



GEOLABS-WESTLAKE VILLAGE

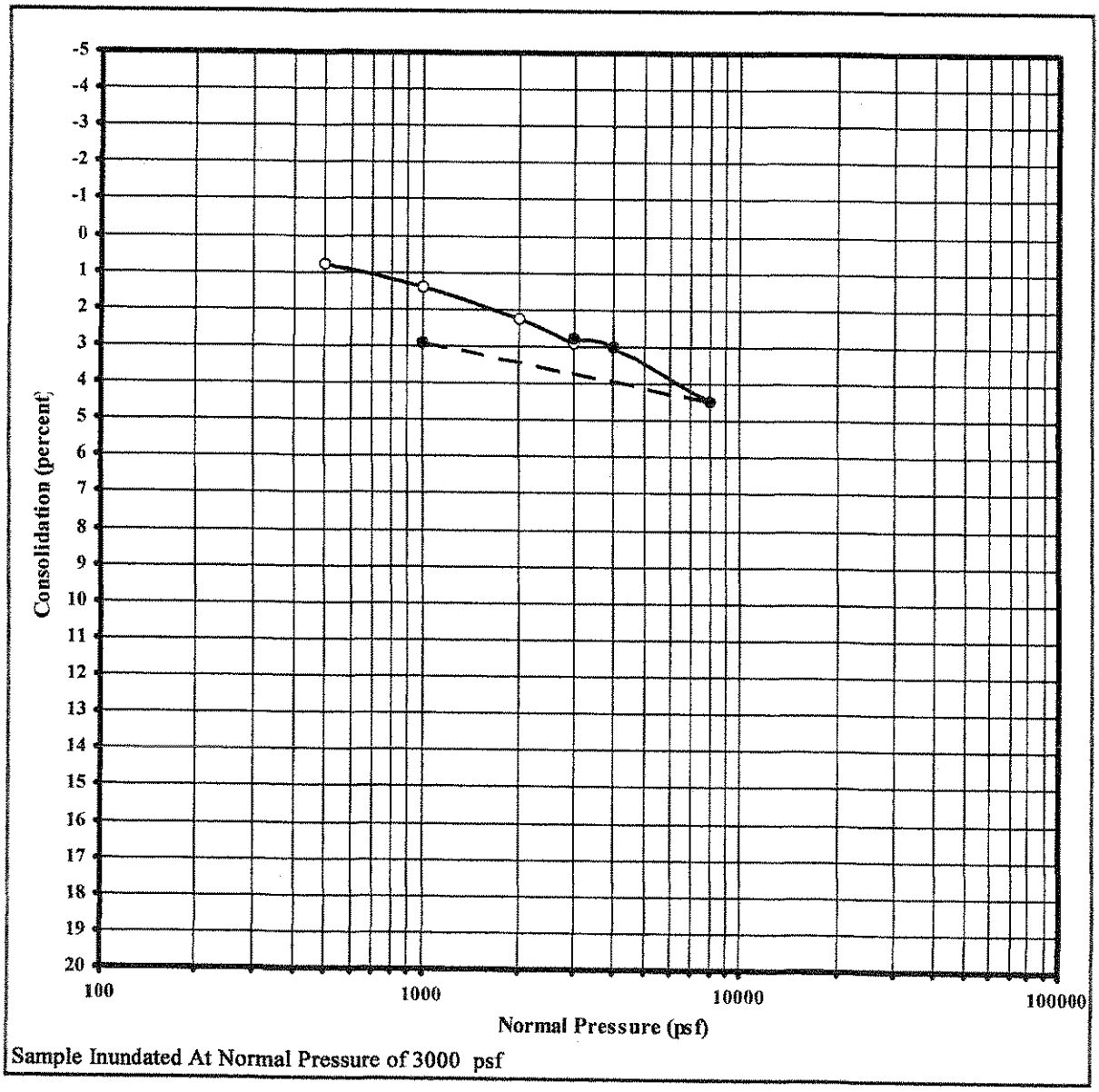
PLATE C-BA6.20

Standard Pacific

W.O. 8892

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Location: BA6

Sample Depth: 30 ft.

Initial Moisture: 19.2 %

Init. Dry Density: 106.9 pcf

Geologic Unit: Landslide Debris

Material: silty CLAY (CL)



GEOLABS-WESTLAKE VILLAGE

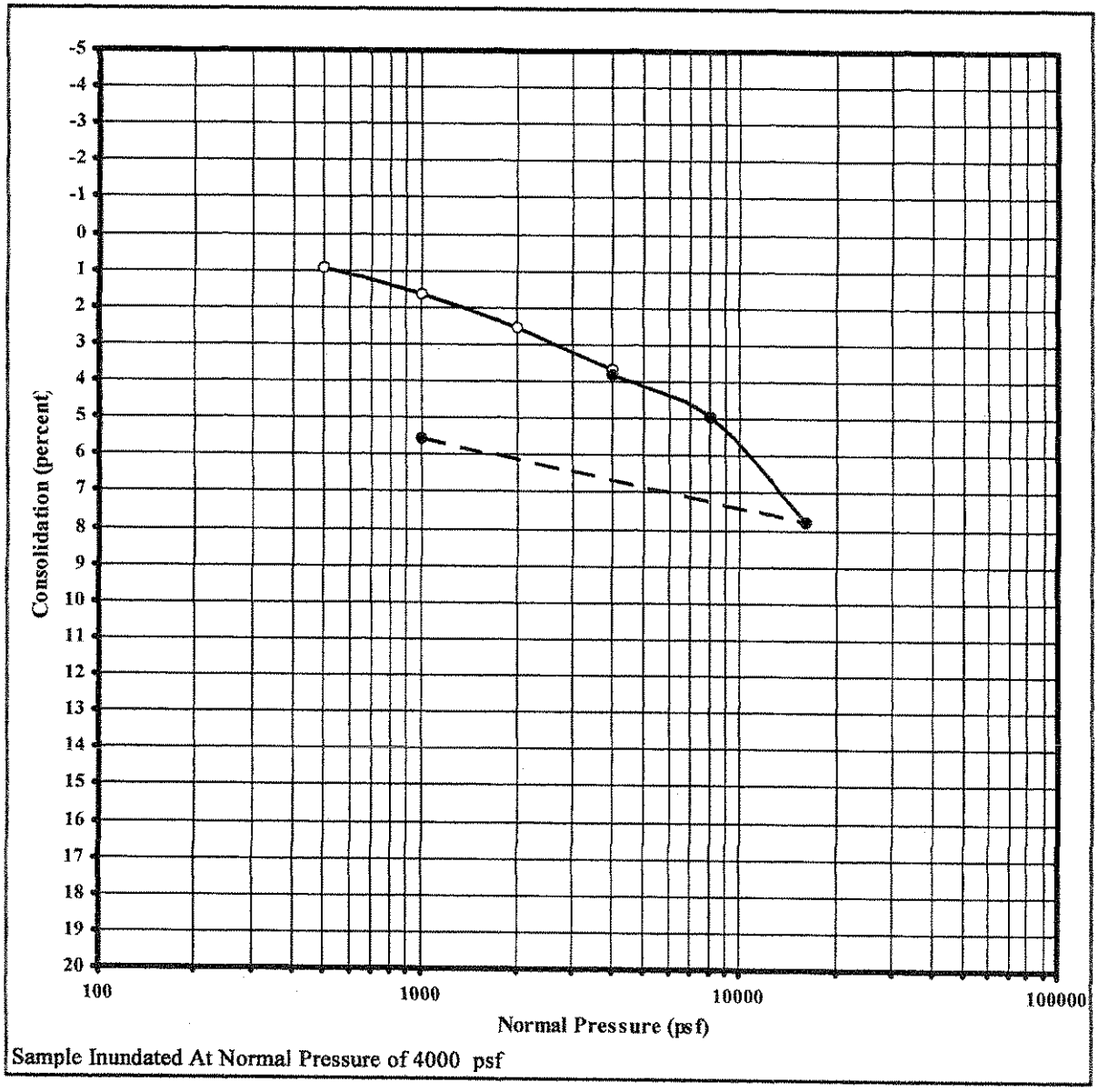
PLATE C-BA6.30

Standard Pacific

W.O. 8892

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 4000 psf

Sample Location: BA6

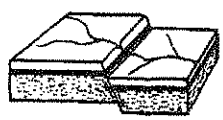
Sample Depth: 40.5 ft.

Initial Moisture: 20.8 %

Init. Dry Density: 106.2 pcf

Geologic Unit: Landslide Debris

Material: silty CLAY (CL)



GEOLABS-WESTLAKE VILLAGE

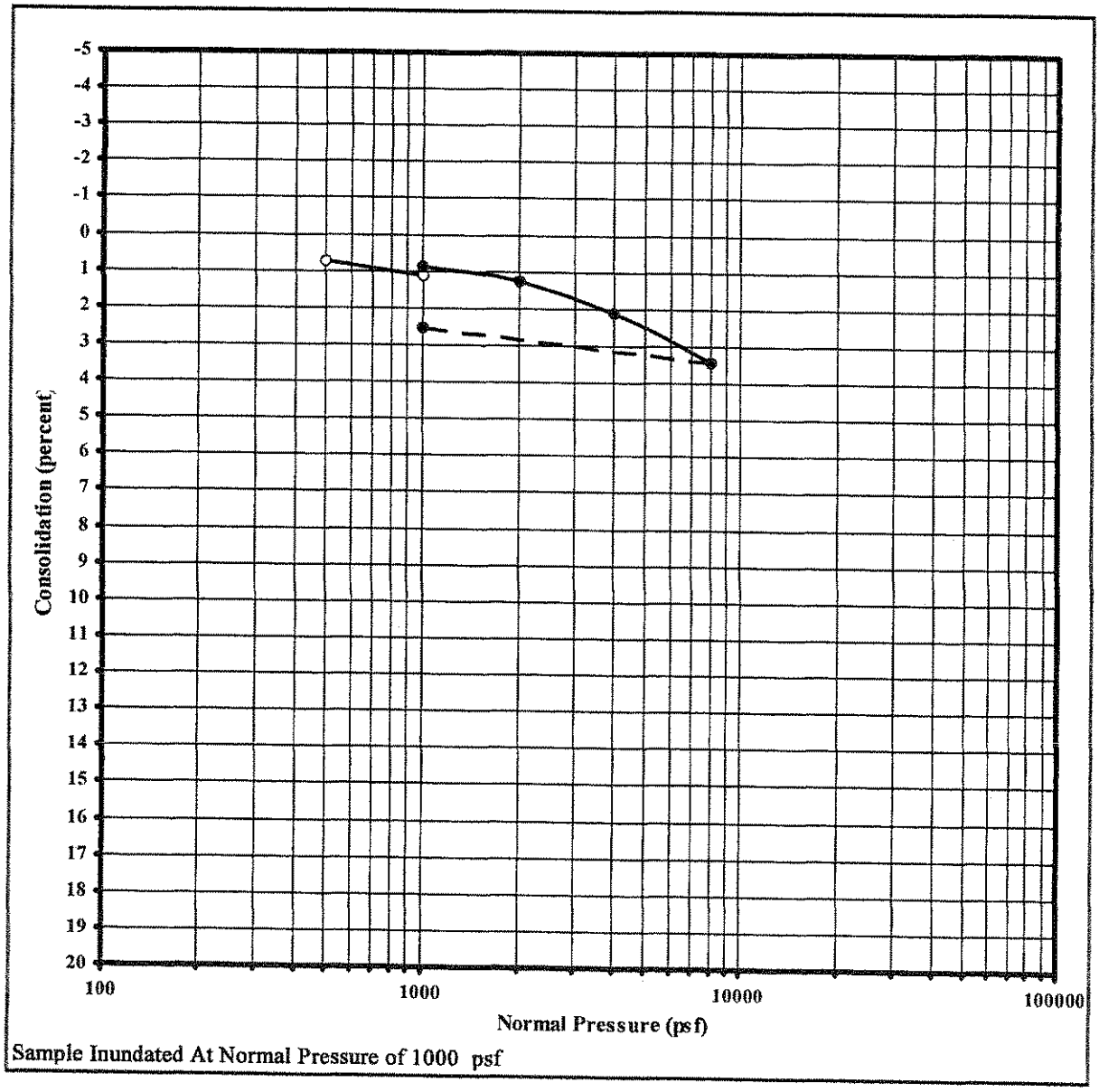
PLATE C-BA6.40.5

Standard Pacific

W.O. 8892

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Location: GWV4

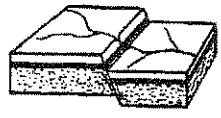
Sample Depth: 7.5 ft.

Initial Moisture: 15.1 %

Init. Dry Density: 114.2 pcf

Geologic Unit: Alluvium

Material: silty CLAY (CL)



GEOLABS-WESTLAKE VILLAGE

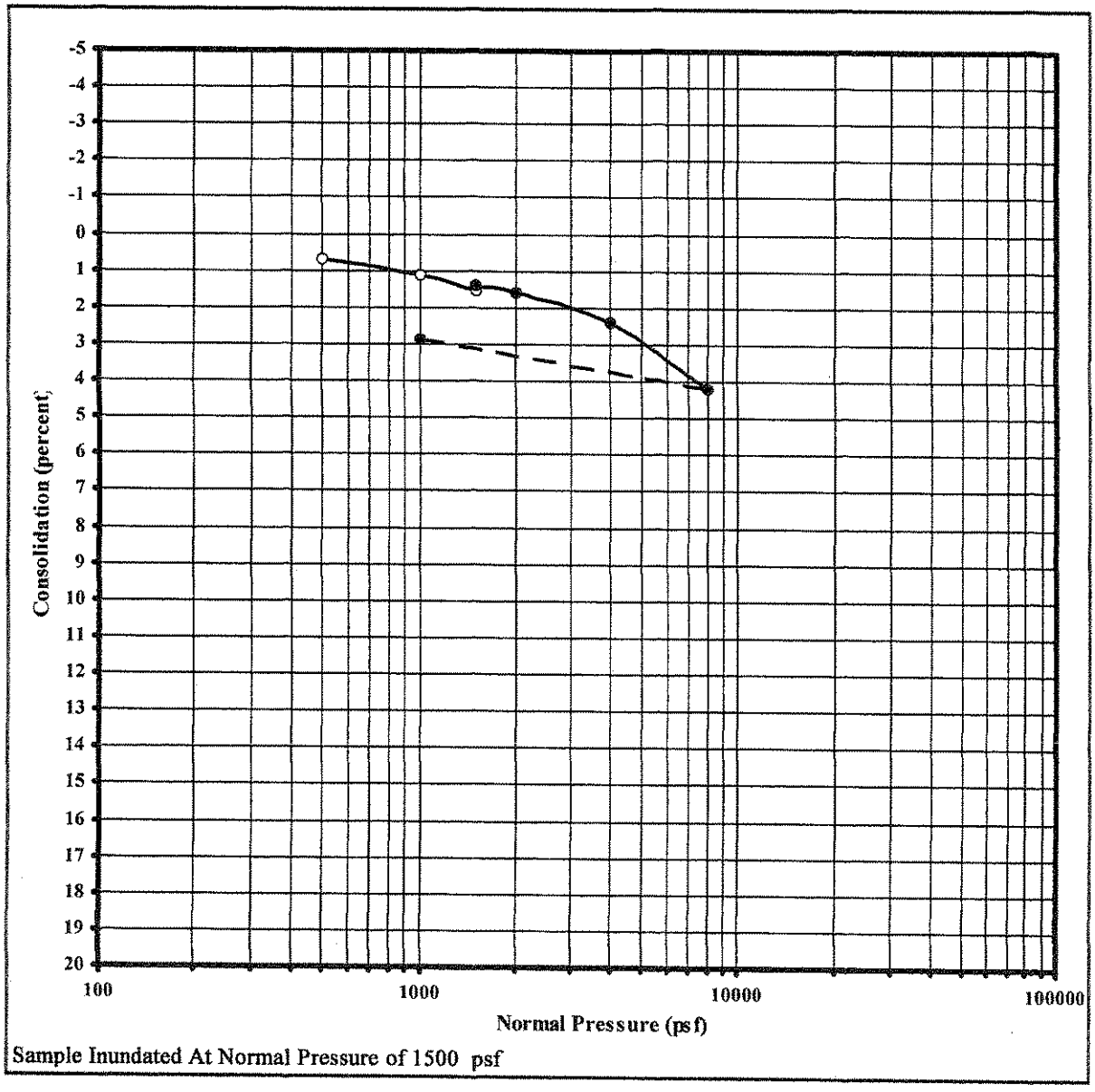
PLATE C-GWV4.7.5

Standard Pacific

W.O. 8892

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1500 psf

Sample Location: GWV4

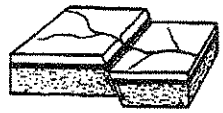
Sample Depth: 15 ft.

Initial Moisture: 18.9 %

Init. Dry Density: 110.6 pcf

Geologic Unit: Alluvium

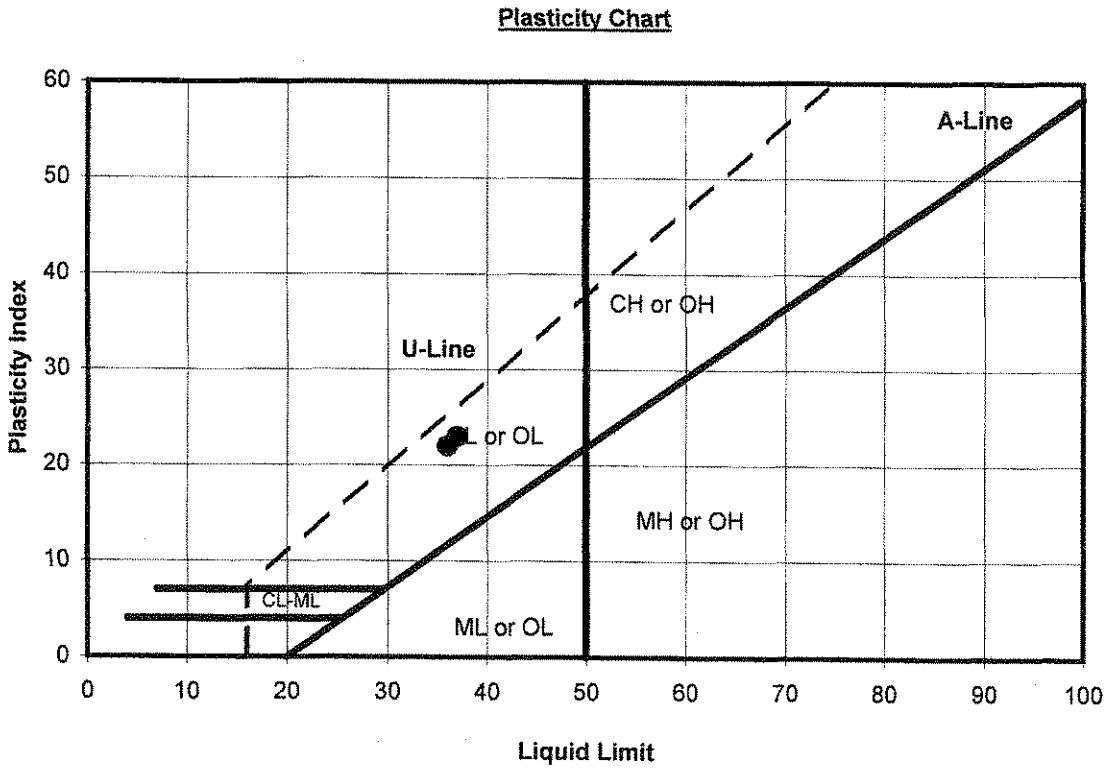
Material: silty CLAY (CL)



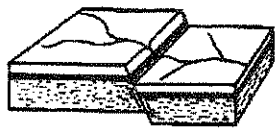
GEOLABS-WESTLAKE VILLAGE

PLATE C-GWV4.15

Atterberg Limits Test Results



Location	Depth (ft)	LL	PI	Classification
GWV4	10	36	22	CL
GWV4	15	37	23	CL



Laboratory Report
Report ID: 85948

Sierra Environmental Monitoring, Inc.

Geolabs-Westlake Village
Attn: Geoff Faneros
31119 Via Colinas, Suite 502
Westlake Village, CA 91362

Date: 8/29/2007
Client: GOL-711
Taken by: R. Prose
PO #:

Analysis Report

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200708-1772	BA-02@40Ft	7/17/2007		8/24/2007

Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
Sulfur Sulfate - LECO/Roast	LECO	0.12	%	0.01	Kobza	8/27/2007	
Sulfur Sulfide - LECO/Roast	LECO	1.0	%	0.01	Kobza	8/27/2007	
Sulfur, Total - LECO Furnace	LECO	1.1	%	0.01	Kobza	8/27/2007	

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200708-1773	BA-03@30Ft	7/17/2007		8/24/2007

Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
Sulfur Sulfate - LECO/Roast	LECO	0.20	%	0.01	Kobza	8/27/2007	
Sulfur Sulfide - LECO/Roast	LECO	0.35	%	0.01	Kobza	8/27/2007	
Sulfur, Total - LECO Furnace	LECO	0.55	%	0.01	Kobza	8/27/2007	

Data Flag Legend:

John Kobza, Ph.D.
Laboratory Director

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

John C. Seher
Special Consultant
Quality Assurance Manager

Laboratory Report
Report ID: 85948

Sierra Environmental Monitoring, Inc.

Geolabs-Westlake Village
Attn: Geoff Faneros
31119 Via Colinas, Suite 502
Westlake Village, CA 91362

Date: 8/29/2007
Client: GOL-711
Taken by: R. Prose
PO #:

Quality Control Report

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*
Sulfur Sulfate - LECO/Roast	91.0			22.00	
Sulfur Sulfide - LECO/Roast	91.0			1.12	
Sulfur, Total - LECO Furnace	91.0			3.03	

Legend: ***LCS- Laboratory Control Standard*** ***MS- Matrix Spike*** ***MSD- Matrix Spike Duplicate***
RPD- Relative Percent Difference

John Kobza, Ph.D.
Laboratory Director

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sem@sem-analytical.com

John C. Seher
Special Consultant
Quality Assurance Manager

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Table 1 - Laboratory Tests on Soil Samples

Geolabs
La Entrada
Your #8892, SA #07-1050LAB
31-Jul-07

Sample ID			BA1 @ 0-2.5'	BA2 @ 33-38'
Resistivity		**Units**		
as-received		ohm-cm	88,000	7,200
saturated		ohm-cm	2,080	480
pH			6.3	7.3
Electrical Conductivity		mS/cm	0.28	1.74
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	190	1,420
magnesium	Mg^{2+}	mg/kg	21	417
sodium	Na^{1+}	mg/kg	10	230
potassium	K^{1+}	mg/kg	42	68
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	232	378
flouride	F^{1-}	mg/kg	4.2	1.7
chloride	Cl^{1-}	mg/kg	12	18
sulfate	SO_4^{2-}	mg/kg	98	3,110
phosphate	PO_4^{3-}	mg/kg	14	ND
Other Tests				
ammonium	NH_4^{1+}	mg/kg	16	26
nitrate	NO_3^{1-}	mg/kg	42	ND
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

431 West Baseline Road · Claremont, CA 91711
Phone: 909.626.0967 · Fax: 909.626.3316

LABORATORY RECAPITULATION

Table I-1

Location	Depth (ft)	Material Type	In Situ Dry Density. (P.C.F.)	In Situ Water (%)	Expansion Index	Sulfate (ppm)	Cohesion	Friction Angle
DH 01	10.0	Ttuc	118.5	14.0			0.350	16.5
DH 01	20.0	Ttuc	118.0	12.7				
DH 01	30.0	Ttuc	123.3	10.8				
DH 01	40.0	Ttuc	121.9	12.5				
DH 01	50.0	Ttuc	118.2	17.6				
DH 01	55.0	Ttuc	124.3	11.6			0.665	33.0
DH 01	70.0	Ttuc	119.5	12.7				
DH 02	2.0	Ttuc	-	-	40		0.380	28.0
DH 02	6.0	Ttuc	-	-	8			
DH 02	10.0	Ttuc	117.8	8.8			0.300	17.0
DH 02	20.0	Ttuc	113.8	10.4				
DH 02	25.0	Ttuc	118.1	15.1				
DH 02	40.0	Ttuc	119.0	4.2				
DH 02	50.0	Ttuc	118.2	17.6				
DH 03	15.0	Ttuc	117.8	15.5				
DH 03	35.0	Ttuc	123.6	13.3				
DH 04	20.0	Qls	109.7	18.3				
DH 04	35.0	Ttuc	122.3	13.5				
DH 05	2.0	Qal	-	-	60			
DH 05	11.0	Qal	116.4	15.1			0.750	16.5
DH 05	17.0	Qal	110.8	18.5			0.625	21.5

Table I-1								
Location	Depth (ft)	Material Type	In Situ Dry Density. (P.C.F.)	In Situ Water (%)	Expansion Index	Sulfate (ppm)	Cohesion	Friction Angle
DH 05	30.0	Ttuc	108.8	22.4				
DH 05	33.0	Ttuc	115.4	18.7				
DH 06	2.0	Qal	-	-	58			
DH 06	5.0	Qal	114.7	15.5				
DH 06	15.0	Qal	113.4	17.3				
TT 01	0.5	Qns	89.6	13.1				
TT 01	6.0	Ttuc	95.2	17.3		ND	0.580	31.5
TT 02	1.0	Qns	86.5	6.8			0.275	20.0
TT 03	5.0	Ttuc	96.9	12.0			0.525	33.8
TT 04	2.0	Qns	93.3	12.7				
TT 07	7.0	Ttuc	97.6	18.5			0.410	28.5
TT 09	4.0	Qns	99.7	9.8		ND	0.375	25.5
TT 10	6.0	Ttuc	101.5	10.4			0.375	30.0
TT 11	0.5	Qns	98.2	9.6				
TT 12	2.0	Qns	102.2	10.8				
TT 15	2.0	Qns	79.4	10.4		ND		
TT 22	0.5	Qns	87.3	10.0				
TT 22	1.0	Qns	95.7	17.6				
TT 24	1.0	Qns	91.6	10.8				
TT 28	1.0	Qns	99.4	18.3				
TT 29	6.0	Ttuc	104.9	14.8				

ND - Indicates levels not detectable.

APPENDIX II

LABORATORY TEST RESULTS

Laboratory Testing

Laboratory Recapitulation - Table I-1

Shear Strength Diagram, Figure S.1 through S.12

Maximum Density, Figure M.1 through M.5

LABORATORY TEST RESULTS

Moisture and Density Tests

The moisture content and in-place dry density of all undisturbed samples obtained were determined. The test results are presented in the Laboratory Recapitulation - Table I.

Shear Tests

Direct single-shear tests were performed on representative undisturbed samples to determine their strength characteristics. The desired normal load was applied to the specimen and allowed to come to equilibrium. The rate of deflection on the sample is approximately 0.025 inches per minute. Depending upon the sample location and future site condition, samples may be tested at field moisture. The results are plotted on the Shear Test Diagrams, Figures S.1 through S.12 and in the Laboratory Recapitulation - Table I.

Expansion Tests

In order to determine the expansiveness of the soil, two (2) tests are generally performed. The swell test is performed on the natural or re-compacted soil on two (2) rings. Each ring is confined by a normal load of 60 pounds per square foot. One ring is inundated with water and allowed to expand over a 24-hour period. The total vertical rise is measured and the swell determined as a percentage of vertical height. The second ring is air-dried and the shrinkage measured. The total expansion is determined at the arithmatic total of the air-dry and the saturation measurements. Expansion tests are performed as specified by UBC 29-2; see the Laboratory Recapitulation - Table I for the results.

Expansion Index	Potential Expansion
0-20	Very Low
20-50	Low
50-90	Medium
90-130	High
Above 130	Very High

Compaction Tests

Compaction tests are performed on representative samples to determine compactive characteristics and evaluate the present relative compaction of the in-place earth materials. The test was performed in accordance with the Standard Test Method, the latest version of ASTM D 1557, five layer. The test results are shown in the Laboratory Recapitulation - Table I.

Sulfate Tests

Selected samples were tested for their sulfate contents. Samples were obtained from the subsurface soils that will be in contact with the foundation of the proposed structure. The results are shown in the Laboratory Recapitulation - Table I.

RECOMMENDATIONS FOR NORMAL WEIGHT CONCRETE SUBJECT TO SULFATE ATTACK

Exposure	Water Soluble Sulfate (SO_4) in soil (%)	Sulfate (SO_4) in water (ppm)	Cement	Water Cement Ratio Maximum*
Mild	0.00-0.10	0-150	--	0.50
Moderate**	0.10-0.2	150-1500	Type II	0.50
Severe	0.20-2.00	1500-10,000	Type V	0.45
Very Severe	Over 2.00	Over 10,000	Type V + Pozzolan***	0.45

* A lower water-cement ratio may be necessary to prevent corrosion of embedded items.

** Seawater also falls in this category.

*** Use a pozzolan which has been determined by tests to improve sulfate resistance when used in concrete containing Type V cement.

LABORATORY RECAPITULATION

Table I-1

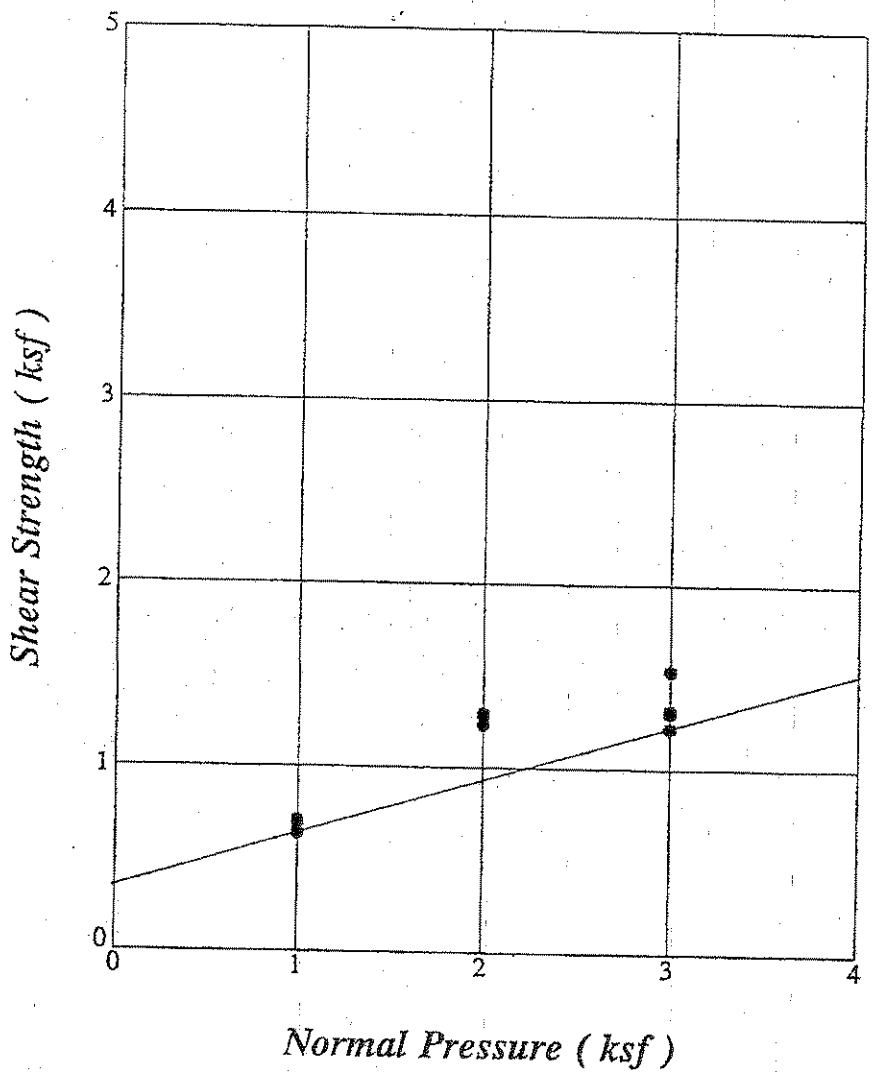
Location	Depth (ft)	Material Type	In Situ Dry Density. (P.C.F.)	In Situ Water (%)	Expansion Index	Sulfate (ppm)	Cohesion	Friction Angle
DH 01	10.0	Ttuc	118.5	14.0			0.350	16.5
DH 01	20.0	Ttuc	118.0	12.7				
DH 01	30.0	Ttuc	123.3	10.8				
DH 01	40.0	Ttuc	121.9	12.5				
DH 01	50.0	Ttuc	118.2	17.6				
DH 01	55.0	Ttuc	124.3	11.6			0.665	33.0
DH 01	70.0	Ttuc	119.5	12.7				
DH 02	2.0	Ttuc	-	-	40		0.380	28.0
DH 02	6.0	Ttuc	-	-	8			
DH 02	10.0	Ttuc	117.8	8.8			0.300	17.0
DH 02	20.0	Ttuc	113.8	10.4				
DH 02	25.0	Ttuc	118.1	15.1				
DH 02	40.0	Ttuc	119.0	4.2				
DH 02	50.0	Ttuc	118.2	17.6				
DH 03	15.0	Ttuc	117.8	15.5				
DH 03	35.0	Ttuc	123.6	13.3				
DH 04	20.0	Qls	109.7	18.3				
DH 04	35.0	Ttuc	122.3	13.5				
DH 05	2.0	Qal	-	-	60			
DH 05	11.0	Qal	116.4	15.1			0.750	16.5
DH 05	17.0	Qal	110.8	18.5			0.625	21.5

Table I-1								
Location	Depth (ft)	Material Type	In Situ Dry Density. (P.C.F.)	In Situ Water (%)	Expansion Index	Sulfate (ppm)	Cohesion	Friction Angle
DH 05	30.0	Ttuc	108.8	22.4				
DH 05	33.0	Ttuc	115.4	18.7				
DH 06	2.0	Qal	-	-	58			
DH 06	5.0	Qal	114.7	15.5				
DH 06	15.0	Qal	113.4	17.3				
TT 01	0.5	Qns	89.6	13.1				
TT 01	6.0	Ttuc	95.2	17.3		ND	0.580	31.5
TT 02	1.0	Qns	86.5	6.8			0.275	20.0
TT 03	5.0	Ttuc	96.9	12.0			0.525	33.8
TT 04	2.0	Qns	93.3	12.7				
TT 07	7.0	Ttuc	97.6	18.5			0.410	28.5
TT 09	4.0	Qns	99.7	9.8		ND	0.375	25.5
TT 10	6.0	Ttuc	101.5	10.4			0.375	30.0
TT 11	0.5	Qns	98.2	9.6				
TT 12	2.0	Qns	102.2	10.8				
TT 15	2.0	Qns	79.4	10.4		ND		
TT 22	0.5	Qns	87.3	10.0				
TT 22	1.0	Qns	95.7	17.6				
TT 24	1.0	Qns	91.6	10.8				
TT 28	1.0	Qns	99.4	18.3				
TT 29	6.0	Ttuc	104.9	14.8				

ND - Indicates levels not detectable.

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 01 @ 10.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Tiuc)*
TEST METHOD: *Repeat Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*14.0*			Phi (deg.):	*16.5*
Saturated:	*24.7*	Dry Density:	*118.5*	Cohesion (kips):	*0.350*

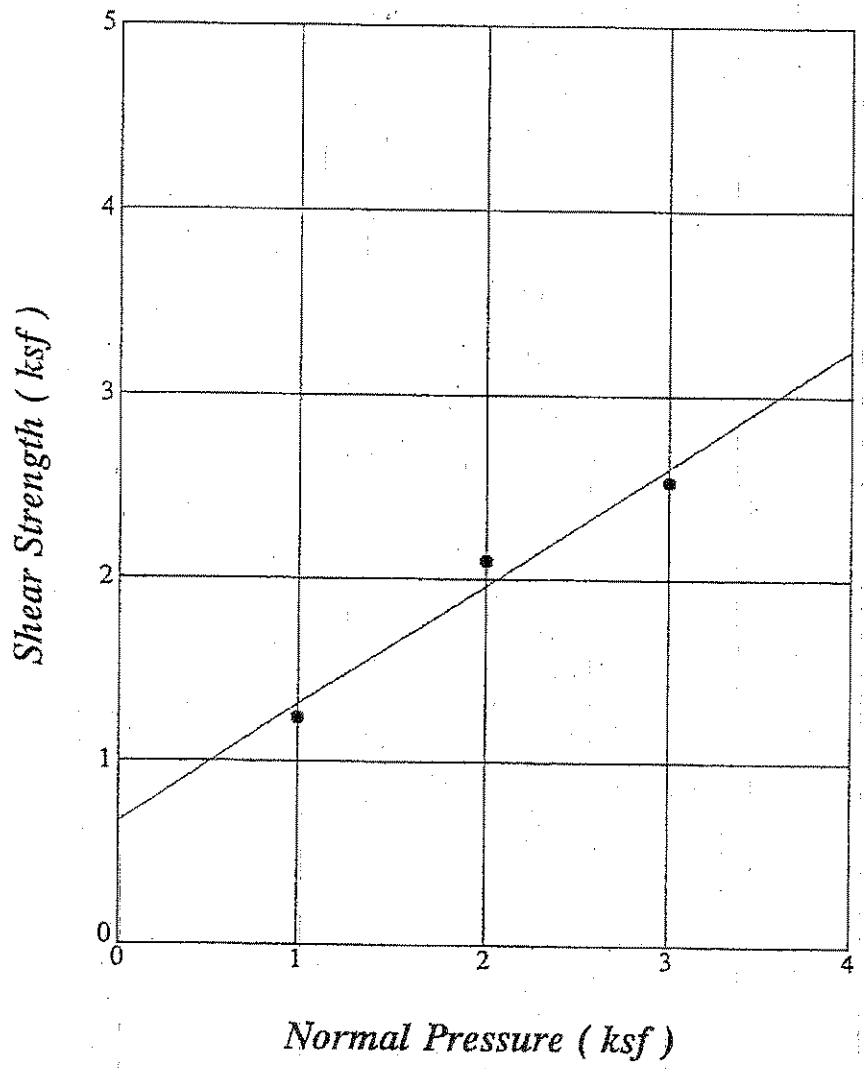
SubSurface Designs, Inc.

GEOTECHNICAL ENGINEERS & ENGINEERING GEOLOGISTS

Figure S.1

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 01 @ 50.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)	RESULTS	
In Situ:			Phi (deg.):	*33.0*
Saturated:	*22.3*	Dry Density:	Cohesion (kips):	*0.665*

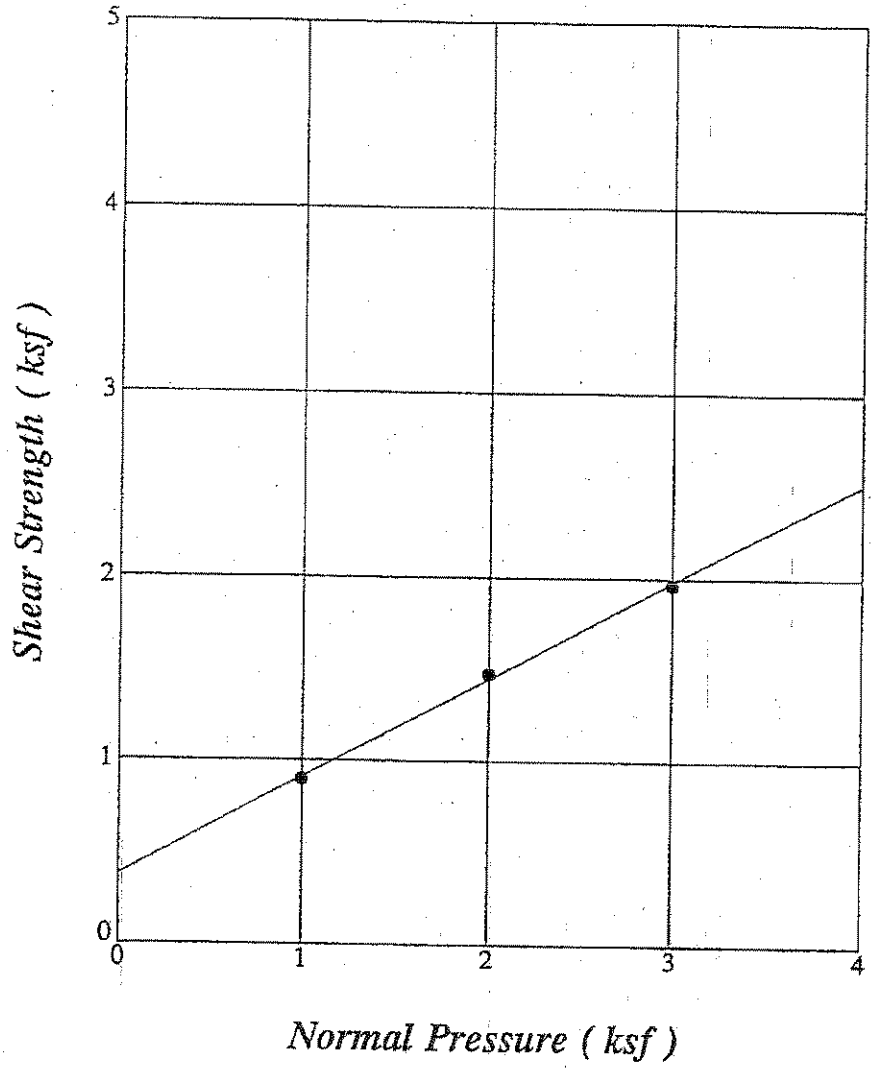
SubSurface Designs, Inc.

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Figure S.2

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 02 @ 2.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Remolded Bedrock*
TEST METHOD: *Remolded Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)	RESULTS	
In Situ:				
Saturated:	*23.7*	Dry Density:	Phi (deg.):	*28.0*
			Cohesion (kips):	*0.380*

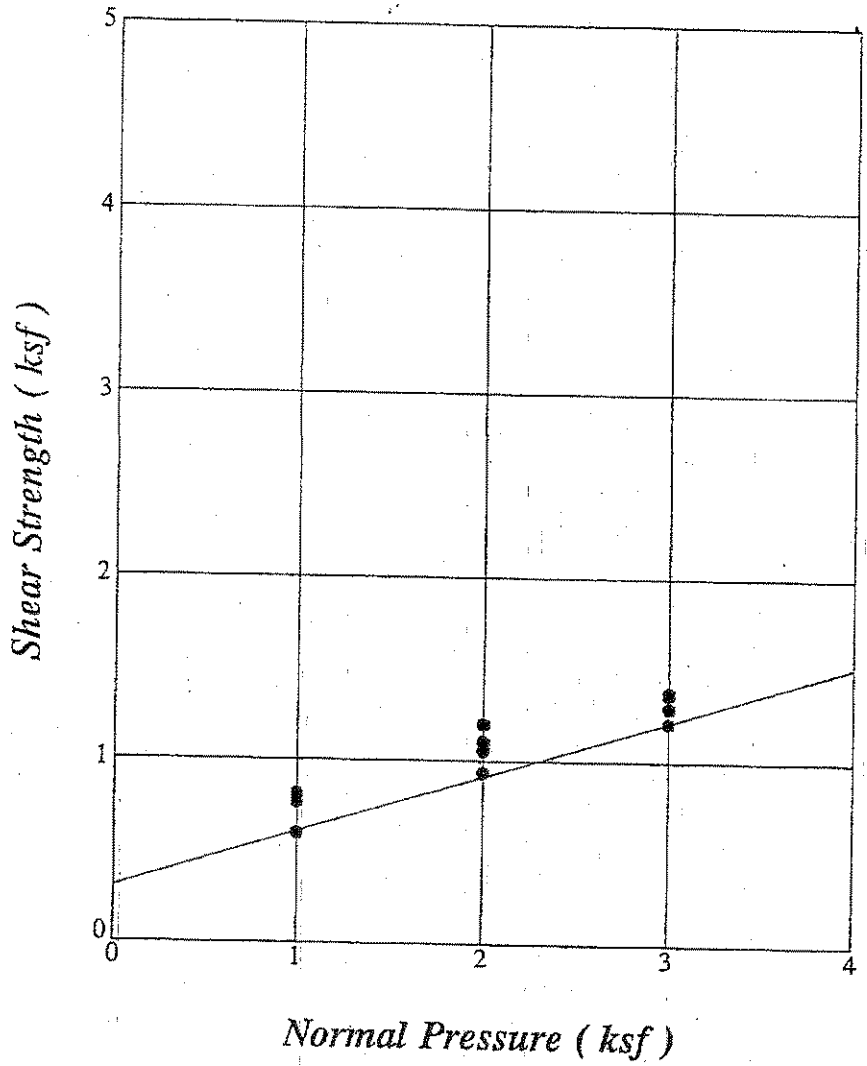
SubSurface Designs, Inc.

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Figure S.3

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 02 @ 10.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Repeat Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*8.8*			Phi (deg.):	*17.0*
Saturated:	*26.6*	Dry Density:	*117.8*	Cohesion (kips):	*0.300*

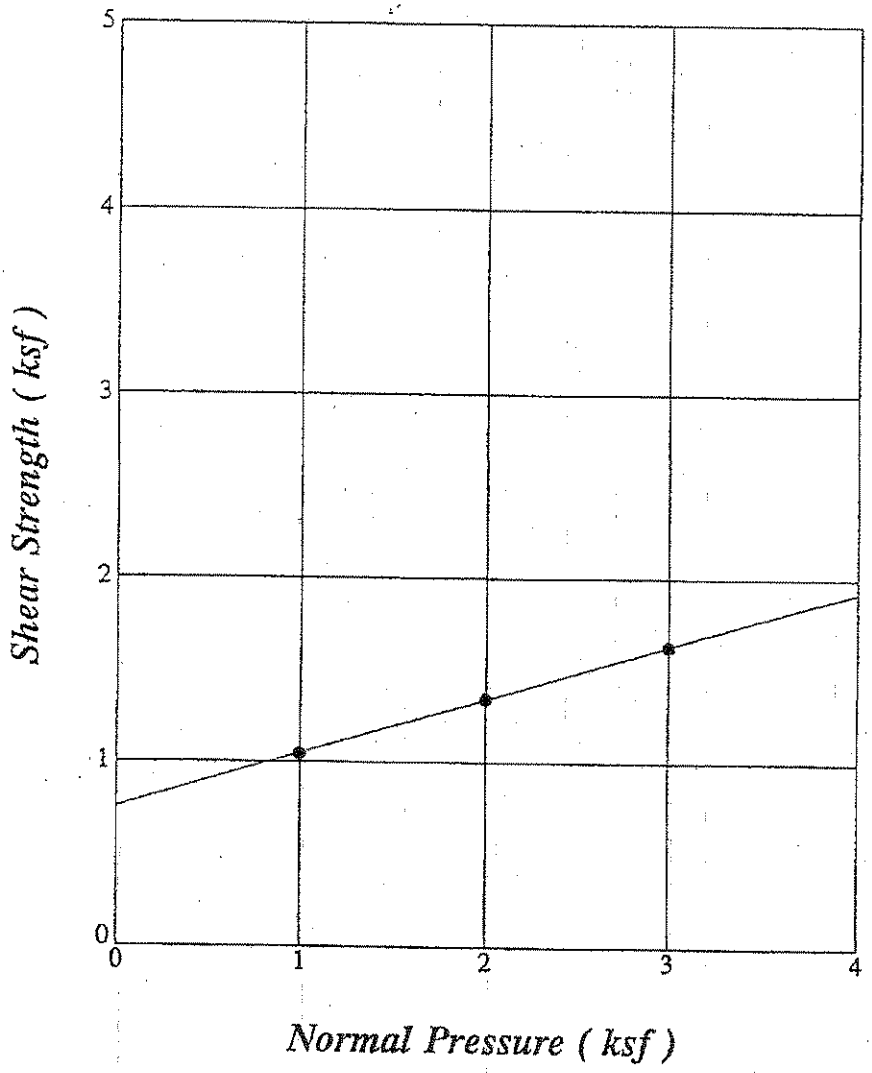
SubSurface Designs, Inc.

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Figure S.4

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 05 @ 11.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Alluvium (Qal)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*15.1*			Phi (deg.):	*16.5*
Saturated:	*19.1*	Dry Density:	*116.4*	Cohesion (kips):	*0.750*

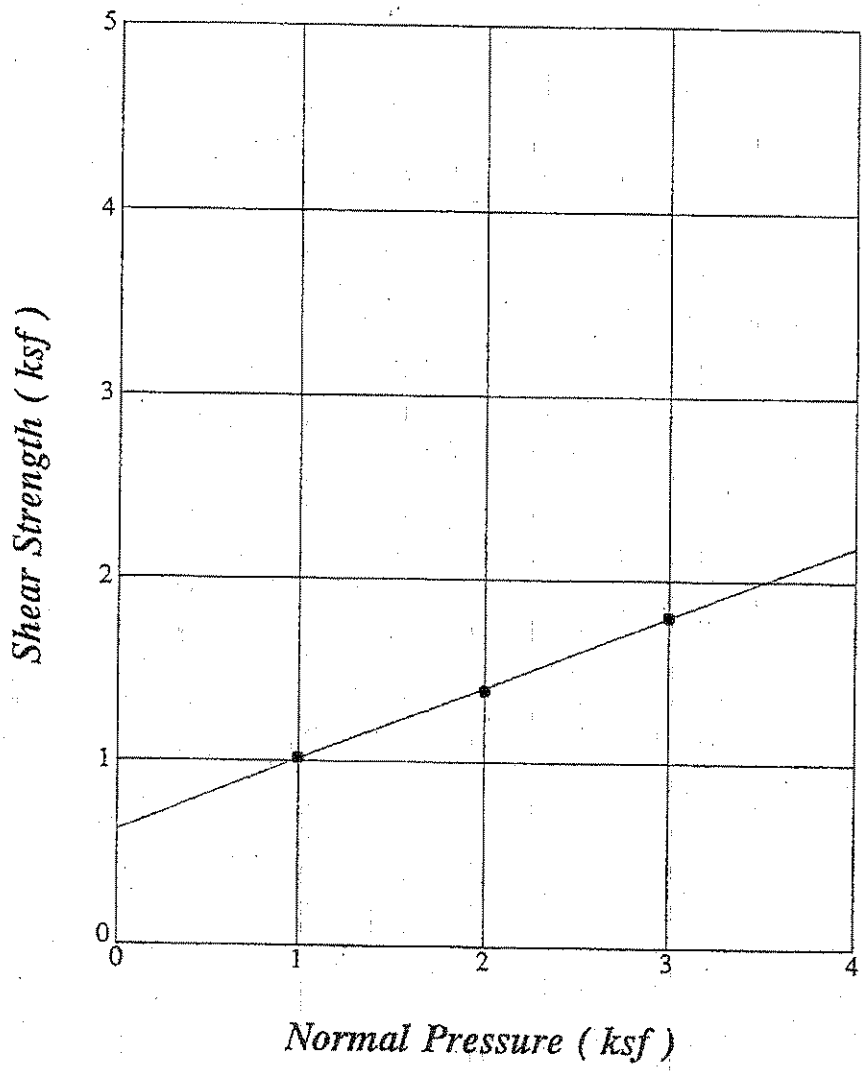
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Figure S.5

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 05 @ 17.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Alluvium (Qal)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*18.5*			Phi (deg.):	*21.5*
Saturated:	*19.0*	Dry Density:	*110.8*	Cohesion (kips):	*0.624*

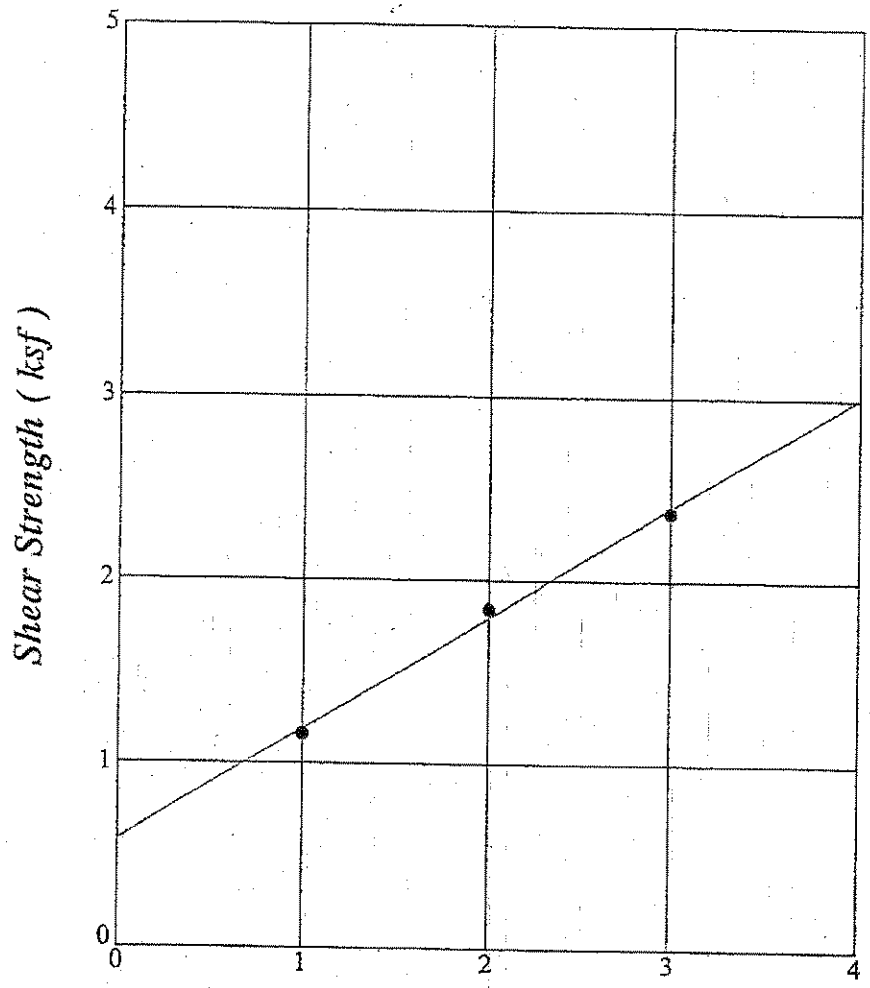
SubSurface Designs, Inc.

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Figure S.6

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 01 @ 6.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*17.3*			Phi (deg.):	*31.5*
Saturated:	*30.3*	Dry Density:	*95.2*	Cohesion (kips):	*0.580*

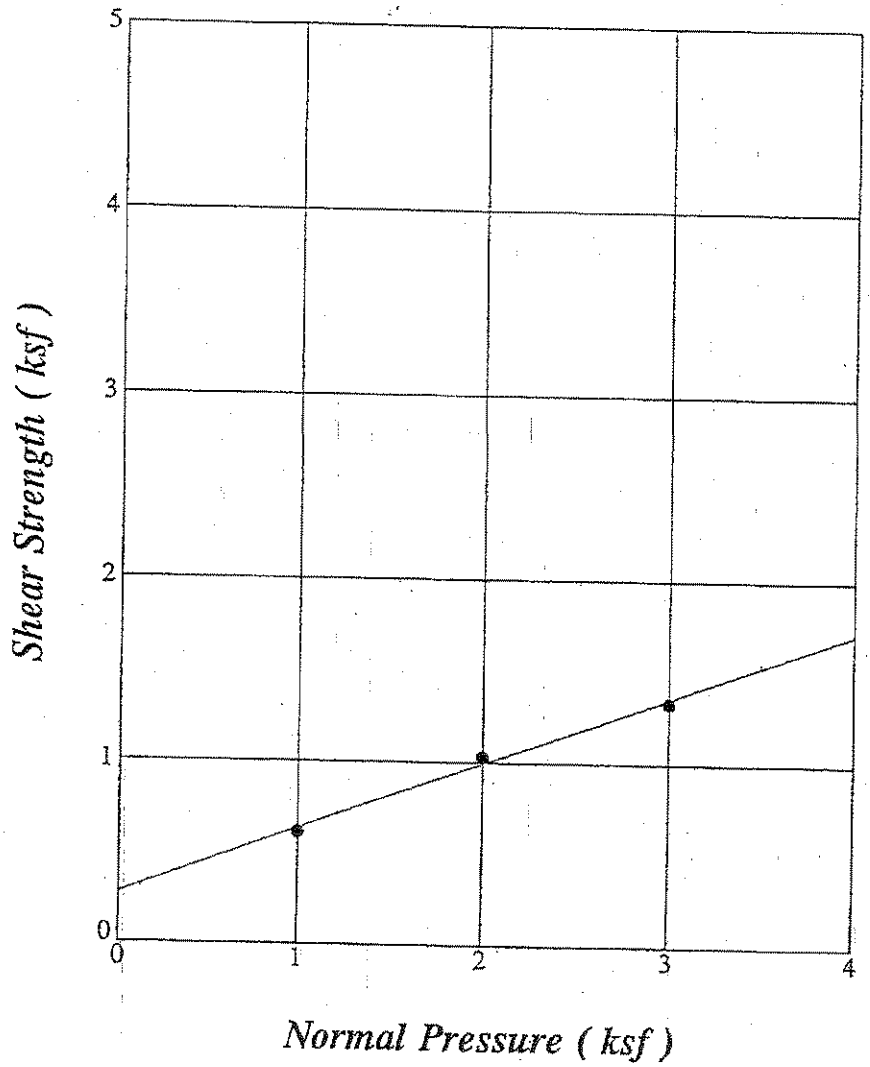
SubSurface Designs, Inc.

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Figure S.7

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 02 @ 1.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Natural Soil (Qns)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*6.8*			Phi (deg.):	*20.0*
Saturated:	*25.0*	Dry Density:	*86.5*	Cohesion (kips):	*0.275*

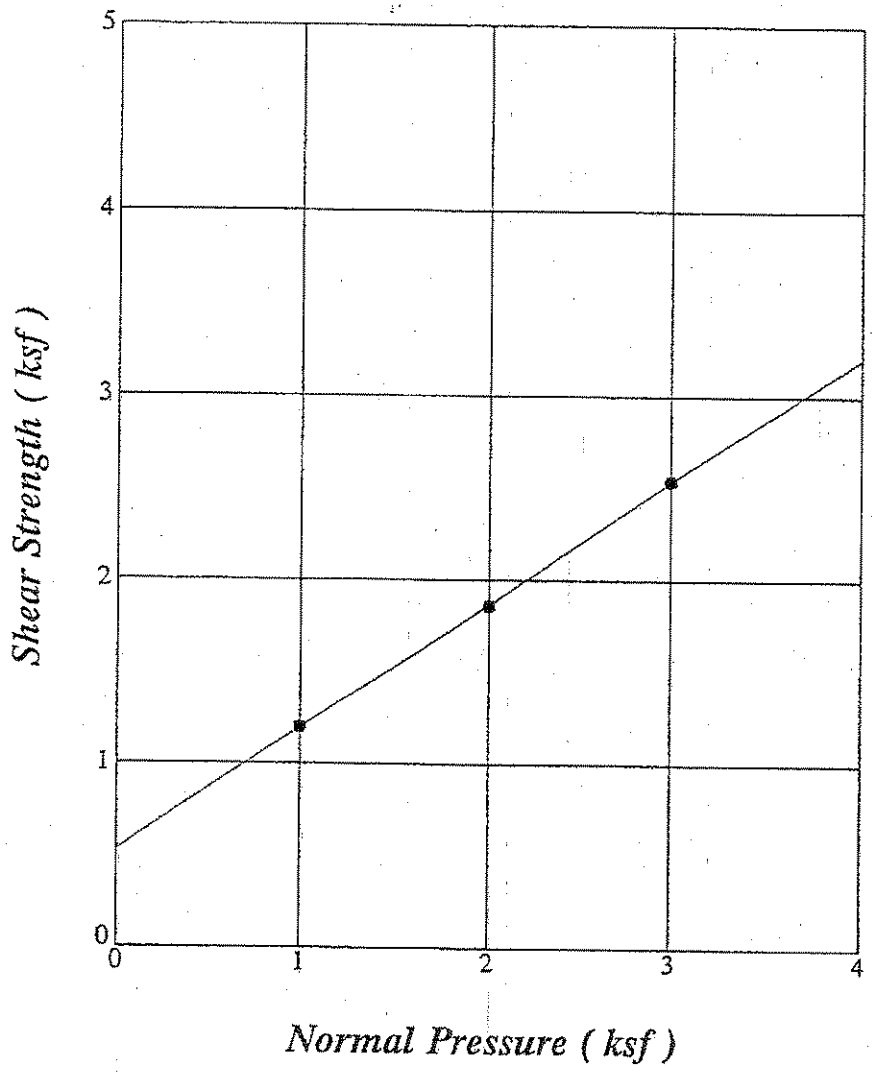
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Figure S.8

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 03 @ 5.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*12.0*			Phi (deg.):	*33.8*
Saturated:	*27.4*	Dry Density:	*96.9*	Cohesion (kips):	*0.525*

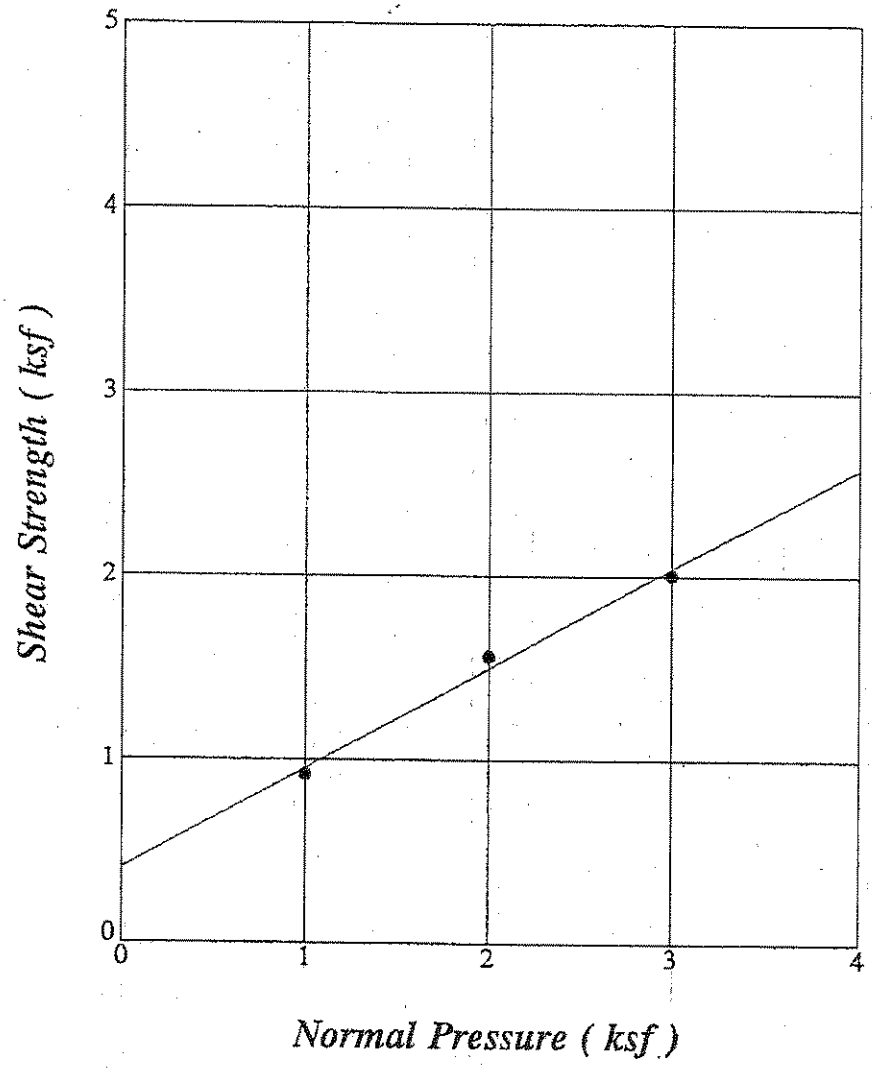
SubSurface Designs, Inc.

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Figure S.9

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 07 @ 7.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Ultimate Saturated Shear (Along Bedding)*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*18.5*			Phi (deg.):	*28.5*
Saturated:	*32.1*	Dry Density:	*97.6*	Cohesion (kips):	*0.410*

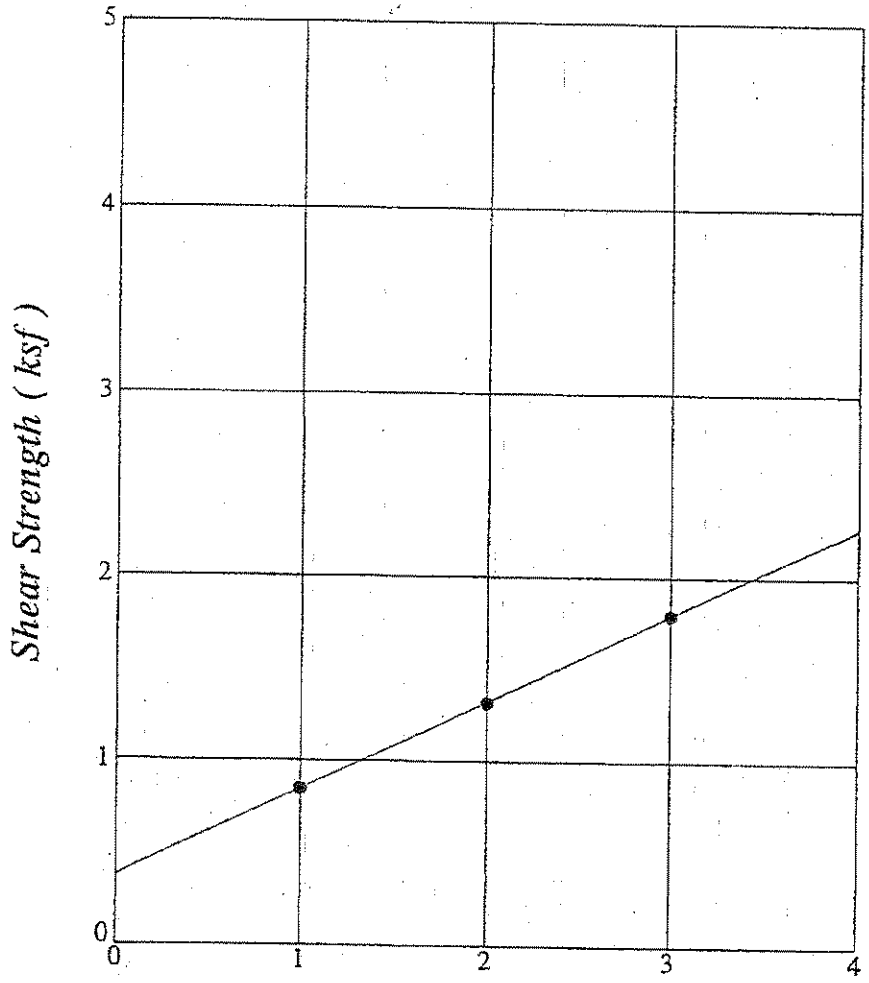
SubSurface Designs, Inc.

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Figure S.10

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 09 @ 4.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Natural Soil (Qns)*
TEST METHOD: *Ultimate Saturated Shear*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*9.8*			Phi (deg.):	*25.5*
Saturated:	*22.7*	Dry Density:	*99.7*	Cohesion (kips):	*0.375*

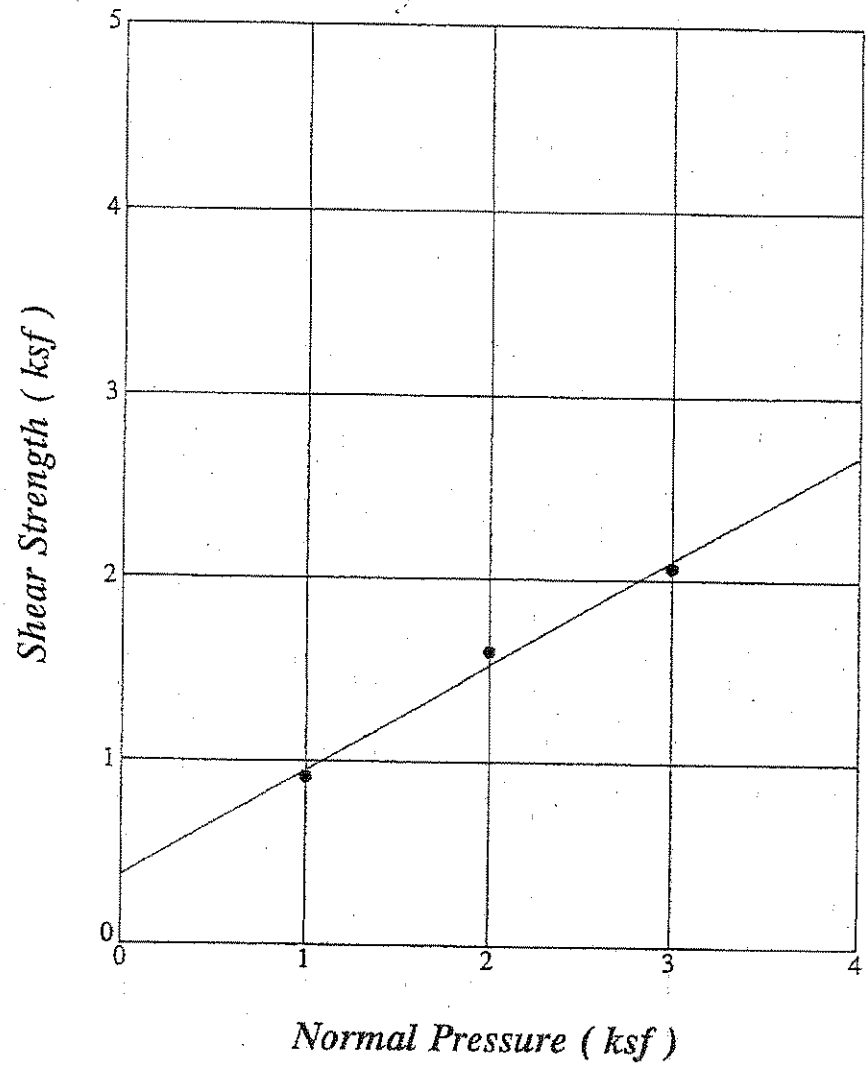
SubSurface Designs, Inc.

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Figure S.11

SHEAR TEST DIAGRAM

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *TT 10 @ 6.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*
TEST METHOD: *Ultimate Saturated Shear (Along Bedding)*	



MOISTURE CONTENT (%)		DENSITY (pcf)		RESULTS	
In Situ:	*10.4*			Phi (deg.):	*30.0*
Saturated:	*27.1*	Dry Density:	*101.5*	Cohesion (kips):	*0.375*

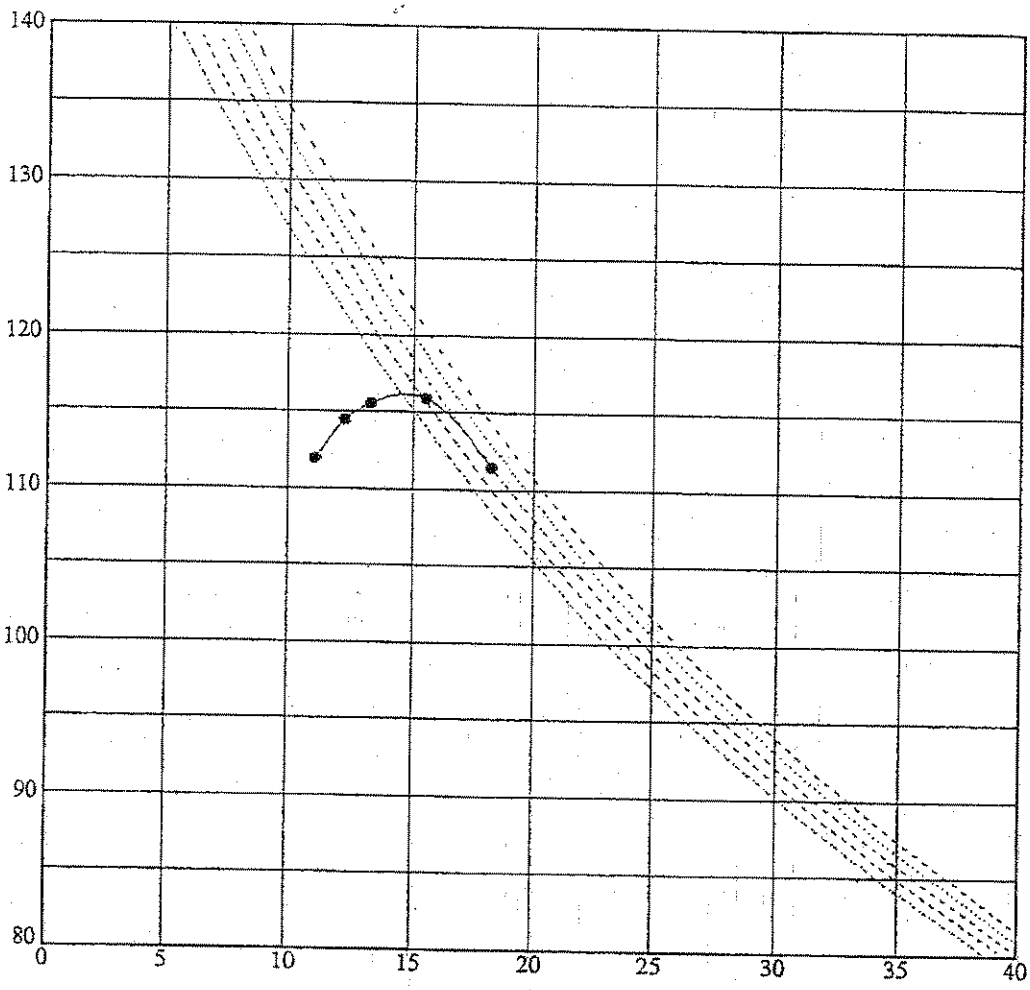
SubSurface Designs, Inc.

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Figure S.12

MAXIMUM DENSITY CURVE

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 02 @ 2.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Remolded Bedrock*



Maximum Dry Density (pcf.) : *116.5*

Moisture Content (%) : *14.5*

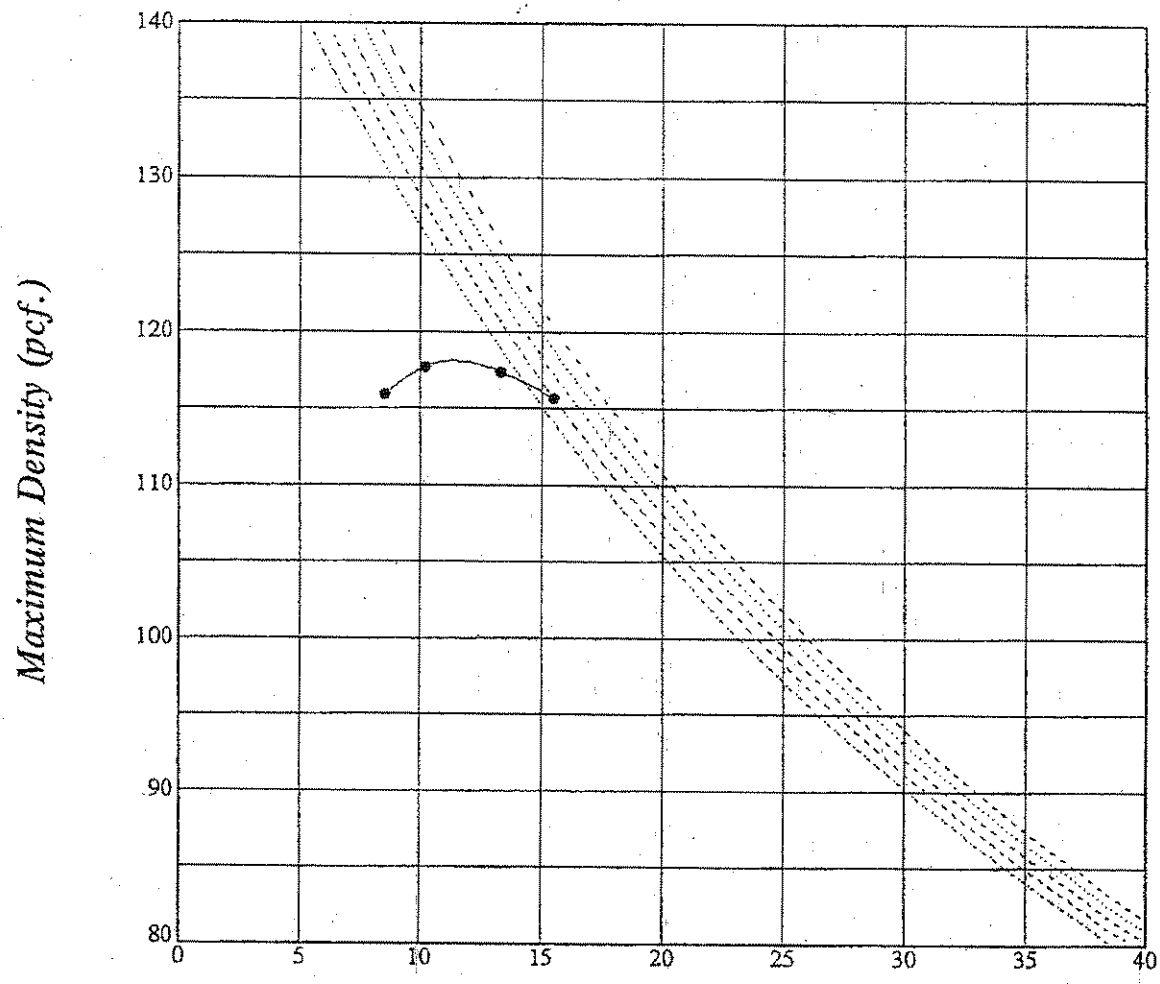
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Figure M.1

MAXIMUM DENSITY CURVE

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 02 @ 6.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Bedrock (Ttuc)*



Maximum Dry Density (pcf.) : *118.0*

Moisture Content (%) : *12.0*

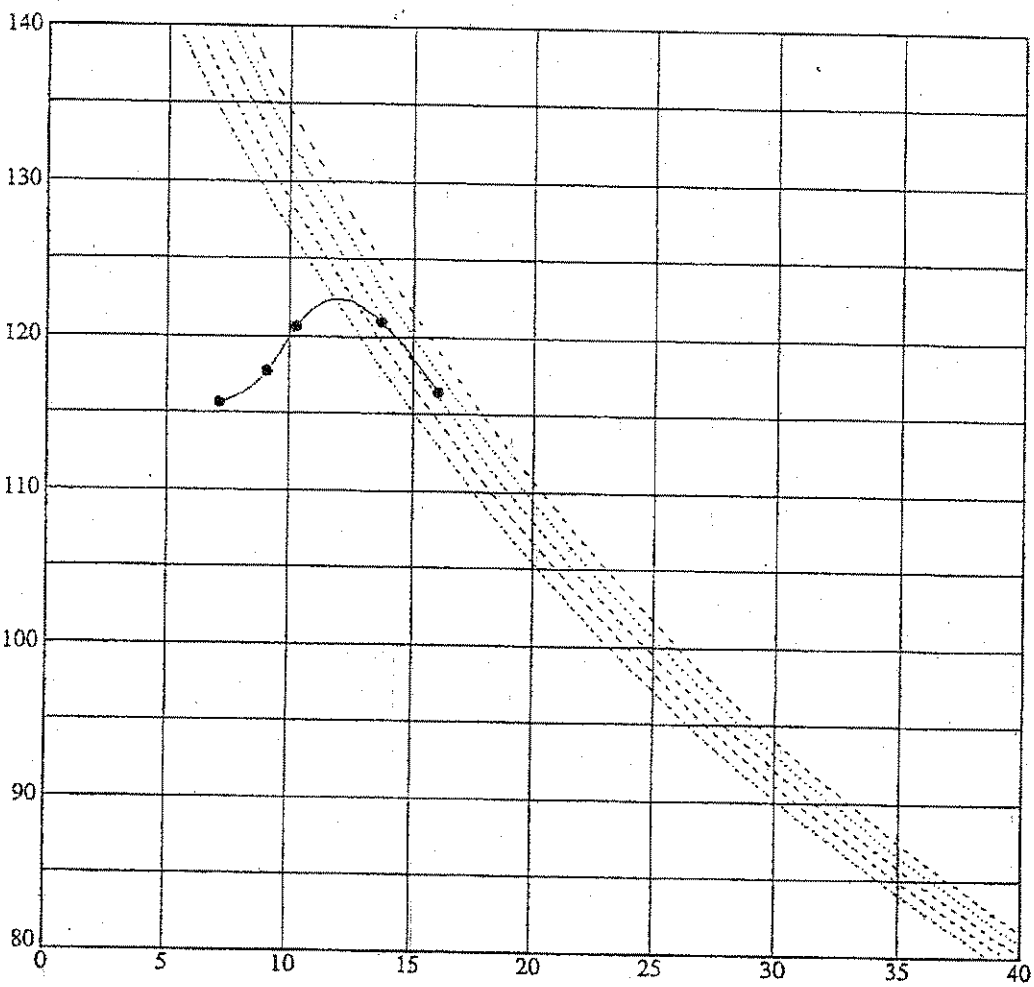
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Figure M.2

MAXIMUM DENSITY CURVE

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 04 @ 1.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Natural Soil (Qns)*



Maximum Dry Density (pcf.) : *121.5*

Moisture Content (%) : *12.0*

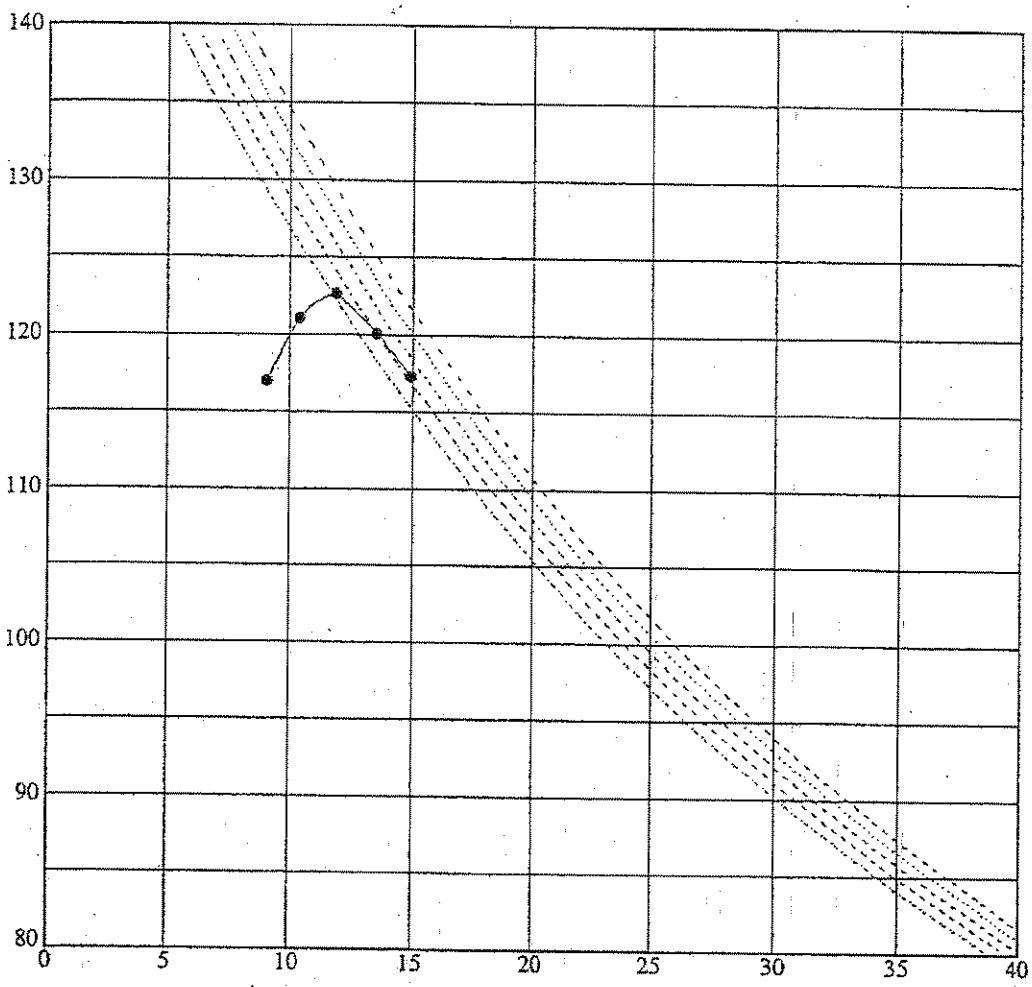
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Figure M.3

MAXIMUM DENSITY CURVE

PROJECT NAME: *Klein/Las Virgenes Rd.*	SAMPLE ID: *DH 06 @ 2.00*
PROJECT NUMBER: *PIN 4065*	MATERIAL DESCRIPTION: *Alluvium (Qal)*



Maximum Dry Density (pcf.) : *122.5*

Moisture Content (%) : *12.0*

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Figure M.5

APPENDIX C

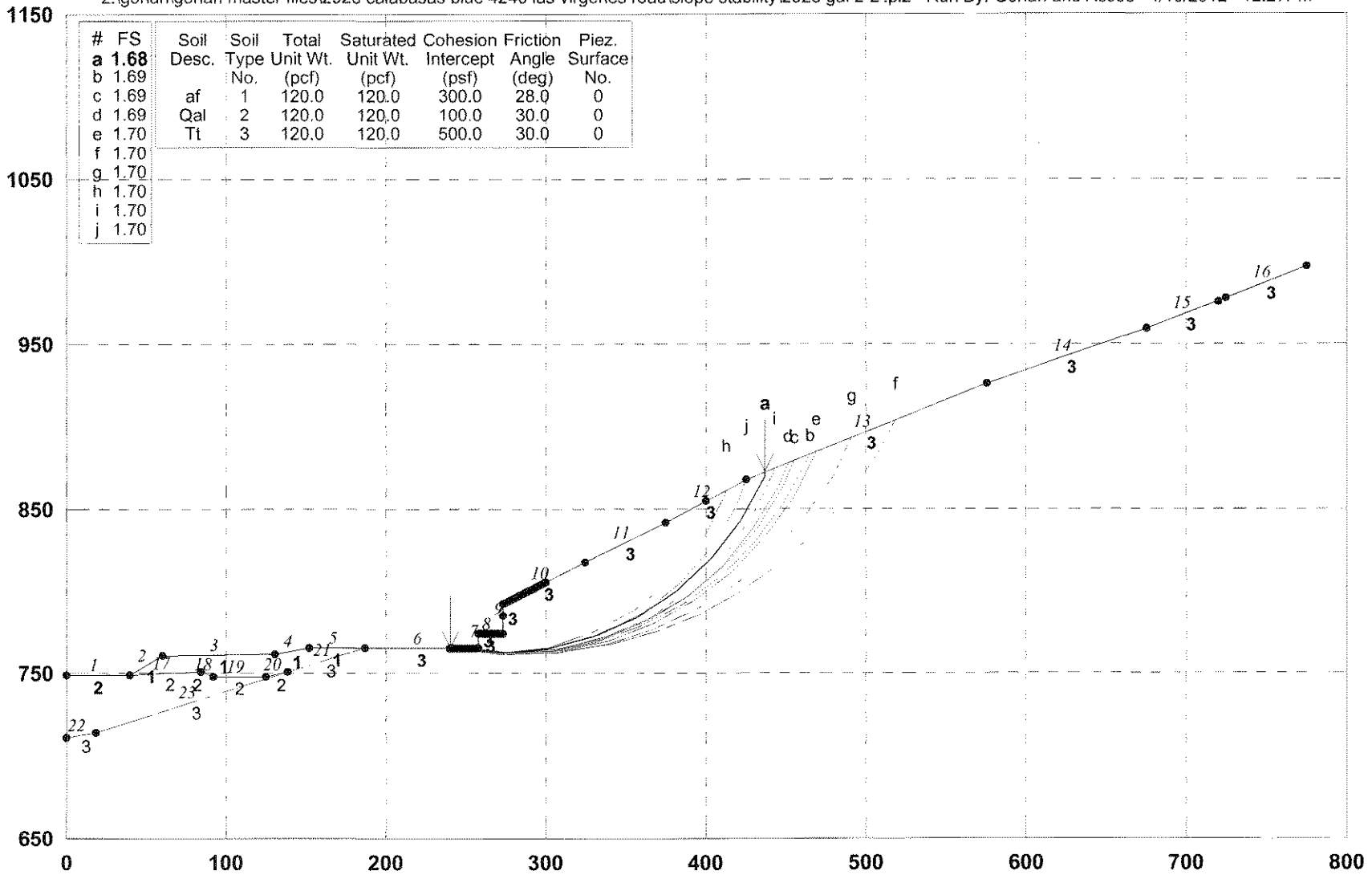
SLOPE STABILITY ANALYSES

WO 2928-0-0-100 Calabasas Blue GAI 2-2'

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 2-2'.pl2 Run By: Gorian and Assoc 4/10/2012 12:27PM

#	FS
a	**1.68**
b	1.69
c	1.69
d	1.69
e	1.70
f	1.70
g	1.70
h	1.70
i	1.70
j	1.70

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Qal	2	120.0	120.0	100.0	30.0	0
Tt	3	120.0	120.0	500.0	30.0	0



GSTABL7 v.2 FSmin=1.68

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 12:27PM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2'.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2'.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2'.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 2-2'

BOUNDARY COORDINATES
16 Top Boundaries
23 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	749.00	40.00	749.00	2
2	40.00	749.00	60.00	760.00	1
3	60.00	760.00	131.00	761.00	1
4	131.00	761.00	152.00	765.00	1
5	152.00	765.00	187.00	765.00	1
6	187.00	765.00	257.90	765.00	3
7	257.90	765.00	258.00	774.00	3
8	258.00	774.00	273.00	774.00	3
9	273.00	774.00	273.10	792.00	3
10	273.10	792.00	325.00	818.00	3
11	325.00	818.00	375.00	842.00	3
12	375.00	842.00	425.00	868.00	3
13	425.00	868.00	575.00	926.00	3
14	575.00	926.00	675.00	959.00	3
15	675.00	959.00	725.00	977.00	3
16	725.00	977.00	775.00	997.00	3
17	40.00	749.00	84.00	751.00	2
18	84.00	751.00	92.00	748.00	2
19	92.00	748.00	125.00	748.00	2
20	125.00	748.00	139.00	751.00	2
21	139.00	751.00	187.00	765.00	3
22	0.00	711.00	18.00	714.00	3
23	18.00	714.00	139.00	751.00	3

User Specified Y-Origin = 650.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
3 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	100.0	30.0	0.00	0.0	0
3	120.0	120.0	500.0	30.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.

100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 240.00(ft)
and X = 300.00(ft)
Each Surface Terminates Between X = 400.00(ft)
and X = 720.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
30.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 5000
Number of Trial Surfaces With Valid FS = 5000
Statistical Data On All Valid FS Values:
FS Max = 5.094 FS Min = 1.679 FS Ave = 2.313
Standard Deviation = 0.333 Coefficient of Variation = 14.40 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	240.000	765.000
2	269.872	762.228
3	299.789	764.457
4	328.920	771.626
5	356.455	783.535
6	381.628	799.853
7	403.741	820.127
8	422.179	843.792
9	436.428	870.192
10	437.301	872.756

Circle Center At X = 271.582 ; Y = 941.680 ; and Radius = 179.481
Factor of Safety
*** 1.679 ***
Individual data on the 16 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	17.9	1783.9	0.0	0.0	0.	0.	0.0	0.0	0.0
2	0.1	74.0	0.0	0.0	0.	0.	0.0	0.0	0.0
3	11.9	15985.6	0.0	0.0	0.	0.	0.0	0.0	0.0
4	3.1	4375.4	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.1	246.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	26.7	112803.8	0.0	0.0	0.	0.	0.0	0.0	0.0
7	25.2	133495.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	3.9	22481.5	0.0	0.0	0.	0.	0.0	0.0	0.0
9	27.5	161605.9	0.0	0.0	0.	0.	0.0	0.0	0.0
10	18.5	106828.7	0.0	0.0	0.	0.	0.0	0.0	0.0
11	6.6	36604.0	0.0	0.0	0.	0.	0.0	0.0	0.0
12	22.1	109342.8	0.0	0.0	0.	0.	0.0	0.0	0.0
13	18.4	65887.2	0.0	0.0	0.	0.	0.0	0.0	0.0
14	2.8	7062.3	0.0	0.0	0.	0.	0.0	0.0	0.0
15	11.4	14541.7	0.0	0.0	0.	0.	0.0	0.0	0.0
16	0.9	116.6	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	240.000	765.000
2	269.802	761.559
3	299.787	762.523
4	329.306	767.871
5	357.723	777.488
6	384.424	791.165
7	408.832	808.608
8	430.420	829.439
9	448.722	853.209
10	463.343	879.405

```
   11        464.861      883.413
Circle Center At X =   278.252 ; Y =   965.534 ; and Radius =   204.149
       Factor of Safety
      ***    1.685   ***
Failure Surface Specified By 10 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        246.122      765.000
    2        275.994      762.222
    3        305.933      764.127
    4        335.211      770.668
    5        363.114      781.687
    6        388.963      796.914
    7        412.126      815.979
    8        432.040      838.417
    9        448.218      863.680
   10        455.242      879.693
Circle Center At X =   278.982 ; Y =   953.076 ; and Radius =   190.925
       Factor of Safety
      ***    1.685   ***
Failure Surface Specified By 10 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        244.898      765.000
    2        274.738      761.909
    3        304.688      763.640
    4        333.974      770.150
    5        361.837      781.269
    6        387.558      796.710
    7        410.471      816.074
    8        429.985      838.860
    9        445.595      864.480
   10        451.136      878.106
Circle Center At X =   279.165 ; Y =   947.098 ; and Radius =   185.294
       Factor of Safety
      ***    1.690   ***
Failure Surface Specified By 11 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        248.571      765.000
    2        278.420      761.994
    3        308.384      763.463
    4        337.796      769.374
    5        366.002      779.594
    6        392.372      793.898
    7        416.321      811.966
    8        437.315      833.396
    9        454.887      857.711
   10        468.646      884.370
   11        468.844      884.953
Circle Center At X =   283.586 ; Y =   963.000 ; and Radius =   201.072
       Factor of Safety
      ***    1.698   ***
Failure Surface Specified By 12 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        249.796      765.000
    2        279.675      762.313
    3        309.665      763.108
    4        339.360      767.377
    5        368.359      775.060
    6        396.272      786.054
    7        422.721      800.211
    8        447.351      817.340
    9        469.827      837.209
   10        489.848      859.551
   11        507.143      884.064
```

```
   12        517.957       903.943
Circle Center At X =   287.951 ; Y =  1019.608 ; and Radius =   257.451
       Factor of Safety
      ***    1.698   ***
Failure Surface Specified By 11 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        247.347      765.000
    2        277.172      761.769
    3        307.163      762.526
    4        336.787      767.258
    5        365.521      775.882
    6        392.856      788.243
    7        418.307      804.125
    8        441.425      823.245
    9        461.800      845.264
   10        479.071      869.794
   11        491.540      893.729
Circle Center At X =   286.489 ; Y =   987.041 ; and Radius =   225.465
       Factor of Safety
      ***    1.701   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        241.224      765.000
    2        271.107      762.351
    3        300.933      765.577
    4        329.559      774.554
    5        355.885      788.939
    6        378.903      808.179
    7        397.730      831.536
    8        411.643      858.115
    9        412.663      861.585
Circle Center At X =   269.628 ; Y =   915.523 ; and Radius =   153.180
       Factor of Safety
      ***    1.702   ***
Failure Surface Specified By 10 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        248.571      765.000
    2        278.433      762.123
    3        308.346      764.405
    4        337.426      771.780
    5        364.811      784.029
    6        389.692      800.790
    7        411.333      821.567
    8        429.093      845.745
    9        442.448      872.608
   10        443.166      875.024
Circle Center At X =   280.241 ; Y =   936.085 ; and Radius =   173.992
       Factor of Safety
      ***    1.703   ***
Failure Surface Specified By  9 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        244.898      765.000
    2        274.760      762.127
    3        304.635      764.868
    4        333.476      773.127
    5        360.273      786.614
    6        384.089      804.856
    7        404.089      827.217
    8        419.574      852.911
    9        425.195      868.075
Circle Center At X =   275.113 ; Y =   922.456 ; and Radius =   160.329
       Factor of Safety
      ***    1.703   ***
```

**** END OF GSTABL7 OUTPUT ****

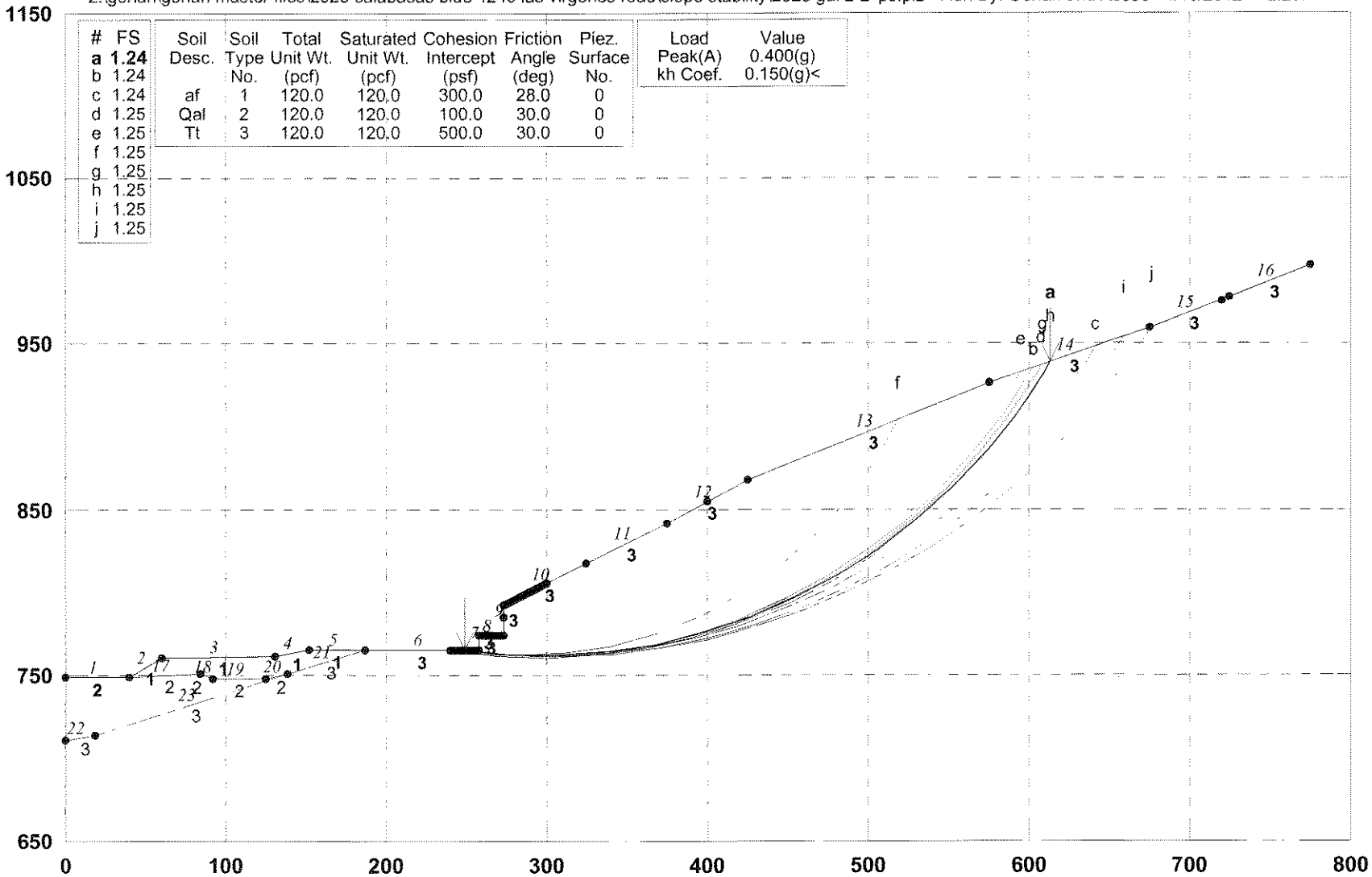
WO 2928-0-0-100 Calabasas Blue GAI 2-2' pseudo-static

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 2-2' ps.pl2 Run By: Gorian and Assoc 4/10/2012 12:29PM

#	FS
a	**1.24**
b	1.24
c	1.24
d	1.25
e	1.25
f	1.25
g	1.25
h	1.25
i	1.25
j	1.25

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Qal	2	120.0	120.0	100.0	30.0	0
Tt	3	120.0	120.0	500.0	30.0	0

Load	Value
Peak(A)	0.400(g)
kh Coef.	0.150(g)<



GSTABL7 v.2 FSmin=1.24

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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****

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 12:29PM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2' ps.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2' ps.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 2-2' ps.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 2-2' pseudo-static

BOUNDARY COORDINATES
16 Top Boundaries
23 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	749.00	40.00	749.00	2
2	40.00	749.00	60.00	760.00	1
3	60.00	760.00	131.00	761.00	1
4	131.00	761.00	152.00	765.00	1
5	152.00	765.00	187.00	765.00	1
6	187.00	765.00	257.90	765.00	3
7	257.90	765.00	258.00	774.00	3
8	258.00	774.00	273.00	774.00	3
9	273.00	774.00	273.10	792.00	3
10	273.10	792.00	325.00	818.00	3
11	325.00	818.00	375.00	842.00	3
12	375.00	842.00	425.00	868.00	3
13	425.00	868.00	575.00	926.00	3
14	575.00	926.00	675.00	959.00	3
15	675.00	959.00	725.00	977.00	3
16	725.00	977.00	775.00	997.00	3
17	40.00	749.00	84.00	751.00	2
18	84.00	751.00	92.00	748.00	2
19	92.00	748.00	125.00	748.00	2
20	125.00	748.00	139.00	751.00	2
21	139.00	751.00	187.00	765.00	3
22	0.00	711.00	18.00	714.00	3
23	18.00	714.00	139.00	751.00	3

User Specified Y-Origin = 650.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
3 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	100.0	30.0	0.00	0.0	0
3	120.0	120.0	500.0	30.0	0.00	0.0	0

Specified Peak Ground Acceleration Coefficient (A) = 0.400(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.150(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)

Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 240.00(ft)
and X = 300.00(ft)
Each Surface Terminates Between X = 400.00(ft)
and X = 720.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
30.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 5000
Number of Trial Surfaces With Valid FS = 5000
Statistical Data On All Valid FS Values:
FS Max = 3.839 FS Min = 1.244 FS Ave = 1.676
Standard Deviation = 0.243 Coefficient of Variation = 14.49 %
Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	248.571	765.000
2	278.449	762.288
3	308.447	761.993
4	338.372	764.117
5	368.028	768.644
6	397.223	775.547
7	425.767	784.780
8	453.474	796.283
9	480.164	809.982
10	505.663	825.787
11	529.806	843.595
12	552.435	863.290
13	573.404	884.745
14	592.575	907.821
15	609.825	932.365
16	613.569	938.728

Circle Center At X = 297.212 ; Y = 1133.096 ; and Radius = 371.296
Factor of Safety
*** 1.244 ***
Individual data on the 23 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	9.3	473.9	0.0	0.0	0.	0.	71.1	0.0	0.0
2	0.1	64.2	0.0	0.0	0.	0.	9.6	0.0	0.0
3	15.0	18965.5	0.0	0.0	0.	0.	2844.8	0.0	0.0
4	0.1	242.6	0.0	0.0	0.	0.	36.4	0.0	0.0
5	5.3	19773.9	0.0	0.0	0.	0.	2966.1	0.0	0.0
6	30.0	144182.6	0.0	0.0	0.	0.	21627.4	0.0	0.0
7	16.6	101846.3	0.0	0.0	0.	0.	15276.9	0.0	0.0
8	13.4	92373.9	0.0	0.0	0.	0.	13856.1	0.0	0.0
9	29.7	231873.1	0.0	0.0	0.	0.	34781.0	0.0	0.0
10	7.0	59280.6	0.0	0.0	0.	0.	8892.1	0.0	0.0
11	22.2	199631.2	0.0	0.0	0.	0.	29944.7	0.0	0.0
12	27.8	269117.8	0.0	0.0	0.	0.	40367.7	0.0	0.0
13	0.8	7686.1	0.0	0.0	0.	0.	1152.9	0.0	0.0
14	27.7	276365.8	0.0	0.0	0.	0.	41454.9	0.0	0.0
15	26.7	259545.8	0.0	0.0	0.	0.	38931.9	0.0	0.0
16	25.5	233703.0	0.0	0.0	0.	0.	35055.5	0.0	0.0
17	24.1	200385.3	0.0	0.0	0.	0.	30057.8	0.0	0.0
18	22.6	161457.2	0.0	0.0	0.	0.	24218.6	0.0	0.0
19	21.0	119044.5	0.0	0.0	0.	0.	17856.7	0.0	0.0

20	1.6	7659.2	0.0	0.0	0.	0.	1148.9	0.0	0.0
21	17.6	66763.3	0.0	0.0	0.	0.	10014.5	0.0	0.0
22	17.2	30123.7	0.0	0.0	0.	0.	4518.6	0.0	0.0
23	3.7	1151.7	0.0	0.0	0.	0.	172.7	0.0	0.0

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	242.449	765.000
2	272.284	761.856
3	302.277	761.217
4	332.219	763.088
5	361.899	767.454
6	391.111	774.287
7	419.649	783.537
8	447.314	795.140
9	473.913	809.015
10	499.258	825.065
11	523.174	843.177
12	545.492	863.225
13	566.055	885.069
14	584.721	908.555
15	601.359	933.518
16	602.155	934.961

Circle Center At X = 294.940 ; Y = 1119.530 ; and Radius = 358.395

Factor of Safety

*** 1.244 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	242.449	765.000
2	272.305	762.063
3	302.296	761.314
4	332.261	762.758
5	362.040	766.386
6	391.476	772.180
7	420.409	780.108
8	448.686	790.128
9	476.156	802.187
10	502.671	816.220
11	528.091	832.152
12	552.279	849.899
13	575.107	869.364
14	596.452	890.445
15	616.200	913.028
16	634.246	936.994
17	641.247	947.862

Circle Center At X = 297.538 ; Y = 1171.756 ; and Radius = 410.469

Factor of Safety

*** 1.244 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	247.347	765.000
2	277.204	762.073
3	307.201	761.630
4	337.131	763.676
5	366.788	768.196
6	395.969	775.159
7	424.472	784.517
8	452.101	796.206
9	478.667	810.144
10	503.985	826.237
11	527.882	844.374
12	550.193	864.429
13	570.766	886.264
14	589.457	909.730
15	606.138	934.664

```
   16        607.233      936.637
Circle Center At X =   297.569 ; Y =  1122.816 ; and Radius =   361.323
       Factor of Safety
      ***    1.246   ***
Failure Surface Specified By 15 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        242.449      765.000
    2        272.260      761.638
    3        302.250      760.869
    4        332.194      762.698
    5        361.868      767.111
    6        391.048      774.076
    7        419.516      783.540
    8        447.059      795.432
    9        473.469      809.663
   10        498.548      826.126
   11        522.109      844.697
   12        543.974      865.238
   13        563.979      887.594
   14        581.975      911.597
   15        595.057      932.619
Circle Center At X =   296.128 ; Y =  1107.155 ; and Radius =   346.340
       Factor of Safety
      ***    1.248   ***
Failure Surface Specified By 12 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        249.796      765.000
    2        279.675      762.313
    3        309.665      763.108
    4        339.360      767.377
    5        368.359      775.060
    6        396.272      786.054
    7        422.721      800.211
    8        447.351      817.340
    9        469.827      837.209
   10        489.848      859.551
   11        507.143      884.064
   12        517.957      903.943
Circle Center At X =   287.951 ; Y =  1019.608 ; and Radius =   257.451
       Factor of Safety
      ***    1.248   ***
Failure Surface Specified By 16 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        240.000      765.000
    2        269.797      761.519
    3        299.780      760.506
    4        329.745      761.966
    5        359.487      765.890
    6        388.805      772.252
    7        417.499      781.007
    8        445.374      792.097
    9        472.240      805.445
   10        497.916      820.962
   11        522.225      838.542
   12        545.004      858.065
   13        566.096      879.398
   14        585.359      902.397
   15        602.662      926.904
   16        608.674      937.112
Circle Center At X =   297.185 ; Y =  1123.423 ; and Radius =   362.956
       Factor of Safety
      ***    1.248   ***
Failure Surface Specified By 16 Coordinate Points
  Point      X-Surf      Y-Surf
```

No.	(ft)	(ft)
1	246.122	765.000
2	275.946	761.753
3	305.936	760.967
4	335.889	762.647
5	365.602	766.782
6	394.876	773.344
7	423.512	782.288
8	451.316	793.555
9	478.100	807.067
10	503.685	822.734
11	527.895	840.449
12	550.569	860.094
13	571.552	881.534
14	590.703	904.626
15	607.893	929.213
16	613.411	938.675

Circle Center At X = 300.613 ; Y = 1124.972 ; and Radius = 364.073

Factor of Safety

*** 1.251 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	249.796	765.000
2	279.662	762.172
3	309.654	761.471
4	339.620	762.902
5	369.409	766.456
6	398.870	772.118
7	427.854	779.856
8	456.216	789.633
9	483.813	801.400
10	510.504	815.096
11	536.155	830.653
12	560.637	847.992
13	583.826	867.026
14	605.604	887.658
15	625.863	909.784
16	644.500	933.293
17	658.292	953.486

Circle Center At X = 304.513 ; Y = 1183.673 ; and Radius = 422.233

Factor of Safety

*** 1.252 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	249.796	765.000
2	279.672	762.273
3	309.663	761.558
4	339.635	762.858
5	369.452	766.167
6	398.980	771.470
7	428.085	778.744
8	456.636	787.955
9	484.504	799.061
10	511.564	812.013
11	537.693	826.753
12	562.774	843.213
13	586.694	861.320
14	609.344	880.992
15	630.622	902.140
16	650.433	924.668
17	668.686	948.476
18	675.902	959.325

Circle Center At X = 305.427 ; Y = 1207.349 ; and Radius = 445.834

Factor of Safety

*** 1.252 ***

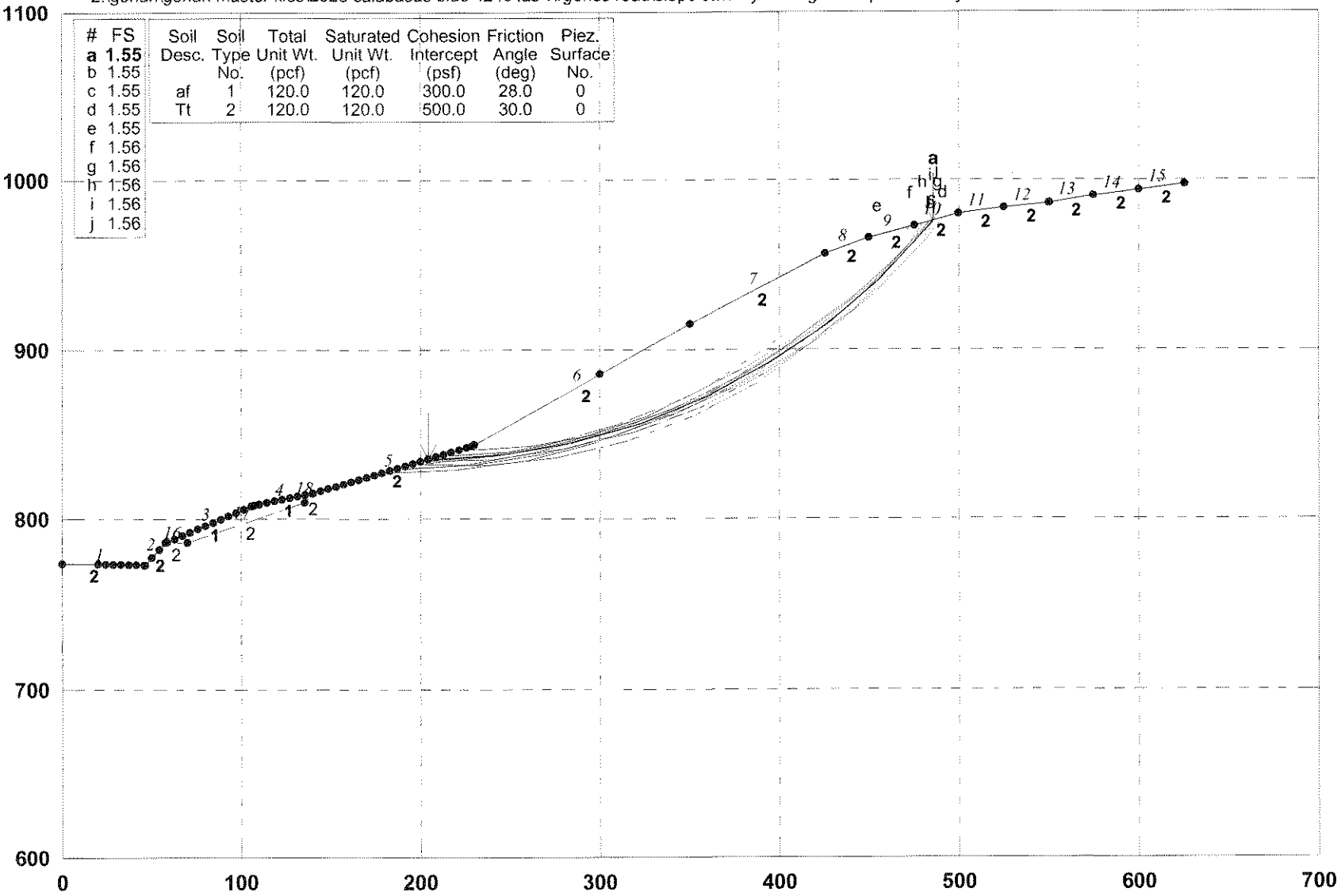
**** END OF GSTABL7 OUTPUT ****

WO 2928-0-0-100 Calabasas Blue GAI 3-3'

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 3-3'.pl2 Run By: Gorian and Assoc 4/10/2012 03:05PM

#	FS
a	**1.55**
b	1.55
c	1.55
d	1.55
e	1.55
f	1.56
g	1.56
h	1.56
i	1.56
j	1.56

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0



GSTABL7 v.2 FSmin=1.55

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 03:05PM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 3-3'.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 3-3'.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 GAI 3-3'.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 3-3'

BOUNDARY COORDINATES
15 Top Boundaries
18 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	774.00	46.00	773.00	2
2	46.00	773.00	58.00	786.00	2
3	58.00	786.00	107.00	808.00	1
4	107.00	808.00	140.00	815.00	1
5	140.00	815.00	229.00	843.00	2
6	229.00	843.00	350.00	915.50	2
7	350.00	915.50	425.00	956.00	2
8	425.00	956.00	450.00	966.00	2
9	450.00	966.00	475.00	973.00	2
10	475.00	973.00	500.00	980.00	2
11	500.00	980.00	525.00	983.50	2
12	525.00	983.50	550.00	986.00	2
13	550.00	986.00	575.00	990.00	2
14	575.00	990.00	600.00	994.00	2
15	600.00	994.00	625.00	997.00	2
16	58.00	786.00	70.00	786.00	2
17	70.00	786.00	135.00	810.00	2
18	135.00	810.00	140.00	815.00	2

User Specified Y-Origin = 600.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 20.00(ft)
and X = 230.00(ft)
Each Surface Terminates Between X = 300.00(ft)
and X = 550.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(ft)
40.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 5000
Number of Trial Surfaces With Valid FS = 5000
Statistical Data On All Valid FS Values:
FS Max = 5.697 FS Min = 1.548 FS Ave = 2.101
Standard Deviation = 0.331 Coefficient of Variation = 15.77 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	204.286	835.225
2	244.202	837.819
3	283.580	844.844
4	321.930	856.213
5	358.775	871.785
6	393.655	891.364
7	426.136	914.709
8	455.814	941.527
9	482.319	971.485
10	485.439	975.923

Circle Center At X = 201.336 ; Y = 1192.378 ; and Radius = 357.166
Factor of Safety
*** 1.548 ***
Individual data on the 14 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	9148.2	0.0	0.0	0.	0.	0.0	0.0	0.0
2	15.2	18660.7	0.0	0.0	0.	0.	0.0	0.0	0.0
3	39.4	106672.5	0.0	0.0	0.	0.	0.0	0.0	0.0
4	38.4	168726.9	0.0	0.0	0.	0.	0.0	0.0	0.0
5	28.1	151395.8	0.0	0.0	0.	0.	0.0	0.0	0.0
6	8.8	50478.2	0.0	0.0	0.	0.	0.0	0.0	0.0
7	34.9	201251.4	0.0	0.0	0.	0.	0.0	0.0	0.0
8	31.3	168919.3	0.0	0.0	0.	0.	0.0	0.0	0.0
9	1.1	5717.1	0.0	0.0	0.	0.	0.0	0.0	0.0
10	23.9	102336.0	0.0	0.0	0.	0.	0.0	0.0	0.0
11	5.8	19476.1	0.0	0.0	0.	0.	0.0	0.0	0.0
12	19.2	41313.0	0.0	0.0	0.	0.	0.0	0.0	0.0
13	7.3	5863.8	0.0	0.0	0.	0.	0.0	0.0	0.0
14	3.1	667.1	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	200.000	833.876
2	239.886	836.897
3	279.218	844.177
4	317.542	855.634
5	354.417	871.134
6	389.416	890.500
7	422.137	913.507
8	452.202	939.891
9	479.265	969.346
10	483.773	975.456

Circle Center At X = 192.264 ; Y = 1204.557 ; and Radius = 370.762
Factor of Safety
*** 1.549 ***
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	187.143	829.831
2	227.107	831.538

3	266.650	837.563
4	305.308	847.838
5	342.625	862.240
6	378.162	880.601
7	411.501	902.703
8	442.249	928.288
9	470.044	957.053
10	484.469	975.651

Circle Center At X = 191.905 ; Y = 1196.155 ; and Radius = 366.355

Factor of Safety

*** 1.551 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	200.000	833.876
2	239.985	834.961
3	279.578	840.656
4	318.248	850.883
5	355.479	865.507
6	390.773	884.332
7	423.657	907.106
8	453.691	933.524
9	480.474	963.233
10	490.502	977.340

Circle Center At X = 211.102 ; Y = 1177.248 ; and Radius = 343.551

Factor of Safety

*** 1.552 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	208.572	836.573
2	248.483	839.230
3	287.674	847.233
4	325.433	860.435
5	361.072	878.597
6	393.944	901.388
7	423.451	928.394
8	449.057	959.124
9	454.081	967.143

Circle Center At X = 208.865 ; Y = 1133.229 ; and Radius = 296.656

Factor of Safety

*** 1.554 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	178.571	827.135
2	218.547	828.533
3	258.113	834.408
4	296.771	844.683
5	334.032	859.231
6	369.425	877.867
7	402.505	900.355
8	432.853	926.413
9	460.086	955.710
10	472.308	972.246

Circle Center At X = 186.620 ; Y = 1180.691 ; and Radius = 353.648

Factor of Safety

*** 1.555 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	221.429	840.618
2	261.378	842.629
3	300.774	849.557
4	339.012	861.296
5	375.509	877.667
6	409.705	898.418

7	441.077	923.234
8	469.145	951.733
9	488.301	976.724

Circle Center At X = 225.182 ; Y = 1163.934 ; and Radius = 323.338

Factor of Safety

*** 1.556 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	195.714	832.528
2	235.706	831.701
3	275.460	836.127
4	314.291	845.730
5	351.526	860.342
6	386.523	879.713
7	418.676	903.507
8	447.431	931.313
9	472.290	962.650
10	479.182	974.171

Circle Center At X = 222.336 ; Y = 1133.720 ; and Radius = 302.366

Factor of Safety

*** 1.557 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	182.857	828.483
2	222.731	831.656
3	262.104	838.711
4	300.599	849.581
5	337.847	864.161
6	373.491	882.313
7	407.191	903.861
8	438.623	928.600
9	467.487	956.293
10	483.938	975.503

Circle Center At X = 170.960 ; Y = 1234.647 ; and Radius = 406.338

Factor of Safety

*** 1.558 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	191.429	831.180
2	231.180	835.631
3	270.352	843.729
4	308.610	855.406
5	345.628	870.561
6	381.090	889.065
7	414.695	910.762
8	446.155	935.465
9	475.203	962.964
10	486.950	976.346

Circle Center At X = 163.869 ; Y = 1260.671 ; and Radius = 430.375

Factor of Safety

*** 1.563 ***

**** END OF GSTABL7 OUTPUT ****

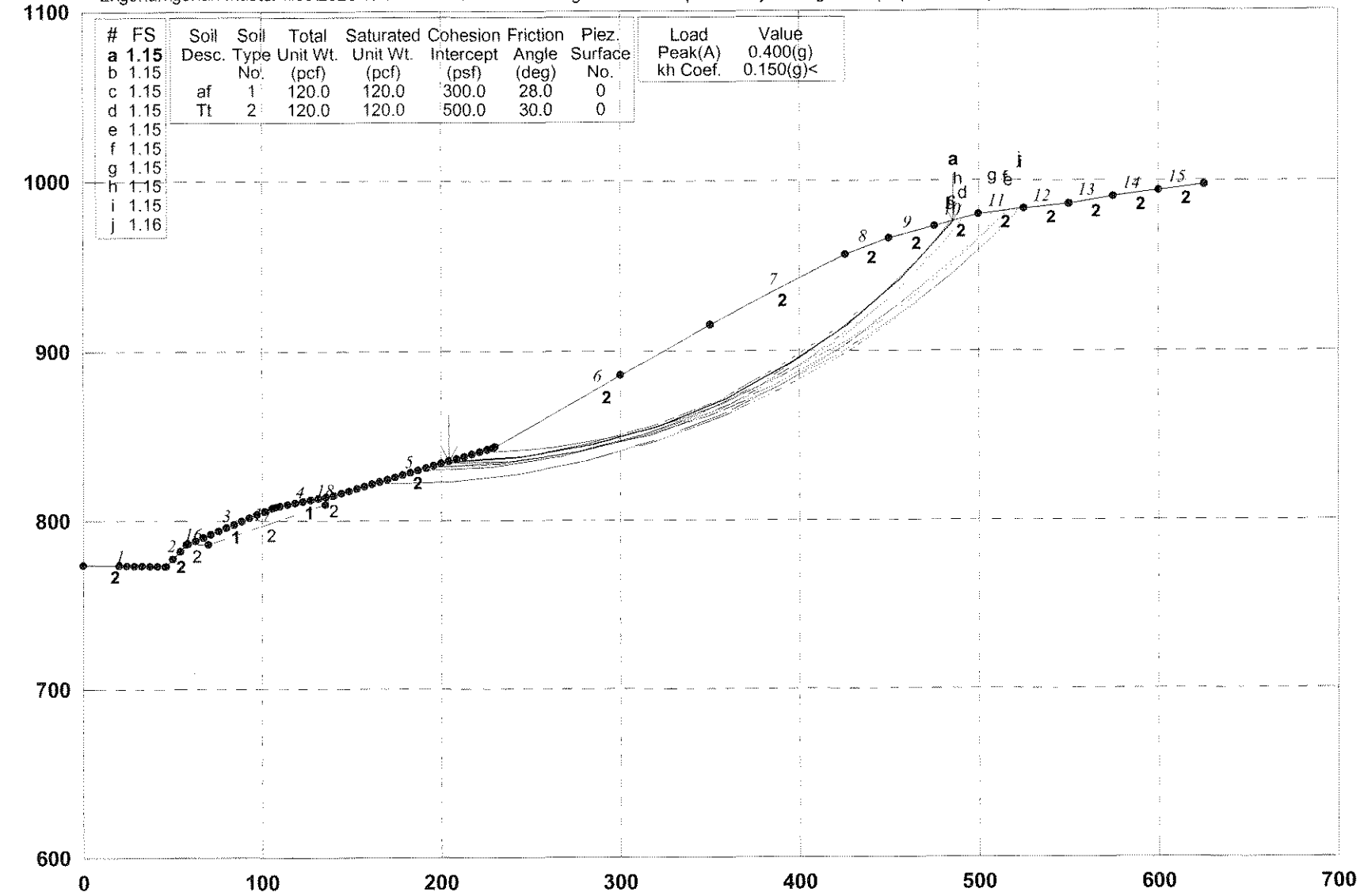
WO 2928-0-0-100 Calabasas Blue GAI 3-3' pseudo-static

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 3-3' ps.pl2 Run By: Gorian and Assoc 4/10/2012 03:07PM

#	FS
a	**1.15**
b	1.15
c	1.15
d	1.15
e	1.15
f	1.15
g	1.15
h	1.15
i	1.15
j	1.16

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0

Load	Value
Peak(A)	0.400(g)
kh Coef.	0.150(g)<



GSTABL7 v.2 FSmin=1.15

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 03:07PM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 3-3' ps.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 3-3' ps.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 3-3' ps.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 3-3' pseudo-static

BOUNDARY COORDINATES

15 Top Boundaries
18 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	774.00	46.00	773.00	2
2	46.00	773.00	58.00	786.00	2
3	58.00	786.00	107.00	808.00	1
4	107.00	808.00	140.00	815.00	1
5	140.00	815.00	229.00	843.00	2
6	229.00	843.00	350.00	915.50	2
7	350.00	915.50	425.00	956.00	2
8	425.00	956.00	450.00	966.00	2
9	450.00	966.00	475.00	973.00	2
10	475.00	973.00	500.00	980.00	2
11	500.00	980.00	525.00	983.50	2
12	525.00	983.50	550.00	986.00	2
13	550.00	986.00	575.00	990.00	2
14	575.00	990.00	600.00	994.00	2
15	600.00	994.00	625.00	997.00	2
16	58.00	786.00	70.00	786.00	2
17	70.00	786.00	135.00	810.00	2
18	135.00	810.00	140.00	815.00	2

User Specified Y-Origin = 600.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

Specified Peak Ground Acceleration Coefficient (A) = 0.400(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.150(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
5000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 20.00(ft)

and X = 230.00(ft)
Each Surface Terminates Between X = 300.00(ft)
and X = 550.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
40.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 5000
Number of Trial Surfaces With Valid FS = 5000
Statistical Data On All Valid FS Values:
FS Max = 4.234 FS Min = 1.149 FS Ave = 1.546
Standard Deviation = 0.239 Coefficient of Variation = 15.43 %
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	204.286	835.225
2	244.202	837.819
3	283.580	844.844
4	321.930	856.213
5	358.775	871.785
6	393.655	891.364
7	426.136	914.709
8	455.814	941.527
9	482.319	971.485
10	485.439	975.923

Circle Center At X = 201.336 ; Y = 1192.378 ; and Radius = 357.166
Factor of Safety
*** 1.149 ***
Individual data on the 14 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	9148.2	0.0	0.0	0.	0.	1372.2	0.0	0.0
2	15.2	18660.7	0.0	0.0	0.	0.	2799.1	0.0	0.0
3	39.4	106672.5	0.0	0.0	0.	0.	16000.9	0.0	0.0
4	38.4	168726.9	0.0	0.0	0.	0.	25309.0	0.0	0.0
5	28.1	151395.8	0.0	0.0	0.	0.	22709.4	0.0	0.0
6	8.8	50478.2	0.0	0.0	0.	0.	7571.7	0.0	0.0
7	34.9	201251.4	0.0	0.0	0.	0.	30187.7	0.0	0.0
8	31.3	168919.3	0.0	0.0	0.	0.	25337.9	0.0	0.0
9	1.1	5717.1	0.0	0.0	0.	0.	857.6	0.0	0.0
10	23.9	102336.0	0.0	0.0	0.	0.	15350.4	0.0	0.0
11	5.8	19476.1	0.0	0.0	0.	0.	2921.4	0.0	0.0
12	19.2	41313.0	0.0	0.0	0.	0.	6197.0	0.0	0.0
13	7.3	5863.8	0.0	0.0	0.	0.	879.6	0.0	0.0
14	3.1	667.1	0.0	0.0	0.	0.	100.1	0.0	0.0

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	200.000	833.876
2	239.886	836.897
3	279.218	844.177
4	317.542	855.634
5	354.417	871.134
6	389.416	890.500
7	422.137	913.507
8	452.202	939.891
9	479.265	969.346
10	483.773	975.456

Circle Center At X = 192.264 ; Y = 1204.557 ; and Radius = 370.762
Factor of Safety
*** 1.149 ***
Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	187.143	829.831
2	227.107	831.538
3	266.650	837.563
4	305.308	847.838
5	342.625	862.240
6	378.162	880.601
7	411.501	902.703
8	442.249	928.288
9	470.044	957.053
10	484.469	975.651

Circle Center At X = 191.905 ; Y = 1196.155 ; and Radius = 366.355

Factor of Safety

*** 1.150 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	200.000	833.876
2	239.985	834.961
3	279.578	840.656
4	318.248	850.883
5	355.479	865.507
6	390.773	884.332
7	423.657	907.106
8	453.691	933.524
9	480.474	963.233
10	490.502	977.340

Circle Center At X = 211.102 ; Y = 1177.248 ; and Radius = 343.551

Factor of Safety

*** 1.150 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	191.429	831.180
2	231.352	833.659
3	270.886	839.747
4	309.705	849.395
5	347.489	862.523
6	383.928	879.022
7	418.720	898.758
8	451.579	921.567
9	482.235	947.261
10	510.436	975.630
11	515.898	982.226

Circle Center At X = 184.109 ; Y = 1271.821 ; and Radius = 440.702

Factor of Safety

*** 1.151 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	200.000	833.876
2	239.869	837.116
3	279.281	843.949
4	317.913	854.321
5	355.448	868.145
6	391.578	885.309
7	426.007	905.672
8	458.452	929.066
9	488.648	955.301
10	514.271	981.998

Circle Center At X = 184.362 ; Y = 1274.512 ; and Radius = 440.913

Factor of Safety

*** 1.152 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)

1	161.429	821.742
2	201.420	822.553
3	241.166	827.058
4	280.325	835.218
5	318.561	846.965
6	355.548	862.196
7	390.967	880.782
8	424.517	902.563
9	455.909	927.353
10	484.875	954.939
11	507.666	981.073

Circle Center At X = 172.672 ; Y = 1253.752 ; and Radius = 432.157

Factor of Safety

*** 1.152 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	221.429	840.618
2	261.378	842.629
3	300.774	849.557
4	339.012	861.296
5	375.509	877.667
6	409.705	898.418
7	441.077	923.234
8	469.145	951.733
9	488.301	976.724

Circle Center At X = 225.182 ; Y = 1163.934 ; and Radius = 323.338

Factor of Safety

*** 1.154 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	191.429	831.180
2	231.365	833.439
3	270.944	839.224
4	309.856	848.489
5	347.796	861.163
6	384.464	877.145
7	419.574	896.310
8	452.849	918.507
9	484.030	943.563
10	512.870	971.281
11	523.308	983.263

Circle Center At X = 185.927 ; Y = 1282.603 ; and Radius = 451.456

Factor of Safety

*** 1.154 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	161.429	821.742
2	201.414	822.836
3	241.160	827.337
4	280.377	835.210
5	318.781	846.398
6	356.090	860.820
7	392.034	878.371
8	426.350	898.924
9	458.789	922.327
10	489.114	948.411
11	517.105	976.986
12	522.148	983.101

Circle Center At X = 168.893 ; Y = 1288.929 ; and Radius = 467.247

Factor of Safety

*** 1.155 ***

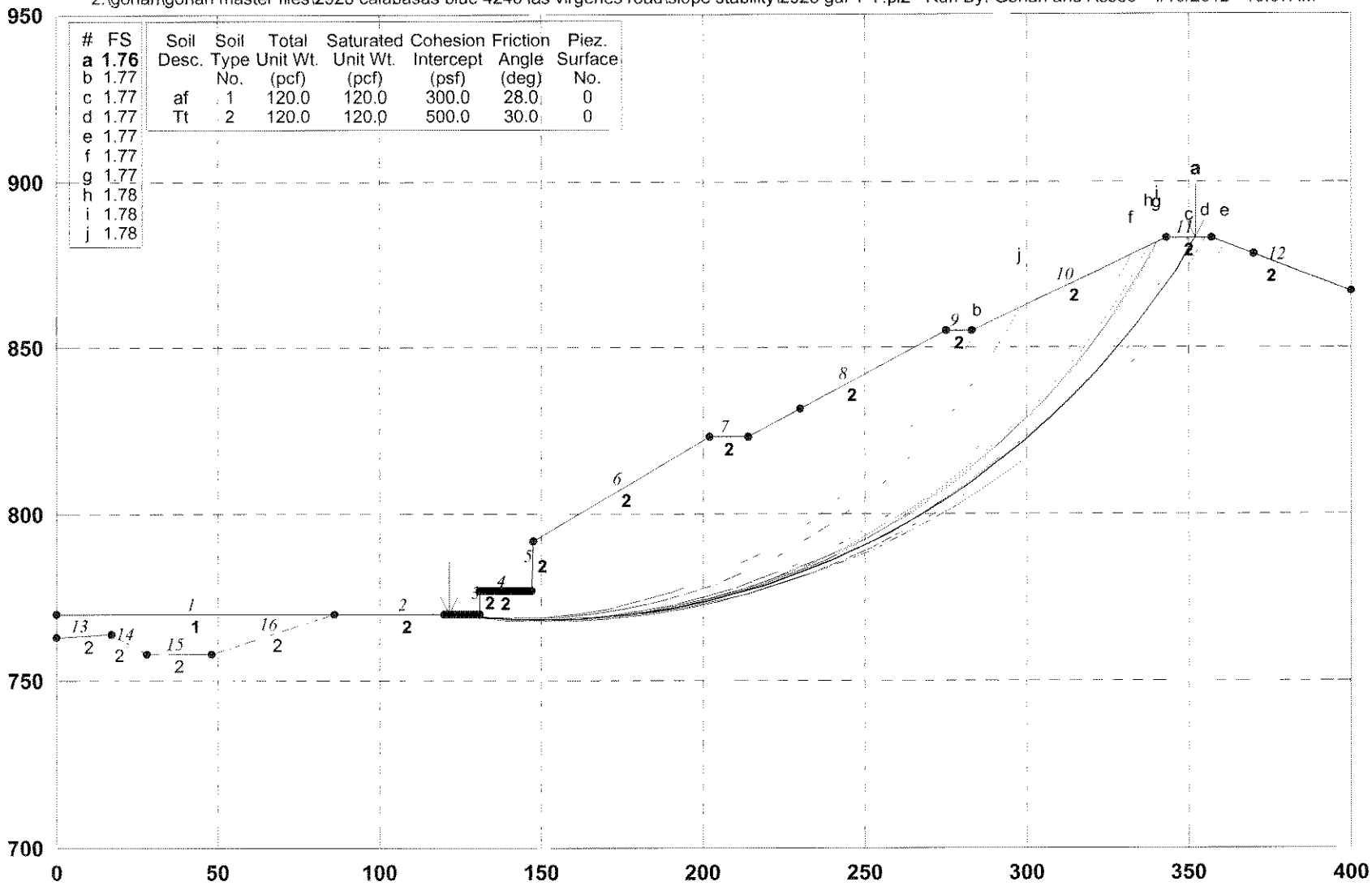
**** END OF GSTABL7 OUTPUT ****

WO 2928-0-0-100 Calabasas Blue GAI 4-4'

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 4-4'.pl2 Run By: Gorian and Assoc 4/10/2012 10:37AM

#	FS
a	**1.76**
b	1.77
c	1.77
d	1.77
e	1.77
f	1.77
g	1.77
h	1.78
i	1.78
j	1.78

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0



GSTABL7 v.2 FSmin=1.76

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 10:37AM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 4-4'.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 4-4'.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 GAI 4-4'.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 4-4'

BOUNDARY COORDINATES
12 Top Boundaries
16 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	770.00	86.00	770.00	1
2	86.00	770.00	131.00	770.00	2
3	131.00	770.00	131.20	777.00	2
4	131.20	777.00	147.00	777.00	2
5	147.00	777.00	147.30	792.00	2
6	147.30	792.00	202.00	823.00	2
7	202.00	823.00	214.00	823.00	2
8	214.00	823.00	275.00	855.00	2
9	275.00	855.00	283.00	855.00	2
10	283.00	855.00	343.00	883.00	2
11	343.00	883.00	357.00	883.00	2
12	357.00	883.00	400.00	867.00	2
13	0.00	763.00	17.00	764.00	2
14	17.00	764.00	28.00	758.00	2
15	28.00	758.00	48.00	758.00	2
16	48.00	758.00	86.00	770.00	2

User Specified Y-Origin = 700.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
4000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 40 Points Equally Spaced
Along The Ground Surface Between X = 120.00(ft)
and X = 146.00(ft)
Each Surface Terminates Between X = 230.00(ft)
and X = 370.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 4000
Number of Trial Surfaces With Valid FS = 4000
Statistical Data On All Valid FS Values:
FS Max = 2.859 FS Min = 1.764 FS Ave = 2.338
Standard Deviation = 0.297 Coefficient of Variation = 12.71 %
Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	121.333	770.000
2	131.284	769.012
3	141.268	768.447
4	151.267	768.306
5	161.263	768.588
6	171.239	769.294
7	181.175	770.422
8	191.054	771.970
9	200.859	773.935
10	210.572	776.315
11	220.175	779.103
12	229.652	782.296
13	238.985	785.888
14	248.157	789.872
15	257.152	794.241
16	265.953	798.988
17	274.546	804.103
18	282.914	809.578
19	291.043	815.403
20	298.917	821.566
21	306.523	828.058
22	313.848	834.867
23	320.877	841.980
24	327.598	849.384
25	334.000	857.067
26	340.070	865.013
27	345.798	873.210
28	351.173	881.643
29	351.959	883.000

Circle Center At X = 149.604 ; Y = 1004.207 ; and Radius = 235.907
Factor of Safety
*** 1.764 ***
Individual data on the 37 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	9.7	556.5	0.0	0.0	0.	0.	0.0	0.0	0.0
2	0.2	107.3	0.0	0.0	0.	0.	0.0	0.0	0.0
3	0.1	80.9	0.0	0.0	0.	0.	0.0	0.0	0.0
4	10.0	9908.4	0.0	0.0	0.	0.	0.0	0.0	0.0
5	5.7	5910.3	0.0	0.0	0.	0.	0.0	0.0	0.0
6	0.3	580.9	0.0	0.0	0.	0.	0.0	0.0	0.0
7	4.0	11802.5	0.0	0.0	0.	0.	0.0	0.0	0.0
8	10.0	34347.0	0.0	0.0	0.	0.	0.0	0.0	0.0
9	10.0	40457.4	0.0	0.0	0.	0.	0.0	0.0	0.0
10	9.9	45933.9	0.0	0.0	0.	0.	0.0	0.0	0.0
11	9.9	50742.2	0.0	0.0	0.	0.	0.0	0.0	0.0
12	9.8	54855.7	0.0	0.0	0.	0.	0.0	0.0	0.0
13	1.1	6653.7	0.0	0.0	0.	0.	0.0	0.0	0.0
14	8.6	49102.6	0.0	0.0	0.	0.	0.0	0.0	0.0
15	3.4	18999.7	0.0	0.0	0.	0.	0.0	0.0	0.0
16	6.2	34394.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	9.5	54613.8	0.0	0.0	0.	0.	0.0	0.0	0.0
18	9.3	55510.8	0.0	0.0	0.	0.	0.0	0.0	0.0

19	9.2	55728.5	0.0	0.0	0.	0.	0.0	0.0	0.0
20	9.0	55287.6	0.0	0.0	0.	0.	0.0	0.0	0.0
21	8.8	54216.2	0.0	0.0	0.	0.	0.0	0.0	0.0
22	8.6	52548.6	0.0	0.0	0.	0.	0.0	0.0	0.0
23	0.5	2758.3	0.0	0.0	0.	0.	0.0	0.0	0.0
24	7.9	45595.9	0.0	0.0	0.	0.	0.0	0.0	0.0
25	0.1	467.6	0.0	0.0	0.	0.	0.0	0.0	0.0
26	8.0	42809.1	0.0	0.0	0.	0.	0.0	0.0	0.0
27	7.9	39787.7	0.0	0.0	0.	0.	0.0	0.0	0.0
28	7.6	35953.2	0.0	0.0	0.	0.	0.0	0.0	0.0
29	7.3	31837.4	0.0	0.0	0.	0.	0.0	0.0	0.0
30	7.0	27508.2	0.0	0.0	0.	0.	0.0	0.0	0.0
31	6.7	23037.2	0.0	0.0	0.	0.	0.0	0.0	0.0
32	6.4	18498.4	0.0	0.0	0.	0.	0.0	0.0	0.0
33	6.1	13968.3	0.0	0.0	0.	0.	0.0	0.0	0.0
34	2.9	5347.0	0.0	0.0	0.	0.	0.0	0.0	0.0
35	2.8	3958.6	0.0	0.0	0.	0.	0.0	0.0	0.0
36	5.4	3595.1	0.0	0.0	0.	0.	0.0	0.0	0.0
37	0.8	64.0	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 21 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.667	770.000
2	130.626	769.104
3	140.622	768.821
4	150.617	769.150
5	160.573	770.091
6	170.452	771.640
7	180.218	773.791
8	189.834	776.537
9	199.263	779.866
10	208.471	783.767
11	217.422	788.225
12	226.084	793.223
13	234.423	798.742
14	242.408	804.761
15	250.010	811.259
16	257.199	818.210
17	263.948	825.588
18	270.234	833.366
19	276.030	841.515
20	281.317	850.003
21	284.363	855.636

Circle Center At X = 140.252 ; Y = 931.971 ; and Radius = 163.150

Factor of Safety

*** 1.767 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.667	770.000
2	130.609	768.929
3	140.589	768.290
4	150.587	768.085
5	160.584	768.313
6	170.562	768.974
7	180.502	770.067
8	190.386	771.590
9	200.194	773.541
10	209.908	775.914
11	219.510	778.706
12	228.982	781.912
13	238.307	785.526
14	247.465	789.540
15	256.442	793.948
16	265.218	798.740
17	273.779	803.909
18	282.108	809.444

19	290.188	815.334
20	298.006	821.570
21	305.547	828.138
22	312.795	835.028
23	319.738	842.225
24	326.362	849.716
25	332.656	857.487
26	338.606	865.524
27	344.203	873.811
28	349.435	882.333
29	349.806	883.000

Circle Center At X = 150.327 ; Y = 998.708 ; and Radius = 230.623

Factor of Safety

*** 1.767 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.000	770.000
2	133.947	768.974
3	143.929	768.372
4	153.928	768.194
5	163.924	768.442
6	173.902	769.113
7	183.842	770.208
8	193.726	771.724
9	203.537	773.658
10	213.257	776.008
11	222.869	778.768
12	232.354	781.934
13	241.697	785.500
14	250.880	789.460
15	259.886	793.806
16	268.699	798.531
17	277.304	803.626
18	285.684	809.082
19	293.826	814.889
20	301.713	821.036
21	309.332	827.513
22	316.669	834.308
23	323.711	841.408
24	330.444	848.801
25	336.858	856.474
26	342.940	864.411
27	348.679	872.600
28	354.066	881.026
29	355.213	883.000

Circle Center At X = 153.110 ; Y = 1003.561 ; and Radius = 235.368

Factor of Safety

*** 1.771 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.667	770.000
2	134.625	769.088
3	144.612	768.575
4	154.611	768.463
5	164.607	768.752
6	174.583	769.440
7	184.524	770.528
8	194.413	772.012
9	204.235	773.892
10	213.973	776.164
11	223.613	778.823
12	233.139	781.867
13	242.535	785.290
14	251.786	789.086
15	260.878	793.250

16	269.796	797.775
17	278.525	802.653
18	287.053	807.877
19	295.364	813.438
20	303.445	819.327
21	311.284	825.536
22	318.869	832.054
23	326.186	838.870
24	333.224	845.973
25	339.972	853.353
26	346.420	860.997
27	352.556	868.894
28	358.370	877.029
29	361.249	881.419

Circle Center At X = 152.411 ; Y = 1018.085 ; and Radius = 249.632

Factor of Safety

*** 1.772 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.000	770.000
2	129.947	768.976
3	139.932	768.423
4	149.932	768.343
5	159.924	768.734
6	169.887	769.597
7	179.798	770.930
8	189.634	772.729
9	199.375	774.991
10	208.999	777.710
11	218.483	780.880
12	227.806	784.495
13	236.949	788.547
14	245.890	793.025
15	254.610	797.921
16	263.088	803.223
17	271.307	808.920
18	279.248	814.998
19	286.892	821.445
20	294.224	828.245
21	301.227	835.384
22	307.884	842.846
23	314.182	850.614
24	320.105	858.670
25	325.642	866.998
26	330.779	875.577
27	332.009	877.871

Circle Center At X = 146.641 ; Y = 980.006 ; and Radius = 211.689

Factor of Safety

*** 1.773 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.000	770.000
2	133.950	768.999
3	143.935	768.462
4	153.935	768.388
5	163.927	768.779
6	173.891	769.634
7	183.804	770.951
8	193.645	772.726
9	203.393	774.957
10	213.027	777.638
11	222.526	780.763
12	231.870	784.326
13	241.038	788.319
14	250.011	792.734

15	258.769	797.560
16	267.293	802.788
17	275.566	808.406
18	283.569	814.403
19	291.284	820.764
20	298.696	827.477
21	305.788	834.527
22	312.545	841.899
23	318.953	849.576
24	324.997	857.543
25	330.664	865.782
26	335.943	874.275
27	340.050	881.624

Circle Center At X = 150.513 ; Y = 983.640 ; and Radius = 215.279

Factor of Safety

*** 1.774 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	121.333	770.000
2	131.277	768.936
3	141.259	768.337
4	151.258	768.205
5	161.252	768.539
6	171.220	769.339
7	181.140	770.603
8	190.990	772.329
9	200.749	774.512
10	210.395	777.149
11	219.908	780.232
12	229.266	783.756
13	238.450	787.713
14	247.439	792.094
15	256.214	796.889
16	264.756	802.089
17	273.046	807.682
18	281.066	813.655
19	288.799	819.996
20	296.227	826.691
21	303.335	833.725
22	310.107	841.083
23	316.528	848.749
24	322.584	856.706
25	328.263	864.938
26	333.552	873.425
27	337.469	880.419

Circle Center At X = 149.097 ; Y = 982.471 ; and Radius = 214.277

Factor of Safety

*** 1.775 ***

Failure Surface Specified By 28 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.000	770.000
2	129.930	768.819
3	139.904	768.101
4	149.901	767.847
5	159.899	768.057
6	169.876	768.731
7	179.811	769.868
8	189.683	771.465
9	199.470	773.518
10	209.151	776.024
11	218.705	778.977
12	228.111	782.370
13	237.350	786.197
14	246.402	790.448
15	255.246	795.115

16	263.864	800.188
17	272.237	805.656
18	280.347	811.506
19	288.176	817.727
20	295.708	824.305
21	302.927	831.225
22	309.816	838.473
23	316.362	846.033
24	322.549	853.889
25	328.365	862.024
26	333.797	870.420
27	338.833	879.060
28	340.211	881.699

Circle Center At X = 150.399 ; Y = 982.989 ; and Radius = 215.147

Factor of Safety

*** 1.778 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.333	770.000
2	135.293	769.101
3	145.288	768.788
4	155.284	769.061
5	165.247	769.920
6	175.143	771.361
7	184.937	773.380
8	194.596	775.970
9	204.086	779.122
10	213.375	782.824
11	222.432	787.065
12	231.224	791.830
13	239.721	797.102
14	247.895	802.862
15	255.717	809.093
16	263.160	815.771
17	270.199	822.874
18	276.810	830.377
19	282.969	838.255
20	288.656	846.481
21	293.851	855.026
22	297.401	861.720

Circle Center At X = 145.657 ; Y = 939.133 ; and Radius = 170.349

Factor of Safety

*** 1.778 ***

**** END OF GSTABL7 OUTPUT ****

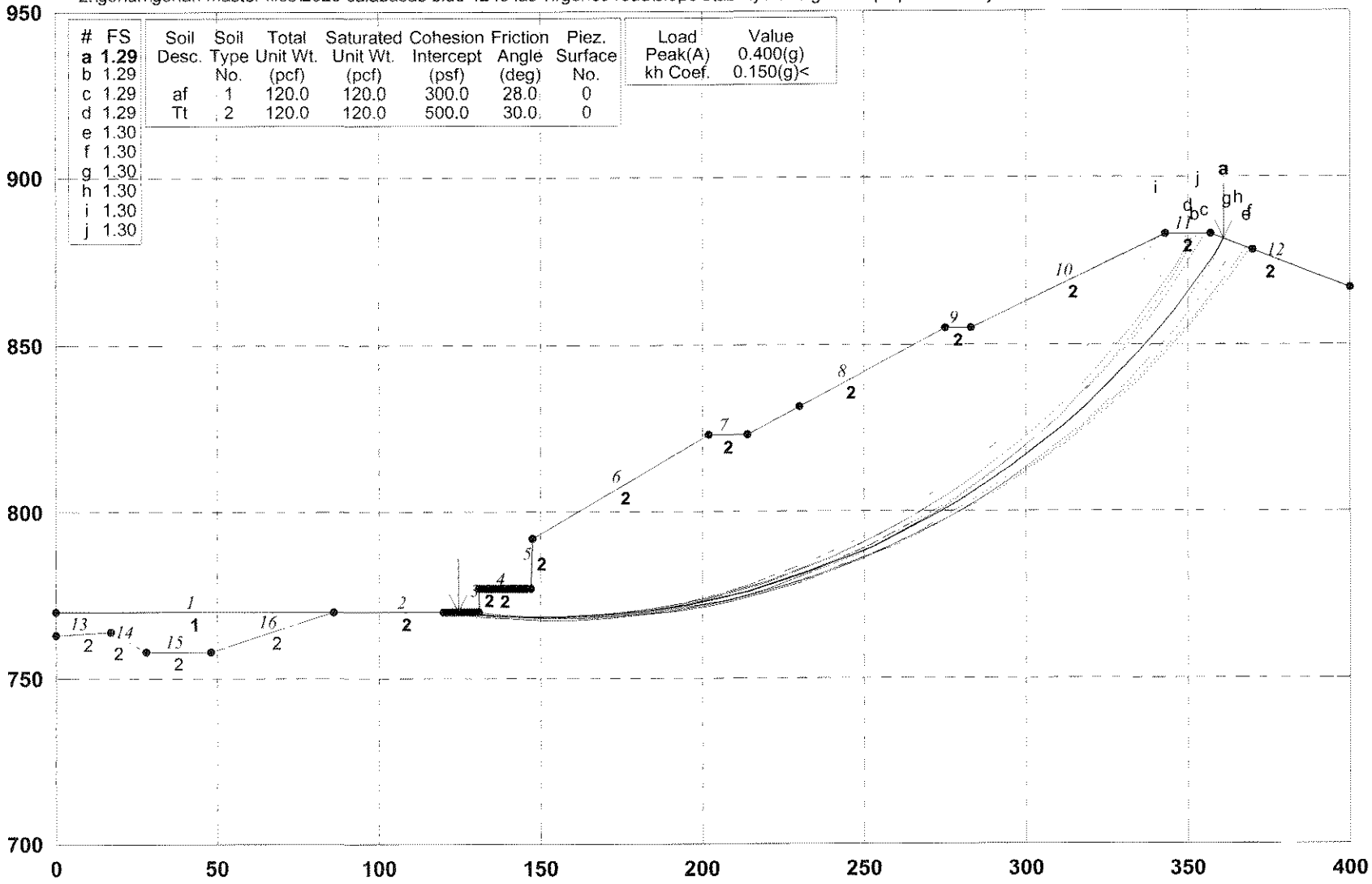
WO 2928-0-0-100 Calabasas Blue GAI 4-4' pseudo-static

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\slope stability\2928 gai 4-4' ps.pl2 Run By: Gorian and Assoc 4/10/2012 11:32AM

#	FS
a	**1.29**
b	1.29
c	1.29
d	1.29
e	1.30
f	1.30
g	1.30
h	1.30
i	1.30
j	1.30

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0

Load	Value
Peak(A)	0.400(g)
kh Coef.	0.150(g)<



GSTABL7 v.2 FSmin=1.29

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 11:32AM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 gai 4-4' ps.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 gai 4-4' ps.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las Virgenes Road\Slope Stability\2928 gai 4-4' ps.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 4-4' pseudo-static

BOUNDARY COORDINATES
12 Top Boundaries
16 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	770.00	86.00	770.00	1
2	86.00	770.00	131.00	770.00	2
3	131.00	770.00	131.20	777.00	2
4	131.20	777.00	147.00	777.00	2
5	147.00	777.00	147.30	792.00	2
6	147.30	792.00	202.00	823.00	2
7	202.00	823.00	214.00	823.00	2
8	214.00	823.00	275.00	855.00	2
9	275.00	855.00	283.00	855.00	2
10	283.00	855.00	343.00	883.00	2
11	343.00	883.00	357.00	883.00	2
12	357.00	883.00	400.00	867.00	2
13	0.00	763.00	17.00	764.00	2
14	17.00	764.00	28.00	758.00	2
15	28.00	758.00	48.00	758.00	2
16	48.00	758.00	86.00	770.00	2

User Specified Y-Origin = 700.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS
2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

Specified Peak Ground Acceleration Coefficient (A) = 0.400(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.150(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
4000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 40 Points Equally Spaced
Along The Ground Surface Between X = 120.00(ft)
and X = 146.00(ft)
Each Surface Terminates Between X = 230.00(ft)

and X = 370.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
10.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 4000
Number of Trial Surfaces With Valid FS = 4000
Statistical Data On All Valid FS Values:
FS Max = 2.093 FS Min = 1.289 FS Ave = 1.727
Standard Deviation = 0.215 Coefficient of Variation = 12.45 %
Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.667	770.000
2	134.625	769.088
3	144.612	768.575
4	154.611	768.463
5	164.607	768.752
6	174.583	769.440
7	184.524	770.528
8	194.413	772.012
9	204.235	773.892
10	213.973	776.164
11	223.613	778.823
12	233.139	781.867
13	242.535	785.290
14	251.786	789.086
15	260.878	793.250
16	269.796	797.775
17	278.525	802.653
18	287.053	807.877
19	295.364	813.438
20	303.445	819.327
21	311.284	825.536
22	318.869	832.054
23	326.186	838.870
24	333.224	845.973
25	339.972	853.353
26	346.420	860.997
27	352.556	868.894
28	358.370	877.029
29	361.249	881.419

Circle Center At X = 152.411 ; Y = 1018.085 ; and Radius = 249.632
Factor of Safety
*** 1.289 ***
Individual data on the 38 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	6.3	220.4	0.0	0.0	0.	0.	33.1	0.0	0.0
2	0.2	98.1	0.0	0.0	0.	0.	14.7	0.0	0.0
3	3.4	3187.4	0.0	0.0	0.	0.	478.1	0.0	0.0
4	10.0	9789.2	0.0	0.0	0.	0.	1468.4	0.0	0.0
5	2.4	2418.2	0.0	0.0	0.	0.	362.7	0.0	0.0
6	0.3	574.3	0.0	0.0	0.	0.	86.1	0.0	0.0
7	7.3	22431.6	0.0	0.0	0.	0.	3364.7	0.0	0.0
8	10.0	36427.1	0.0	0.0	0.	0.	5464.1	0.0	0.0
9	10.0	42546.2	0.0	0.0	0.	0.	6381.9	0.0	0.0
10	9.9	48067.5	0.0	0.0	0.	0.	7210.1	0.0	0.0
11	9.9	52960.1	0.0	0.0	0.	0.	7944.0	0.0	0.0
12	7.6	43801.9	0.0	0.0	0.	0.	6570.3	0.0	0.0
13	2.2	13227.6	0.0	0.0	0.	0.	1984.1	0.0	0.0
14	9.7	56061.7	0.0	0.0	0.	0.	8409.3	0.0	0.0

15	0.0	149.0	0.0	0.0	0.	0.	22.3	0.0	0.0
16	9.6	55400.8	0.0	0.0	0.	0.	8310.1	0.0	0.0
17	9.5	57377.7	0.0	0.0	0.	0.	8606.7	0.0	0.0
18	9.4	58547.7	0.0	0.0	0.	0.	8782.2	0.0	0.0
19	9.3	59069.3	0.0	0.0	0.	0.	8860.4	0.0	0.0
20	9.1	58958.0	0.0	0.0	0.	0.	8843.7	0.0	0.0
21	8.9	58235.6	0.0	0.0	0.	0.	8735.3	0.0	0.0
22	5.2	33976.0	0.0	0.0	0.	0.	5096.4	0.0	0.0
23	3.5	22562.2	0.0	0.0	0.	0.	3384.3	0.0	0.0
24	4.5	27371.9	0.0	0.0	0.	0.	4105.8	0.0	0.0
25	4.1	23979.7	0.0	0.0	0.	0.	3597.0	0.0	0.0
26	8.3	48044.3	0.0	0.0	0.	0.	7206.6	0.0	0.0
27	8.1	44875.1	0.0	0.0	0.	0.	6731.3	0.0	0.0
28	7.8	41333.5	0.0	0.0	0.	0.	6200.0	0.0	0.0
29	7.6	37473.5	0.0	0.0	0.	0.	5621.0	0.0	0.0
30	7.3	33352.9	0.0	0.0	0.	0.	5002.9	0.0	0.0
31	7.0	29032.5	0.0	0.0	0.	0.	4354.9	0.0	0.0
32	6.7	24576.4	0.0	0.0	0.	0.	3686.5	0.0	0.0
33	3.0	9862.1	0.0	0.0	0.	0.	1479.3	0.0	0.0
34	3.4	9860.9	0.0	0.0	0.	0.	1479.1	0.0	0.0
35	6.1	13293.6	0.0	0.0	0.	0.	1994.0	0.0	0.0
36	4.4	5865.2	0.0	0.0	0.	0.	879.8	0.0	0.0
37	1.4	1097.4	0.0	0.0	0.	0.	164.6	0.0	0.0
38	2.9	943.3	0.0	0.0	0.	0.	141.5	0.0	0.0

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	121.333	770.000
2	131.284	769.012
3	141.268	768.447
4	151.267	768.306
5	161.263	768.588
6	171.239	769.294
7	181.175	770.422
8	191.054	771.970
9	200.859	773.935
10	210.572	776.315
11	220.175	779.103
12	229.652	782.296
13	238.985	785.888
14	248.157	789.872
15	257.152	794.241
16	265.953	798.988
17	274.546	804.103
18	282.914	809.578
19	291.043	815.403
20	298.917	821.566
21	306.523	828.058
22	313.848	834.867
23	320.877	841.980
24	327.598	849.384
25	334.000	857.067
26	340.070	865.013
27	345.798	873.210
28	351.173	881.643
29	351.959	883.000

Circle Center At X = 149.604 ; Y = 1004.207 ; and Radius = 235.907

Factor of Safety

*** 1.290 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.000	770.000
2	133.947	768.974
3	143.929	768.372
4	153.928	768.194
5	163.924	768.442

6	173.902	769.113
7	183.842	770.208
8	193.726	771.724
9	203.537	773.658
10	213.257	776.008
11	222.869	778.768
12	232.354	781.934
13	241.697	785.500
14	250.880	789.460
15	259.886	793.806
16	268.699	798.531
17	277.304	803.626
18	285.684	809.082
19	293.826	814.889
20	301.713	821.036
21	309.332	827.513
22	316.669	834.308
23	323.711	841.408
24	330.444	848.801
25	336.858	856.474
26	342.940	864.411
27	348.679	872.600
28	354.066	881.026
29	355.213	883.000

Circle Center At X = 153.110 ; Y = 1003.561 ; and Radius = 235.368

Factor of Safety

*** 1.294 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.667	770.000
2	130.609	768.929
3	140.589	768.290
4	150.587	768.085
5	160.584	768.313
6	170.562	768.974
7	180.502	770.067
8	190.386	771.590
9	200.194	773.541
10	209.908	775.914
11	219.510	778.706
12	228.982	781.912
13	238.307	785.526
14	247.465	789.540
15	256.442	793.948
16	265.218	798.740
17	273.779	803.909
18	282.108	809.444
19	290.188	815.334
20	298.006	821.570
21	305.547	828.138
22	312.795	835.028
23	319.738	842.225
24	326.362	849.716
25	332.656	857.487
26	338.606	865.524
27	344.203	873.811
28	349.435	882.333
29	349.806	883.000

Circle Center At X = 150.327 ; Y = 998.708 ; and Radius = 230.623

Factor of Safety

*** 1.294 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	125.333	770.000
2	135.287	769.043

3	145.271	768.469
4	155.269	768.281
5	165.267	768.478
6	175.250	769.060
7	185.203	770.026
8	195.112	771.375
9	204.961	773.104
10	214.737	775.212
11	224.424	777.694
12	234.008	780.548
13	243.475	783.769
14	252.811	787.352
15	262.002	791.292
16	271.034	795.584
17	279.895	800.220
18	288.570	805.193
19	297.047	810.498
20	305.314	816.125
21	313.358	822.066
22	321.167	828.313
23	328.729	834.856
24	336.034	841.685
25	343.070	848.790
26	349.828	856.162
27	356.296	863.788
28	362.466	871.658
29	367.773	878.992

Circle Center At X = 155.157 ; Y = 1027.836 ; and Radius = 259.555

Factor of Safety

*** 1.298 ***

Failure Surface Specified By 30 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	123.333	770.000
2	133.281	768.982
3	143.261	768.345
4	153.258	768.088
5	163.257	768.213
6	173.244	768.718
7	183.205	769.604
8	193.125	770.870
9	202.989	772.512
10	212.783	774.529
11	222.494	776.918
12	232.106	779.676
13	241.606	782.798
14	250.980	786.279
15	260.215	790.116
16	269.297	794.302
17	278.212	798.831
18	286.949	803.697
19	295.493	808.892
20	303.834	814.409
21	311.958	820.240
22	319.854	826.376
23	327.510	832.809
24	334.915	839.530
25	342.059	846.527
26	348.931	853.792
27	355.521	861.314
28	361.819	869.081
29	367.817	877.083
30	368.858	878.588

Circle Center At X = 155.006 ; Y = 1030.254 ; and Radius = 262.174

Factor of Safety

*** 1.300 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	129.333	770.000
2	139.281	768.976
3	149.262	768.369
4	159.260	768.179
5	169.258	768.408
6	179.237	769.054
7	189.180	770.118
8	199.070	771.596
9	208.890	773.486
10	218.622	775.785
11	228.250	778.489
12	237.756	781.593
13	247.124	785.092
14	256.337	788.980
15	265.380	793.249
16	274.236	797.893
17	282.891	802.903
18	291.328	808.271
19	299.534	813.986
20	307.493	820.040
21	315.193	826.421
22	322.619	833.118
23	329.758	840.120
24	336.598	847.415
25	343.128	854.989
26	349.335	862.829
27	355.208	870.923
28	360.739	879.254
29	361.902	881.176

Circle Center At X = 158.790 ; Y = 1007.299 ; and Radius = 239.121

Factor of Safety

*** 1.301 ***

Failure Surface Specified By 30 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	121.333	770.000
2	131.263	768.813
3	141.231	768.023
4	151.224	767.631
5	161.224	767.636
6	171.216	768.040
7	181.183	768.842
8	191.111	770.039
9	200.984	771.631
10	210.785	773.616
11	220.499	775.988
12	230.112	778.746
13	239.606	781.885
14	248.969	785.399
15	258.184	789.283
16	267.236	793.531
17	276.113	798.136
18	284.799	803.091
19	293.281	808.388
20	301.545	814.018
21	309.579	819.973
22	317.369	826.243
23	324.903	832.819
24	332.169	839.689
25	339.156	846.844
26	345.852	854.271
27	352.247	861.958
28	358.332	869.894
29	364.095	878.067
30	365.291	879.915

Circle Center At X = 156.098 ; Y = 1018.530 ; and Radius = 250.949

Factor of Safety

*** 1.301 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	124.000	770.000
2	133.950	768.999
3	143.935	768.462
4	153.935	768.388
5	163.927	768.779
6	173.891	769.634
7	183.804	770.951
8	193.645	772.726
9	203.393	774.957
10	213.027	777.638
11	222.526	780.763
12	231.870	784.326
13	241.038	788.319
14	250.011	792.734
15	258.769	797.560
16	267.293	802.788
17	275.566	808.406
18	283.569	814.403
19	291.284	820.764
20	298.696	827.477
21	305.788	834.527
22	312.545	841.899
23	318.953	849.576
24	324.997	857.543
25	330.664	865.782
26	335.943	874.275
27	340.050	881.624

Circle Center At X = 150.513 ; Y = 983.640 ; and Radius = 215.279

Factor of Safety

*** 1.302 ***

Failure Surface Specified By 29 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.667	770.000
2	130.582	768.702
3	140.545	767.841
4	150.536	767.420
5	160.536	767.439
6	170.525	767.898
7	180.485	768.796
8	190.395	770.133
9	200.237	771.904
10	209.992	774.107
11	219.640	776.737
12	229.162	779.789
13	238.542	783.257
14	247.759	787.135
15	256.797	791.415
16	265.637	796.089
17	274.264	801.147
18	282.659	806.581
19	290.807	812.378
20	298.691	818.529
21	306.298	825.021
22	313.611	831.841
23	320.617	838.977
24	327.301	846.414
25	333.652	854.139
26	339.657	862.135
27	345.304	870.388
28	350.582	878.882

```
   29        352.896      883.000
Circle Center At X =   155.104 ; Y =   994.467 ; and Radius =   227.094
       Factor of Safety
      ***    1.303   ***
          **** END OF GSTABL7 OUTPUT ****
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WO 2928-0-0-100 Calabasas Blue GAI 6-6'

z:\gorian\gorian master files\2928 calabasas blue 4240 las virgenes road\2928 gai 6-6'.pl2 Run By: Gorian and Assoc 4/10/2012 09:27AM

#	FS
a	**1.94**
b	1.95
c	1.95
d	1.95
e	1.96
f	1.96
g	1.96
h	1.96
i	1.96
j	1.97

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0



GSTABL7 v.2 FSmin=1.94

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/10/2012
Time of Run: 09:27AM
Run By: Gorian and Assoc
Input Data Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\2928 GAI 6-6'.dat
Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\2928 GAI 6-6'.OUT
Unit System: English
Plotted Output Filename: Z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\2928 GAI 6-6'.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 6-6'

BOUNDARY COORDINATES

19 Top Boundaries
21 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	748.50	90.00	749.00	1
2	90.00	749.00	135.00	750.00	1
3	135.00	750.00	141.00	751.00	2
4	141.00	751.00	161.00	751.00	2
5	161.00	751.00	162.00	754.00	2
6	162.00	754.00	190.00	759.00	2
7	190.00	759.00	343.00	759.00	2
8	343.00	759.00	343.10	771.00	2
9	343.10	771.00	350.00	771.00	2
10	350.00	771.00	350.10	777.00	2
11	350.10	777.00	362.00	777.00	2
12	362.00	777.00	410.00	803.00	2
13	410.00	803.00	418.00	803.00	2
14	418.00	803.00	480.00	835.00	2
15	480.00	835.00	487.00	835.00	2
16	487.00	835.00	496.00	841.00	2
17	496.00	841.00	528.00	832.00	2
18	528.00	832.00	600.00	806.00	2
19	600.00	806.00	650.00	790.00	2
20	0.00	712.00	69.00	724.00	2
21	69.00	724.00	135.00	750.00	2

User Specified Y-Origin = 600.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
4000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 40 Points Equally Spaced Along The Ground Surface Between X = 320.00(ft)
and X = 360.00(ft)

Each Surface Terminates Between X = 390.00(ft)
and X = 520.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
20.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 4000
Number of Trial Surfaces With Valid FS = 4000
Statistical Data On All Valid FS Values:
FS Max = 4.786 FS Min = 1.943 FS Ave = 2.667
Standard Deviation = 0.372 Coefficient of Variation = 13.94 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	328.205	759.000
2	348.122	757.179
3	368.119	757.517
4	387.963	760.011
5	407.422	764.630
6	426.270	771.322
7	444.285	780.008
8	461.258	790.587
9	476.991	802.935
10	491.300	816.908
11	504.018	832.343
12	507.567	837.747

Circle Center At X = 355.092 ; Y = 941.399 ; and Radius = 184.370
Factor of Safety
*** 1.943 ***
Individual data on the 21 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	14.8	1200.8	0.0	0.0	0.	0.	0.0	0.0	0.0
2	0.1	88.3	0.0	0.0	0.	0.	0.0	0.0	0.0
3	5.0	8190.7	0.0	0.0	0.	0.	0.0	0.0	0.0
4	1.9	3111.1	0.0	0.0	0.	0.	0.0	0.0	0.0
5	0.1	201.5	0.0	0.0	0.	0.	0.0	0.0	0.0
6	11.9	28112.9	0.0	0.0	0.	0.	0.0	0.0	0.0
7	6.1	15561.1	0.0	0.0	0.	0.	0.0	0.0	0.0
8	19.8	64115.8	0.0	0.0	0.	0.	0.0	0.0	0.0
9	19.5	79423.9	0.0	0.0	0.	0.	0.0	0.0	0.0
10	2.6	11511.3	0.0	0.0	0.	0.	0.0	0.0	0.0
11	8.0	34592.8	0.0	0.0	0.	0.	0.0	0.0	0.0
12	8.3	35009.9	0.0	0.0	0.	0.	0.0	0.0	0.0
13	18.0	78371.3	0.0	0.0	0.	0.	0.0	0.0	0.0
14	17.0	72609.4	0.0	0.0	0.	0.	0.0	0.0	0.0
15	15.7	61596.3	0.0	0.0	0.	0.	0.0	0.0	0.0
16	3.0	10767.1	0.0	0.0	0.	0.	0.0	0.0	0.0
17	7.0	21595.4	0.0	0.0	0.	0.	0.0	0.0	0.0
18	4.3	11158.7	0.0	0.0	0.	0.	0.0	0.0	0.0
19	4.7	11095.4	0.0	0.0	0.	0.	0.0	0.0	0.0
20	8.0	11926.1	0.0	0.0	0.	0.	0.0	0.0	0.0
21	3.5	1363.0	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	327.179	759.000
2	347.075	756.960
3	367.073	757.270
4	386.896	759.926
5	406.269	764.892
6	424.926	772.098

7	442.607	781.445
8	459.069	792.803
9	474.083	806.016
10	487.441	820.901
11	498.959	837.251
12	500.329	839.782

Circle Center At X = 354.499 ; Y = 926.398 ; and Radius = 169.613

Factor of Safety

*** 1.950 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	328.205	759.000
2	348.115	757.103
3	368.114	757.312
4	387.980	759.625
5	407.492	764.016
6	426.433	770.436
7	444.594	778.814
8	461.771	789.057
9	477.775	801.052
10	492.428	814.664
11	505.567	829.743
12	510.582	836.899

Circle Center At X = 356.236 ; Y = 945.814 ; and Radius = 188.906

Factor of Safety

*** 1.952 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	334.359	759.000
2	354.262	757.030
3	374.257	757.453
4	394.059	760.264
5	413.382	765.421
6	431.951	772.851
7	449.498	782.448
8	465.772	794.073
9	480.540	807.560
10	493.590	822.716
11	504.294	838.667

Circle Center At X = 360.732 ; Y = 923.916 ; and Radius = 167.011

Factor of Safety

*** 1.954 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	325.128	759.000
2	344.953	756.355
3	364.951	756.092
4	384.838	758.214
5	404.331	762.690
6	423.151	769.458
7	441.030	778.420
8	457.715	789.449
9	472.966	802.388
10	486.566	817.051
11	498.322	833.231
12	501.754	839.382

Circle Center At X = 357.232 ; Y = 922.700 ; and Radius = 166.818

Factor of Safety

*** 1.956 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	321.026	759.000
2	340.836	756.250

3	360.829	755.723
4	380.756	757.425
5	400.370	761.336
6	419.427	767.405
7	437.690	775.559
8	454.931	785.695
9	470.936	797.687
10	485.507	811.387
11	498.462	826.624
12	506.215	838.127

Circle Center At X = 355.609 ; Y = 934.334 ; and Radius = 178.712

Factor of Safety

*** 1.957 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	320.000	759.000
2	339.893	756.938
3	359.893	756.877
4	379.799	758.816
5	399.411	762.737
6	418.532	768.600
7	436.971	776.347
8	454.543	785.899
9	471.070	797.161
10	486.389	810.020
11	500.344	824.346
12	510.377	836.956

Circle Center At X = 350.557 ; Y = 955.815 ; and Radius = 199.173

Factor of Safety

*** 1.957 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	321.026	759.000
2	340.858	756.416
3	360.857	756.179
4	380.745	758.292
5	400.247	762.726
6	419.094	769.420
7	437.024	778.280
8	453.789	789.185
9	469.158	801.983
10	482.918	816.498
11	494.878	832.528
12	499.240	840.089

Circle Center At X = 352.953 ; Y = 925.212 ; and Radius = 169.251

Factor of Safety

*** 1.962 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	328.205	759.000
2	348.086	756.817
3	368.084	757.097
4	387.895	759.836
5	407.219	764.992
6	425.762	772.487
7	443.241	782.206
8	459.391	794.003
9	473.967	807.698
10	486.747	823.082
11	497.536	839.922
12	497.809	840.491

Circle Center At X = 355.833 ; Y = 918.740 ; and Radius = 162.111

Factor of Safety

*** 1.963 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	341.538	759.000
2	361.456	757.187
3	381.444	757.891
4	401.185	761.100
5	420.366	766.763
6	438.684	774.791
7	455.848	785.057
8	471.587	797.397
9	485.651	811.617
10	497.818	827.491
11	504.330	838.657

Circle Center At X = 365.870 ; Y = 916.021 ; and Radius = 158.895

Factor of Safety

*** 1.965 ***

**** END OF GSTABL7 OUTPUT ****

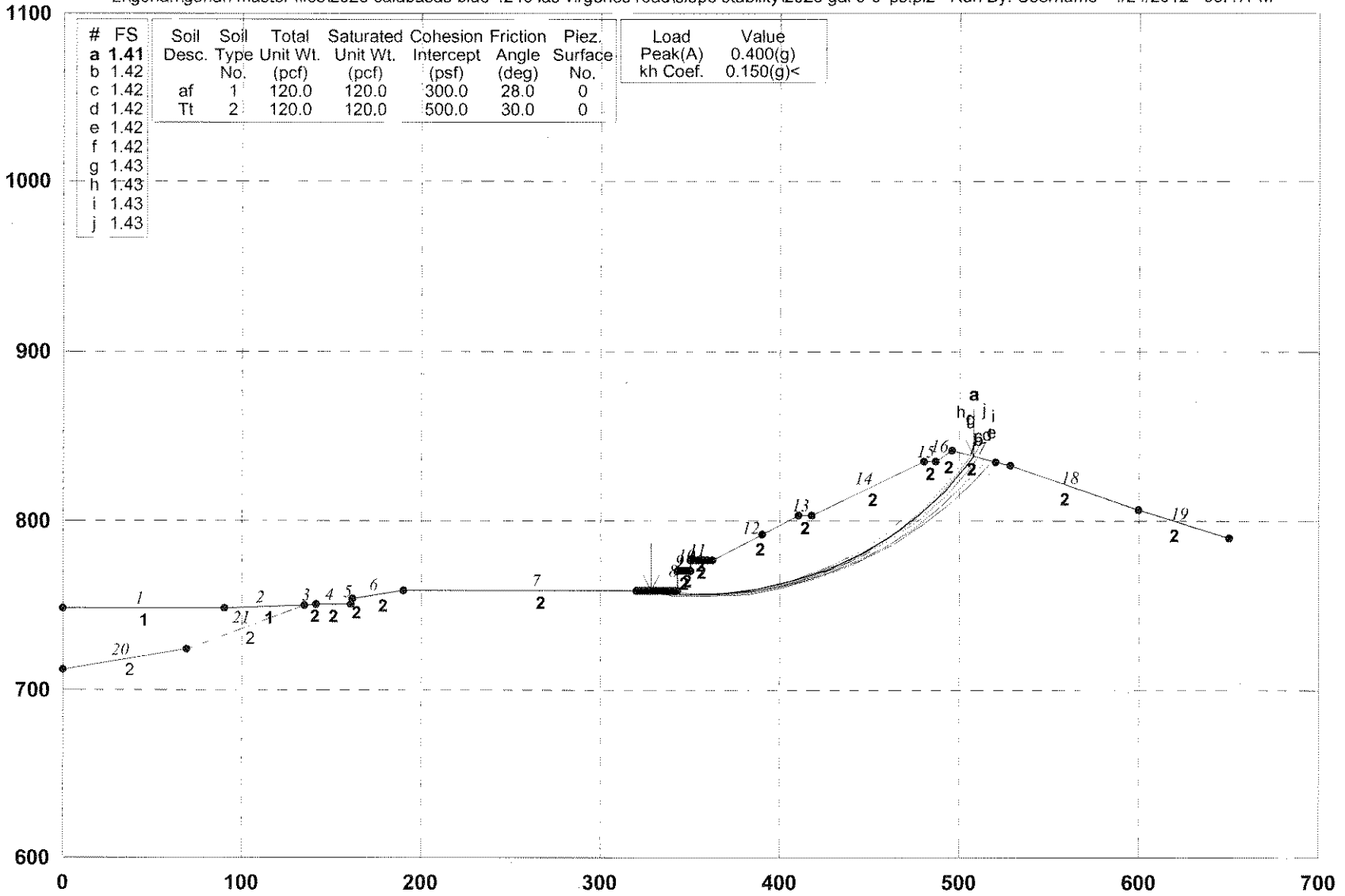
WO 2928-0-0-100 Calabasas Blue GAI 6-6' pseudo-static

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#	FS
a	**1.41**
b	1.42
c	1.42
d	1.42
e	1.42
f	1.42
g	1.43
h	1.43
i	1.43
j	1.43

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
af	1	120.0	120.0	300.0	28.0	0
Tt	2	120.0	120.0	500.0	30.0	0

Load	Value
Peak(A)	0.400(g)
kh Coef.	0.150(g)<



GSTABL7 v.2 FSmin=1.41

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

***** GSTABL7 *****

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.005, Sept. 2006 **

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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
(Includes Spencer & Morgenstern-Price Type Analysis)
Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
Nonlinear Undrained Shear Strength, Curved Phi Envelope,
Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.

****

Analysis Run Date: 4/24/2012
Time of Run: 03:47PM
Run By: Username
Input Data Filename: z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 gai 6-6' ps.dat
Output Filename: z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 gai 6-6' ps.OUT
Unit System: English
Plotted Output Filename: z:\gorian\GORIAN MASTER FILES\2928 Calabasas Blue 4240 Las V irgenes Road\Slope Stability\2928 gai 6-6' ps.PLT
PROBLEM DESCRIPTION: WO 2928-0-0-100 Calabasas Blue
GAI 6-6' pseudo-static

BOUNDARY COORDINATES

19 Top Boundaries
21 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	748.50	90.00	749.00	1
2	90.00	749.00	135.00	750.00	1
3	135.00	750.00	141.00	751.00	2
4	141.00	751.00	161.00	751.00	2
5	161.00	751.00	162.00	754.00	2
6	162.00	754.00	190.00	759.00	2
7	190.00	759.00	343.00	759.00	2
8	343.00	759.00	343.10	771.00	2
9	343.10	771.00	350.00	771.00	2
10	350.00	771.00	350.10	777.00	2
11	350.10	777.00	362.00	777.00	2
12	362.00	777.00	410.00	803.00	2
13	410.00	803.00	418.00	803.00	2
14	418.00	803.00	480.00	835.00	2
15	480.00	835.00	487.00	835.00	2
16	487.00	835.00	496.00	841.00	2
17	496.00	841.00	528.00	832.00	2
18	528.00	832.00	600.00	806.00	2
19	600.00	806.00	650.00	790.00	2
20	0.00	712.00	69.00	724.00	2
21	69.00	724.00	135.00	750.00	2

User Specified Y-Origin = 600.00(ft)
Default X-Plus Value = 0.00(ft)
Default Y-Plus Value = 0.00(ft)

ISOTROPIC SOIL PARAMETERS

2 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	120.0	120.0	300.0	28.0	0.00	0.0	0
2	120.0	120.0	500.0	30.0	0.00	0.0	0

Specified Peak Ground Acceleration Coefficient (A) = 0.400(g)
Specified Horizontal Earthquake Coefficient (kh) = 0.150(g)
Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
Specified Seismic Pore-Pressure Factor = 0.000
A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

4000 Trial Surfaces Have Been Generated.
100 Surface(s) Initiate(s) From Each Of 40 Points Equally Spaced
Along The Ground Surface Between X = 320.00(ft)
and X = 360.00(ft)
Each Surface Terminates Between X = 390.00(ft)
and X = 520.00(ft)
Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = 0.00(ft)
20.00(ft) Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Evaluated. They Are
Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Total Number of Trial Surfaces Attempted = 4000
Number of Trial Surfaces With Valid FS = 4000
Statistical Data On All Valid FS Values:
FS Max = 3.472 FS Min = 1.413 FS Ave = 1.959
Standard Deviation = 0.276 Coefficient of Variation = 14.07 %
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	328.205	759.000
2	348.122	757.179
3	368.119	757.517
4	387.963	760.011
5	407.422	764.630
6	426.270	771.322
7	444.285	780.008
8	461.258	790.587
9	476.991	802.935
10	491.300	816.908
11	504.018	832.343
12	507.567	837.747

Circle Center At X = 355.092 ; Y = 941.399 ; and Radius = 184.370
Factor of Safety
*** 1.413 ***
Individual data on the 21 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	14.8	1200.8	0.0	0.0	0.	0.	180.1	0.0	0.0
2	0.1	88.3	0.0	0.0	0.	0.	13.2	0.0	0.0
3	5.0	8190.7	0.0	0.0	0.	0.	1228.6	0.0	0.0
4	1.9	3111.1	0.0	0.0	0.	0.	466.7	0.0	0.0
5	0.1	201.5	0.0	0.0	0.	0.	30.2	0.0	0.0
6	11.9	28112.9	0.0	0.0	0.	0.	4216.9	0.0	0.0
7	6.1	15561.1	0.0	0.0	0.	0.	2334.2	0.0	0.0
8	19.8	64115.8	0.0	0.0	0.	0.	9617.4	0.0	0.0
9	19.5	79423.9	0.0	0.0	0.	0.	11913.6	0.0	0.0
10	2.6	11511.3	0.0	0.0	0.	0.	1726.7	0.0	0.0
11	8.0	34592.8	0.0	0.0	0.	0.	5188.9	0.0	0.0
12	8.3	35009.9	0.0	0.0	0.	0.	5251.5	0.0	0.0
13	18.0	78371.3	0.0	0.0	0.	0.	11755.7	0.0	0.0
14	17.0	72609.4	0.0	0.0	0.	0.	10891.4	0.0	0.0
15	15.7	61596.3	0.0	0.0	0.	0.	9239.4	0.0	0.0
16	3.0	10767.1	0.0	0.0	0.	0.	1615.1	0.0	0.0
17	7.0	21595.4	0.0	0.0	0.	0.	3239.3	0.0	0.0
18	4.3	11158.7	0.0	0.0	0.	0.	1673.8	0.0	0.0
19	4.7	11095.4	0.0	0.0	0.	0.	1664.3	0.0	0.0
20	8.0	11926.1	0.0	0.0	0.	0.	1788.9	0.0	0.0
21	3.5	1363.0	0.0	0.0	0.	0.	204.4	0.0	0.0

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	328.205	759.000
2	348.115	757.103

3	368.114	757.312
4	387.980	759.625
5	407.492	764.016
6	426.433	770.436
7	444.594	778.814
8	461.771	789.057
9	477.775	801.052
10	492.428	814.664
11	505.567	829.743
12	510.582	836.899

Circle Center At X = 356.236 ; Y = 945.814 ; and Radius = 188.906

Factor of Safety

*** 1.415 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	320.000	759.000
2	339.893	756.938
3	359.893	756.877
4	379.799	758.816
5	399.411	762.737
6	418.532	768.600
7	436.971	776.347
8	454.543	785.899
9	471.070	797.161
10	486.389	810.020
11	500.344	824.346
12	510.377	836.956

Circle Center At X = 350.557 ; Y = 955.815 ; and Radius = 199.173

Factor of Safety

*** 1.419 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	323.077	759.000
2	342.954	756.790
3	362.953	756.568
4	382.875	758.337
5	402.522	762.078
6	421.699	767.755
7	440.217	775.312
8	457.891	784.673
9	474.546	795.745
10	490.017	808.420
11	504.151	822.570
12	514.875	835.691

Circle Center At X = 355.217 ; Y = 956.801 ; and Radius = 200.395

Factor of Safety

*** 1.422 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	329.231	759.000
2	349.154	757.245
3	369.153	757.442
4	389.037	759.592
5	408.616	763.672
6	427.704	769.644
7	446.117	777.451
8	463.680	787.018
9	480.226	798.254
10	495.595	811.052
11	509.642	825.289
12	517.477	834.960

Circle Center At X = 357.222 ; Y = 960.869 ; and Radius = 203.801

Factor of Safety

*** 1.423 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	334.359	759.000
2	354.262	757.030
3	374.257	757.453
4	394.059	760.264
5	413.382	765.421
6	431.951	772.851
7	449.498	782.448
8	465.772	794.073
9	480.540	807.560
10	493.590	822.716
11	504.294	838.667

Circle Center At X = 360.732 ; Y = 923.916 ; and Radius = 167.011

Factor of Safety

*** 1.424 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	321.026	759.000
2	340.836	756.250
3	360.829	755.723
4	380.756	757.425
5	400.370	761.336
6	419.427	767.405
7	437.690	775.559
8	454.931	785.695
9	470.936	797.687
10	485.507	811.387
11	498.462	826.624
12	506.215	838.127

Circle Center At X = 355.609 ; Y = 934.334 ; and Radius = 178.712

Factor of Safety

*** 1.426 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	327.179	759.000
2	347.075	756.960
3	367.073	757.270
4	386.896	759.926
5	406.269	764.892
6	424.926	772.098
7	442.607	781.445
8	459.069	792.803
9	474.083	806.016
10	487.441	820.901
11	498.959	837.251
12	500.329	839.782

Circle Center At X = 354.499 ; Y = 926.398 ; and Radius = 169.613

Factor of Safety

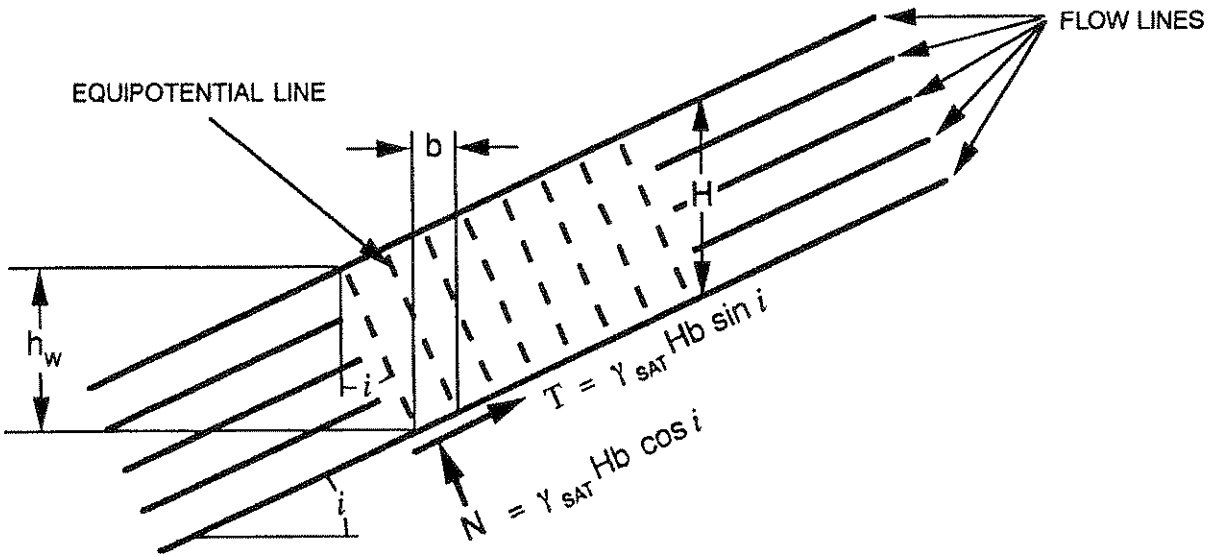
*** 1.427 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	325.128	759.000
2	345.029	757.010
3	365.029	756.935
4	384.944	758.774
5	404.592	762.512
6	423.791	768.114
7	442.366	775.528
8	460.146	784.687
9	476.967	795.506
10	492.675	807.885
11	507.126	821.712

```
   12        518.340      834.717
Circle Center At X =   355.854 ; Y =   964.967 ; and Radius =   208.247
       Factor of Safety
      ***    1.427   ***
Failure Surface Specified By 12 Coordinate Points
  Point      X-Surf      Y-Surf
   No.        (ft)        (ft)
    1        322.051      759.000
    2        341.863      756.264
    3        361.853      755.619
    4        381.800      757.074
    5        401.485      760.611
    6        420.690      766.193
    7        439.204      773.757
    8        456.824      783.220
    9        473.354      794.478
   10        488.613      807.407
   11        502.433      821.865
   12        513.430      836.098
Circle Center At X =   358.010 ; Y =   945.816 ; and Radius =   190.245
       Factor of Safety
      ***    1.428   ***
          **** END OF GSTABL7 OUTPUT ****
```

SURFICIAL SLOPE STABILITY

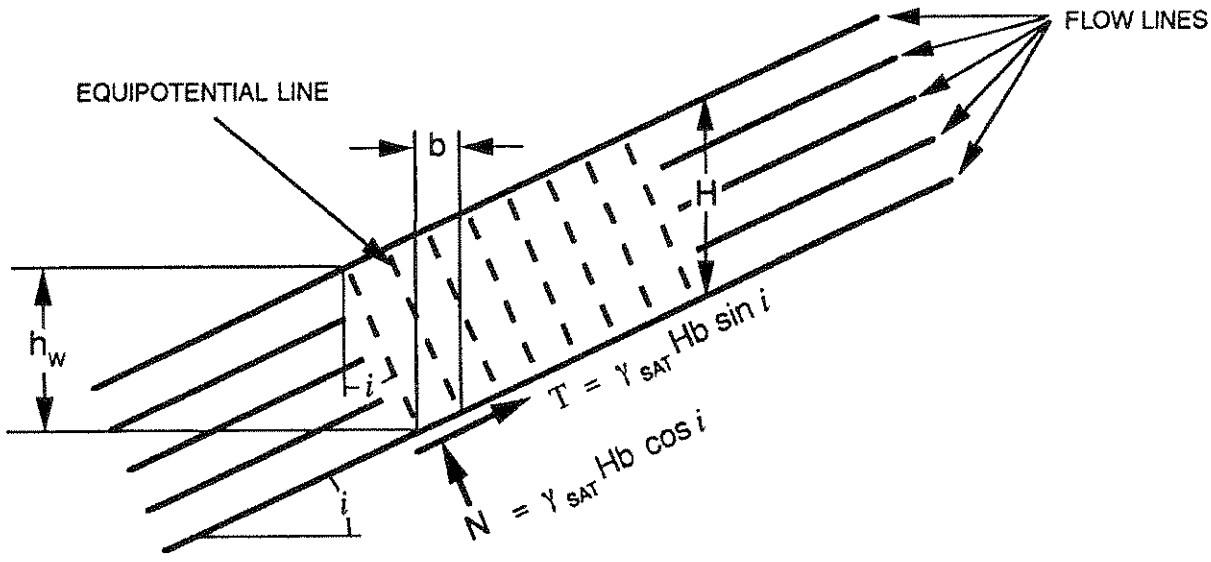


Slope A -2 North

cohesion	c	=	198	psf
angle of internal friction	ϕ	=	21	degrees
	$\tan \phi$	=	0.384	
slope angle (h:v)			2.4	h : 1 v
slope angle	i	=	22.6	degrees
	$\sin i$	=	0.385	
	$\cos i$	=	0.923	
	$\tan i$	=	0.417	
	$\cos^2 i$	=	0.852	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{238.30}{88.04734}$ = **2.71**

SURFICIAL SLOPE STABILITY

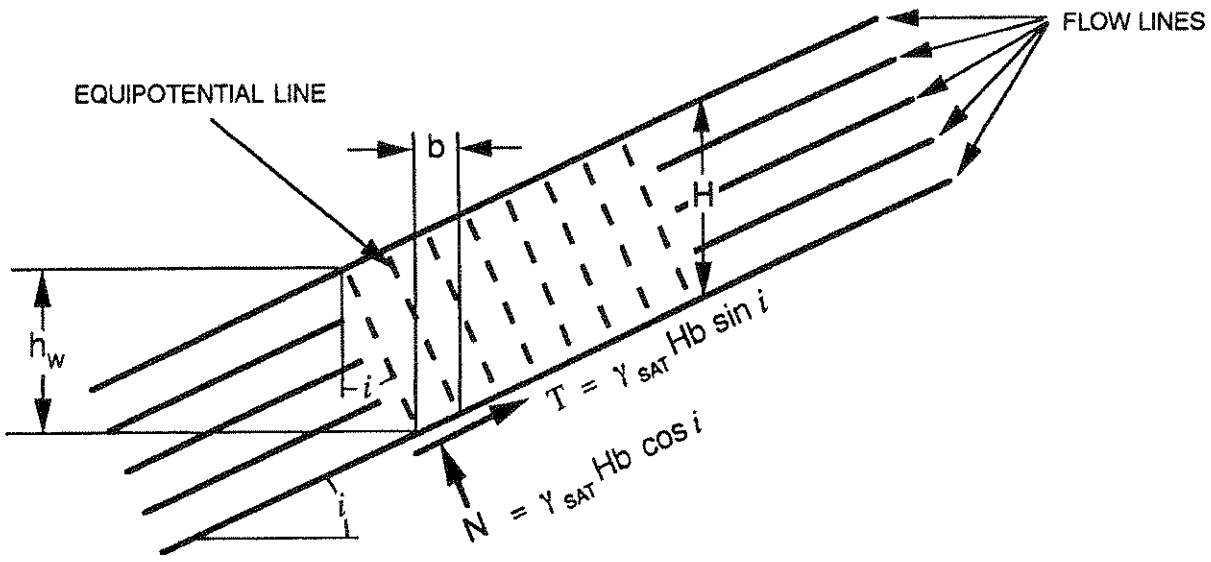


Slope A -2 East

cohesion	c	=	198	psf
angle of internal friction	ϕ	=	21	degrees
	$\tan \phi$	=	0.384	
slope angle (h:v)			2.3 h : 1 v	
slope angle	i	=	23.4	degrees
	$\sin i$	=	0.397	
	$\cos i$	=	0.918	
	$\tan i$	=	0.433	
	$\cos^2 i$	=	0.842	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{237.83}{90.41524}$ = **2.63**

SURFICIAL SLOPE STABILITY

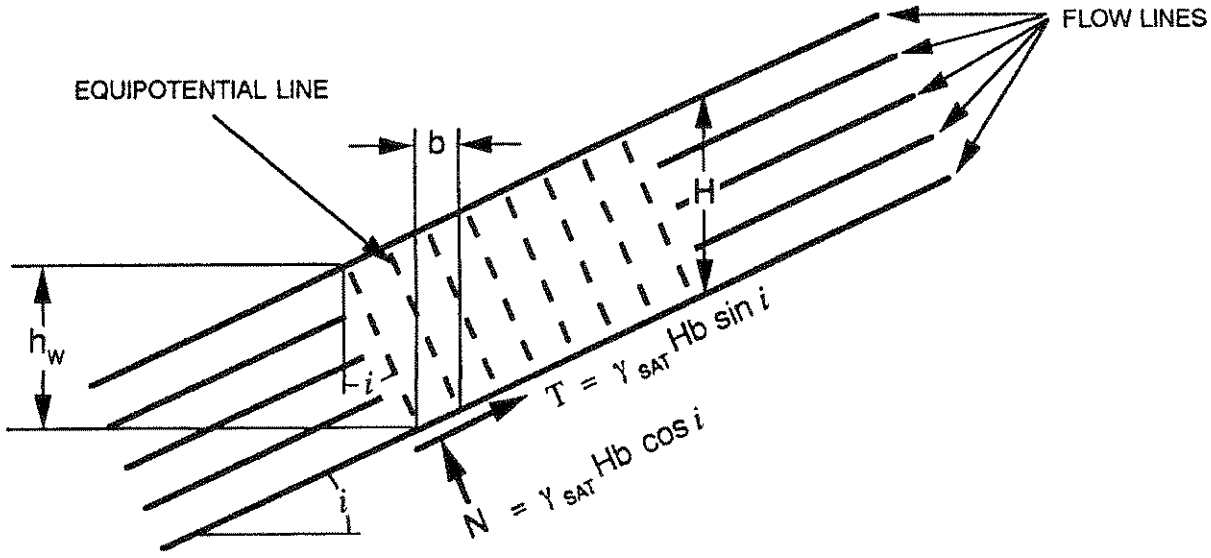


Slope A -2 South

cohesion	c	=	198	psf
angle of internal friction	ϕ	=	21	degrees
	$\tan \phi$	=	0.384	
slope angle (h:v)			2.2 h : 1 v	
slope angle	i	=	24.8	degrees
	$\sin i$	=	0.420	
	$\cos i$	=	0.907	
	$\tan i$	=	0.463	
	$\cos^2 i$	=	0.823	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{236.94}{94.54956}$ = **2.51**

SURFICIAL SLOPE STABILITY

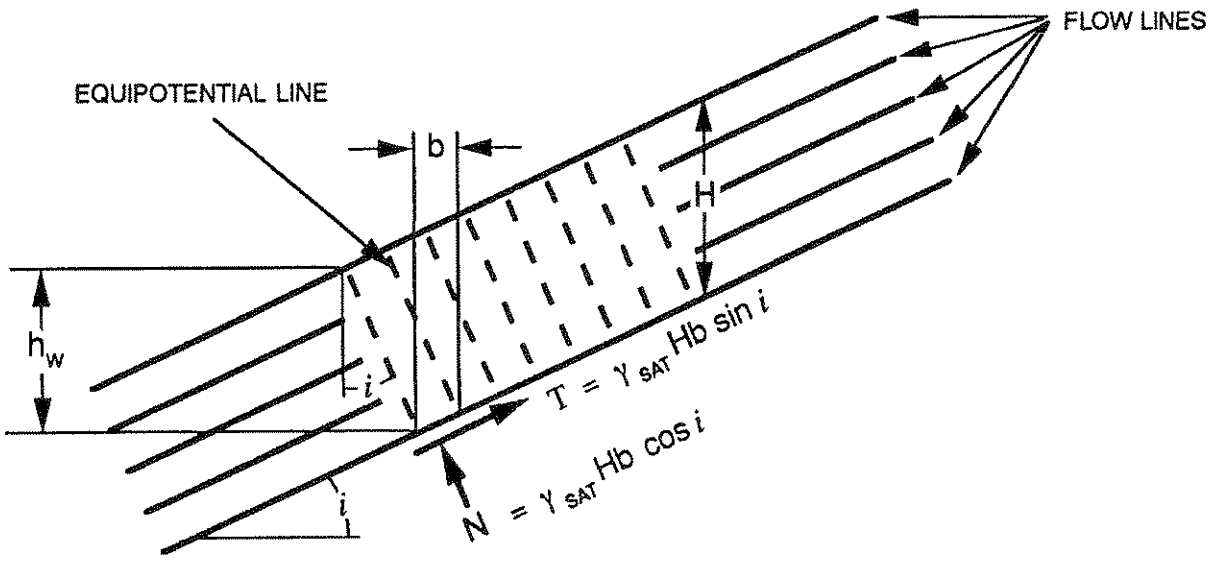


Draw A -3

cohesion	c	=	198	psf
angle of internal friction	ϕ	=	21	degrees
	$\tan \phi$	=	0.384	
slope angle (h:v)			2.8 h : 1 v	
slope angle	i	=	19.9	degrees
	$\sin i$	=	0.341	
	$\cos i$	=	0.940	
	$\tan i$	=	0.362	
	$\cos^2 i$	=	0.884	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{260.71}{119.1422}$ = **2.19**

SURFICIAL SLOPE STABILITY

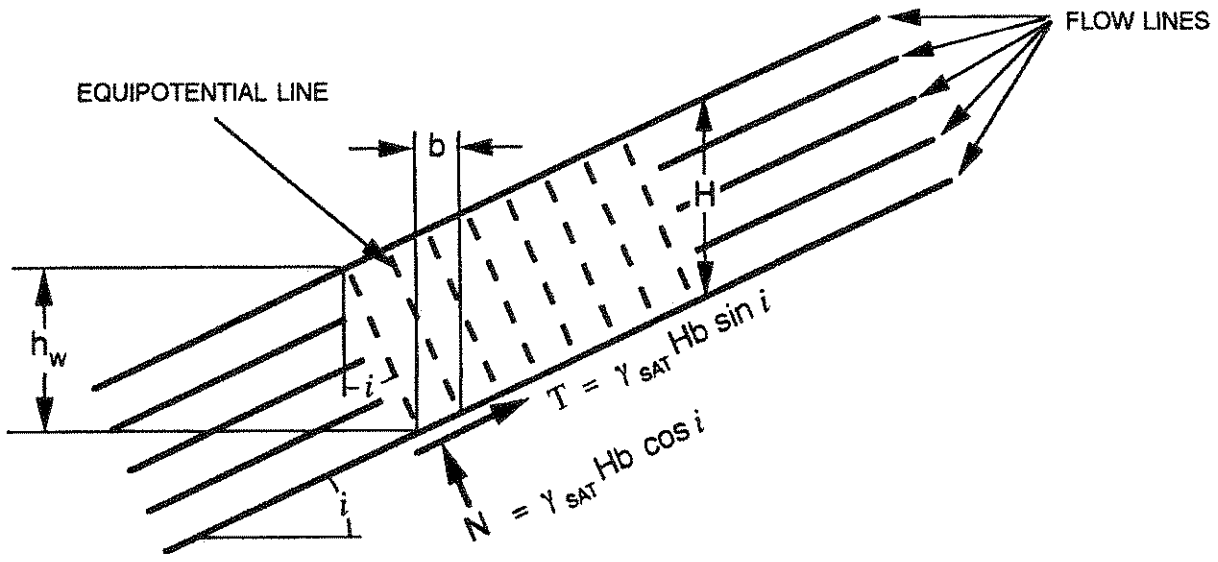


Slope B -3

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			1.8 h : 1 v	
slope angle	i	=	29.1	degrees
	$\sin i$	=	0.486	
	$\cos i$	=	0.874	
	$\tan i$	=	0.556	
	$\cos^2 i$	=	0.764	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{240.05}{157.9245}$ = **1.52**

SURFICIAL SLOPE STABILITY

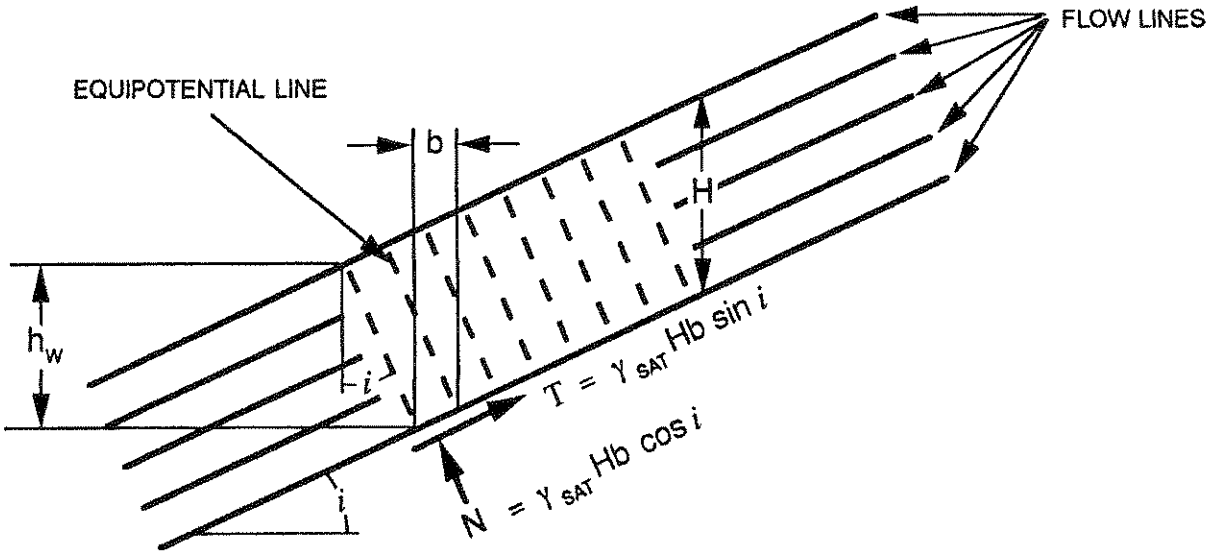


Slope B -3 East

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			1.8	h : 1 v
slope angle	i	=	29.1	degrees
	$\sin i$	=	0.486	
	$\cos i$	=	0.874	
	$\tan i$	=	0.556	
	$\cos^2 i$	=	0.764	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i} = \dfrac{240.05}{157.9245} =$ **1.52**

SURFICIAL SLOPE STABILITY

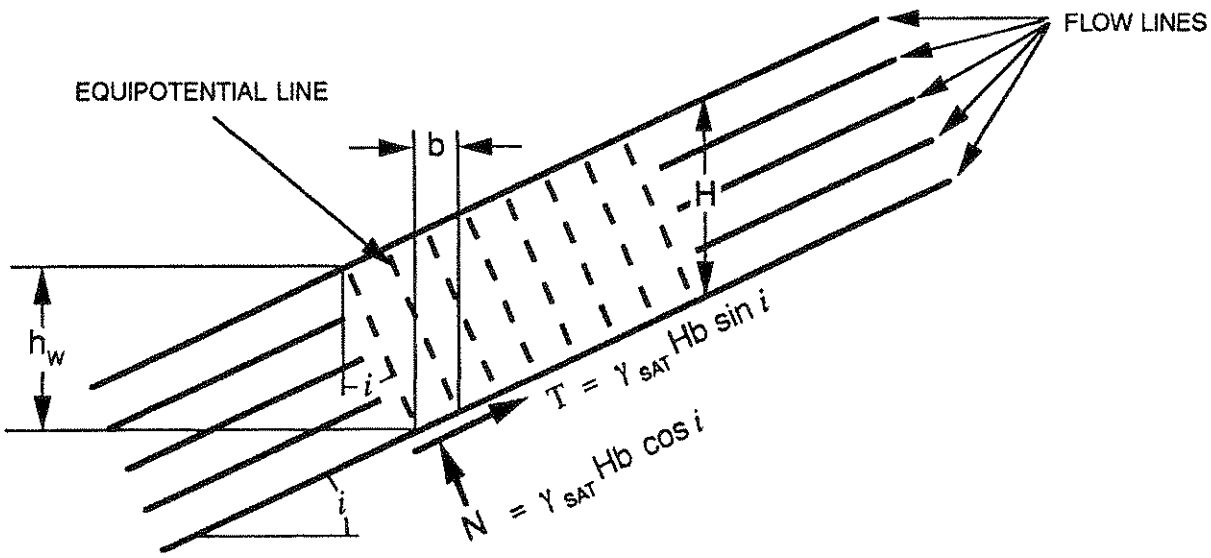


Slope B -2

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	tan ϕ	=	0.404	
slope angle (h:v)			2.3 h : 1 v	
slope angle	i	=	23.2	degrees
	sin i	=	0.394	
	cos i	=	0.919	
	tan i	=	0.429	
	$\cos^2 i$	=	0.844	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{225.03}{89.88163}$ = **2.50**

SURFICIAL SLOPE STABILITY

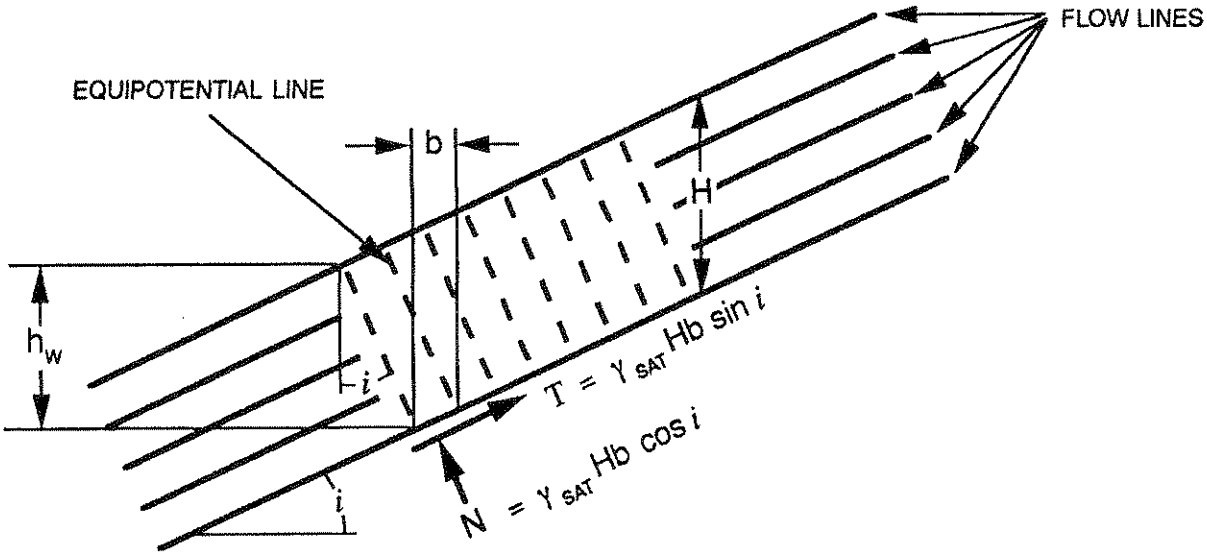


Draw B -4 Lower

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			2.7 h : 1 v	
slope angle	i	=	20.3	degrees
	$\sin i$	=	0.347	
	$\cos i$	=	0.938	
	$\tan i$	=	0.370	
	$\cos^2 i$	=	0.879	
vertical depth of slip surface	H	=	4	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{270.54}{161.544}$ = **1.67**

SURFICIAL SLOPE STABILITY

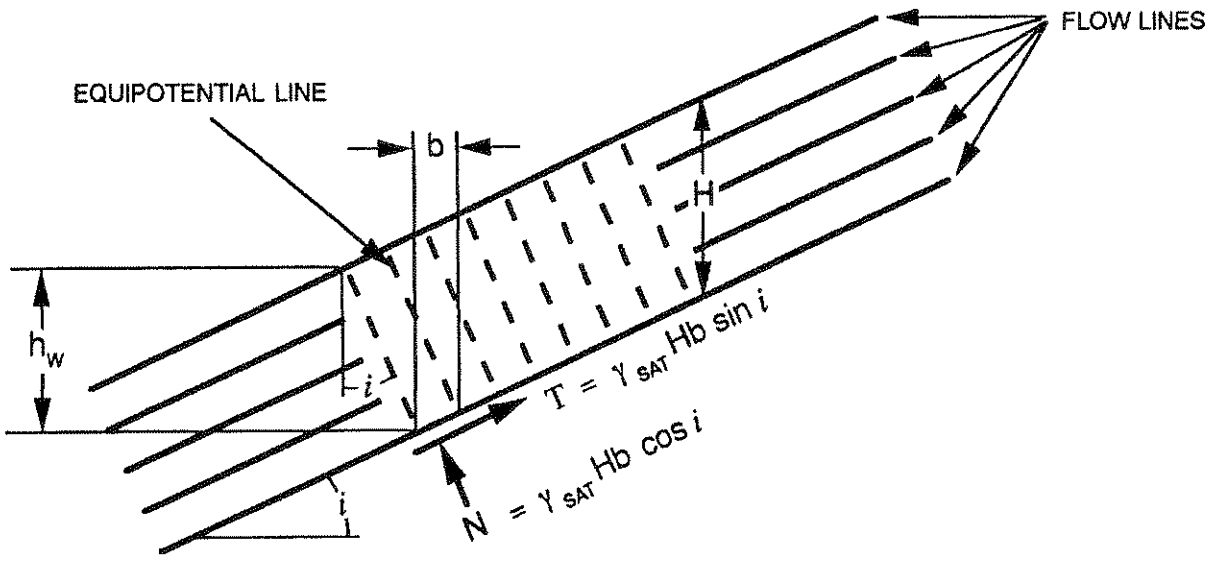


Draw B -3 Middle

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			2.4 h : 1 v	
slope angle	i	=	23.1	degrees
	$\sin i$	=	0.392	
	$\cos i$	=	0.920	
	$\tan i$	=	0.426	
	$\cos^2 i$	=	0.847	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{246.22}{134.0284}$ = **1.84**

SURFICIAL SLOPE STABILITY

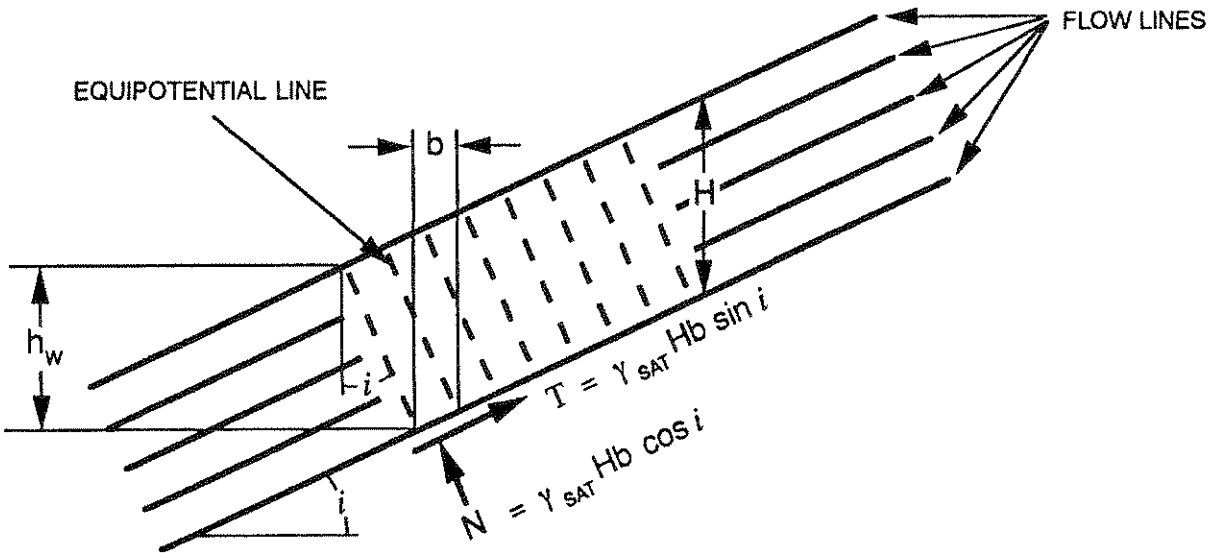


Draw B -4 upper

cohesion	c	=	183	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			2.4 h : 1 v	
slope angle	i	=	22.6	degrees
	$\sin i$	=	0.385	
	$\cos i$	=	0.923	
	$\tan i$	=	0.417	
	$\cos^2 i$	=	0.852	
vertical depth of slip surface	H	=	4	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{267.83}{176.0947}$ = **1.52**

SURFICIAL SLOPE STABILITY

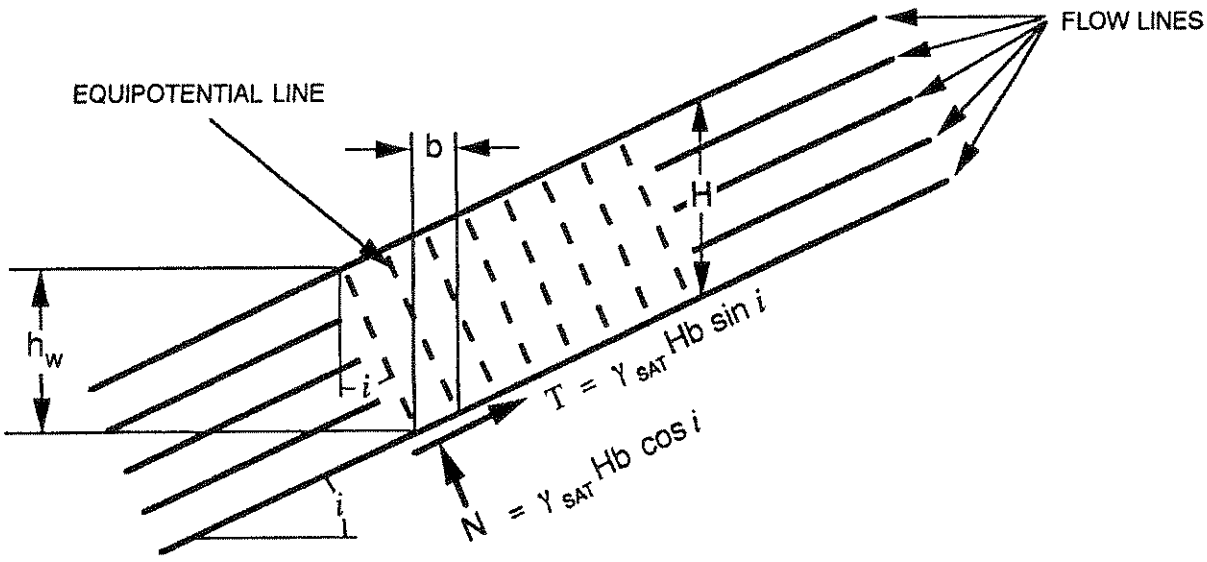


Slope C -2 North

cohesion	c	=	156	psf
angle of internal friction	ϕ	=	24	degrees
	$\tan \phi$	=	0.445	
slope angle (h:v)			1.8 h : 1 v	
slope angle	i	=	28.8	degrees
	$\sin i$	=	0.482	
	$\cos i$	=	0.876	
	$\tan i$	=	0.549	
	$\cos^2 i$	=	0.768	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{198.13}{104.6656}$ = **1.89**

SURFICIAL SLOPE STABILITY

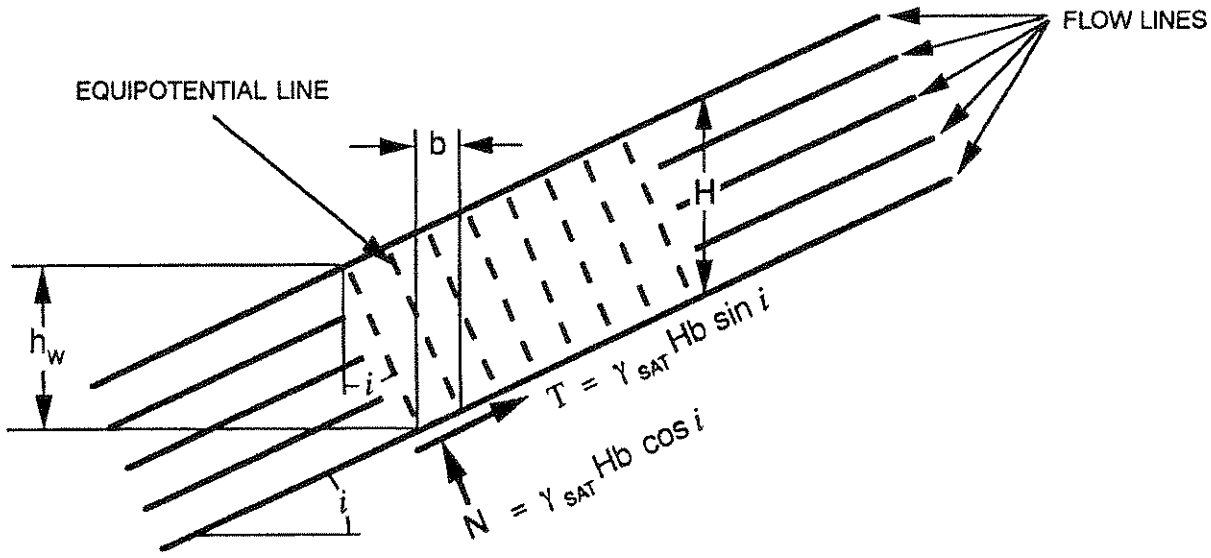


Slope C -2 South

cohesion	c	=	156	psf
angle of internal friction	ϕ	=	24	degrees
	$\tan \phi$	=	0.445	
slope angle (h:v)			1.7	h : 1 v
slope angle	i	=	30.5	degrees
	$\sin i$	=	0.507	
	$\cos i$	=	0.862	
	$\tan i$	=	0.588	
	$\cos^2 i$	=	0.743	
vertical depth of slip surface	H	=	2	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{196.75}{108.3805}$ = **1.82**

SURFICIAL SLOPE STABILITY

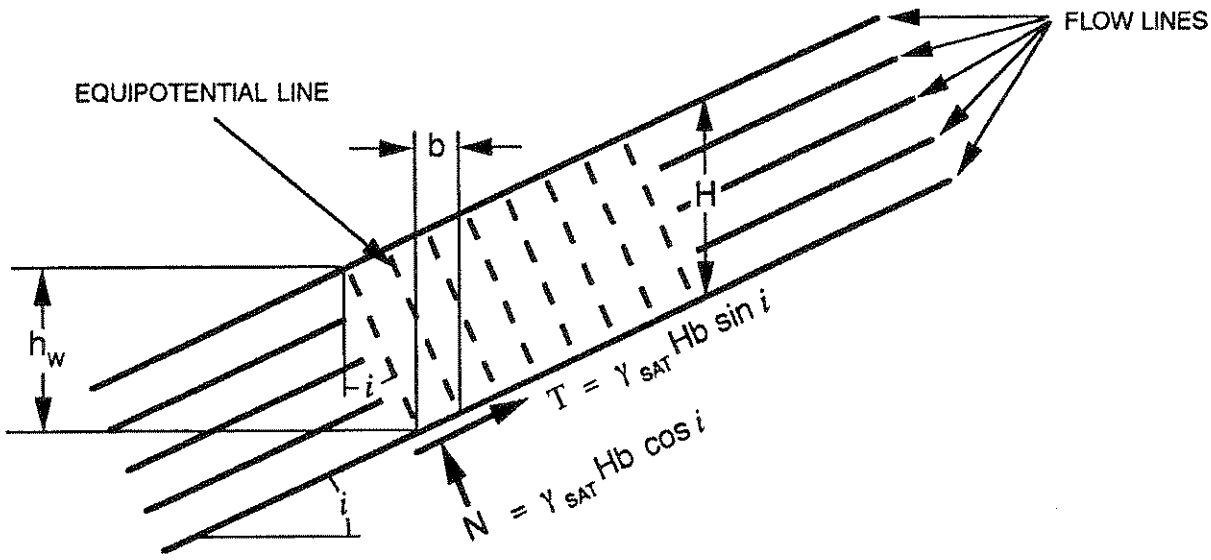


Draw C -4

cohesion	c	=	156	psf
angle of internal friction	ϕ	=	24	degrees
	$\tan \phi$	=	0.445	
slope angle (h:v)			1.9	h : 1 v
slope angle	i	=	27.6	degrees
	$\sin i$	=	0.464	
	$\cos i$	=	0.886	
	$\tan i$	=	0.524	
	$\cos^2 i$	=	0.785	
vertical depth of slip surface	H	=	4	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{242.10}{203.8166}$ = **1.19**

SURFICIAL SLOPE STABILITY

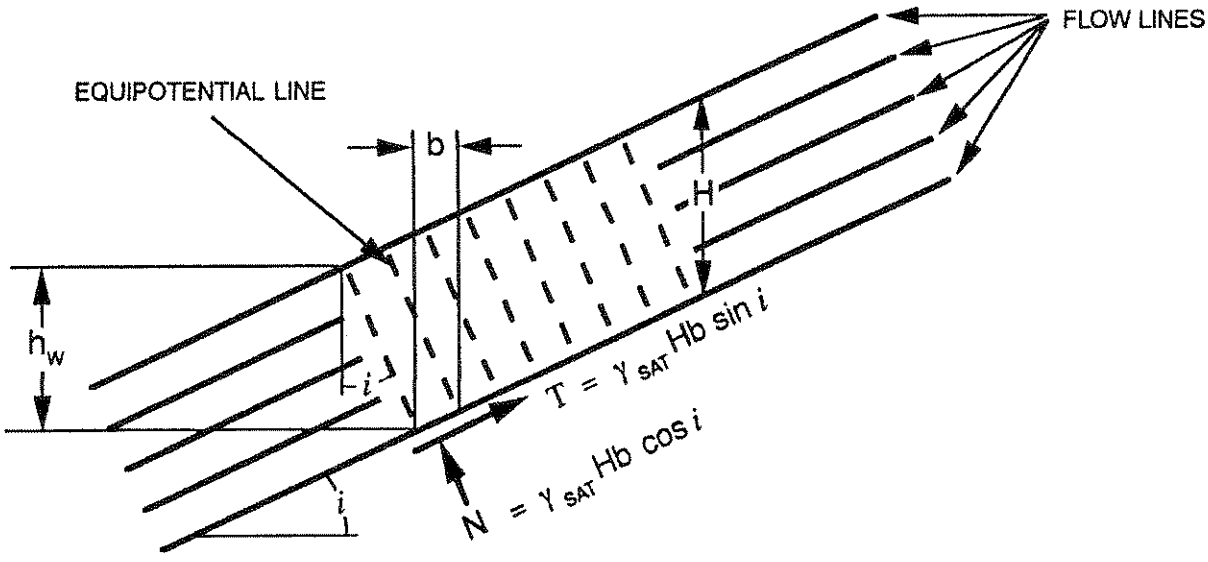


Slope D -3

cohesion	c	=	167	psf
angle of internal friction	ϕ	=	24	degrees
	$\tan \phi$	=	0.445	
slope angle (h:v)			1.9	h : 1 v
slope angle	i	=	27.6	degrees
	$\sin i$	=	0.464	
	$\cos i$	=	0.886	
	$\tan i$	=	0.524	
	$\cos^2 i$	=	0.785	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{231.58}{152.8625}$ = **1.51**

SURFICIAL SLOPE STABILITY

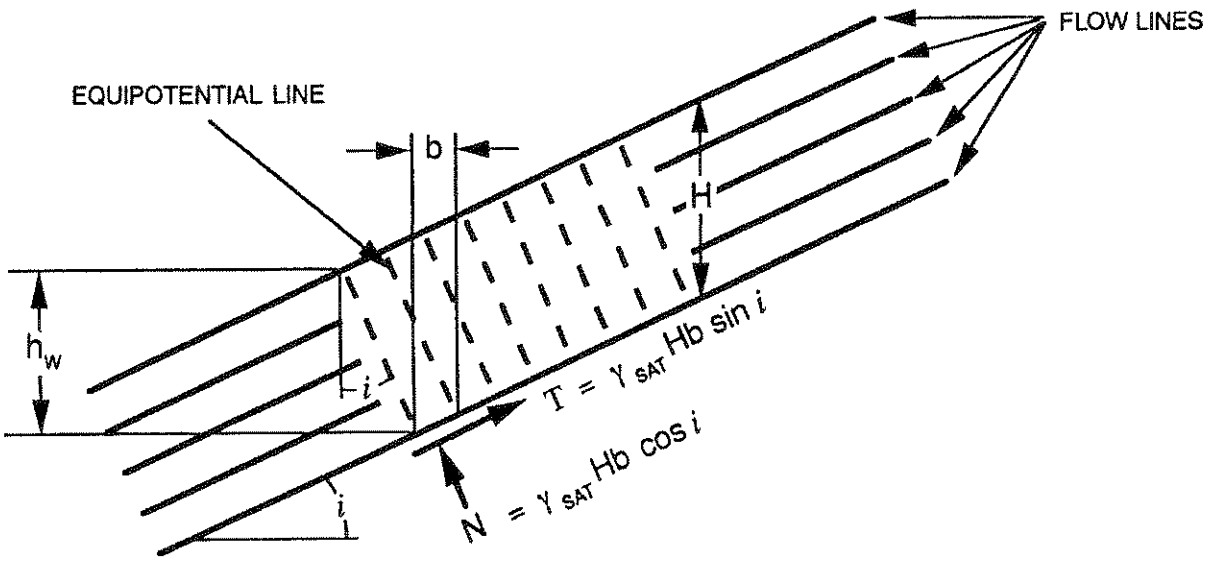


Draw D -3

cohesion	c	=	167	psf
angle of internal friction	ϕ	=	24	degrees
	$\tan \phi$	=	0.445	
slope angle (h:v)			3.4 h : 1 v	
slope angle	i	=	16.6	degrees
	$\sin i$	=	0.285	
	$\cos i$	=	0.958	
	$\tan i$	=	0.298	
	$\cos^2 i$	=	0.919	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{242.58}{101.7055}$ = **2.39**

SURFICIAL SLOPE STABILITY

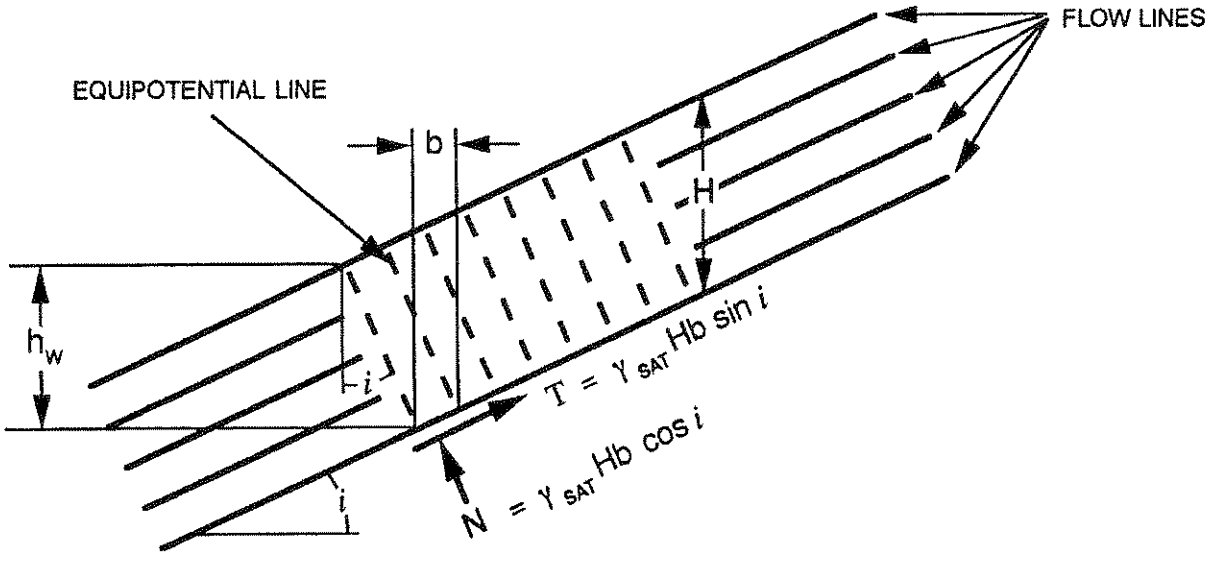


Slope E -3

cohesion	c	=	226	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			2.3 h : 1 v	
slope angle	i	=	23.6	degrees
	$\sin i$	=	0.400	
	$\cos i$	=	0.916	
	$\tan i$	=	0.437	
	$\cos^2 i$	=	0.840	
vertical depth of slip surface	H	=	3	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{288.71}{136.4296}$ = **2.12**

SURFICIAL SLOPE STABILITY



Draw E -4

cohesion	c	=	226	psf
angle of internal friction	ϕ	=	22	degrees
	$\tan \phi$	=	0.404	
slope angle (h:v)			3.0 h : 1 v	
slope angle	i	=	18.7	degrees
	$\sin i$	=	0.320	
	$\cos i$	=	0.947	
	$\tan i$	=	0.338	
	$\cos^2 i$	=	0.898	
vertical depth of slip surface	H	=	4	feet
	γ_{SAT}	=	124	pcf
	γ'	=	61.6	pcf

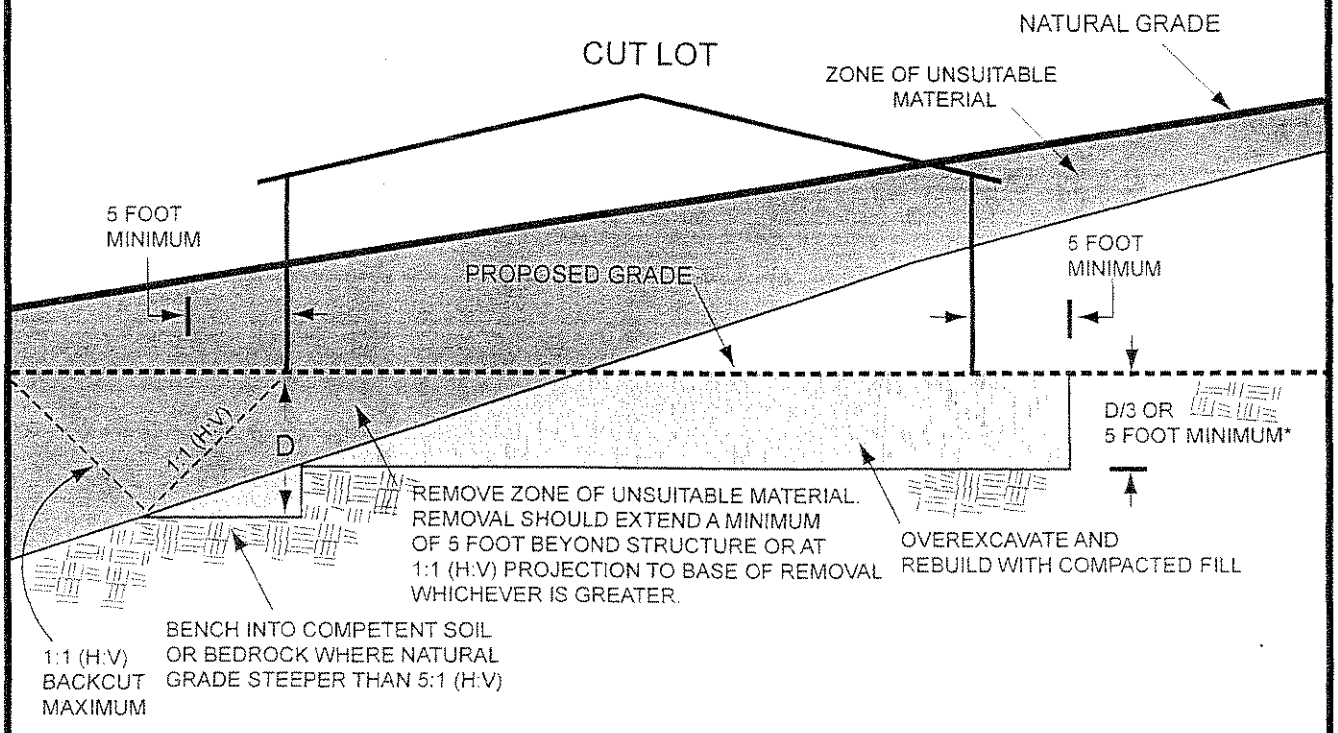
Factor of Safety = $\dfrac{c + \gamma' H \cos^2 i \tan \phi}{\gamma H \sin i \cos i}$ = $\dfrac{315.35}{150.4016}$ = **2.10**

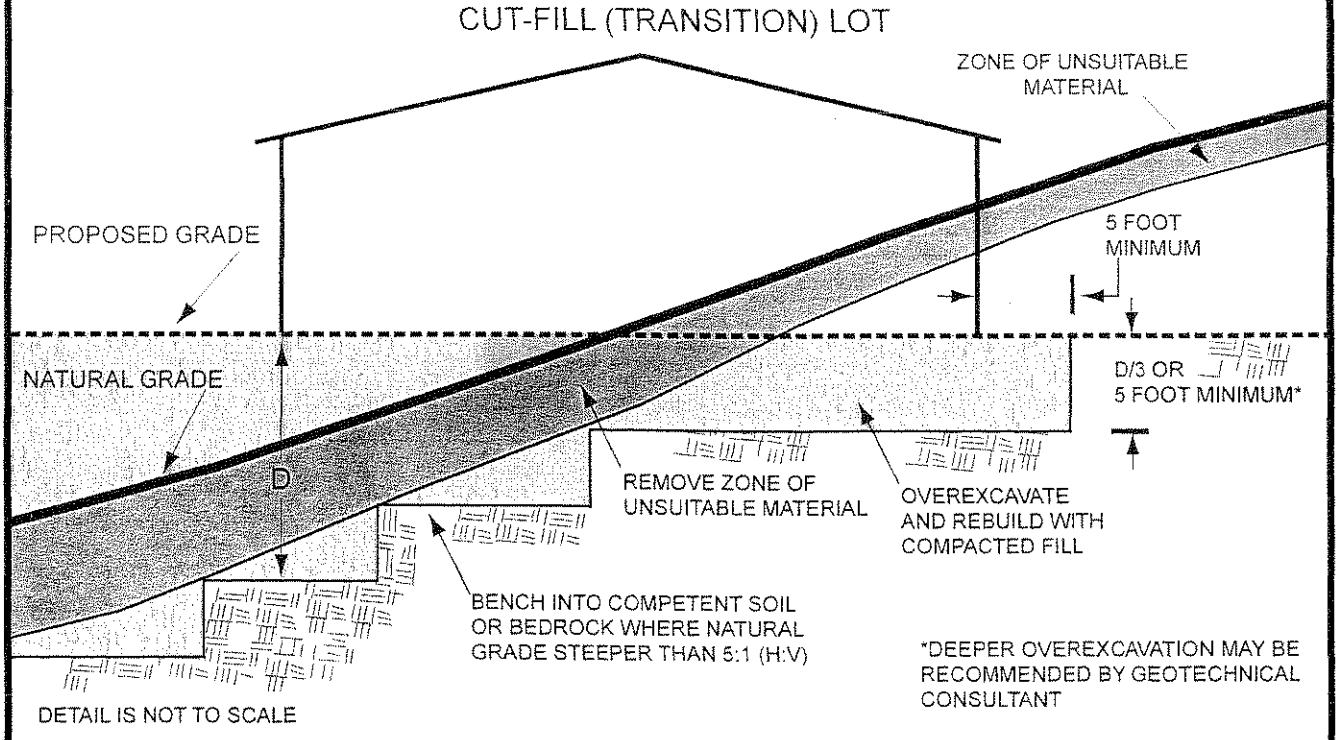
APPENDIX D

TYPICAL CONSTRUCTION DETAILS

BUILDING PAD OVEREXCAVATION

TYPICAL DETAIL

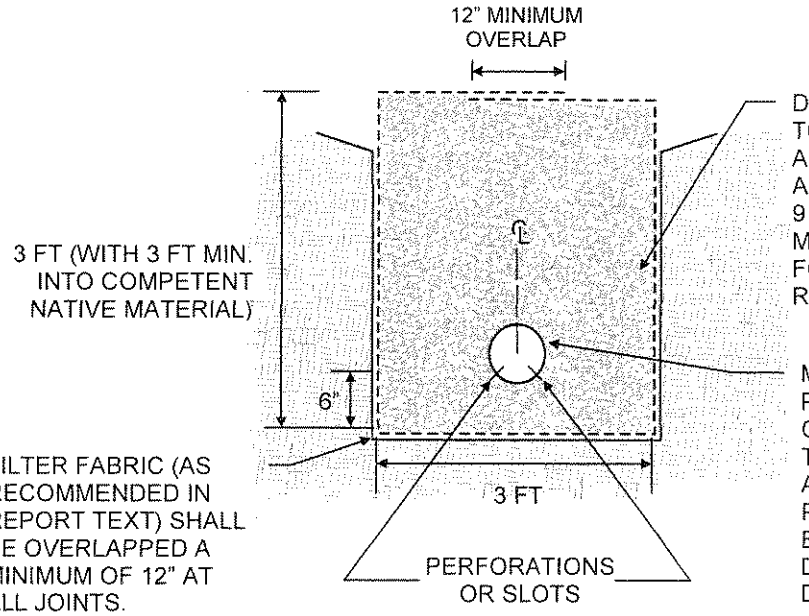




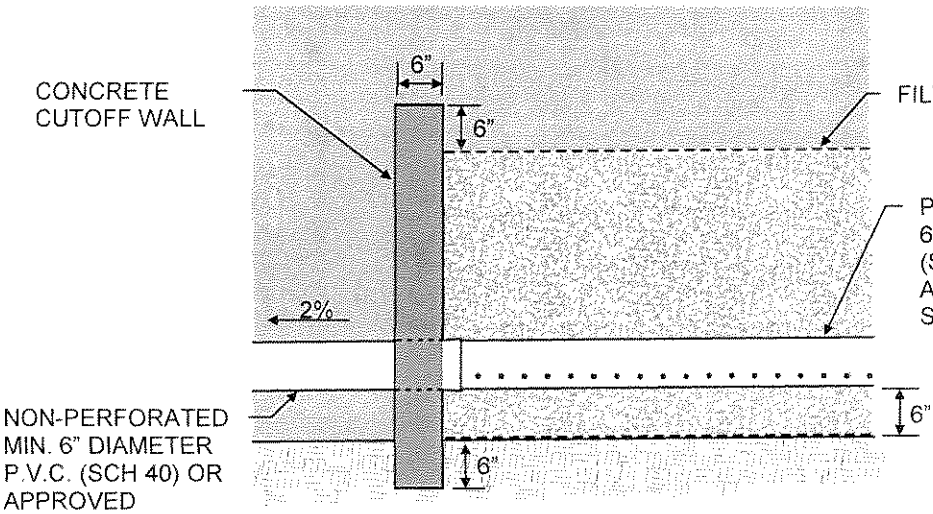
GORIAN & ASSOCIATES, INC.

overex1.ai

CANYON SUBDRAIN AND CUTOFF WALL
TYPICAL DETAIL



NOTE: CUTOFF WALL SHOULD EXTEND MINIMUM 6" BEYOND SUBDRAIN MATERIAL (IN ALL DIRECTIONS)



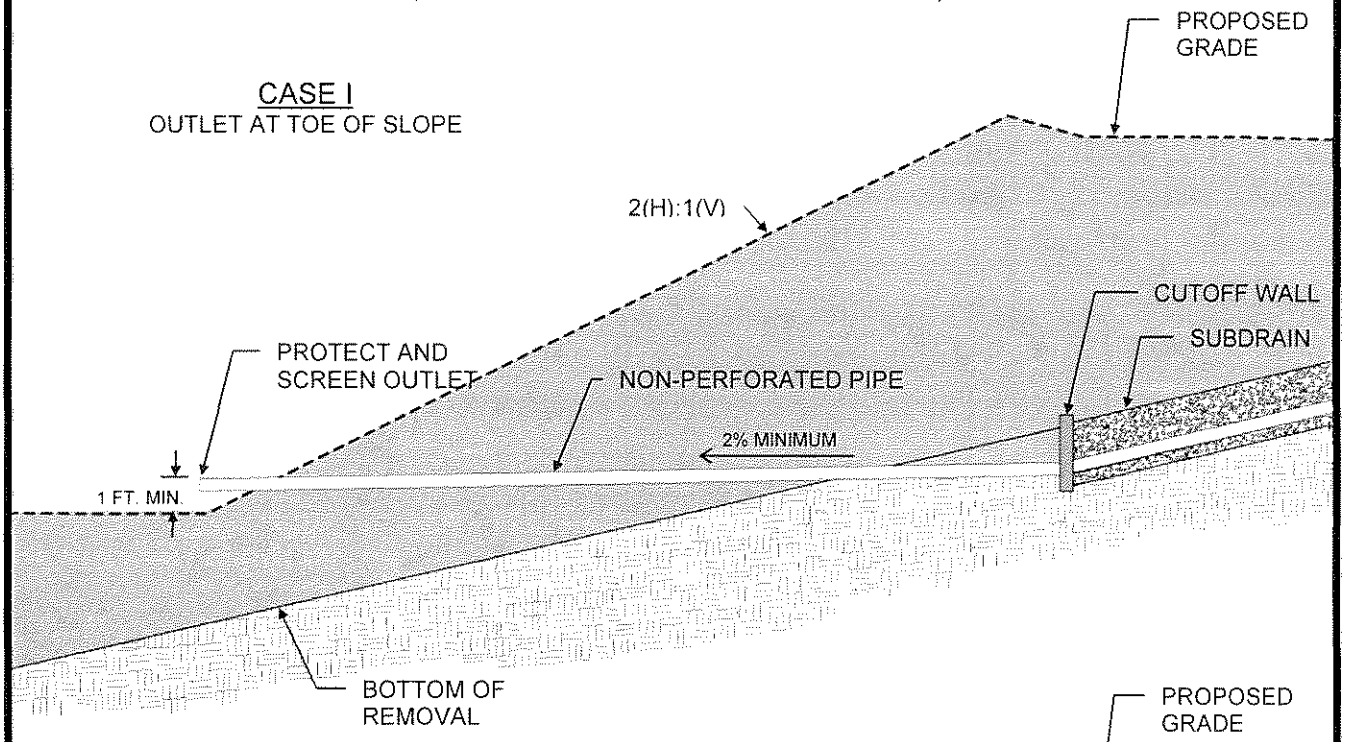
DETAIL IS NOT TO SCALE

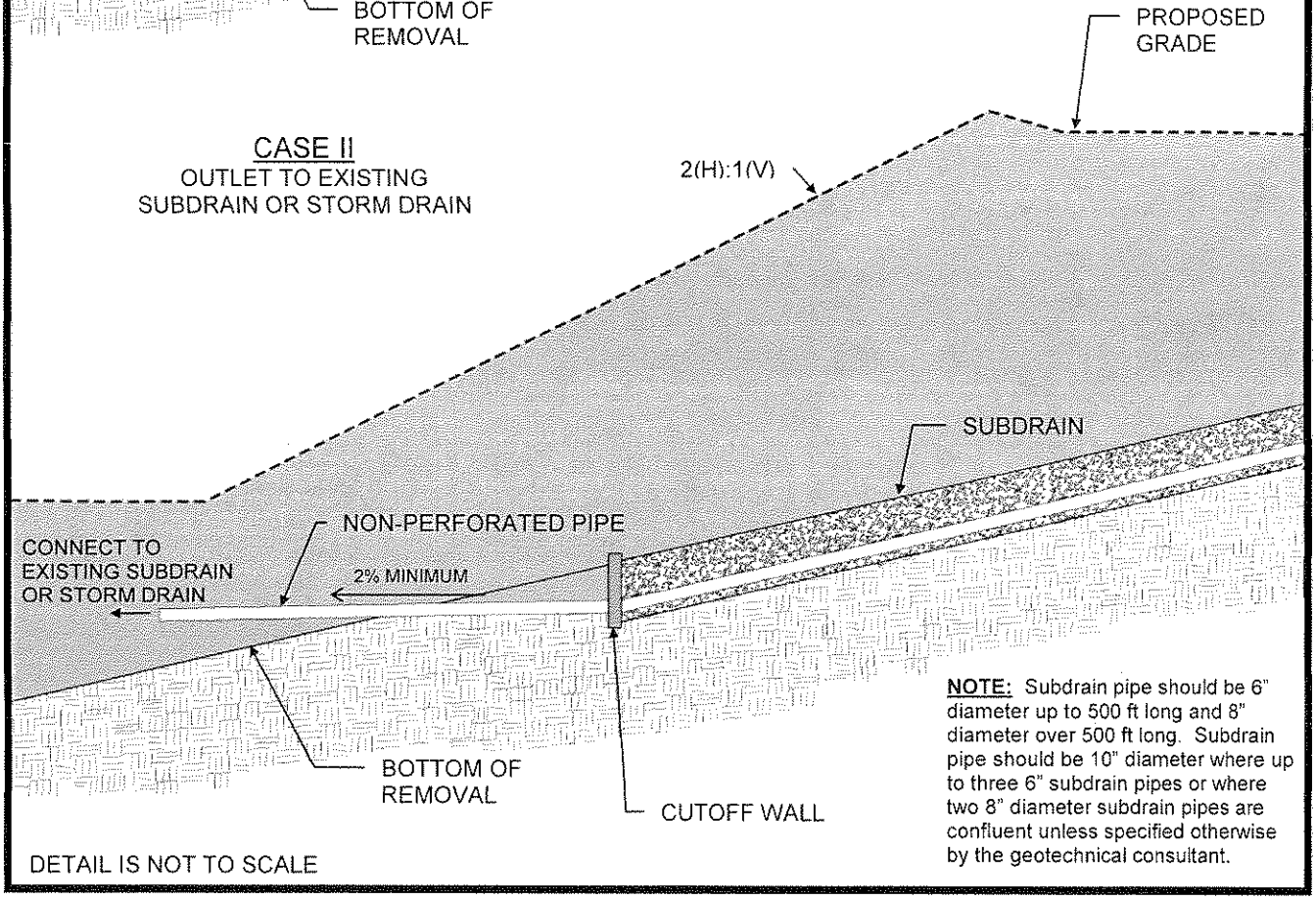
NOTE: Subdrain pipe should be 6" diameter up to 500 ft long and 8" diameter over 500 ft long. Subdrain pipe should be 10" diameter where up to three 6" subdrain pipes or where two 8" diameter subdrain pipes are confluent unless specified otherwise by the geotechnical consultant. (See soils report)

GORIAN & ASSOCIATES, INC

CANYON SUBDRAIN OUTLET
TYPICAL DETAIL

(GENERALIZED LONGITUDINAL SECTION)





NOTE: Subdrain pipe should be 6" diameter up to 500 ft long and 8" diameter over 500 ft long. Subdrain pipe should be 10" diameter where up to three 6" subdrain pipes or where two 8" diameter subdrain pipes are confluent unless specified otherwise by the geotechnical consultant.

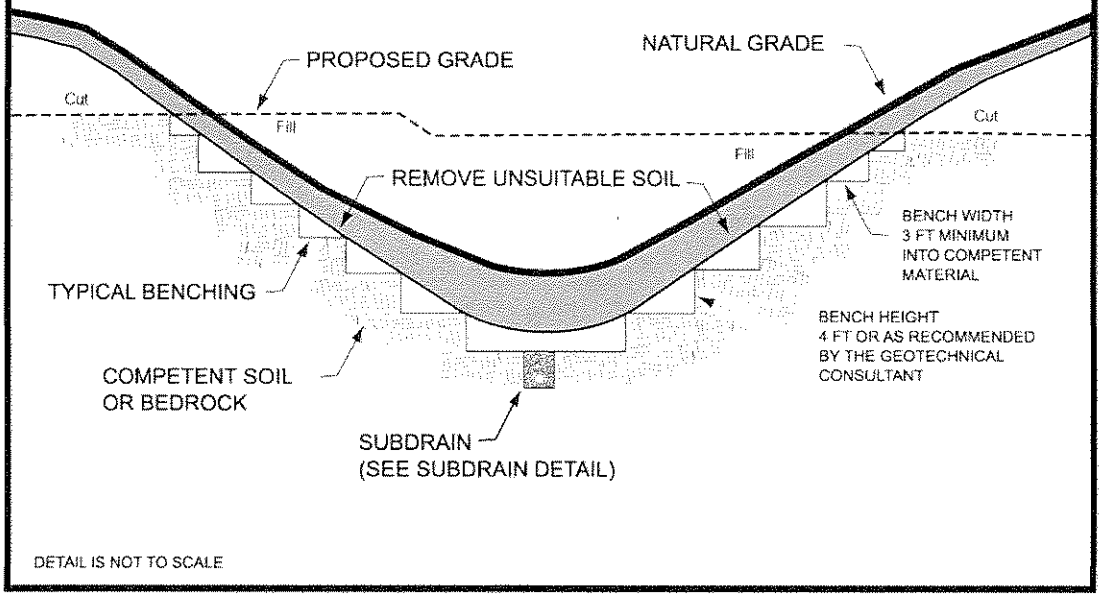
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GORIAN & ASSOCIATES, INC.

CANYON CLEANOUT AND BENCHING

TYPICAL DETAIL

(GENERALIZED TRANSVERSE SECTION)

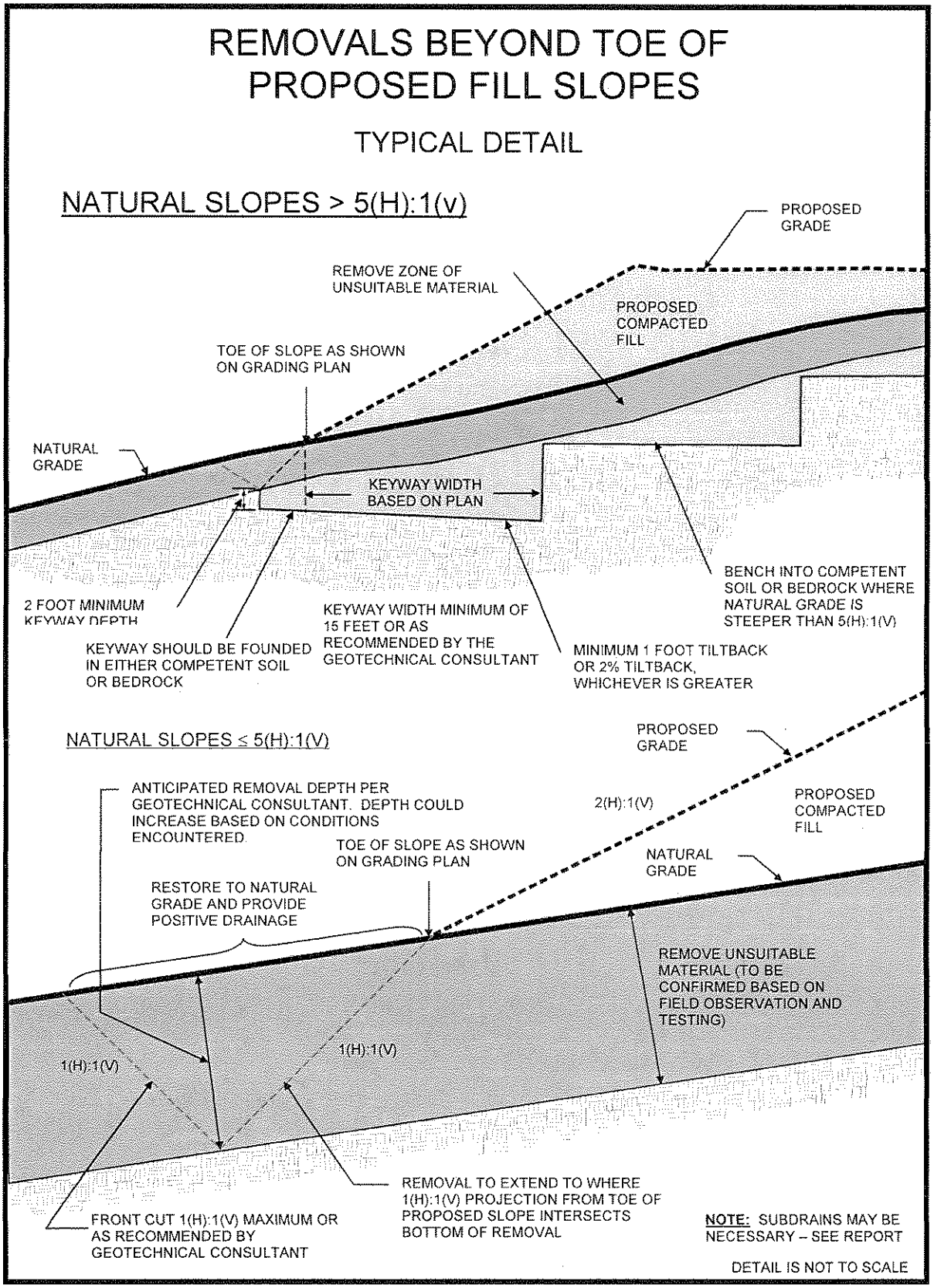


DETAIL IS NOT TO SCALE

GORIAN & ASSOCIATES, INC.

REMOVALS BEYOND TOE OF PROPOSED FILL SLOPES

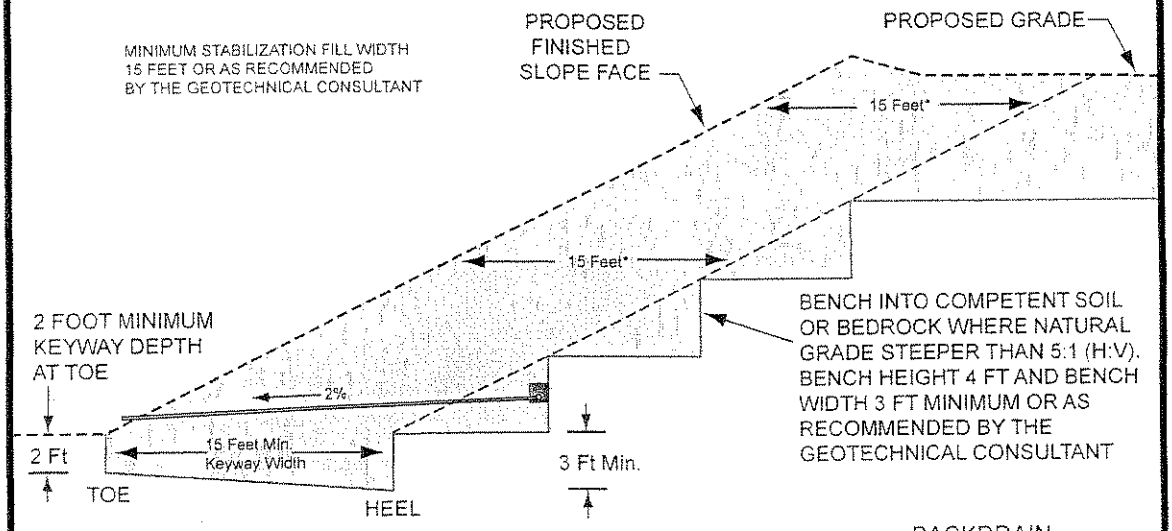
TYPICAL DETAIL



GORIAN & ASSOCIATES, INC.

STABILIZATION FILL

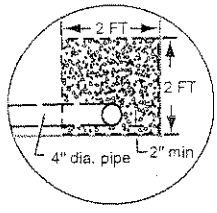
TYPICAL DETAIL



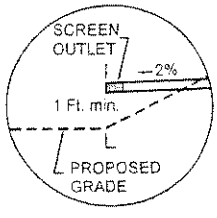
NOTES:

1. KEYWAY MINIMUM WIDTH 15 FEET OR AS RECOMMENDED BY THE GEOTECHNICAL CONSULTANT. KEYWAY SHOULD BE FOUNDED IN EITHER FIRM NATURAL SOIL OR BEDROCK.
2. TILT KEYWAY INTO SLOPE; HEEL MINIMUM 1 FOOT DEEPER THAN TOE OR 2% GRADE TOWARD HEEL (WHICHEVER IS GREATER).
3. TYPICAL BACKDRAIN 4 CUBIC FEET OF CLEAN 3/4 INCH GRAVEL PER LINEAL FOOT OF BACKDRAIN. GRAVEL SHOULD BE WRAPPED IN FILTER FABRIC.
4. PIPE SHOULD BE 4 INCH PVC, ABS, OR APPROVED SUBSTITUTE (PVC SCHEDULE 40, ABS - SDR 35).
5. BACKDRAIN PIPE SHOULD BE PERFORATED AND PERFORATIONS SHOULD BE PLACED FACING DOWN.
6. OUTLET PIPE SHOULD BE NON-PERFORATED AND CONNECTED TO THE PERFORATED PIPE BY "L" OR "T" JOINTS.
7. BACKDRAIN SHOULD EXTEND LENGTH OF STABILIZATION FILL, SHOULD BE SLOPED TOWARD OUTLETS, AND OUTLETS PROVIDED EVERY 100 FEET OR AS SPECIFIED BY THE GEOTECHNICAL CONSULTANT.

BACKDRAIN



BACKDRAIN OUTLET

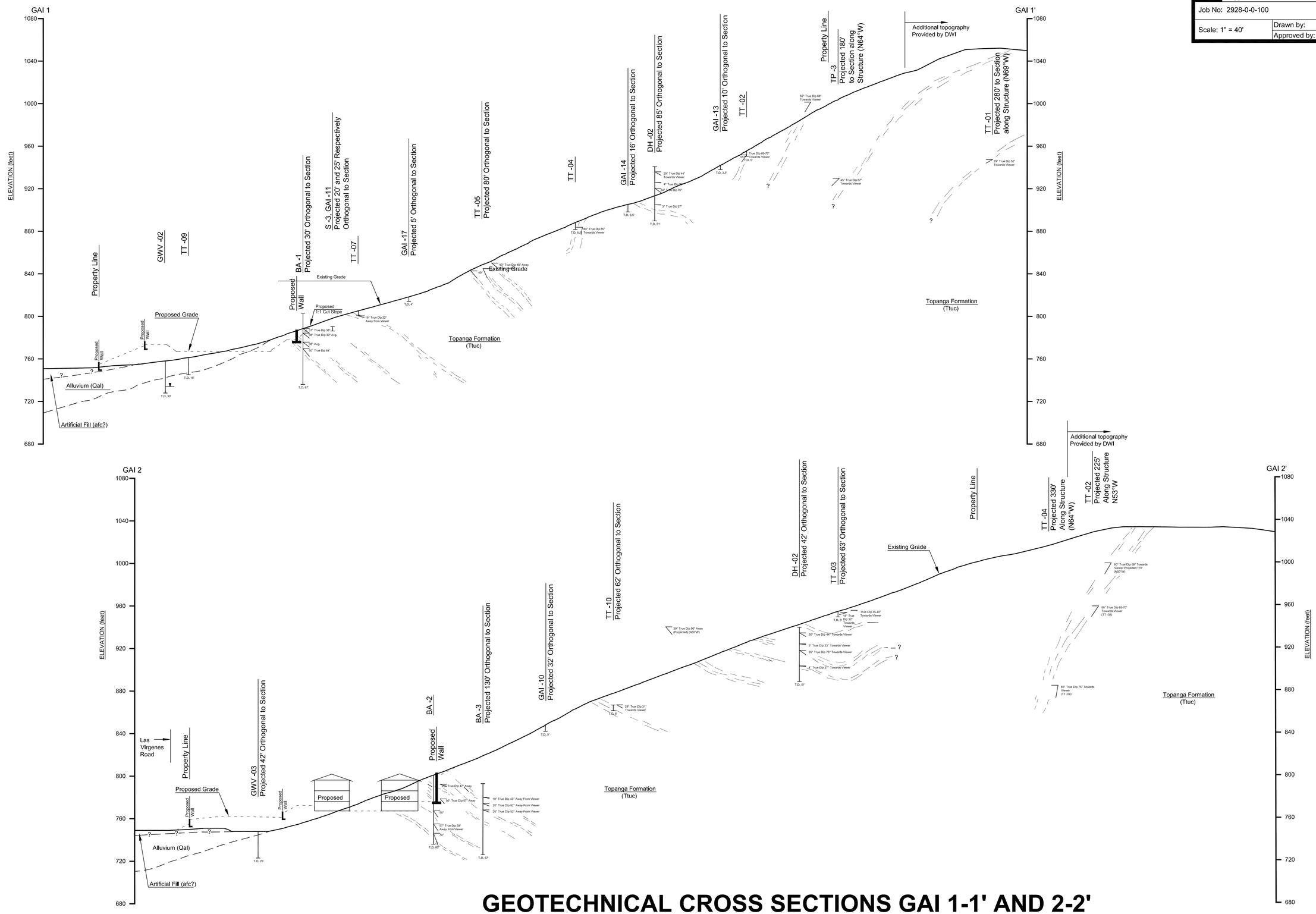


DETAIL IS NOT TO SCALE

stabfil.ai

GORIAN & ASSOCIATES, INC.

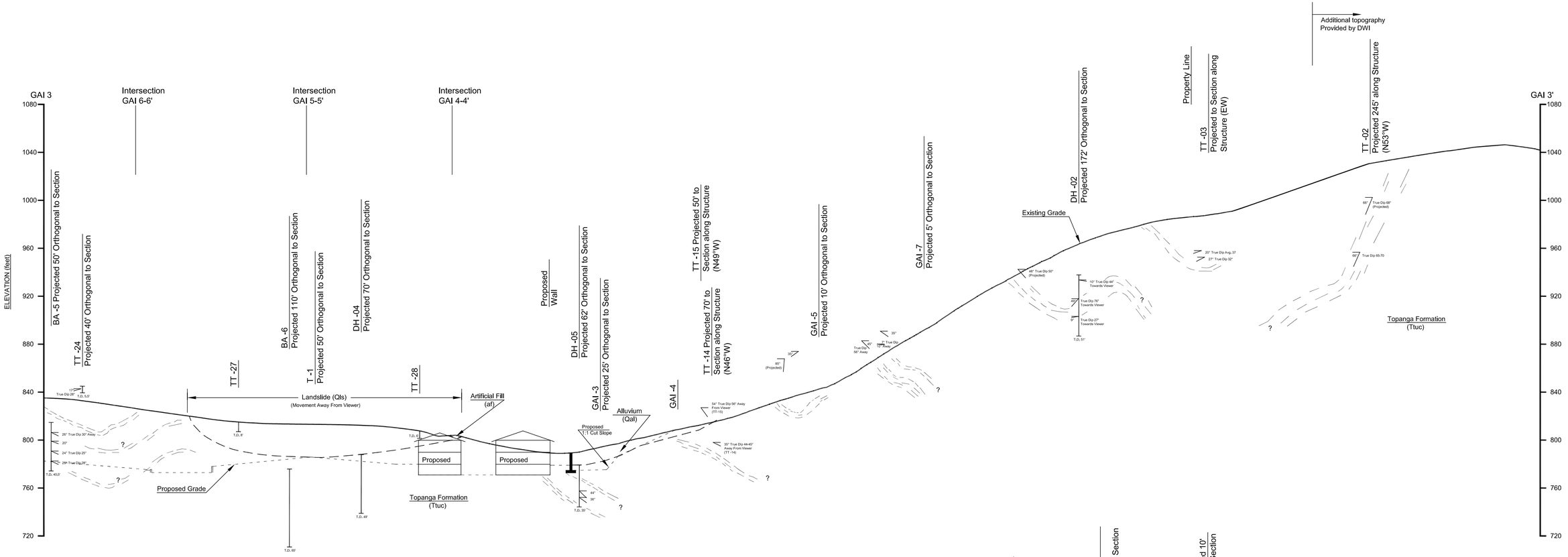
Gorian & Associates, Inc. *Applied Earth Sciences*		
Job No: 2928-0-0-100		Date: April 2012
Scale: 1" = 40'	Drawn by:	PLATE 2
	Approved by:	

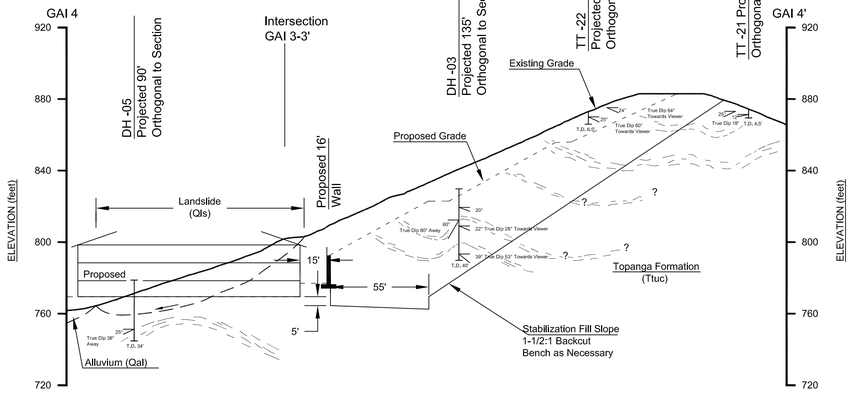


GEOTECHNICAL CROSS SECTIONS GAI 1-1' AND 2-2'

GEOTECHNICAL CROSS SECTIONS GAI 3-3' AND 4-4'

Gorian & Associates, Inc. *Applied Earth Sciences*		
Job No: 2928-0-0-100		Date: April 2012
Scale: 1" = 40'	Drawn by:	PLATE 3
	Approved by:	

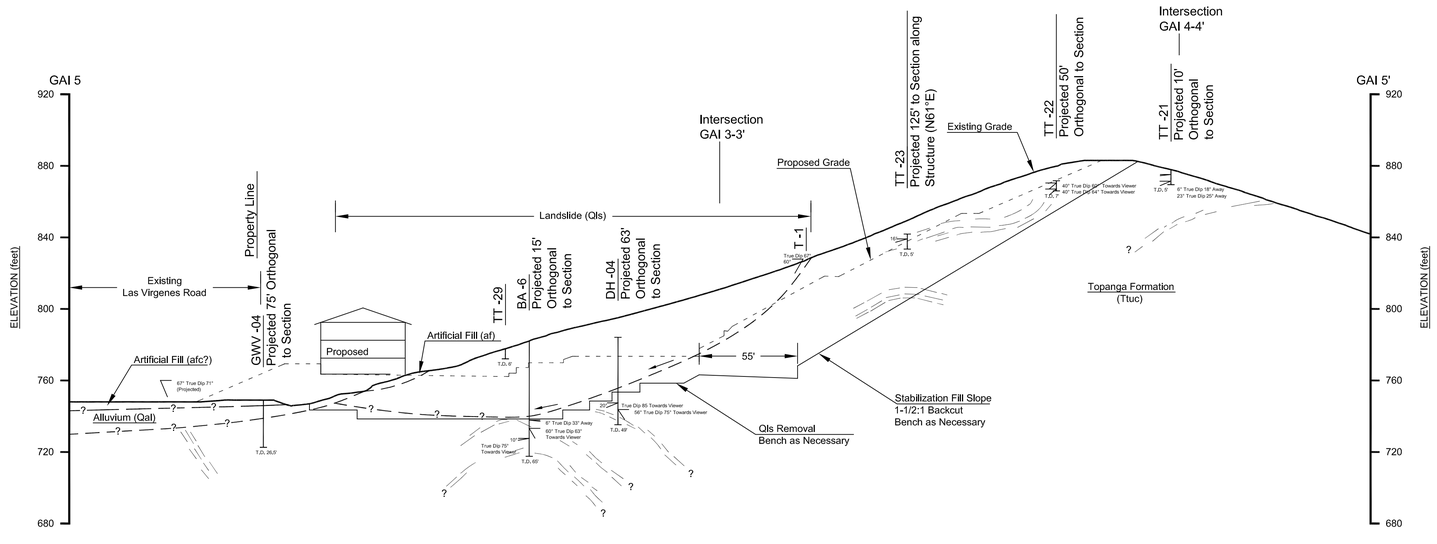


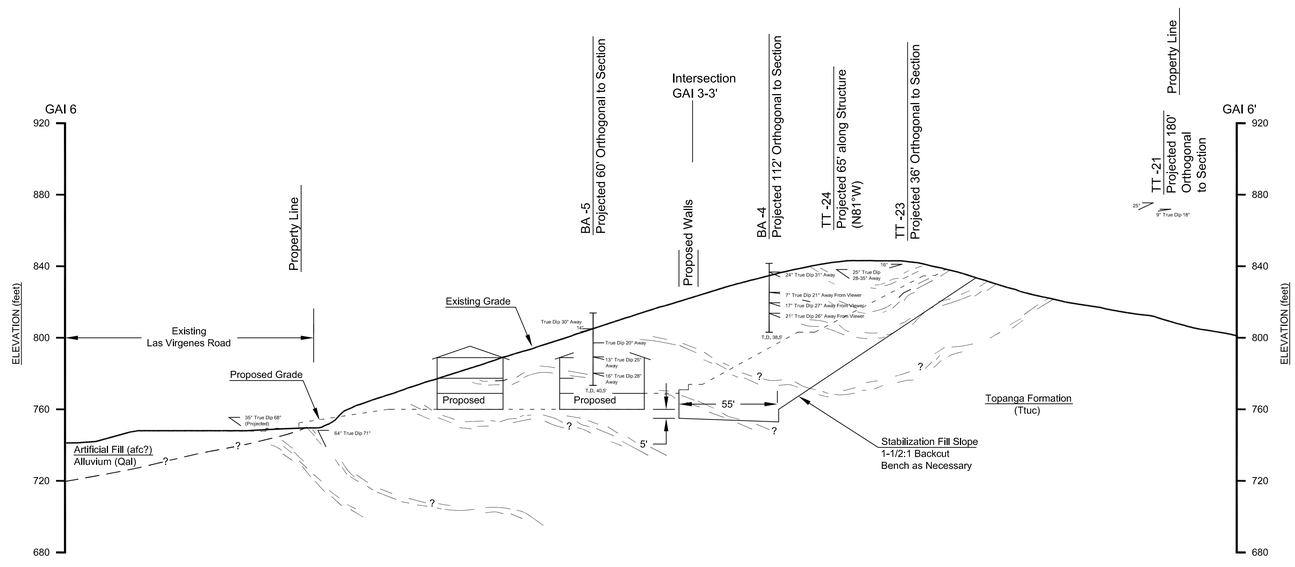


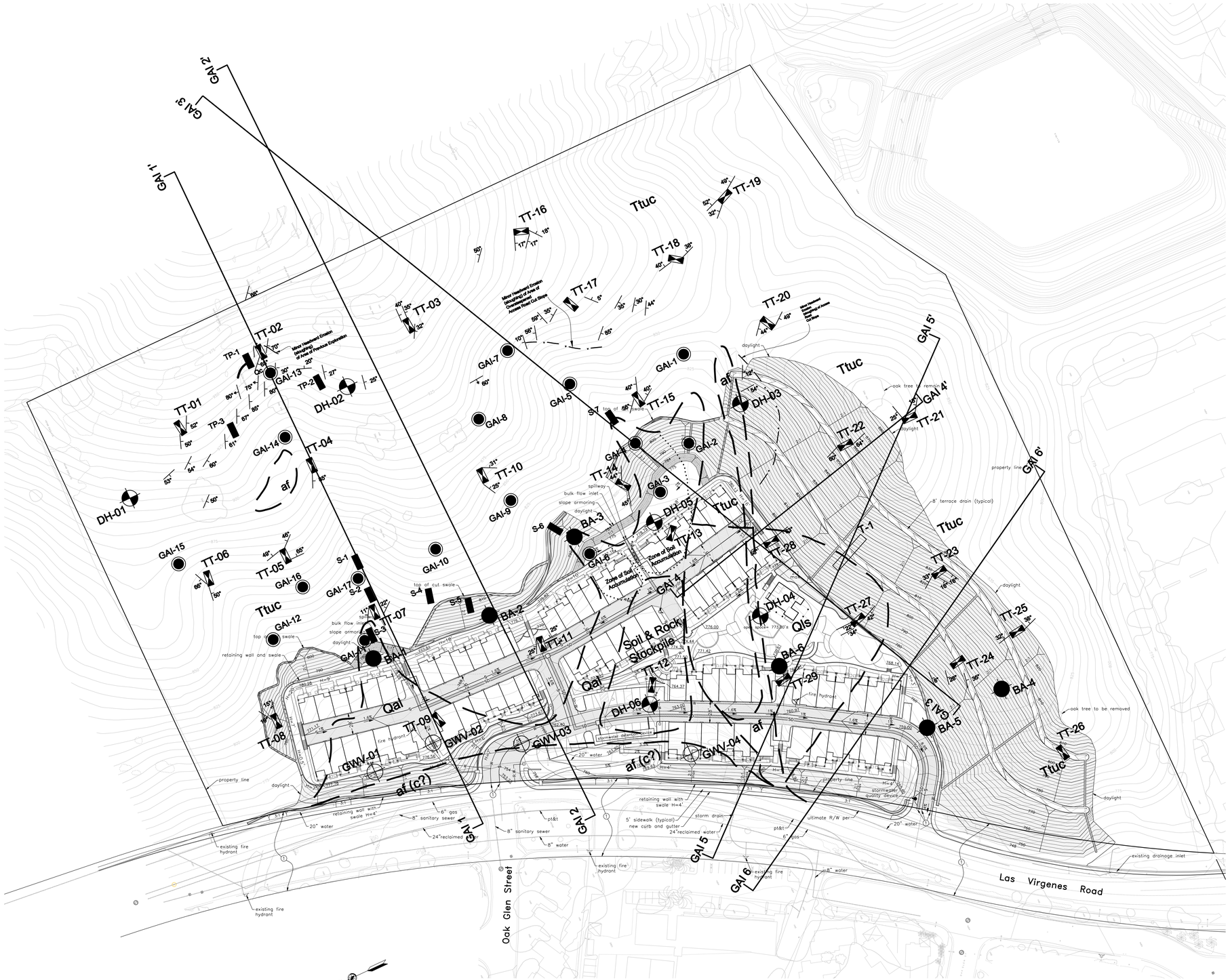
GEOTECHNICAL CROSS SECTIONS GAI 5-5' AND 6-6'

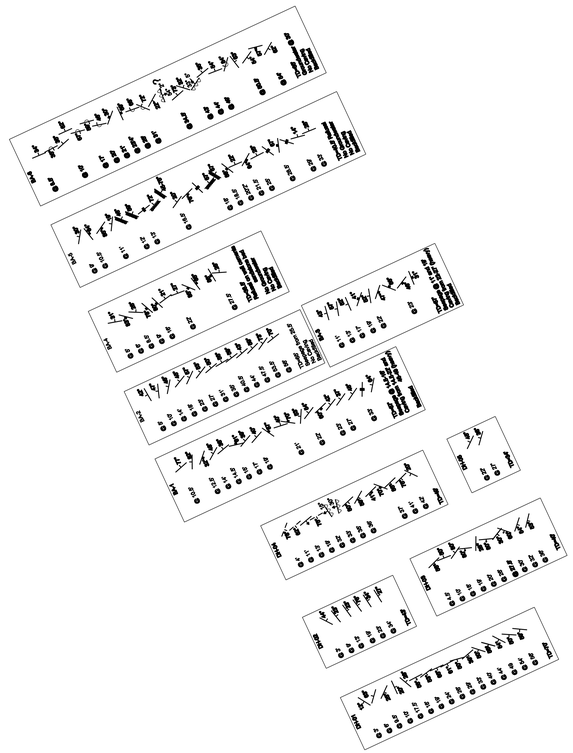
Gorian & Associates, Inc.
Applied Earth Sciences

Job No: 2928-0-0-100		Date: April 2012
Scale: 1" = 40'	Drawn by:	PLATE 4
	Approved by:	









EXPLANATION

af	Artificial Fill	Subscript C Indicates Artificial Compacted Fill (for Las Virgenes Road)
Qal	Alluvium	
Qls	Landslide	
Ttuc	Upper Topanga Formation	
DH-05	Bucket Auger Boring (Subsurface Design, Inc. April 3, 2002)	
BA-6	Bucket Auger Boring (GWV, July 2007)	
GWV-01	Hollow-Stem Auger Boring (GWV, July 2007)	
TT-03	Test Pit (Subsurface Design, Inc. April 3, 2002)	
TP-3/5-7	Test Pit (GWV)	
T-1	Trench (GWV, July 2007)	
GAI-7	Test Pit (GAI, 2012)	
	Geologic Contact	
1 1'	Cross Section	
65°	Strike & Dip of Bedding	
25°	Strike & Dip of Bedding Overturned	
45°	Strike & Dip of Joint/Fracture	
70°	Strike & Dip of Fault	
30°	Strike & Dip of Slide Plane with Slicks	

GEOTECHNICAL MAP

GRAPHIC SCALE
0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

Preliminary

PROPOSED SITE AND UTILITY IMPROVEMENTS

Gorian & Associates, Inc. APPLIED EARTH SCIENCES	
Job No: 2928-0-0-100	Date: April 2012
Scale: 1" = 40'	Drawn by: / Approved by: PLATE 1

CITY of CALABASAS
100 Civic Center Way CALABASAS, CA 91302 818.224.1600 FAX 818.225.7338
WWW.CITYOFCALABASAS.COM

PREPARED BY: DW civil engineering • land surveying • land planning, 24005 Ventura Boulevard, Suite 100, Calabasas, California 91302, Voice: (818) 444-1800, Facsimile: (818) 223-9215, www.diamondwest.net

PREPARED FOR: CALABASAS BLUE, LLC, 25340 Prado de los Arboles, Calabasas, CA 91302, phone: 818-225-8395, fax: 818-225-8396

VESTING TENTATIVE TRACT MAP
SHOWING
POR. OF THE NW ¼ OF THE SE ¼ OF SEC. 30
T.1N., R.17.W., S.B.M.
CITY OF CALABASAS, COUNTY OF LOS ANGELES
STATE OF CALIFORNIA

PREPARED BY OR UNDER THE DIRECTION OF: JAMES MICHAEL PETERSON, No. 57,320, Exp. 12/31/13, CIVIL, STATE OF CALIFORNIA

DESIGNED BY:	MP
CHECKED BY:	MH
DRAWN BY:	MP
DW JOB NO.	11-1000
DATE:	04/03/12
SCALE:	1"=40'
SHEET NO.	4 of 5

plot date: 04/03/12 2:23:pm User: Elan (430) 1000 Pathname: root\Surveys\2928-0-0-0 plan\Sheet files\11-1000-400-pgp007.dwg

SURFICIAL SLOPE MAP

Explanation

af	Artificial Fill	Subscript C Indicates Assumed Compacted Fill (for Las Virgenes Road)
Qal	Alluvium	
Ttuc	Upper Topanga Formation	

- Approximate Geologic Contact
- Approximate Contact Between Areas
- Approximate Contact Between Slope and Draw
- Line to Evaluate Slope Gradient
- Zone of Soil Accumulation Limits

Area A
Area B
Area C
Area D
Area E
Slope A -2'
Slope B -2'
Slope B -3'
Slope C -2'
Slope C -3'
Slope D -3'
Slope E -3'
Draw A -3'
Draw B -4'
Draw B -3'
Draw C -4'
Draw D -3'
Draw E -4'
Ttuc
Qal
Qls
af
af (c?)
Soil & Rock Stockpile
Zone of Soil Accumulation
Minor Headward Erosion (sloughing) of Area of Previous Exploration
Minor Headward Erosion (sloughing) of Area of Overdeepened Access Road Cut Slope
Minor Headward Erosion Initiating at Access Road Cut Slope
2:1 max.
open space= 773.00'±
20" water
6" gas
8" sanitary sewer
24"reclaimed water
pt&t
8" water
storm drain
ultimate R/W per
existing fire hydrant
Oak Glen Street
Las Virgenes Road

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

Preliminary

PROPOSED SITE AND UTILITY IMPROVEMENTS

Gorian & Associates, Inc. APPLIED EARTH SCIENCES	
Job No: 2928-0-0-100	Date: April 2012
Scale: 1" = 40'	Drawn by: / Approved by:
	PLATE 1A

CITY of CALABASAS
100 Civic Center Way CALABASAS, CA 91302 818.224.1600 FAX 818.225.7338
WWW.CITYOFCALABASAS.COM

PREPARED BY:
civil engineering • land surveying • land planning
24005 Ventura Boulevard, Suite 100
Calabasas, California 91302
Voice: (818) 444-1800
Facsimile: (818) 223-9215
www.diamondwest.net

PREPARED FOR:
CALABASAS BLUE, LLC
25340 Prado de los Arboles
Calabasas, CA 91302
phone: 818-225-8395
fax: 818-225-8396

VESTING TENTATIVE TRACT MAP
SHOWING
POR. OF THE NW ¼ OF THE SE ¼ OF SEC. 30
T.1N., R.17.W., S.B.M.
CITY OF CALABASAS, COUNTY OF LOS ANGELES
STATE OF CALIFORNIA

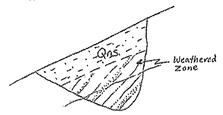
PREPARED BY OR UNDER THE DIRECTION OF:
REGISTERED PROFESSIONAL ENGINEER JAMES M. PORTER No. 57,320 Exp. 12/31/13 CIVIL STATE OF CALIFORNIA

DESIGNED BY:	MP
CHECKED BY:	MH
DRAWN BY:	MP
DWI JOB NO.	11-1000
DATE:	04/03/12
SCALE:	1"=40'
SHEET NO.	4 of 5

11-1006-400 04-03-2012

plot date: 04/24/12 4:05pm-ADAMSTRATOR plot by: mike porter file: k:\2011 las virgenes road\autocad\2928-0-0100 plate 1a 4-18-12\dwt (tab\11-1000-400-sps01.dwt

TT-01 N71°E



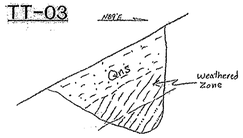
Bedding: N68°W, 50°SW
N70°W, 52°SW

TT-02 N83°E



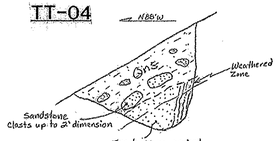
Bedding: N51°W, 65°SW
N56°W, 70°SW

TT-03 N89°E



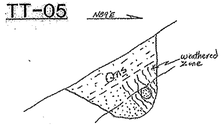
Bedding: N64°W, 32°SW
E-W, 35°S
E-W, 40°S

TT-04 N88°W



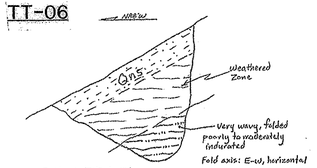
Bedding: N64°W, 85°S

TT-05 N69°E



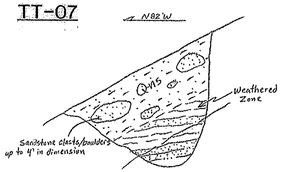
Bedding: N39°W, 46°NE
N 6°W, 48°NE
N8°W, 65°NE

TT-06 N88°W



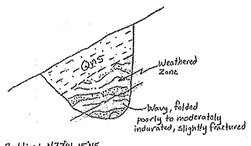
Bedding: N70°E, 66°NW
N82°W, 50°SW

TT-07 N82°W



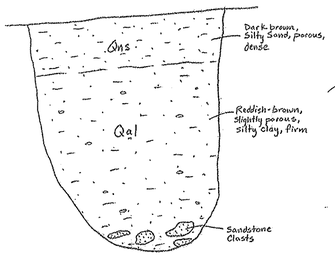
Bedding: N42°W, 22°NE
N50°W, 11°NE

TT-08 N09°W

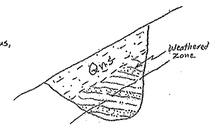


Bedding: N77°W, 15°NE
N55°E, 19°NW

TT-09 N20°E

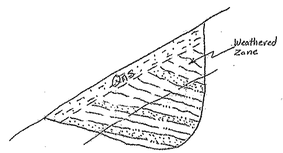


TT-10 N84°W



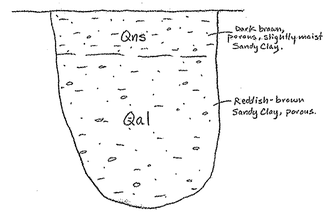
Bedding: N75°E, 25°SE
N30°E, 31°SE

TT-11 N83°W

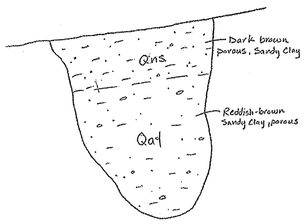


Bedding: N16°W, 25°NE
N55°W, 25°NE

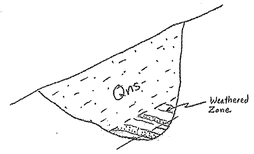
TT-12 N50°W



TT-13 N46°W

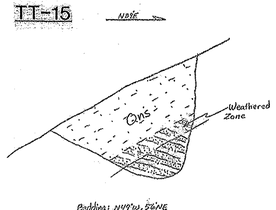


TT-14 N4°E



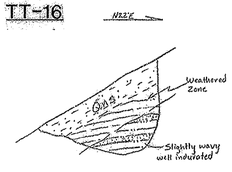
Bedding: N54°W, 41°NE
N70°W, 45°NE

TT-15 N38°E



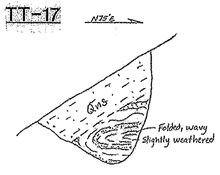
Bedding: N49°W, 38°NE
N58°W, 40°NE
N37°W, 40°NE

TT-16 N32°E

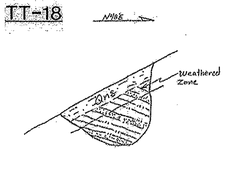


Bedding: N63°W, 17°SW
N41°E, 18°SE
N58W, 17°SW

TT-17 N75°E

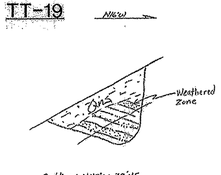


TT-18 N40°E



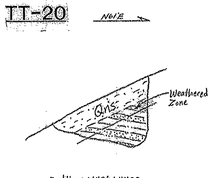
Bedding: N16°W, NONE
N25°W, 38°NE

TT-19 N6°W



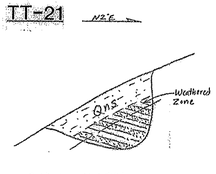
Bedding: N42°W, 32°NE
N36°W, 49°NE
N25°W, 52°NE

TT-20 N41°E



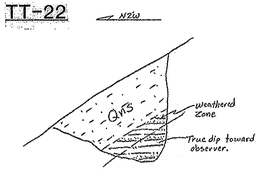
Bedding: N42°W, 49°SE
N32°W, 49°SE

TT-21 N2°E



Bedding: N85°E, 25°NW
N60°W, 18° NW

TT-22 N2°W



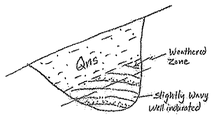
Bedding: N20°W, 60°SW
N12°W, 64°SW

TT-23 N11°W



Bedding: N42°W, 33°NE
N64°E, 16°NW
N59°E, 16°NW

TT-24 N80°W



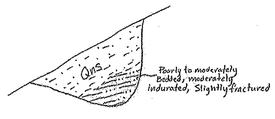
Bedding: N81°W, 28°SW
N83°W, 35°SW
N80°W, 8°SW

TT-25 N6°W



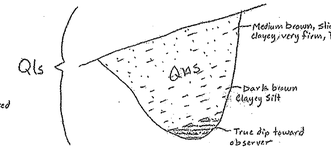
Bedding: N5°W, 32°NE
N24°W, 38°NE

TT-26 N82°E



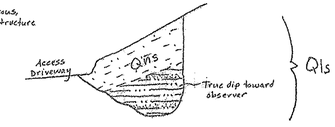
Bedding: N63°W, 21°NE
N85°E, 39°NW

TT-27 N6°W



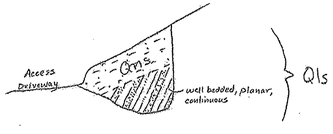
Bedding: N12W, 34°SW
N-S, 22°W
N25°W, 42°SW

TT-28 N3°W



Bedding: N5°W, 58°SW
N10°W, 68°SW

TT-29 N2°W



Bedding: N45°W, 64°NE
N30°W, 68°NE

SCALE: 1" = 5'

Explanation

Natural Soil (Qns) - Silty Sand (SM)

Light to dark brown, dry to moist, porous, moderately dense, Silty Sand (SM); scattered rootlets; gradational contact with underlying bedrock or alluvium.

Alluvium (Qal) - Sandy Clay (CL)

Dark reddish-brown to dark yellowish-brown, moderately firm, porous, Sandy Clay (CL); scattered sandstone fragments.

Landslide Debris (Qls)

Interbedded Sandstone and Siltstone; yellowish-brown, thin to medium bedded, friable, poorly cemented sandstone with interbedded grayish-brown to reddish-brown, thinly bedded, poorly to moderately indurated, fractured siltstone; relic bedding is poorly to moderately developed, disturbed, wavy, folded, and partially discontinuous.

Bedrock (Ttuc) - Upper Topanga Formation (Miocene geologic age)

Interbedded siltstone and sandstone -
Olive gray, yellowish-brown, and reddish-brown, thinly bedded, well indurated, siltstone with interbedded yellowish-brown, thin to thickly bedded, moderately hard to locally very hard, moderately cemented, fine to coarse-grained sandstone; bedding is moderately to well developed, slightly undulatory to folded, and continuous; bedding is tightly fractured where folded.

SubSurface Designs Inc.
12872 Foothill Boulevard • Sylmar, California 91342
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Klein

APN: 2069-011-005, -006, Calabasas

Ref # 4065.04S

Test Trench Logs TT-01 to TT-29

April 2002

Plate D

Hydrology Study

APPENDIX D

VTTM 60488

4240 Las Virgenes Road

City of Calabasas

Conceptual Hydrology Study

August 2, 2012

CITY OF CALABASAS

VTTM 60488
Conceptual Hydrology Study

Prepared for:

Calabasas Blue, LLC

Prepared by:

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Prepared by

Mike Harrison, P.E.
RCE #57320, Expires: December 31, 2013

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Nomenclature

‘	feet
"	inch
<	less than
>	greater than
ac	acre
ac-ft	acre - feet
APN	County Assessor’s parcel number
ARC	antecedent runoff condition
BMPs	best management practices
C	Rational Method runoff coefficient
Caltrans	California Department of Transportation
CDMG	California Division of Mines & Geology
cfs	cubic feet per second
City	City of Calabasas
CMP	corrugated metal pipe
CN	SCS curve number
Cnl	open channel
Consult-ant	Diamond West, Inc.
County	County of Los Angeles
C_p	pan coefficient
d/s	downstream
DWR	California Department of Water Resources
DSOD	California Department of Water Resources – Safety of Dams
E	evaporation
EGL	energy grade line
FEMA	Federal Emergency Management Agency
FIP	Finance and Implementation Plan
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
ft	feet
ft/s	feet per second
g	acceleration due to gravity
gpm	U.S. gallons per minute
gpd	U.S. gallons per day
gpd/ft^2	U.S. gallons per day per square foot
H	total hydraulic head
h	horizontal
HEC	Hydrologic Engineering Center
HEC-HMS	HEC-HMS Computer Program
HEC-RAS	HEC-RAS Computer Program
HGL	hydraulic grade line
hr	hour
i	rainfall intensity
i_a	initial abstraction
i.d.	inside diameter
imp	impervious
in	inch
L_o	overland flow path length
MAP	Mean annual precipitation
max	maximum
MEP	maximum extent practicable
mi	mile
min	minimum
misc	miscellaneous
msl	mean sea level
MWC	municipal water company
MWD	municipal water district
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service
o.d.	outside diameter
O&M	Operations and maintenance
ped.	Pedestrian
Q	flow quantity
Qty	quantity
R.C.E.	California, Registered Civil Engineer
RCP	reinforced concrete pipe
req’d	required
RWQCB	California Regional Water Quality Control Board
s	second
SCS	Soil Conservation Service
sf	square feet
SFHA	FEMA, special flood hazard area
SUSMP	County, Standard Urban Storm Water Mitigation Plan
t_c	storm duration (time of concentration)
t_p	time from start of storm to peak runoff
t_r	rain storm duration
T	transmissivity
TR-20	SCS Technical Release Number 20
TR-55	SCS Technical Release Number 55
u/s	upstream
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
V	volume
v	vertical
w.s.	water surface

Executive Summary

The purpose of this report is to facilitate the planning and implementation of drainage infrastructure improvements to accommodate storm water runoff for the proposed residential project, VTTM 60488, located at 4240 Las Virgenes Road in the City of Calabasas.

This report includes an evaluation of existing land uses and existing drainage patterns. The results of this report will be the basis for subsequent storm drainage improvements solely for this project.

The site is located on the east side of Las Virgenes Road between Agoura Road and Lost Hills Road (Figure 1). The project is situated on Assessor's Parcel Numbers 2069-011-005 and -006, which encompass 21.0 acres. The study area is 23.3 acres, which includes some of Las Virgenes Road along the frontage and to the north and some undeveloped offsite area to the east; and excludes some of the undeveloped area in the south and southeast portions of the site.

This report addresses the impacts from ¾" (mitigated peak flow), 10-year, and 50-year, 24-hour design storm events. Its intended use is for the development of storm water runoff infrastructure solely for this project. Existing and proposed drainage areas and other characteristics are shown in Appendix 1. Land use and associated impervious percentages from the Los Angeles County 2006 Hydrology Manual are shown in Appendix 2.

Authorization

This report has been performed at the request of Calabasas Blue, LLC, the property owner and developer, to determine the existing drainage patterns and the drainage impacts from the proposed development on the study area. It is not the intent of this report to suggest remediation for any regional drainage issues outside of the project area.

Figure 1. Location Map



The following information is contained within this report:

1. A description of the existing drainage conditions for the study area.

2. A recommended drainage infrastructure plan showing the locations and sizes of the primary components of the drainage infrastructure that will be needed to accommodate or alleviate storm water runoff generated by the proposed project. Drainage infrastructure elements evaluated include:

    - storm drain pipes
    - storm water collection devices
    - storm water impoundments
    - storm water treatment devices

3. Watershed catchment boundaries and hydrologic information that support the drainage infrastructure plan. The County's Modified Rational (MODRAT) computer model has been used as the basis for hydrologic evaluations. Discharges expected at numerous key points of concentration have been estimated using the MODRAT computer model for the design storm events.

4. Hydraulic analyses that examine the functional characteristics of the proposed drainage infrastructure. The hydraulic capacities of the proposed storm drains have been evaluated using standard formulas. Volumetric analysis of runoff hydrographs have been evaluated using WMS.

Study Approach

The project area currently surface drains in a southwesterly direction towards Las Virgenes Road within two separate watersheds ("north" and "south"), each of which drains to a separate drain inlet at the site frontage. The project shall not adversely affect the hydrologic conditions of the surrounding properties.

Summary of objectives and hydrologic conditions

The proposed project includes 72 residential condominiums and associated parking and open space. The proposed study area encompasses most of the project site, adjacent portions of Las Virgenes Road, and adjacent undeveloped areas that have historically drained onto the site. Proposed drainage areas are shown in Appendix 1, and grading and drainage plans are shown in Appendix 3. The main objective of this study is to design drainage infrastructure that will not significantly change the historic runoff patterns that are experienced by adjacent properties. The study area contains natural watersheds; therefore additional burning and bulking analyses are required.

Table 1. Pre- vs. Post-Development Runoff - north watershed (13A/38A)

24-hour, design storm event	existing flow (cfs)	proposed flow (cfs)	existing volume (af)	proposed volume (af)
¾" (Qpm)	0.78	0.60	0.199	0.122
10-year	13.9	25.1	2.07	1.97
50-year	34.4	50.2	3.12	3.27
50-year burned	39.3	55.4	3.78	3.66
50-year bulked	60.4	73.4	-	-

Table 2. Pre- vs. Post-Development Runoff - south watershed (18E/45K)

24-hour, design storm event	existing flow (cfs)	proposed flow (cfs)	existing volume (af)	proposed volume (af)
¾" (Qpm)	0.24	0.12	0.075	0.036
10-year	5.44	5.63	0.576	1.11
50-year	13.3	8.27	0.858	1.62
50-year burned	16.2	8.27	1.10	1.62
50-year bulked	23.4	8.27	-	-

Table 3. Pre- vs. Post-Development Runoff – entire site

24-hour, design storm event	existing flow (cfs)	proposed flow (cfs)	existing volume (af)	proposed volume (af)
¾" (Qpm)	1.02	0.72	0.274	0.158
50-year bulked	83.7	81.6	-	-

Tables 1 through 3 show the existing and proposed runoff conditions from the project site. The project was designed so that the overall post-development 50-year burned & bulked flow rate is less than the pre-developed condition. There is an increase in the runoff flow and volume in the north watershed for this storm event due to the increased area in this watershed as well as the increase in impervious area. Based on the MODRAT model, a change in time of concentration (Tc) can change the flow rate and volume. The flow patterns in the proposed model are different from the existing flow patterns, which caused changes in the Tc.

Stormwater runoff will be treated in accordance with the City's SUSMP process. A variety of methods have been designed to enhance stormwater quality of the runoff from the developed areas of the project. Methods and areas are summarized in Table 4.

Table 4. Stormwater Quality Treatment Methods

Primary Method	Area (ac)	Area (%)
Collection & Reuse	1.62	23.8
Bioswale	2.86	42.2
Planter	0.70	10.5
Mechanical	1.60	23.5
Total	**6.78**	**100**

Project Setting

The project is located in the City of Calabasas on the east side of Las Virgenes Road, between Agoura Road and Lost Hills Road. The study area is approximately 23.2 acres and encompasses most of the project site as well as adjacent offsite areas and Las Virgenes Road. The existing land uses in the area include primarily residential with some institutional and commercial.

BASIS OF CONTROL

The horizontal coordinates shown herein are based on the California Coordinate System of 1983, Zone V in U.S. Survey Feet.

EXISTING WATERSHED CHARACT-ERISTICS

The study area consists of 23.2 acres within two watersheds. The watershed is defined by the topography surrounding the project site. The land uses within the study area are residential. The natural slopes within the area are moderate to steep with grades steeper than 2:1. Storm water runoff generated from the study area generally drains southwesterly as overland flow within the project site to two existing drain inlets at the project frontage along Las Virgenes Road.

Flood Insurance Study

The detailed study area is located on the following FEMA FIRM(s):

Los Angeles County, California (and Incorporated Areas), Map Number 06037C1264F, September 26, 2008. According to this map, the northern portion of the study area is located in Zone D, which is defined as an area in which flood hazards are undetermined, but possible.

Native Soil Type

The soil types within the study area were identified from the County Hydrology Manual. Individual soil types are given unique values ranging from 1-180. The majority of the soil is Type 35 – Santa Monica Mountains (SMM-15) while some in the western portion is Type 66 – Santa Monica Mountains (SMM-16).

Proposed Drainage Study Approach

The purpose of this hydrology study is to facilitate the planning and implementation of drainage infrastructure improvements to accommodate storm water runoff in the general vicinity of the project area. Additional study objectives include:

- Provide study services consistent with City and County standards.
- Develop solutions that limit O&M costs.

- Involve City staff in the development and implementation of storm drainage solutions.
- Develop solutions that will minimize any disturbance to the City, County, and surrounding community.
- Site and operate storm drainage facilities in such a manner that minimizes adverse environmental impacts.

DESIGN ANALYSIS

The approach to design process is to explore a range of solutions. The drainage design presented in this report has been developed based on evaluations of the following constraints:

- Watershed characteristics
- Topography
- Existing land use & its adaptability
- Location of transportation corridors
- Property boundaries & acquisition
- Logical points of drainage outfall
- Agency objectives
- Retrofitting opportunities
- Existing facilities
- Design level of protection
- Environmental impacts
- Financing (expenses)
- Structure relocation
- Operation and maintenance
- Regulatory compliance
- Agency compliance
- Hydrologic criteria
- Flexibility of service area
- Hydraulic capacities & characteristics

Formulation of the infrastructure design was characterized by an evaluation of all of the above constraints, their level of importance to the successful completion of the project, and their interrelationships with each other.

No provisions have been made for changes in future land use within the study area.

Proposed Drainage Description

In order to adequately evaluate the impacts and requirements of the proposed project, the existing drainage conditions were analyzed. Research efforts were made to identify any drainage studies that documented the existing drainage conditions for the study area. The results of these efforts did not find any study that adequately documented those conditions on-site. The purpose of this drainage study is to document the impacts of certain rainfall events on the study area. This information will be the basis of comparison between pre-development and post-development storm drainage infrastructure improvements.

This proposed drainage description will analyze the effects of the ¾" (Qpm), 10-year, and 50-year, 24-hour storm events within the study area.

METHODOLOGY

Due to the need to accurately model a detention basin system, a hydrograph method was chosen to estimate the design storm runoff. The complex aspects of the sub-basin include consideration of available storage and varying times of travel. The Modified Rational Method, as defined in the current County Hydrology Manual was employed to generate the effective runoff within each sub-basin.

The County Hydrology Manual utilizes a Modified Rational Method approach for its hydrologic calculations. In general, the Rational Method is understood to provide peak discharge relative to rainfall intensity. It is not generally preferred in watershed catchments where ponding of storm water occurs. Additionally, it does not typically provide a reasonable relationship between peak storm water discharge and storm water runoff volume. This phenomenon can be seen in Figure 2. As seen on the synthetic rainfall distribution, the County method yields little runoff before or after the peak. This typically produces a sharp, narrow peak, which ultimately requires less storage volume for detention basin analysis. The runoff yield could be as low as 15%. Previous versions of the Manual required a minimum yield of 40%.

Because the MODRAT method is considered the 'standard of practice' for this area, it will be used to generate the project hydrology contained herein.

Equation 1. Rational Method

$$Q = CiA$$

Where C = runoff coefficient
i = rainfall intensity (in/hr)
A = drainage area (ac)

Equation 2. Manning Equation

$$V = \frac{1.486}{n} R^{2/3} S^{1/2}$$

Where V = average velocity (ft/s)

n = pipe roughness coefficient
R = hydraulic radius (ft)
S = head loss per unit length of pipe (ft/ft)

The rainfall intensity was taken from County Standards. The runoff coefficient in the rational formula is dependent on the soil type, antecedent moisture condition, recurrence interval, land use, slope, amount of urban development, rainfall intensity, surface and channel roughness, and duration of storm. Equation 3 provides a relationship between all of these factors and was used to calculate the runoff coefficients.

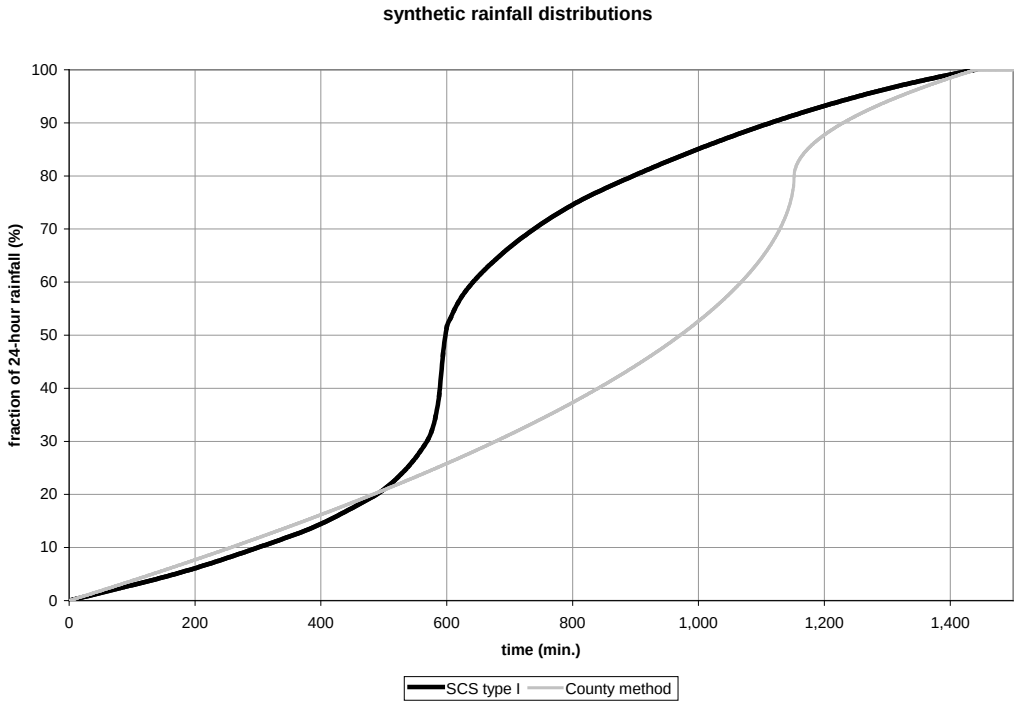
Equation 3. Rational Runoff Coefficient

$$C = 7.2\left(10^{-7}\right)CN^{3}T^{0.05}\left[\left((0.01CN)^{0.6}\right)\right]^{-S^{0.2}}\left(0.001CN^{1.48}\right)^{(0.15-0.1I)}\left[(P+1)/2\right]^{0.7}$$

Where
CN = SCS composite curve number
T = recurrence interval (years)
S = average sub-basin land slope (%)
I = rainfall intensity of recurrence interval (in/hr)
P = percent impervious (decimal)

The average rainfall for the 50-year, 24-hour storm event for the study area per the County Hydrology Manual is approximately 7.6 inches.

Figure 2. Synthetic Rainfall Distribution Comparison



Hydrologic Model

The computer model MODRAT was used to simulate, combine, and route outflow hydrographs within each watershed. The simulation of the hydrologic data is generated by the development of the synthetic unit hydrograph, 50-year design storm pattern, and the runoff hydrograph. The total volume of runoff for both pre- and post-development can be increased 1-3% because the runoff is still occurring at the end of the design storm.

The development of the synthetic unit hydrograph involves the identification of several watershed characteristics including composite curve numbers, soil cover, percent impervious, antecedent moisture conditions, land use, basin area, initial abstractions, hydraulic length, basin slope, and lag time. These parameters are calculated in the following steps:

- The sub-basin watershed boundaries were delineated manually based on an aerial survey and the USGS map.

- Rainfall excess is that part of the total precipitation depth that appears as surface flow during and after a storm event. Rainfall excess equals to total rainfall depth minus losses due to interception by vegetation, infiltration into the soil, and surface depression storage. This process is defined internally in the MODRAT method. The information is based on:

    1. Soil data from the current County Hydrology Manual
    2. Zoning designations in the City and County

- The catchment time of concentration is defined as the time from the center of mass of net rainfall and the center of mass of runoff. The time of concentration for each sub-basin was identified from the County method. This method is shown in equation 4.

Equation 4. Time of Concentration

$$T_c = 10^{-0.507} * (C_d * I)^{-0.519} * L^{0.483} * S^{-0.135}$$

Where
- T_c = time of concentration in minutes
- C_d = developed runoff coefficient
- I = rainfall intensity in inches per hour
- L = hydrologic length of the catchment in feet
- S = average watershed land slope in feet per feet

- To adequately define the unit hydrograph, the unit time period of the synthetic critical storm pattern should generally be 30 percent of the basin time of concentration and should use multiples of 1 minute. The unit time period utilized in this report is 1 minute.

Time of Concentration (Tc)

The time of concentration is the necessary time it takes for runoff from the most distant point within a drainage area to reach the outlet point. The County's MODRAT is heavily dependent on the time of concentration to determine a drainage area's peak runoff value. Equation 4 presents the County's Regression Equation that is used in the County's Tc Calculator program.

There are two main methods in calculating the Tc: Kinematic Wave Theory and the Regression Equation. The kinematic wave theory calculates the Tc by separating the hydraulic length into two parts: overland flow and conveyance flow. The Tc is then determined by summing the individual Tc's each type of flow. The County uses the newer Regression Equation method as it was derived from hundreds of studies using the kinematic wave theory. Additionally, a quick comparison between the kinematic wave method and the regression method using average slope and length yielded a difference of one minute in the Tc calculation, with the latter method being longer.

Burning and Bulking Analysis

As previously mentioned, there are some undeveloped areas subject to burning in both the pre- and post-development conditions. Therefore, burning and bulking analyses were performed with results summarized in Tables 1 through 3, and details shown in Appendices 4 and 5. The site falls within two Debris Production Areas (DPA) – Zones 6 and 7, which have debris production rates of 48,000 cy/sq mi and 24,000 cy/sq mi, respectively, and bulk factors of 1.607 and 1.567, respectively. Under existing conditions, Basins 6C, 9D and 16E, which represent a majority of the onsite areas and comprise 16.2 acres, were burned. For the proposed conditions, Basins 9D and 11E, comprising 8.7 acres, were burned, with the remaining basins being fuel modification zones. The project is reducing debris production by 31%, as shown in Table 5.

Table 5. 50-year storm event debris production

	Pre-development	*Post-development*
north (13A/38A)	719 cy	644 cy
south (18E/45K)	219 cy	0 cy
Total	**938 cy**	**644 cy**

Flow Routing

Flow routing methods for storage areas (reservoirs), channel, and sheet flow were estimated from proposed dimensions and parameters. The Modified Puls method was used to route flow through storage areas. The MODRAT method was used to route flow through existing open channels and sub-basins. Proposed dimensions were used for all open channel routing. The discharge relationship from the storage areas used the Normal Depth method with similar dimensions. See Appendix 1 for a diagram of the entire watershed hydrologic model. Two surface detention basins are proposed for

the drainage areas above the condos to the east, and two subsurface detention basins, each consisting of 9'-diameter pipe, are proposed to be installed in the western portion of the site. See Tables 6-9 for detention rating tables and Tables 10-13 for post-development detention system results. See Appendix 6 for the detention basin routing tables.

Table 6. Detention System Rating Table – north surface detention basin (12E)

Stage (msl)	*Volume* (ac-ft)	*Discharge* (cfs)
775	0.0	0.0
776	0.10	0.0
777	0.20	24.1
778	0.04	41.7
779	0.05	53.8
780	0.07	63.7
781	0.08	72.2
782	0.10	79.8
783	0.13	119

Table 7. Detention System Rating Table – south surface detention basin (10D)

Stage (msl)	*Volume* (ac-ft)	*Discharge* (cfs)
775	0.0	0.0
776	0.10	0.0
777	0.20	24.1
778	0.31	41.7
779	0.43	53.8
780	0.55	63.7
781	0.68	72.2
782	0.81	79.8
783	0.95	119

Table 8. Detention System Rating Table – north subsurface detention basin (22HN)

Stage (msl)	*Volume* (ac-ft)	*Discharge* (cfs)
749	0.0	0.0
750	0.02	0.0
751	0.06	0.0
752	0.11	0.0
753	0.16	0.0
754	0.21	0.0
755	0.26	0.0
756	0.31	1.84
757	0.35	3.19
758	0.37	4.12
759	0.37	4.87
760	0.37	5.52

Table 9. Detention System Rating Table – south subsurface detention basin (27IO)

Stage (msl)	*Volume* (ac-ft)	*Discharge* (cfs)
747	0.0	0.0
748	0.004	0.0
749	0.012	0.0
750	0.021	0.0
751	0.031	0.0
752	0.042	0.0
753	0.052	0.0
754	0.061	0.0
754	0.069	2.60
756	0.073	3.68
757	0.073	4.51
758	0.073	5.21

Table 10. Detention System Results – north surface basin

Description	*Detention Basin*
node	12E
drainage area (ac) – 11E	5.5
primary discharge type	orifice (36-inch pipe)
basin top elevation (msl)	783
max. 50-yr. (burned), 24-hr. w.s. (msl)	776.76
basin volume (ac-ft)	0.13
max. 50-yr. (burned), 24-hr. vol. (ac-ft)	0.02

Table 11. Detention System Results – south surface basin

Description	*Detention Basin*
node	10D
drainage area (ac) – 9D	3.2
primary discharge type	orifice (36-inch pipe)
basin top elevation (msl)	783
max. 50-yr. (burned), 24-hr. w.s. (msl)	776.36
basin volume (ac-ft)	0.95
max. 50-yr. (burned), 24-hr. vol. (ac-ft)	0.14

Table 12. Detention System Results – north subsurface basin

Description	*Detention Basin*
node	22HN
drainage area (ac)	2.1
primary discharge type	orifice (10-inch pipe)
basin top elevation (msl)	758.0
max. 50-yr. (burned), 24-hr. w.s. (msl)	756.80
basin volume (ac-ft)	0.37
max. 50-yr. (burned), 24-hr. vol. (ac-ft)	0.34

Table 13. Detention System Results – south subsurface basin

Description	*Detention Basin*
node	27IO
drainage area (ac)	3.7
primary discharge type	orifice (10-inch pipe)
basin top elevation (msl)	756.0
max. 50-yr. (burned), 24-hr. w.s. (msl)	755.37
basin volume (ac-ft)	0.073
max. 50-yr. (burned), 24-hr. vol. (ac-ft)	0.07

It should be recognized that detention volume was not designed nor intended to store the entire runoff volume for a 50-year (burned & bulked), 24-hour storm event. The detention volume is designed to attenuate storm water runoff to decrease post-development values to less than pre-development values.

Hydraulic Model

The outlets for the surface detention systems at 10D and 12E will each be a 36-inch pipe, and the outlets for the subsurface detention systems at 22HN and 27IO will each be a 10" pipe.

Equation 5. Orifice Equation

$$Q = C * A * \sqrt{(2 * g * H)}$$

Where Q = discharge (cfs)
C = discharge coefficient (0.60)
A = orifice area (ft^2)
g = gravitational acceleration (32.2 ft/s^2)
H = effective head on the orifice measured from the centroid of the opening (ft)

Manning's Equation was used to simulate the hydraulic analysis of the proposed storm drainage conveyance system. The simulation of the hydraulic system utilized the design storm event.

ASSUMPTIONS

The rainfall and runoff parameters are based on the County Hydrology Manual and the County Design Standards. According to the isohyetal rainfall map in the Manual, the study area has an average 50-year, 24-hour rainfall depth of about 7.6 inches.

STORM WATER QUALITY

The National Pollutant Discharge Elimination System (NPDES) regulation governing the development of the project area is the Los Angeles County MS4 Permit. The City of Calabasas Public Works Department will review the project's Standard Urban

Storm Water Mitigation Plan (SUSMP) for compliance. The project falls under the *Ten or more unit homes* category. Site improvements shall be designed and constructed according to the City's SUSMP process, which incorporates the County's SUSMP and Low Impact Development (LID) standards. Post-construction treatment control best management practices (BMPs) are required to incorporate either flow-based and/or volumetric treatment control design to mitigate (infiltrate, filter or treat) storm water runoff before leaving the site. The property owner will be responsible for maintenance of these BMPs. Maintenance of proprietary treatment devices will be conducted per the manufacturer's recommended schedule/interval and specifications.

Due to liquefaction potential of the soils, infiltration of stormwater runoff is not feasible for this site. Runoff from a majority of the upper housing area will be treated by collection and reuse, which provides both pollutant and volume reduction. See SUSMP Exhibit in Appendix 7 for breakdown of treatment areas. Approximately half of the roof areas will drain to planters, as discussed below, leaving 1.62 acres of mostly building and driveways that will potentially drain to a subsurface detention basin in the guest parking area. Of this runoff, 5 cfs will be diverted to the detention basin for reuse as irrigation on the manufactured slope at the southern end of the project area.

Two bioswales and 28 flow-through planters will provide biofiltration, which provides both pollutant reduction and some volume reduction in the form of evapotranspiration, for half of the project area being treated. The northern bioswale, adjacent to the northern driveway entrance, will treat 0.26 acre that includes the northern driveway entrance and the northern portion of the guest parking spaces. The southern bioswale, adjacent to the southern driveway entrance, will treat 2.6 acres that includes the amenities area, the lower housing area, the southern portion of the guest parking spaces, the southwestern portion of the manufactured slope, and the frontage areas along Las Virgenes Road. Runoff from approximately half of the roof area will be treated by flow-through planters. A total of 27,395 sf of roof area will drain to 3,360 sf of planters.

The remaining area to be treated, 1.6 acres of the manufactured slope at the southern portion of the site, will be treated by a mechanical / hydrodynamic device, which provides pollutant reduction.

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12) U.S. Soil Conservation Service (1986). *Urban Hydrology for Small Watersheds, Technical Release No. 55*. U.S. Department of Agriculture, Washington, D.C.

13) Viessman, W., Lewis, G.L. and Knapp, J.W. (1989). *Introduction to Hydrology, 3rd Edition*, Harper Collins, New York, NY.

Appendix 1
Exhibits

Exhibit A – Existing Drainage Areas

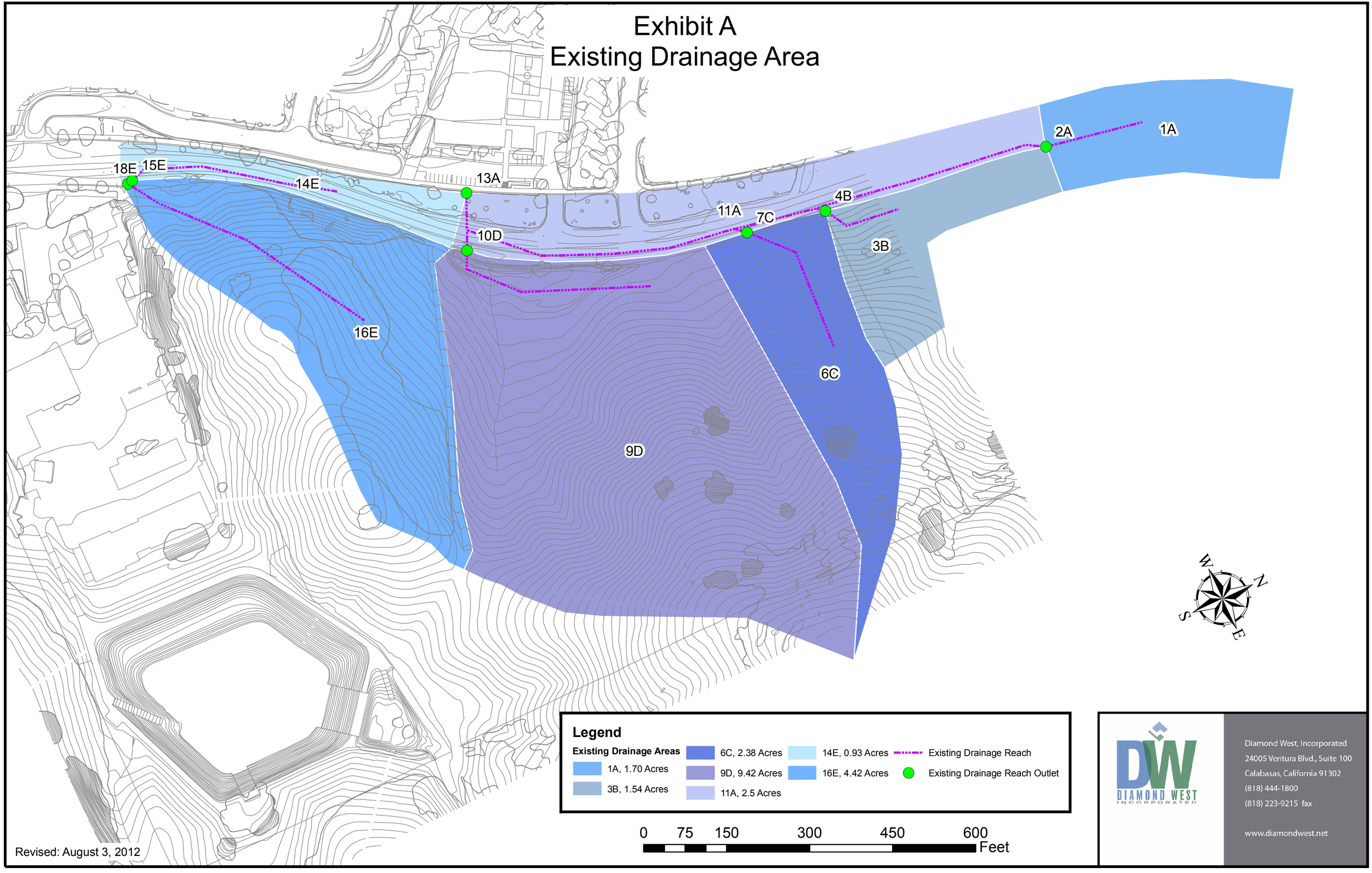
Exhibit B – Existing Land Uses

Exhibit C – Existing Soil Types

Exhibit D – Existing Debris Production Areas

Exhibit E – Proposed Drainage Areas

Exhibit A
Existing Drainage Area



Legend

Existing Drainage Areas

- 1A, 1.70 Acres
- 3B, 1.54 Acres
- 6C, 2.38 Acres
- 9D, 9.42 Acres
- 11A, 2.5 Acres
- 14E, 0.93 Acres
- 16E, 4.42 Acres
- Existing Drainage Reach
- Existing Drainage Reach Outlet

0 75 150 300 450 600 Feet

N S W E

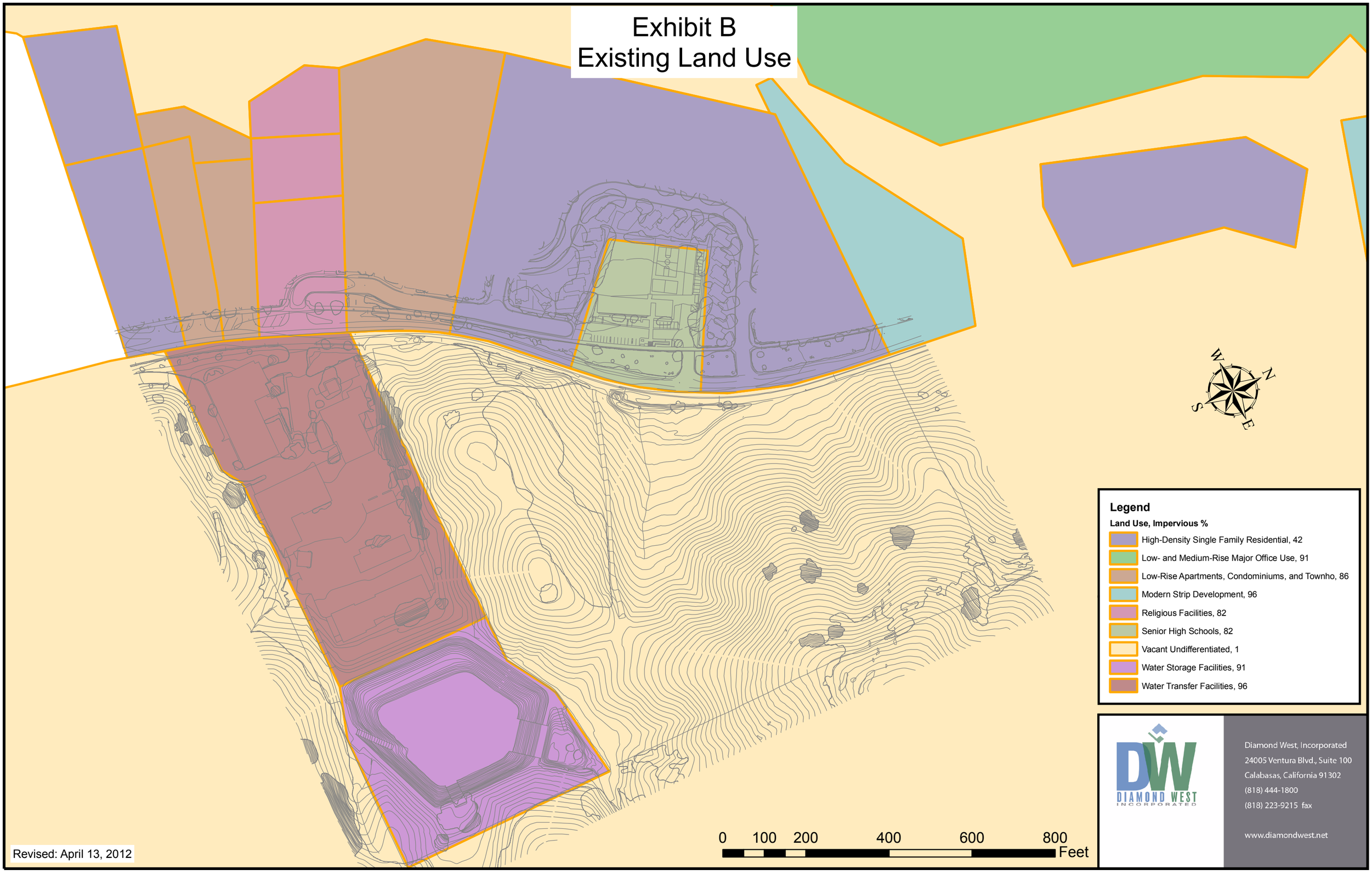
Revised: August 3, 2012

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Exhibit B
Existing Land Use



Legend

Land Use, Impervious %

- High-Density Single Family Residential, 42
- Low- and Medium-Rise Major Office Use, 91
- Low-Rise Apartments, Condominiums, and Townho, 86
- Modern Strip Development, 96
- Religious Facilities, 82
- Senior High Schools, 82
- Vacant Undifferentiated, 1
- Water Storage Facilities, 91
- Water Transfer Facilities, 96

Revised: April 13, 2012

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Exhibit C
Existing Soil Types



0 100 200 400 600 800 Feet

Legend

Soil Types (2004)

035

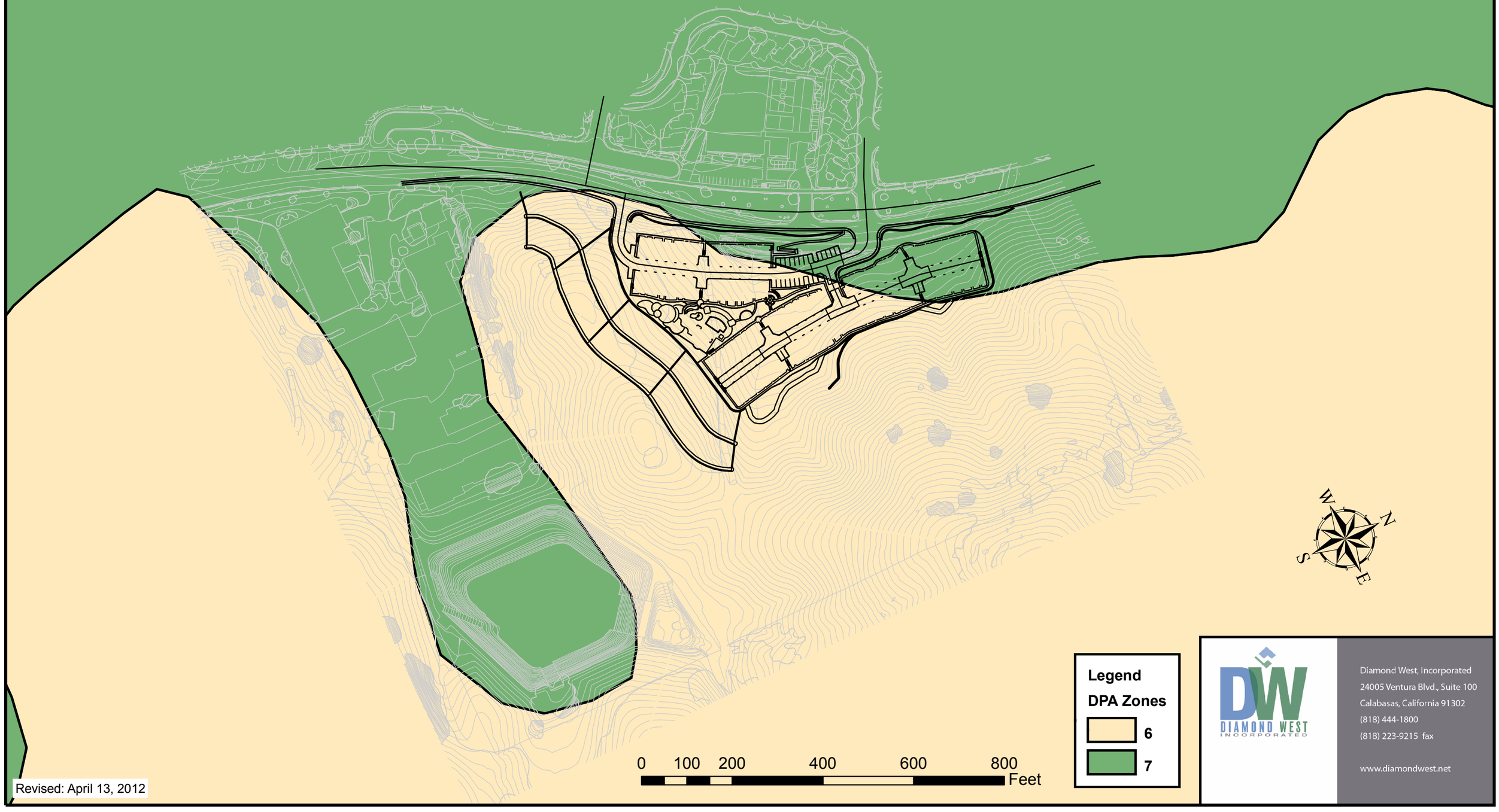
036

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Exhibit D
Existing DPA Zones

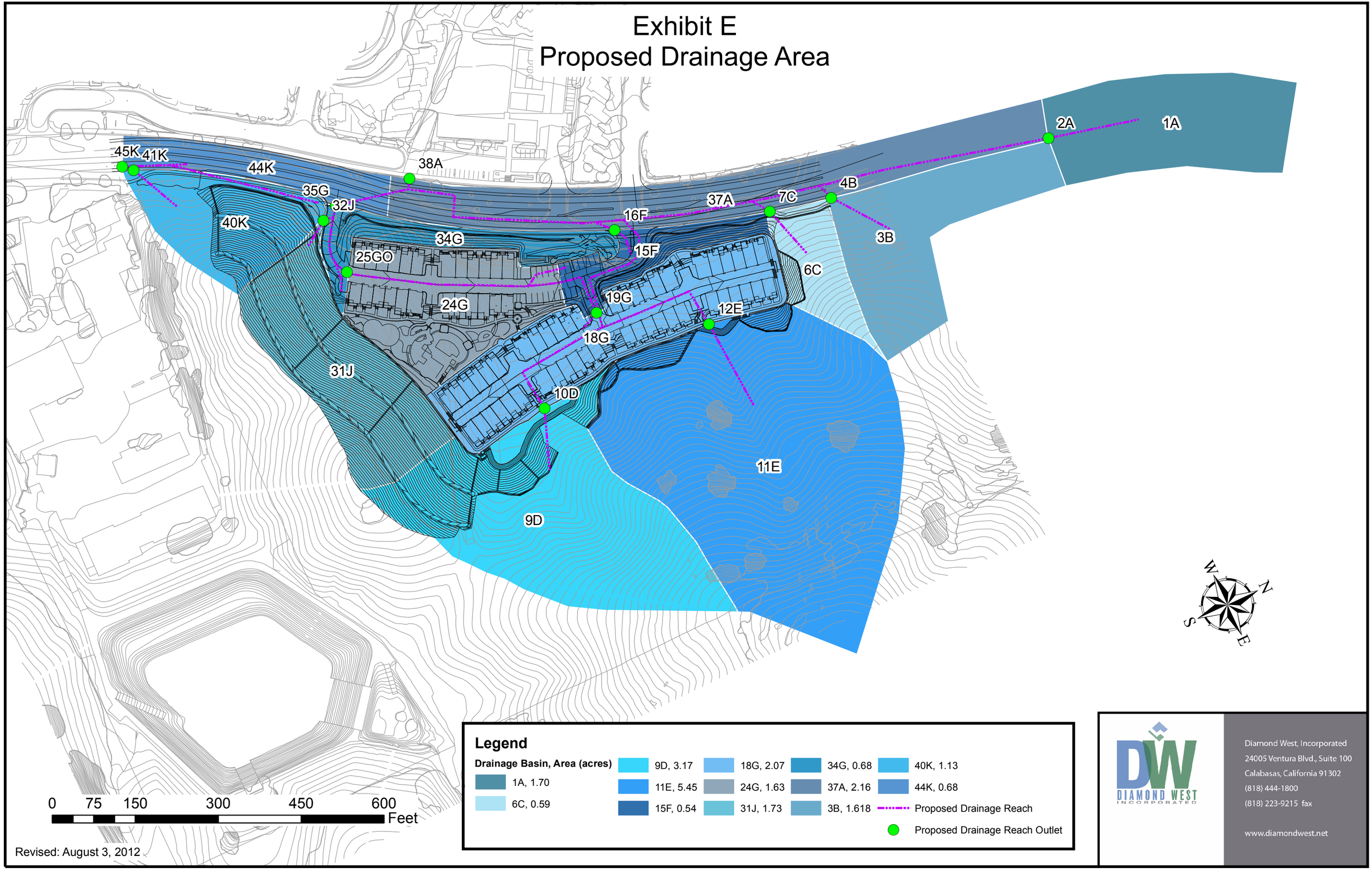


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Exhibit E
Proposed Drainage Area



Revised: August 3, 2012

Legend

Drainage Basin, Area (acres)

- 1A, 1.70
- 6C, 0.59
- 9D, 3.17
- 11E, 5.45
- 15F, 0.54
- 18G, 2.07
- 24G, 1.63
- 31J, 1.73
- 34G, 0.68
- 37A, 2.16
- 3B, 1.618
- 40K, 1.13
- 44K, 0.68
- Proposed Drainage Reach
- Proposed Drainage Reach Outlet

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Appendix 2
LACoDPW 2006 Hydrology Manual – Appendix D
Proportion Impervious Data

Proportion Impervious Data

Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

Appendix 3
Grading and Drainage Plans
(see full size sheets)

LEGEND:

- PROPOSED EASEMENT FOR PRIVATE DRIVEWAY AND FIRE LANE AND PUBLIC UTILITY PURPOSES
- ONSITE LIGHTING, SEE LANDSCAPE PLAN
- STREET LIGHTING, SEE STREET LIGHT PLANS
- TRAFFIC SIGNAL, SEE STREET LIGHT PLANS
- CUT/FILL TRANSITION LINE

Note:
1. Water service to individual units to be provided by private sub-meters.
2. Below-ground stormwater reuse pump and treatment facility.

Grading Quantities:

Cut: 161,700 C.Y.
Fill: 43,300 C.Y.
Net: 118,400 C.Y. of export

daylight
oak tree to remain
top of cut swale
property line
8' terrace drain (typical)
spillway
bulk flow inlet
slope armoring
fire hydrant
open space= 773.00'±
retaining wall and swale
oak tree to be removed
stormwater detention device
20" water
exist. storm drain to be abandoned
stormwater quality device
abandon and replace 20" water
retaining wall with swale H=4'
Bio Swale
6" gas
p.o.c.
pt&t
24"reclaimed water
8" sanitary sewer per P.C. 03-04B
existing fire hydrant
Landscape Area
5' sidewalk (typical)
new curb and gutter
storm drain pt&t
Slot Drain
8" water
Catch Basin
existing drainage inlet
existing 36" R.C.P. per P.D. No. 2353
R/W
Oak Glen Street
Las Virgenes Road

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROPOSED SITE AND UTILITY IMPROVEMENTS

CITY of CALABASAS
100 Civic Center Way CALABASAS,
CA 91302 818.224.1600 FAX
818.225.7338
WWW.CITYOFCALABASAS.COM

PREPARED BY:
DIAMOND WEST
civil engineering • land surveying • land planning
24005 Ventura Boulevard, Suite 100
Calabasas, California 91302
Voice: (818) 444-1800
Facsimile: (818) 223-9215
www.diamondwest.net

PREPARED FOR:
CALABASAS BLUE, LLC
25340 Prado de los Arboles
Calabasas, CA 91302
phone: 818-225-8395
fax: 818-225-8396

VESTING TENTATIVE TRACT MAP

SHOWING

POR. OF THE NW 1/4 OF THE SE 1/4 OF SEC. 30
T.1N., R.17.W., S.B.M.
CITY OF CALABASAS, COUNTY OF LOS ANGELES
STATE OF CALIFORNIA

PREPARED BY OR UNDER THE DIRECTION OF:
MICHAEL JAMES HOUSTON No. 57,320 Exp. 12/31/13 CIVIL STATE OF CALIFORNIA
Preliminary

DESIGNED BY:	MP
CHECKED BY:	MH
DRAWN BY:	MP
DW JOB NO:	11-1000
DATE:	08/03/12
SCALE:	1"=40'
SHEET NO.	4 of 5

11-1006-400 08-03-2012

plot date: 08/06/12 7:53am-PRAMOS
dwg name: p:\11-1000 - to 000488 entrada calabasas\400-grading plan\civil-survey\dwg\11-1000-400-pgpln01.dwg

Appendix 4
Pre-Development Conditions – WMS Input and Output Files Flow Rate and Volume Results

```
BEGTREE eef008b8-e02b-48ae-b1fb-0e66e05f489f
BASIN 14E
OUTLET 15E 1
OUTLET 17E 1
BASIN 16E
OUTLET 18E 2
BASIN 6C
OUTLET 7C 1
BASIN 3B
OUTLET 4B 1
BASIN 1A
OUTLET 2A 1
OUTLET 5AB 2
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
OUTLET 12AD 2
BASIN 11A
OUTLET 13A 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "c:\program files\wms 9.0\modrat\lasoilx_100.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-EHYC03.res
OUTPUT 11-1000-200-EHYC03
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 48  1730  1                              2 Z1
  6     1    2A  36           13  434 03000   646                  020
  6     1    3B  35  5  1530  1                              2
  6     1    4B  35           1    19 03000                       020
  6     1    5AB 35           13  152 02000   646                  020
  6     1    6C  35  1  2430  1                              2
  6     1    7C  35           1    25 03000                       020
  6     1    8AC 35           13  495 03000   646                  020
  6     1    9D  35  1  9430  1                              2
  6     1   10D  35           1    37 02000                 2     020       1
  6     1   11A  36 91  2530  1                              2
  6     1   12AD 36           1    68 02000                       020
  6     1   13A  36           1     0 00000                 21    020
  6     1   14E  36 91   930  1                              2
  6     1   15E  36           1    10 03000                       020
  6     1   16E  35  1  4430  1                              2
  6     1   17E  35           1     2 03000                       020
  6     1   18E  35           1     0 00000                 21 2  020
```

```
BEGTREE eef008b8-e02b-48ae-b1fb-0e66e05f489f
BASIN 14E
OUTLET 15E 1
OUTLET 17E 1
BASIN 16E
OUTLET 18E 2
BASIN 6C
OUTLET 7C 1
BASIN 3B
OUTLET 4B 1
BASIN 1A
OUTLET 2A 1
OUTLET 5AB 2
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
OUTLET 12AD 2
BASIN 11A
OUTLET 13A 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "c:\program files\wms 9.0\modrat\lasoilx_100.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-EHYC02.res
OUTPUT 11-1000-200-EHYC02
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 48  17 6 10                              2 Z1
  6     1    2A  36          103  434 03000   646                  020
  6     1    3B  35  5  15 7 10                              2
  6     1    4B  35          10    19 03000                       020
  6     1    5AB 35          103  152 02000   646                  020
  6     1    6C  35  1  24 9 10                              2
  6     1    7C  35          10    25 03000                       020
  6     1    8AC 35          103  495 03000   646                  020
  6     1    9D  35  1  9414 10                              2
  6     1   10D  35          10    37 02000                 2     020       1
  6     1   11A  36 91  2510 10                              2
  6     1   12AD 36          10    68 02000                       020
  6     1   13A  36          10     0 00000                 21    020
  6     1   14E  36 91   9 7 10                              2
  6     1   15E  36          10    10 03000                       020
  6     1   16E  35  1  4412 10                              2
  6     1   17E  35          10     2 03000                       020
  6     1   18E  35          10     0 00000                 21 2  020
```

```
BEGTREE eef008b8-e02b-48ae-b1fb-0e66e05f489f
BASIN 14E
OUTLET 15E 1
OUTLET 17E 1
BASIN 16E
OUTLET 18E 2
BASIN 6C
OUTLET 7C 1
BASIN 3B
OUTLET 4B 1
BASIN 1A
OUTLET 2A 1
OUTLET 5AB 2
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
OUTLET 12AD 2
BASIN 11A
OUTLET 13A 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "c:\program files\wms 9.0\modrat\lasoilx_100.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-EHYC01.res
OUTPUT 11-1000-200-EHYC01
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 48  17 5 50                              2 Z1
  6     1    2A  36          503  434 03000   646                  020
  6     1    3B  35  5  15 5 50                              2
  6     1    4B  35          50    19 03000                       020
  6     1    5AB 35          503  152 02000   646                  020
  6     1    6C  35  1  24 5 50                              2
  6     1    7C  35          50    25 03000                       020
  6     1    8AC 35          503  495 03000   646                  020
  6     1    9D  35  1  94 7 50                              2
  6     1   10D  35          50    37 02000                 2     020       1
  6     1   11A  36 91  25 8 50                              2
  6     1   12AD 36          50    68 02000                       020
  6     1   13A  36          50     0 00000                 21    020
  6     1   14E  36 91   9 6 50                              2
  6     1   15E  36          50    10 03000                       020
  6     1   16E  35  1  44 7 50                              2
  6     1   17E  35          50     2 03000                       020
  6     1   18E  35          50     0 00000                 21 2  020
```

```
BEGTREE eef008b8-e02b-48ae-b1fb-0e66e05f489f
BASIN 14E
OUTLET 15E 1
OUTLET 17E 1
BASIN 16E
OUTLET 18E 2
BASIN 6C
OUTLET 7C 1
BASIN 3B
OUTLET 4B 1
BASIN 1A
OUTLET 2A 1
OUTLET 5AB 2
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
OUTLET 12AD 2
BASIN 11A
OUTLET 13A 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "c:\program files\wms 9.0\modrat\lasoilx_100.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-EHYC01B.res
OUTPUT 11-1000-200-EHYC01B
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 48  17 5 50                              2 Z1
  6     1    2A  36          503  434 03000   646                  020
  6     1    3B  35  5  15 5 50                              2
  6     1    4B  35          50    19 03000                       020
  6     1    5AB 35          503  152 02000   646                  020
  6     1    6C 235  1  24 5 50                              2
  6     1    7C 235          50    25 03000                       020
  6     1    8AC235          503  495 03000   646                  020
  6     1    9D 235  1  94 7 50                              2
  6     1   10D 235          50    37 02000                 2     020       1
  6     1   11A  36 91  25 8 50                              2
  6     1   12AD 36          50    68 02000                       020
  6     1   13A  36          50     0 00000                 21    020
  6     1   14E  36 91   9 6 50                              2
  6     1   15E  36          50    10 03000                       020
  6     1   16E 235  1  44 7 50                              2
  6     1   17E 235          50     2 03000                       020
  6     1   18E 235          50     0 00000                 21 2  020
```

```
BEGTREE eef008b8-e02b-48ae-b1fb-0e66e05f489f
BASIN 14E
OUTLET 15E 1
OUTLET 17E 1
BASIN 16E
OUTLET 18E 2
BASIN 6C
OUTLET 7C 1
BASIN 3B
OUTLET 4B 1
BASIN 1A
OUTLET 2A 1
OUTLET 5AB 2
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
OUTLET 12AD 2
BASIN 11A
OUTLET 13A 2
ENDTREE
BEGFILES
HYDIN 11-1000-200-EHYC01BBinput.hyf
SOIL "c:\program files\wms 9.0\modrat\lasoilx_100.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-EHYC01BB.res
OUTPUT 11-1000-200-EHYC01BB
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 48  17 5 50                          2 Z1
  6     1    2A  36          503  434 03000   646        2     020
  6     1    3B  35  5  15 5 50                          2
  6     1    4B  35          50    19 03000              2     020
  6     1    5AB 35          503  152 02000   646        2     020
  6     1    6C 235  1   0 5 50                          2
  6     1    7C 235          50    25 03000              2   A 020
  6     1    8AC235          503  495 03000   646        2     020
  6     1    9D 235  1   0 7 50                          2
  6     1   10D 235          50    37 02000              2   A 020       1
  6     1   11A  36 91  25 8 50                          2
  6     1   12AD 36          50    68 02000              2     020
  6     1   13A  36          50     0 00000              21    020
  6     1   14E  36 91   9 6 50                          2
  6     1   15E  36          50    10 03000              2     020
  6     1   16E 235  1  44 7 50                          2
  6     1   17E 235          50     2 03000              2     020
  6     1   18E 235          50     0 00000              21 2  020
```

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-EHYC03.lac Run date: Wed Jul 18 07:42:50 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 3/4"

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	0.16	1.7	0.16	0.050	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.48
1	2A	0.0	0.00	1.7	0.16	0.050	3	434	0.03000	64-6	0.00	0	36	0	0.75	0.00
1	3B	1.5	0.04	1.5	0.04	0.013	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.05
1	4B	0.0	0.00	1.5	0.04	0.013	0	19	0.03000	0.00	0.00	0	35	0	0.75	0.00
1	5AB	1.5	0.00	3.2	0.20	0.019	3	152	0.02000	64-6	0.00	0	35	0	0.75	0.00
1	6C	2.4	0.05	2.4	0.05	0.016	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.01
1	7C	0.0	0.00	2.4	0.05	0.016	0	25	0.03000	0.00	0.00	0	35	0	0.75	0.00
1	8AC	2.4	0.00	5.6	0.24	0.024	3	495	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	9D	9.4	0.20	9.4	0.20	0.062	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.01
1	10D	0.0	0.00	9.4	0.20	0.062	0	37	0.02000	0.00	0.00	0	35	0	0.75	0.00
1	11A	2.5	0.40	8.1	0.60	0.137	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.91
1	12AD	9.4	0.20	17.5	0.78	0.199	0	68	0.02000	0.00	0.00	0	36	0	0.75	0.00
1	13A	0.0	0.00	17.5	0.78	0.199	0	0	0.00000	0.00	0.00	0	36	0	0.75	0.00
1	14E	0.9	0.14	0.9	0.14	0.046	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.91
1	15E	0.0	0.00	0.9	0.14	0.046	0	10	0.03000	0.00	0.00	0	36	0	0.75	0.00
1	16E	4.4	0.09	5.3	0.24	0.075	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.01
1	17E	0.0	0.00	5.3	0.24	0.075	0	2	0.03000	0.00	0.00	0	35	0	0.75	0.00
1	18E	0.0	0.00	5.3	0.24	0.075	0	0	0.00000	0.00	0.00	0	35	0	0.75	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-EHYC02.lac Run date: Wed Jul 18 07:41:03 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 10

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	4.38	1.7	4.38	0.426	0	0	0.00000	0.00	0.00	0	36	6	5.36	0.48
1	2A	0.0	0.00	1.7	4.38	0.426	3	434	0.03000	64-6	0.00	0	36	0	5.36	0.00
1	3B	1.5	2.01	1.5	2.01	0.104	0	0	0.00000	0.00	0.00	0	35	7	5.36	0.05
1	4B	0.0	0.00	1.5	2.01	0.104	0	19	0.03000	0.00	0.00	0	35	0	5.36	0.00
1	5AB	1.5	0.00	3.2	4.94	0.520	3	152	0.02000	64-6	0.00	0	35	0	5.36	0.00
1	6C	2.4	2.45	2.4	2.45	0.131	0	0	0.00000	0.00	0.00	0	35	9	5.36	0.01
1	7C	0.0	0.00	2.4	2.45	0.131	0	25	0.03000	0.00	0.00	0	35	0	5.36	0.00
1	8AC	2.4	0.00	5.6	6.44	0.649	3	495	0.03000	64-6	0.00	0	35	0	5.36	0.00
1	9D	9.4	5.62	9.4	5.62	0.492	0	0	0.00000	0.00	0.00	0	35	14	5.43	0.01
1	10D	0.0	0.00	9.4	5.62	0.492	0	37	0.02000	0.00	0.00	0	35	0	5.43	0.00
1	11A	2.5	5.17	8.1	9.36	1.579	0	0	0.00000	0.00	0.00	0	36	10	5.38	0.91
1	12AD	9.4	5.55	17.5	13.87	2.071	0	68	0.02000	0.00	0.00	0	36	0	5.38	0.00
1	13A	0.0	0.00	17.5	13.87	2.071	0	0	0.00000	0.00	0.00	0	36	0	5.38	0.00
1	14E	0.9	2.22	0.9	2.22	0.339	0	0	0.00000	0.00	0.00	0	36	7	5.43	0.91
1	15E	0.0	0.00	0.9	2.22	0.339	0	10	0.03000	0.00	0.00	0	36	0	5.43	0.00
1	16E	4.4	3.23	5.3	5.44	0.576	0	0	0.00000	0.00	0.00	0	35	12	5.43	0.01
1	17E	0.0	0.00	5.3	5.44	0.576	0	2	0.03000	0.00	0.00	0	35	0	5.43	0.00
1	18E	0.0	0.00	5.3	5.44	0.576	0	0	0.00000	0.00	0.00	0	35	0	5.43	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-EHYC01.lac Run date: Wed Jul 18 07:29:02 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.636	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.48
1	2A	0.0	0.00	1.7	6.85	0.636	3	434	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.5	4.18	1.5	4.18	0.156	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	4B	0.0	0.00	1.5	4.18	0.156	0	19	0.03000	0.00	0.00	0	35	0	7.50	0.00
1	5AB	1.5	0.00	3.2	8.21	0.791	3	152	0.02000	64-6	0.00	0	35	0	7.50	0.00
1	6C	2.4	6.58	2.4	6.58	0.204	0	0	0.00000	0.00	0.00	0	35	5	7.51	0.01
1	7C	0.0	0.00	2.4	6.58	0.204	0	25	0.03000	0.00	0.00	0	35	0	7.51	0.00
1	8AC	2.4	0.00	5.6	12.74	0.994	3	495	0.03000	64-6	0.00	0	35	0	7.51	0.00
1	9D	9.4	21.15	9.4	21.15	0.810	0	0	0.00000	0.00	0.00	0	35	7	7.60	0.01
1	10D	0.0	0.00	9.4	21.15	0.810	0	37	0.02000	0.00	0.00	0	35	0	7.60	0.00
1	11A	2.5	8.10	8.1	17.42	2.311	0	0	0.00000	0.00	0.00	0	36	8	7.54	0.91
1	12AD	9.4	17.43	17.5	34.36	3.120	0	68	0.02000	0.00	0.00	0	36	0	7.54	0.00
1	13A	0.0	0.00	17.5	34.36	3.120	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	14E	0.9	3.37	0.9	3.37	0.479	0	0	0.00000	0.00	0.00	0	36	6	7.60	0.91
1	15E	0.0	0.00	0.9	3.37	0.479	0	10	0.03000	0.00	0.00	0	36	0	7.60	0.00
1	16E	4.4	9.90	5.3	13.27	0.858	0	0	0.00000	0.00	0.00	0	35	7	7.60	0.01
1	17E	0.0	0.00	5.3	13.27	0.858	0	2	0.03000	0.00	0.00	0	35	0	7.60	0.00
1	18E	0.0	0.00	5.3	13.27	0.858	0	0	0.00000	0.00	0.00	0	35	0	7.60	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-EHYC01B.lac Run date: Wed Jul 18 13:36:09 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.636	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.48
1	2A	0.0	0.00	1.7	6.85	0.636	3	434	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.5	4.18	1.5	4.18	0.156	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	4B	0.0	0.00	1.5	4.18	0.156	0	19	0.03000	0.00	0.00	0	35	0	7.50	0.00
1	5AB	1.5	0.00	3.2	8.21	0.791	3	152	0.02000	64-6	0.00	0	35	0	7.50	0.00
1	6C	2.4	8.35	2.4	8.35	0.335	0	0	0.00000	0.00	0.00	0	235	5	7.51	0.01
1	7C	0.0	0.00	2.4	8.35	0.335	0	25	0.03000	0.00	0.00	0	235	0	7.51	0.00
1	8AC	2.4	0.00	5.6	14.41	1.125	3	495	0.03000	64-6	0.00	0	235	0	7.51	0.00
1	9D	9.4	27.46	9.4	27.46	1.335	0	0	0.00000	0.00	0.00	0	235	7	7.60	0.01
1	10D	0.0	0.00	9.4	27.46	1.335	0	37	0.02000	0.00	0.00	0	235	0	7.60	0.00
1	11A	2.5	8.10	8.1	19.29	2.442	0	0	0.00000	0.00	0.00	0	36	8	7.54	0.91
1	12AD	9.4	19.97	17.5	39.26	3.776	0	68	0.02000	0.00	0.00	0	36	0	7.54	0.00
1	13A	0.0	0.00	17.5	39.26	3.776	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	14E	0.9	3.37	0.9	3.37	0.479	0	0	0.00000	0.00	0.00	0	36	6	7.60	0.91
1	15E	0.0	0.00	0.9	3.37	0.479	0	10	0.03000	0.00	0.00	0	36	0	7.60	0.00
1	16E	4.4	12.86	5.3	16.22	1.104	0	0	0.00000	0.00	0.00	0	235	7	7.60	0.01
1	17E	0.0	0.00	5.3	16.22	1.104	0	2	0.03000	0.00	0.00	0	235	0	7.60	0.00
1	18E	0.0	0.00	5.3	16.22	1.104	0	0	0.00000	0.00	0.00	0	235	0	7.60	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-EHYC01BB.lac Run date: Wed Jul 25 13:32:52 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.636	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.48
1	2A	0.0	0.00	1.7	6.85	0.636	3	434	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.5	4.18	1.5	4.18	0.156	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	4B	0.0	0.00	1.5	4.18	0.156	0	19	0.03000	0.00	0.00	0	35	0	7.50	0.00
1	5AB	1.5	0.00	3.2	8.21	0.791	3	152	0.02000	64-6	0.00	0	35	0	7.50	0.00
1	6C	0.0	0.00	0.0	0.00	0.000	0	0	0.00000	0.00	0.00	0	235	5	7.51	0.01
1	7C	0.0	0.00	0.0	13.20	0.523	0	25	0.03000	0.00	0.00	0	235	0	7.51	0.00
1	8AC	0.0	0.00	3.2	18.89	1.313	3	495	0.03000	64-6	0.00	0	235	0	7.51	0.00
1	9D	0.0	0.00	0.0	0.00	0.000	0	0	0.00000	0.00	0.00	0	235	7	7.60	0.01
1	10D	0.0	0.00	0.0	43.70	2.144	0	37	0.02000	0.00	0.00	0	235	0	7.60	0.00
1	11A	2.5	8.10	5.7	23.70	2.629	0	0	0.00000	0.00	0.00	0	36	8	7.54	0.91
1	12AD	0.0	24.63	5.7	48.33	4.773	0	68	0.02000	0.00	0.00	0	36	0	7.54	0.00
1	13A	0.0	0.00	5.7	48.33	4.773	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	14E	0.9	3.37	0.9	3.37	0.479	0	0	0.00000	0.00	0.00	0	36	6	7.60	0.91
1	15E	0.0	0.00	0.9	3.37	0.479	0	10	0.03000	0.00	0.00	0	36	0	7.60	0.00
1	16E	4.4	12.86	5.3	16.22	1.104	0	0	0.00000	0.00	0.00	0	235	7	7.60	0.01
1	17E	0.0	0.00	5.3	16.22	1.104	0	2	0.03000	0.00	0.00	0	235	0	7.60	0.00
1	18E	0.0	0.00	5.3	16.22	1.104	0	0	0.00000	0.00	0.00	0	235	0	7.60	0.00

Normal End of MODRAT

LA County Bulked Flow

Summary Report
OUTLET: 18E BULKED FLOW: 23 cfs

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	8.8
7	1.567	1.567	15.3

Details Report

OUTLET: 18E BULKED FLOW: 23 cfs

TOTAL UPSTREAM AREA: 0.0084 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 14E: Zone 7 - 0.0015 mi^2,
Basin 16E: Zone 6 - 0.0028 mi^2, Zone 7 - 0.0041 mi^2,
BULKING FACTORS

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	8.8
7	1.567	1.567	15.3

LA County Debris Production

Summary Report

OUTLET: 7C TOTAL DEBRIS: 121 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	41.2
7	28000.0	28000.0	80.1

OUTLET: 10D TOTAL DEBRIS: 598 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	448.4
7	28000.0	28000.0	150.5

OUTLET: 17E TOTAL DEBRIS: 249 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	136.9
7	28000.0	28000.0	113.7

OUTLET: 18E TOTAL DEBRIS: 249 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	136.9
7	28000.0	28000.0	113.7

Details Report

OUTLET: 7C TOTAL DEBRIS: 121 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0037 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 6C: Zone 6 - 0.0009 mi^2, Zone 7 - 0.0029 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	41.2
7	28000.0	28000.0	80.1

OUTLET: 10D TOTAL DEBRIS: 598 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0147 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 9D: Zone 6 - 0.0093 mi^2, Zone 7 - 0.0054 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	448.4
7	28000.0	28000.0	150.5

OUTLET: 17E TOTAL DEBRIS: 249 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0084 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 16E: Zone 6 - 0.0029 mi^2, Zone 7 - 0.0041 mi^2,
Basin 14E: Zone 7 - 0.0015 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	136.9
7	28000.0	28000.0	113.7

OUTLET: 18E TOTAL DEBRIS: 249 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0084 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 16E: Zone 6 - 0.0029 mi^2, Zone 7 - 0.0041 mi^2,
Basin 14E: Zone 7 - 0.0015 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	136.9
7	28000.0	28000.0	113.7

Appendix 5
Post-Development Conditions – WMS Input and Output Files
Flow Rate and Volume Results

```
BEGTREE b1990b17-9689-498f-aaf6-816cd4f449fc
OUTLET 39MP 0
RETRIEVEDIVERT 30P
BASIN 15F
OUTLET 16F 1
BASIN 1A
OUTLET 2A 1
BASIN 3B
OUTLET 4B 1
OUTLET 5AB 2
BASIN 6C
OUTLET 7C 1
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
BASIN 11E
OUTLET 12E 1
OUTLET 13DE 2
OUTLET 14AD 2
OUTLET 17AF 2
BASIN 31J
OUTLET 32J 1
OUTLET 27IO 0
RETRIEVEDIVERT 26O
OUTLET 22HN 0
RETRIEVEDIVERT 21N
BASIN 18G
OUTLET 19G 1
OUTLET 20GN 1
DIVERSION 21N
OUTLET 23GH 2
BASIN 24G
OUTLET 25GO 2
DIVERSION 26O
OUTLET 28GI 2
OUTLET 29GP 1
DIVERSION 30P
OUTLET 33GJ 2
BASIN 34G
OUTLET 35G 2
OUTLET 36AG 2
BASIN 37A
OUTLET 38A 2
BASIN 40K
OUTLET 41K 1
OUTLET 42LM 0
OUTLET 43KL 2
BASIN 44K
OUTLET 45K 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\cst_soilx_83.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-PHYC30.res
OUTPUT 11-1000-200-PHYC30
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 50  1730  1                                2 Z1
  6     1    2A  36            13  423 03000   646            2     020
  6     1    3B  35  5  1630  1                                2
  6     1    4B  35            13   31 03000   646            2     020
  6     1    5AB 35            13  125 03000   646            2     020
  6     1    6C  35  5   630  1                                2
  6     1    7C  35            13   38 03000   646            2     020
  6     1    8AC 35            13  234 03000   646            2     020
  6     1    9D  35  5  3230  1                                2
  6     1   10D  35            14  242 04000      300         2     013       1
  6     1   11E  35  2  5530  1                                2
  6     1   12E  35            14  239 04000      300         2     013       1
  6     1   13DE 35            14  266 05000      300         2     013
  6     1   14AD 35            13   54 03000   646            2     020
  6     1   15F  35 55   516  1                                2
  6     1   16F  35            13   40 03000   646            2     020
  6     1   17AF 35            14  379 03000      300         2     012
  6     1   18G  35 90  2122  1                                2
  6     1   19G  35            14   71 04000      150         2     012
  6     1   20GN 35            14   96 02000      150      54 2     012
  6     1   21N  35            14   50 01000      150         2     012
  6     1   22HN 35            14   25 02000       50         2     012       1
  6     1   23GH 35            14  331 02000      150         2     012
  6     1   24G  35 70  1628  1                                2
  6     1   25GO 35            14   31 05000      150      34 2     012
  6     1   26O  35            14   40 02000      150         2     012
  6     1   27IO 35            14   35 05000      100         2     012       1
  6     1   28GI 35            14   53 05000      150         2     012
  6     1   29GP 35            14   29 05000      150      14 2     012
  6     1   30P  35            14   50 04000      100         2     012
  6     1   31J  35 10  1730  1                                2
  6     1   32J  35            14   18 05000      100         2     012
  6     1   33GJ 35            14   22 03000      150         2     012
  6     1   34G  36 10   730  1                                2
  6     1   35G  36            14  134 03000      150         2     012
  6     1   36AG 36            14   20 03000      150         2     012
  6     1   37A  36 91  2229  1                                2
  6     1   38A  36            1     0 00000                  2
  6     1   39MP 36            16  230 01000 30   500         2     200200   1
  6     1   40K  36 10  1130  1                                2
  6     1   41K  36            13   13 03000   646            2     020
  6     1   42LM 36            13   76 03000   646            2     020
  6     1   43KL 36            13    9 03000   646            2     020
  6     1   44K  36 91   725  1                                2
  6     1   45K  36            1     0 00000                  2  2
```

```
BEGTREE b1990b17-9689-498f-aaf6-816cd4f449fc
OUTLET 39MP 0
RETRIEVEDIVERT 30P
BASIN 15F
OUTLET 16F 1
BASIN 1A
OUTLET 2A 1
BASIN 3B
OUTLET 4B 1
OUTLET 5AB 2
BASIN 6C
OUTLET 7C 1
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
BASIN 11E
OUTLET 12E 1
OUTLET 13DE 2
OUTLET 14AD 2
OUTLET 17AF 2
BASIN 31J
OUTLET 32J 1
OUTLET 27IO 0
RETRIEVEDIVERT 26O
OUTLET 22HN 0
RETRIEVEDIVERT 21N
BASIN 18G
OUTLET 19G 1
OUTLET 20GN 1
DIVERSION 21N
OUTLET 23GH 2
BASIN 24G
OUTLET 25GO 2
DIVERSION 26O
OUTLET 28GI 2
OUTLET 29GP 1
DIVERSION 30P
OUTLET 33GJ 2
BASIN 34G
OUTLET 35G 2
OUTLET 36AG 2
BASIN 37A
OUTLET 38A 2
BASIN 40K
OUTLET 41K 1
OUTLET 42LM 0
OUTLET 43KL 2
BASIN 44K
OUTLET 45K 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\cst_soilx_83.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-PHYC20.res
OUTPUT 11-1000-200-PHYC20
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 50  17 6 50                              2 Z1
  6     1    2A  36           503  423 03000   646           2     020
  6     1    3B  35  5  16 9 50                              2
  6     1    4B  35           503   31 03000   646           2     020
  6     1    5AB 35           503  125 03000   646           2     020
  6     1    6C  35  5   6 5 50                              2
  6     1    7C  35           503   38 03000   646           2     020
  6     1    8AC 35           503  234 03000   646           2     020
  6     1    9D  35  5  32 7 50                              2
  6     1   10D  35           504  242 04000      300        2     013       1
  6     1   11E  35  2  55 8 50                              2
  6     1   12E  35           504  239 04000      300        2     013       1
  6     1   13DE 35           504  266 05000      300        2     013
  6     1   14AD 35           503   54 03000   646           2     020
  6     1   15F  35 55   5 5 50                              2
  6     1   16F  35           503   40 03000   646           2     020
  6     1   17AF 35           504  379 03000      300        2     012
  6     1   18G  35 90  21 6 50                              2
  6     1   19G  35           504   71 04000      150        2     012
  6     1   20GN 35           504   96 02000      150      54 2     012
  6     1   21N  35           504   50 01000      150        2     012
  6     1   22HN 35           504   25 02000       50        2     012       1
  6     1   23GH 35           504  331 02000      150        2     012
  6     1   24G  35 70  16 6 50                              2
  6     1   25GO 35           504   31 05000      150      34 2     012
  6     1   26O  35           504   40 02000      150        2     012
  6     1   27IO 35           504   35 05000      100        2     012       1
  6     1   28GI 35           504   53 05000      150        2     012
  6     1   29GP 35           504   29 05000      150      14 2     012
  6     1   30P  35           504   50 04000      100        2     012
  6     1   31J  35 10  17 8 50                              2
  6     1   32J  35           504   18 05000      100        2     012
  6     1   33GJ 35           504   22 03000      150        2     012
  6     1   34G  36 10   7 6 50                              2
  6     1   35G  36           504  134 03000      150        2     012
  6     1   36AG 36           504   20 03000      150        2     012
  6     1   37A  36 91  22 7 50                              2
  6     1   38A  36           50     0 00000                 2
  6     1   39MP 36           506  230 01000 30   500        2     200200   1
  6     1   40K  36 10  11 6 50                              2
  6     1   41K  36           503   13 03000   646           2     020
  6     1   42LM 36           503   76 03000   646           2     020
  6     1   43KL 36           503    9 03000   646           2     020
  6     1   44K  36 91   7 6 50                              2
  6     1   45K  36           50     0 00000                 2  2
```

```
BEGTREE b1990b17-9689-498f-aaf6-816cd4f449fc
OUTLET 39MP 0
RETRIEVEDIVERT 30P
BASIN 15F
OUTLET 16F 1
BASIN 1A
OUTLET 2A 1
BASIN 3B
OUTLET 4B 1
OUTLET 5AB 2
BASIN 6C
OUTLET 7C 1
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
BASIN 11E
OUTLET 12E 1
OUTLET 13DE 2
OUTLET 14AD 2
OUTLET 17AF 2
BASIN 31J
OUTLET 32J 1
OUTLET 27IO 0
RETRIEVEDIVERT 26O
OUTLET 22HN 0
RETRIEVEDIVERT 21N
BASIN 18G
OUTLET 19G 1
OUTLET 20GN 1
DIVERSION 21N
OUTLET 23GH 2
BASIN 24G
OUTLET 25GO 2
DIVERSION 26O
OUTLET 28GI 2
OUTLET 29GP 1
DIVERSION 30P
OUTLET 33GJ 2
BASIN 34G
OUTLET 35G 2
OUTLET 36AG 2
BASIN 37A
OUTLET 38A 2
BASIN 40K
OUTLET 41K 1
OUTLET 42LM 0
OUTLET 43KL 2
BASIN 44K
OUTLET 45K 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\cst_soilx_83.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-PHYC10.res
OUTPUT 11-1000-200-PHYC10
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 50  17 5 50                              2 Z1
  6     1    2A  36           503  423 03000   646           2     020
  6     1    3B  35  5  16 6 50                              2
  6     1    4B  35           503   31 03000   646           2     020
  6     1    5AB 35           503  125 03000   646           2     020
  6     1    6C  35  5   6 5 50                              2
  6     1    7C  35           503   38 03000   646           2     020
  6     1    8AC 35           503  234 03000   646           2     020
  6     1    9D  35  5  32 5 50                              2
  6     1   10D  35           504  242 04000      300        2     013       1
  6     1   11E  35  2  55 5 50                              2
  6     1   12E  35           504  239 04000      300        2     013       1
  6     1   13DE 35           504  266 05000      300        2     013
  6     1   14AD 35           503   54 03000   646           2     020
  6     1   15F  35 55   5 5 50                              2
  6     1   16F  35           503   40 03000   646           2     020
  6     1   17AF 35           504  379 03000      300        2     012
  6     1   18G  35 90  21 5 50                              2
  6     1   19G  35           504   71 04000      150        2     012
  6     1   20GN 35           504   96 02000      150      54 2     012
  6     1   21N  35           504   50 01000      150        2     012
  6     1   22HN 35           504   25 02000       50        2     012       1
  6     1   23GH 35           504  331 02000      150        2     012
  6     1   24G  35 70  16 5 50                              2
  6     1   25GO 35           504   31 05000      150      34 2     012
  6     1   26O  35           504   40 02000      150        2     012
  6     1   27IO 35           504   35 05000      100        2     012       1
  6     1   28GI 35           504   53 05000      150        2     012
  6     1   29GP 35           504   29 05000      150      14 2     012
  6     1   30P  35           504   50 04000      100        2     012
  6     1   31J  35 10  17 5 50                              2
  6     1   32J  35           504   18 05000      100        2     012
  6     1   33GJ 35           504   22 03000      150        2     012
  6     1   34G  36 10   7 5 50                              2
  6     1   35G  36           504  134 03000      150        2     012
  6     1   36AG 36           504   20 03000      150        2     012
  6     1   37A  36 91  22 6 50                              2
  6     1   38A  36           50     0 00000                 2
  6     1   39MP 36           506  230 01000 30   500        2     200200   1
  6     1   40K  36 10  11 5 50                              2
  6     1   41K  36           503   13 03000   646           2     020
  6     1   42LM 36           503   76 03000   646           2     020
  6     1   43KL 36           503    9 03000   646           2     020
  6     1   44K  36 91   7 5 50                              2
  6     1   45K  36           50     0 00000                 2  2
```

```
BEGTREE b1990b17-9689-498f-aaf6-816cd4f449fc
OUTLET 39MP 0
RETRIEVEDIVERT 30P
BASIN 15F
OUTLET 16F 1
BASIN 1A
OUTLET 2A 1
BASIN 3B
OUTLET 4B 1
OUTLET 5AB 2
BASIN 6C
OUTLET 7C 1
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
BASIN 11E
OUTLET 12E 1
OUTLET 13DE 2
OUTLET 14AD 2
OUTLET 17AF 2
BASIN 31J
OUTLET 32J 1
OUTLET 27IO 0
RETRIEVEDIVERT 26O
OUTLET 22HN 0
RETRIEVEDIVERT 21N
BASIN 18G
OUTLET 19G 1
OUTLET 20GN 1
DIVERSION 21N
OUTLET 23GH 2
BASIN 24G
OUTLET 25GO 2
DIVERSION 26O
OUTLET 28GI 2
OUTLET 29GP 1
DIVERSION 30P
OUTLET 33GJ 2
BASIN 34G
OUTLET 35G 2
OUTLET 36AG 2
BASIN 37A
OUTLET 38A 2
BASIN 40K
OUTLET 41K 1
OUTLET 42LM 0
OUTLET 43KL 2
BASIN 44K
OUTLET 45K 2
ENDTREE
BEGFILES
HYDIN NONE
SOIL "P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\cst_soilx_83.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-PHYC10B.res
OUTPUT 11-1000-200-PHYC10B
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 50  17 5 50                              2 Z1
  6     1    2A  36           503  423 03000   646           2     020
  6     1    3B  35  5  16 6 50                              2
  6     1    4B  35           503   31 03000   646           2     020
  6     1    5AB 35           503  125 03000   646           2     020
  6     1    6C  35  5   6 5 50                              2
  6     1    7C  35           503   38 03000   646           2     020
  6     1    8AC 35           503  234 03000   646           2     020
  6     1    9D 235  5  32 5 50                              2
  6     1   10D 235           504  242 04000      300        2     013       1
  6     1   11E 235  2  55 5 50                              2
  6     1   12E 235           504  239 04000      300        2     013       1
  6     1   13DE235           504  266 05000      300        2     013
  6     1   14AD235           503   54 03000   646           2     020
  6     1   15F  35 55   5 5 50                              2
  6     1   16F  35           503   40 03000   646           2     020
  6     1   17AF 35           504  379 03000      300        2     012
  6     1   18G  35 90  21 5 50                              2
  6     1   19G  35           504   71 04000      150        2     012
  6     1   20GN 35           504   96 02000      150      54 2     012
  6     1   21N  35           504   50 01000      150        2     012
  6     1   22HN 35           504   25 02000       50        2     012       1
  6     1   23GH 35           504  331 02000      150        2     012
  6     1   24G  35 70  16 5 50                              2
  6     1   25GO 35           504   31 05000      150      34 2     012
  6     1   26O  35           504   40 02000      150        2     012
  6     1   27IO 35           504   35 05000      100        2     012       1
  6     1   28GI 35           504   53 05000      150        2     012
  6     1   29GP 35           504   29 05000      150      14 2     012
  6     1   30P  35           504   50 04000      100        2     012
  6     1   31J  35 10  17 5 50                              2
  6     1   32J  35           504   18 05000      100        2     012
  6     1   33GJ 35           504   22 03000      150        2     012
  6     1   34G  36 10   7 5 50                              2
  6     1   35G  36           504  134 03000      150        2     012
  6     1   36AG 36           504   20 03000      150        2     012
  6     1   37A  36 91  22 6 50                              2
  6     1   38A  36            50    0 00000                 2
  6     1   39MP 36           506  230 01000 30   500        2     200200   1
  6     1   40K  36 10  11 5 50                              2
  6     1   41K  36           503   13 03000   646           2     020
  6     1   42LM 36           503   76 03000   646           2     020
  6     1   43KL 36           503    9 03000   646           2     020
  6     1   44K  36 91   7 5 50                              2
  6     1   45K  36            50    0 00000                 2  2
```

```
BEGTREE b1990b17-9689-498f-aaf6-816cd4f449fc
OUTLET 39MP 0
RETRIEVEDIVERT 30P
BASIN 15F
OUTLET 16F 1
BASIN 1A
OUTLET 2A 1
BASIN 3B
OUTLET 4B 1
OUTLET 5AB 2
BASIN 6C
OUTLET 7C 1
OUTLET 8AC 2
BASIN 9D
OUTLET 10D 1
BASIN 11E
OUTLET 12E 1
OUTLET 13DE 2
OUTLET 14AD 2
OUTLET 17AF 2
BASIN 31J
OUTLET 32J 1
OUTLET 27IO 0
RETRIEVEDIVERT 26O
OUTLET 22HN 0
RETRIEVEDIVERT 21N
BASIN 18G
OUTLET 19G 1
OUTLET 20GN 1
DIVERSION 21N
OUTLET 23GH 2
BASIN 24G
OUTLET 25GO 2
DIVERSION 26O
OUTLET 28GI 2
OUTLET 29GP 1
DIVERSION 30P
OUTLET 33GJ 2
BASIN 34G
OUTLET 35G 2
OUTLET 36AG 2
BASIN 37A
OUTLET 38A 2
BASIN 40K
OUTLET 41K 1
OUTLET 42LM 0
OUTLET 43KL 2
BASIN 44K
OUTLET 45K 2
ENDTREE
BEGFILES
HYDIN 11-1000-200-PHYC10BBinput.hyf
SOIL "P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\cst_soilx_83.dat"
RAIN rain.dat
RESERVOIR 11-1000-200-PHYC10BB.res
OUTPUT 11-1000-200-PHYC10BB
HYDROINTERVAL 1
EXTENDSIMULATION 1
ENDFILES
  6     1    1A  36 50  17 5 50                              2 Z1
  6     1    2A  36            503  423 03000   646           2     020
  6     1    3B  35  5  16 6 50                              2
  6     1    4B  35            503   31 03000   646           2     020
  6     1    5AB 35            503  125 03000   646           2     020
  6     1    6C  35  5   6 5 50                              2
  6     1    7C  35            503   38 03000   646           2     020
  6     1    8AC 35            503  234 03000   646           2     020
  6     1    9D 235  5   0 5 50                              2
  6     1   10D 235            504  242 04000      300        2   A 013       1
  6     1   11E 235  2   0 5 50                              2
  6     1   12E 235            504  239 04000      300        2   A 013       1
  6     1   13DE235            504  266 05000      300        2     013
  6     1   14AD235            503   54 03000   646           2     020
  6     1   15F  35 55   5 5 50                              2
  6     1   16F  35            503   40 03000   646           2     020
  6     1   17AF 35            504  379 03000      300        2     012
  6     1   18G  35 90  21 5 50                              2
  6     1   19G  35            504   71 04000      150        2     012
  6     1   20GN 35            504   96 02000      150      54 2     012
  6     1   21N  35            504   50 01000      150        2     012
  6     1   22HN 35            504   25 02000       50        2     012       1
  6     1   23GH 35            504  331 02000      150        2     012
  6     1   24G  35 70  16 5 50                              2
  6     1   25GO 35            504   31 05000      150      34 2     012
  6     1   26O  35            504   40 02000      150        2     012
  6     1   27IO 35            504   35 05000      100        2     012       1
  6     1   28GI 35            504   53 05000      150        2     012
  6     1   29GP 35            504   29 05000      150      14 2     012
  6     1   30P  35            504   50 04000      100        2     012
  6     1   31J  35 10  17 5 50                              2
  6     1   32J  35            504   18 05000      100        2     012
  6     1   33GJ 35            504   22 03000      150        2     012
  6     1   34G  36 10   7 5 50                              2
  6     1   35G  36            504  134 03000      150        2     012
  6     1   36AG 36            504   20 03000      150        2     012
  6     1   37A  36 91  22 6 50                              2
  6     1   38A  36             50    0 00000                2
  6     1   39MP 36            506  230 01000 30   500        2     200200   1
  6     1   40K  36 10  11 5 50                              2
  6     1   41K  36            503   13 03000   646           2     020
  6     1   42LM 36            503   76 03000   646           2     020
  6     1   43KL 36            503    9 03000   646           2     020
  6     1   44K  36 91   7 5 50                              2
  6     1   45K  36             50    0 00000                2  2
```

HYDROGRAPH MODIFICATION REQUESTED AND NO FLOW IN PRIMARY LOCATION

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-PHYC30.lac Run date: Tue Jul 17 11:01:37 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 3/4"

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	0.16	1.7	0.16	0.052	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.50
1	2A	0.0	0.00	1.7	0.16	0.052	3	423	0.03000	64-6	0.00	0	36	0	0.75	0.00
1	3B	1.6	0.04	1.6	0.04	0.014	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.05
1	4B	0.0	0.00	1.6	0.04	0.014	3	31	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	5AB	1.6	0.00	3.3	0.16	0.007	3	125	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	6C	0.6	0.02	0.6	0.02	0.005	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.05
1	7C	0.0	0.00	0.6	0.02	0.005	3	38	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	8AC	0.6	0.00	3.9	0.16	0.007	3	234	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	9D	3.2	0.09	3.2	0.09	0.027	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.05
1	10D	0.0	0.00	3.2	0.09	0.027	4	242	0.04000	3.00	0.00	0	35	0	0.75	0.00
1	11E	5.5	0.12	5.5	0.12	0.039	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.02
1	12E	0.0	0.00	5.5	0.12	0.039	4	239	0.04000	3.00	0.00	0	35	0	0.75	0.00
1	13DE	5.5	0.00	8.7	0.12	0.004	4	266	0.05000	3.00	0.00	0	35	0	0.75	0.00
1	14AD	8.7	0.00	12.6	0.28	0.010	3	54	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	15F	0.5	0.07	0.5	0.07	0.017	0	0	0.00000	0.00	0.00	0	35	16	0.75	0.55
1	16F	0.0	0.00	0.5	0.07	0.017	3	40	0.03000	64-6	0.00	0	35	0	0.75	0.00
1	17AF	0.5	0.00	13.1	0.28	0.010	4	379	0.03000	3.00	0.00	0	35	0	0.75	0.00
1	18G	2.1	0.38	2.1	0.38	0.106	0	0	0.00000	0.00	0.00	0	35	22	0.75	0.90
1	19G	0.0	0.00	2.1	0.38	0.106	4	71	0.04000	1.50	0.00	0	35	0	0.75	0.00
1	20GN	0.0	0.00	2.1	0.00	0.000	4	96	0.02000	1.50	0.00	5	35	0	0.75	0.00
1	21N	0.0	0.00	0.0	0.38	0.026	4	50	0.01000	1.50	0.00	0	35	0	0.75	0.00
1	22HN	0.0	0.00	0.0	0.38	0.026	4	25	0.02000	0.50	0.00	0	35	0	0.75	0.00
1	23GH	0.0	0.00	2.1	0.00	0.000	4	331	0.02000	1.50	0.00	0	35	0	0.75	0.00
1	24G	1.6	0.21	3.7	0.21	0.065	0	0	0.00000	0.00	0.00	0	35	28	0.75	0.70
1	25GO	0.0	0.21	3.7	0.00	0.000	4	31	0.05000	1.50	0.00	3	35	0	0.75	0.00
1	26O	0.0	0.00	0.0	0.21	0.065	4	40	0.02000	1.50	0.00	0	35	0	0.75	0.00
1	27IO	0.0	0.00	0.0	0.21	0.010	4	35	0.05000	1.00	0.00	0	35	0	0.75	0.00
1	28GI	0.0	0.00	3.7	0.00	0.000	4	53	0.05000	1.50	0.00	0	35	0	0.75	0.00
1	29GP	0.0	0.00	3.7	0.00	0.000	4	29	0.05000	1.50	0.00	1	35	0	0.75	0.00
1	30P	0.0	0.00	0.0	0.00	0.000	4	50	0.04000	1.00	0.00	0	35	0	0.75	0.00
1	31J	1.7	0.06	1.7	0.06	0.019	0	0	0.00000	0.00	0.00	0	35	30	0.75	0.10
1	32J	0.0	0.00	1.7	0.06	0.019	4	18	0.05000	1.00	0.00	0	35	0	0.75	0.00
1	33GJ	1.7	0.00	5.4	0.00	0.000	4	22	0.03000	1.50	0.00	0	35	0	0.75	0.00
1	34G	0.7	0.02	6.1	0.02	0.008	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.10
1	35G	0.0	0.00	6.1	0.02	0.008	4	134	0.03000	1.50	0.00	0	36	0	0.75	0.00
1	36AG	6.1	0.00	19.2	0.27	0.010	4	20	0.03000	1.50	0.00	0	36	0	0.75	0.00
1	37A	2.2	0.36	21.4	0.60	0.122	0	0	0.00000	0.00	0.00	0	36	29	0.75	0.91
1	38A	0.0	0.00	21.4	0.60	0.122	0	0	0.00000	0.00	0.00	0	36	0	0.75	0.00
1	39MP	0.0	0.00	0.0	0.00	0.000	6	230	0.01000	5.00	3.00	0	36	0	0.75	0.00
1	40K	1.1	0.04	1.1	0.04	0.012	0	0	0.00000	0.00	0.00	0	36	30	0.75	0.10
1	41K	0.0	0.00	1.1	0.04	0.012	3	13	0.03000	64-6	0.00	0	36	0	0.75	0.00
1	42LM	0.0	0.00	0.0	0.00	0.000	3	76	0.03000	64-6	0.00	0	36	0	0.75	0.00
1	43KL	0.0	0.00	1.1	0.00	0.000	3	9	0.03000	64-6	0.00	0	36	0	0.75	0.00
1	44K	0.7	0.12	1.8	0.12	0.036	0	0	0.00000	0.00	0.00	0	36	25	0.75	0.91
1	45K	0.0	0.00	1.8	0.12	0.036	0	0	0.00000	0.00	0.00	0	36	0	0.75	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-PHYC20.lac Run date: Tue Jul 17 10:57:53 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	4.38	1.7	4.38	0.435	0	0	0.00000	0.00	0.00	0	36	6	5.36	0.50
1	2A	0.0	0.00	1.7	4.38	0.435	3	423	0.03000	64-6	0.00	0	36	0	5.36	0.00
1	3B	1.6	1.71	1.6	1.71	0.109	0	0	0.00000	0.00	0.00	0	35	9	5.36	0.05
1	4B	0.0	0.00	1.6	1.71	0.109	3	31	0.03000	64-6	0.00	0	35	0	5.36	0.00
1	5AB	1.6	0.00	3.3	5.08	0.467	3	125	0.03000	64-6	0.00	0	35	0	5.36	0.00
1	6C	0.6	1.05	0.6	1.05	0.042	0	0	0.00000	0.00	0.00	0	35	5	5.36	0.05
1	7C	0.0	0.00	0.6	1.05	0.042	3	38	0.03000	64-6	0.00	0	35	0	5.36	0.00
1	8AC	0.6	0.00	3.9	5.02	0.475	3	234	0.03000	64-6	0.00	0	35	0	5.36	0.00
1	9D	3.2	4.34	3.2	4.34	0.224	0	0	0.00000	0.00	0.00	0	35	7	5.40	0.05
1	10D	0.0	0.00	3.2	4.34	0.224	4	242	0.04000	3.00	0.00	0	35	0	5.40	0.00
1	11E	5.5	6.56	5.5	6.56	0.328	0	0	0.00000	0.00	0.00	0	35	8	5.43	0.02
1	12E	0.0	0.00	5.5	6.56	0.328	4	239	0.04000	3.00	0.00	0	35	0	5.43	0.00
1	13DE	5.5	0.00	8.7	9.41	0.359	4	266	0.05000	3.00	0.00	0	35	0	5.43	0.00
1	14AD	8.7	0.00	12.6	13.21	0.833	3	54	0.03000	64-6	0.00	0	35	0	5.43	0.00
1	15F	0.5	1.19	0.5	1.19	0.122	0	0	0.00000	0.00	0.00	0	35	5	5.41	0.55
1	16F	0.0	0.00	0.5	1.19	0.122	3	40	0.03000	64-6	0.00	0	35	0	5.41	0.00
1	17AF	0.5	0.00	13.1	13.56	0.868	4	379	0.03000	3.00	0.00	0	35	0	5.41	0.00
1	18G	2.1	5.36	2.1	5.36	0.772	0	0	0.00000	0.00	0.00	0	35	6	5.42	0.90
1	19G	0.0	0.00	2.1	5.36	0.772	4	71	0.04000	1.50	0.00	0	35	0	5.42	0.00
1	20GN	0.0	0.00	2.1	0.31	0.001	4	96	0.02000	1.50	0.00	5	35	0	5.42	0.00
1	21N	0.0	0.00	0.0	5.00	0.770	4	50	0.01000	1.50	0.00	0	35	0	5.42	0.00
1	22HN	0.0	0.00	0.0	5.00	0.770	4	25	0.02000	0.50	0.00	0	35	0	5.42	0.00
1	23GH	0.0	0.00	2.1	2.40	0.505	4	331	0.02000	1.50	0.00	0	35	0	5.42	0.00
1	24G	1.6	3.72	3.7	5.60	0.981	0	0	0.00000	0.00	0.00	0	35	6	5.43	0.70
1	25GO	0.0	3.00	3.7	2.60	0.022	4	31	0.05000	1.50	0.00	3	35	0	5.43	0.00
1	26O	0.0	0.00	0.0	3.00	0.959	4	40	0.02000	1.50	0.00	0	35	0	5.43	0.00
1	27IO	0.0	0.00	0.0	3.00	0.959	4	35	0.05000	1.00	0.00	0	35	0	5.43	0.00
1	28GI	0.0	0.00	3.7	5.55	0.919	4	53	0.05000	1.50	0.00	0	35	0	5.43	0.00
1	29GP	0.0	0.00	3.7	4.54	0.165	4	29	0.05000	1.50	0.00	1	35	0	5.43	0.00
1	30P	0.0	0.00	0.0	1.00	0.753	4	50	0.04000	1.00	0.00	0	35	0	5.43	0.00
1	31J	1.7	2.18	1.7	2.18	0.149	0	0	0.00000	0.00	0.00	0	35	8	5.43	0.10
1	32J	0.0	0.00	1.7	2.18	0.149	4	18	0.05000	1.00	0.00	0	35	0	5.43	0.00
1	33GJ	1.7	0.00	5.4	6.68	0.220	4	22	0.03000	1.50	0.00	0	35	0	5.43	0.00
1	34G	0.7	1.80	6.1	8.37	0.322	0	0	0.00000	0.00	0.00	0	36	6	5.43	0.10
1	35G	0.0	0.00	6.1	8.37	0.322	4	134	0.03000	1.50	0.00	0	36	0	5.43	0.00
1	36AG	6.1	0.00	19.2	20.47	1.149	4	20	0.03000	1.50	0.00	0	36	0	5.43	0.00
1	37A	2.2	5.38	21.4	25.05	1.971	0	0	0.00000	0.00	0.00	0	36	7	5.38	0.91
1	38A	0.0	0.00	21.4	25.05	1.971	0	0	0.00000	0.00	0.00	0	36	0	5.38	0.00
1	39MP	0.0	0.00	0.0	1.00	0.753	6	230	0.01000	5.00	3.00	0	36	0	5.38	0.00
1	40K	1.1	2.82	1.1	2.82	0.160	0	0	0.00000	0.00	0.00	0	36	6	5.43	0.10
1	41K	0.0	0.00	1.1	2.82	0.160	3	13	0.03000	64-6	0.00	0	36	0	5.43	0.00
1	42LM	0.0	0.00	0.0	1.00	0.744	3	76	0.03000	64-6	0.00	0	36	0	5.43	0.00
1	43KL	0.0	0.00	1.1	3.79	0.841	3	9	0.03000	64-6	0.00	0	36	0	5.43	0.00
1	44K	0.7	1.86	1.8	5.63	1.105	0	0	0.00000	0.00	0.00	0	36	6	5.43	0.91
1	45K	0.0	0.00	1.8	5.63	1.105	0	0	0.00000	0.00	0.00	0	36	0	5.43	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-PHYC10.lac Run date: Wed Jul 25 10:41:27 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.648	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.50
1	2A	0.0	0.00	1.7	6.85	0.648	3	423	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.6	4.00	1.6	4.00	0.166	0	0	0.00000	0.00	0.00	0	35	6	7.50	0.05
1	4B	0.0	0.00	1.6	4.00	0.166	3	31	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	5AB	1.6	0.00	3.3	8.76	0.720	3	125	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	6C	0.6	1.67	0.6	1.67	0.062	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	7C	0.0	0.00	0.6	1.67	0.062	3	38	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	8AC	0.6	0.00	3.9	9.37	0.736	3	234	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	9D	3.2	9.08	3.2	9.08	0.338	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.05
1	10D	0.0	0.00	3.2	9.08	0.338	4	242	0.04000	3.00	0.00	0	35	0	7.60	0.00
1	11E	5.5	15.32	5.5	15.32	0.499	0	0	0.00000	0.00	0.00	0	35	5	7.57	0.02
1	12E	0.0	0.00	5.5	15.32	0.499	4	239	0.04000	3.00	0.00	0	35	0	7.57	0.00
1	13DE	5.5	0.00	8.7	20.82	0.711	4	266	0.05000	3.00	0.00	0	35	0	7.57	0.00
1	14AD	8.7	0.00	12.6	27.48	1.446	3	54	0.03000	64-6	0.00	0	35	0	7.57	0.00
1	15F	0.5	1.74	0.5	1.74	0.173	0	0	0.00000	0.00	0.00	0	35	5	7.58	0.55
1	16F	0.0	0.00	0.5	1.74	0.173	3	40	0.03000	64-6	0.00	0	35	0	7.58	0.00
1	17AF	0.5	0.00	13.1	28.63	1.519	4	379	0.03000	3.00	0.00	0	35	0	7.58	0.00
1	18G	2.1	8.28	2.1	8.28	1.082	0	0	0.00000	0.00	0.00	0	35	5	7.59	0.90
1	19G	0.0	0.00	2.1	8.28	1.082	4	71	0.04000	1.50	0.00	0	35	0	7.59	0.00
1	20GN	0.0	0.00	2.1	3.22	0.017	4	96	0.02000	1.50	0.00	5	35	0	7.59	0.00
1	21N	0.0	0.00	0.0	5.00	1.064	4	50	0.01000	1.50	0.00	0	35	0	7.59	0.00
1	22HN	0.0	0.00	0.0	5.00	1.064	4	25	0.02000	0.50	0.00	0	35	0	7.59	0.00
1	23GH	0.0	0.00	2.1	5.69	0.813	4	331	0.02000	1.50	0.00	0	35	0	7.59	0.00
1	24G	1.6	5.90	3.7	10.83	1.483	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.70
1	25GO	0.0	3.00	3.7	7.83	0.079	4	31	0.05000	1.50	0.00	3	35	0	7.60	0.00
1	26O	0.0	0.00	0.0	3.00	1.404	4	40	0.02000	1.50	0.00	0	35	0	7.60	0.00
1	27IO	0.0	0.00	0.0	3.00	1.404	4	35	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	28GI	0.0	0.00	3.7	10.81	1.420	4	53	0.05000	1.50	0.00	0	35	0	7.60	0.00
1	29GP	0.0	0.00	3.7	9.79	0.354	4	29	0.05000	1.50	0.00	1	35	0	7.60	0.00
1	30P	0.0	0.00	0.0	1.00	1.066	4	50	0.04000	1.00	0.00	0	35	0	7.60	0.00
1	31J	1.7	4.93	1.7	4.93	0.220	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.10
1	32J	0.0	0.00	1.7	4.93	0.220	4	18	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	33GJ	1.7	0.00	5.4	14.18	0.470	4	22	0.03000	1.50	0.00	0	35	0	7.60	0.00
1	34G	0.7	2.86	6.1	16.78	0.642	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	35G	0.0	0.00	6.1	16.78	0.642	4	134	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	36AG	6.1	0.00	19.2	43.27	2.110	4	20	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	37A	2.2	8.17	21.4	50.23	3.272	0	0	0.00000	0.00	0.00	0	36	6	7.54	0.91
1	38A	0.0	0.00	21.4	50.23	3.272	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	39MP	0.0	0.00	0.0	1.00	1.065	6	230	0.01000	5.00	3.00	0	36	0	7.54	0.00
1	40K	1.1	4.49	1.1	4.49	0.270	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	41K	0.0	0.00	1.1	4.49	0.270	3	13	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	42LM	0.0	0.00	0.0	1.00	1.053	3	76	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	43KL	0.0	0.00	1.1	5.45	1.252	3	9	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	44K	0.7	2.86	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.91
1	45K	0.0	0.00	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	0	7.60	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-PHYC10B.lac Run date: Wed Jul 25 11:02:40 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.648	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.50
1	2A	0.0	0.00	1.7	6.85	0.648	3	423	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.6	4.00	1.6	4.00	0.166	0	0	0.00000	0.00	0.00	0	35	6	7.50	0.05
1	4B	0.0	0.00	1.6	4.00	0.166	3	31	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	5AB	1.6	0.00	3.3	8.76	0.720	3	125	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	6C	0.6	1.67	0.6	1.67	0.062	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	7C	0.0	0.00	0.6	1.67	0.062	3	38	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	8AC	0.6	0.00	3.9	9.37	0.736	3	234	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	9D	3.2	10.94	3.2	10.94	0.475	0	0	0.00000	0.00	0.00	0	235	5	7.60	0.05
1	10D	0.0	0.00	3.2	10.94	0.475	4	242	0.04000	3.00	0.00	0	235	0	7.60	0.00
1	11E	5.5	18.62	5.5	18.62	0.741	0	0	0.00000	0.00	0.00	0	235	5	7.57	0.02
1	12E	0.0	0.00	5.5	18.62	0.741	4	239	0.04000	3.00	0.00	0	235	0	7.57	0.00
1	13DE	5.5	0.00	8.7	25.65	1.099	4	266	0.05000	3.00	0.00	0	235	0	7.57	0.00
1	14AD	8.7	0.00	12.6	32.19	1.834	3	54	0.03000	64-6	0.00	0	235	0	7.57	0.00
1	15F	0.5	1.74	0.5	1.74	0.173	0	0	0.00000	0.00	0.00	0	35	5	7.58	0.55
1	16F	0.0	0.00	0.5	1.74	0.173	3	40	0.03000	64-6	0.00	0	35	0	7.58	0.00
1	17AF	0.5	0.00	13.1	33.41	1.908	4	379	0.03000	3.00	0.00	0	35	0	7.58	0.00
1	18G	2.1	8.28	2.1	8.28	1.082	0	0	0.00000	0.00	0.00	0	35	5	7.59	0.90
1	19G	0.0	0.00	2.1	8.28	1.082	4	71	0.04000	1.50	0.00	0	35	0	7.59	0.00
1	20GN	0.0	0.00	2.1	3.22	0.017	4	96	0.02000	1.50	0.00	5	35	0	7.59	0.00
1	21N	0.0	0.00	0.0	5.00	1.064	4	50	0.01000	1.50	0.00	0	35	0	7.59	0.00
1	22HN	0.0	0.00	0.0	5.00	1.064	4	25	0.02000	0.50	0.00	0	35	0	7.59	0.00
1	23GH	0.0	0.00	2.1	5.69	0.813	4	331	0.02000	1.50	0.00	0	35	0	7.59	0.00
1	24G	1.6	5.90	3.7	10.83	1.483	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.70
1	25GO	0.0	3.00	3.7	7.83	0.079	4	31	0.05000	1.50	0.00	3	35	0	7.60	0.00
1	26O	0.0	0.00	0.0	3.00	1.404	4	40	0.02000	1.50	0.00	0	35	0	7.60	0.00
1	27IO	0.0	0.00	0.0	3.00	1.404	4	35	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	28GI	0.0	0.00	3.7	10.81	1.420	4	53	0.05000	1.50	0.00	0	35	0	7.60	0.00
1	29GP	0.0	0.00	3.7	9.79	0.354	4	29	0.05000	1.50	0.00	1	35	0	7.60	0.00
1	30P	0.0	0.00	0.0	1.00	1.066	4	50	0.04000	1.00	0.00	0	35	0	7.60	0.00
1	31J	1.7	4.93	1.7	4.93	0.220	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.10
1	32J	0.0	0.00	1.7	4.93	0.220	4	18	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	33GJ	1.7	0.00	5.4	14.18	0.470	4	22	0.03000	1.50	0.00	0	35	0	7.60	0.00
1	34G	0.7	2.86	6.1	16.78	0.642	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	35G	0.0	0.00	6.1	16.78	0.642	4	134	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	36AG	6.1	0.00	19.2	48.24	2.498	4	20	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	37A	2.2	8.17	21.4	55.42	3.660	0	0	0.00000	0.00	0.00	0	36	6	7.54	0.91
1	38A	0.0	0.00	21.4	55.42	3.660	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	39MP	0.0	0.00	0.0	1.00	1.065	6	230	0.01000	5.00	3.00	0	36	0	7.54	0.00
1	40K	1.1	4.49	1.1	4.49	0.270	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	41K	0.0	0.00	1.1	4.49	0.270	3	13	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	42LM	0.0	0.00	0.0	1.00	1.053	3	76	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	43KL	0.0	0.00	1.1	5.45	1.252	3	9	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	44K	0.7	2.86	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.91
1	45K	0.0	0.00	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	0	7.60	0.00

Normal End of MODRAT

File name: P:\11-1000 - TR 060488 Entrada Calabasas\200-H&H Study\Civil-Survey\wms\11-1000-200-PHYC10BB.lac Run date: Wed Jul 25 13:46:53 2012

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1 Storm Frequency 50

LOCATION		SUBAREA AREA (ACRES)	SUBAREA Q (CFS)	TOTAL AREA (ACRES)	TOTAL Q (CFS)	TOTAL VOLUME (AC-FT)	CONV TYPE	CONV LNGTH (FT)	CONV SLOPE (FT/FT)	CONV SIZE	CONV Z	CONTROL Q (CFS)	SOIL NAME	TC (MIN)	RAIN (IN)	PCT IMPV
1	1A	1.7	6.85	1.7	6.85	0.648	0	0	0.00000	0.00	0.00	0	36	5	7.50	0.50
1	2A	0.0	0.00	1.7	6.85	0.648	3	423	0.03000	64-6	0.00	0	36	0	7.50	0.00
1	3B	1.6	4.00	1.6	4.00	0.166	0	0	0.00000	0.00	0.00	0	35	6	7.50	0.05
1	4B	0.0	0.00	1.6	4.00	0.166	3	31	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	5AB	1.6	0.00	3.3	8.76	0.720	3	125	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	6C	0.6	1.67	0.6	1.67	0.062	0	0	0.00000	0.00	0.00	0	35	5	7.50	0.05
1	7C	0.0	0.00	0.6	1.67	0.062	3	38	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	8AC	0.6	0.00	3.9	9.37	0.736	3	234	0.03000	64-6	0.00	0	35	0	7.50	0.00
1	9D	0.0	0.00	0.0	0.00	0.000	0	0	0.00000	0.00	0.00	0	235	5	7.60	0.05
1	10D	0.0	0.00	0.0	17.60	0.752	4	242	0.04000	3.00	0.00	0	235	0	7.60	0.00
1	11E	0.0	0.00	0.0	0.00	0.000	0	0	0.00000	0.00	0.00	0	235	5	7.57	0.02
1	12E	0.0	0.00	0.0	29.90	1.194	4	239	0.04000	3.00	0.00	0	235	0	7.57	0.00
1	13DE	0.0	0.00	0.0	41.47	1.835	4	266	0.05000	3.00	0.00	0	235	0	7.57	0.00
1	14AD	0.0	0.00	3.9	48.06	2.570	3	54	0.03000	64-6	0.00	0	235	0	7.57	0.00
1	15F	0.5	1.74	0.5	1.74	0.173	0	0	0.00000	0.00	0.00	0	35	5	7.58	0.55
1	16F	0.0	0.00	0.5	1.74	0.173	3	40	0.03000	64-6	0.00	0	35	0	7.58	0.00
1	17AF	0.5	0.00	4.4	49.14	2.644	4	379	0.03000	3.00	0.00	0	35	0	7.58	0.00
1	18G	2.1	8.28	2.1	8.28	1.082	0	0	0.00000	0.00	0.00	0	35	5	7.59	0.90
1	19G	0.0	0.00	2.1	8.28	1.082	4	71	0.04000	1.50	0.00	0	35	0	7.59	0.00
1	20GN	0.0	0.00	2.1	3.22	0.017	4	96	0.02000	1.50	0.00	5	35	0	7.59	0.00
1	21N	0.0	0.00	0.0	5.00	1.064	4	50	0.01000	1.50	0.00	0	35	0	7.59	0.00
1	22HN	0.0	0.00	0.0	5.00	1.064	4	25	0.02000	0.50	0.00	0	35	0	7.59	0.00
1	23GH	0.0	0.00	2.1	5.69	0.813	4	331	0.02000	1.50	0.00	0	35	0	7.59	0.00
1	24G	1.6	5.90	3.7	10.83	1.483	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.70
1	25GO	0.0	3.00	3.7	7.83	0.079	4	31	0.05000	1.50	0.00	3	35	0	7.60	0.00
1	26O	0.0	0.00	0.0	3.00	1.404	4	40	0.02000	1.50	0.00	0	35	0	7.60	0.00
1	27IO	0.0	0.00	0.0	3.00	1.404	4	35	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	28GI	0.0	0.00	3.7	10.81	1.420	4	53	0.05000	1.50	0.00	0	35	0	7.60	0.00
1	29GP	0.0	0.00	3.7	9.79	0.354	4	29	0.05000	1.50	0.00	1	35	0	7.60	0.00
1	30P	0.0	0.00	0.0	1.00	1.066	4	50	0.04000	1.00	0.00	0	35	0	7.60	0.00
1	31J	1.7	4.93	1.7	4.93	0.220	0	0	0.00000	0.00	0.00	0	35	5	7.60	0.10
1	32J	0.0	0.00	1.7	4.93	0.220	4	18	0.05000	1.00	0.00	0	35	0	7.60	0.00
1	33GJ	1.7	0.00	5.4	14.18	0.470	4	22	0.03000	1.50	0.00	0	35	0	7.60	0.00
1	34G	0.7	2.86	6.1	16.78	0.642	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	35G	0.0	0.00	6.1	16.78	0.642	4	134	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	36AG	6.1	0.00	10.5	63.63	3.233	4	20	0.03000	1.50	0.00	0	36	0	7.60	0.00
1	37A	2.2	8.17	12.7	70.72	4.396	0	0	0.00000	0.00	0.00	0	36	6	7.54	0.91
1	38A	0.0	0.00	12.7	70.72	4.396	0	0	0.00000	0.00	0.00	0	36	0	7.54	0.00
1	39MP	0.0	0.00	0.0	1.00	1.065	6	230	0.01000	5.00	3.00	0	36	0	7.54	0.00
1	40K	1.1	4.49	1.1	4.49	0.270	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.10
1	41K	0.0	0.00	1.1	4.49	0.270	3	13	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	42LM	0.0	0.00	0.0	1.00	1.053	3	76	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	43KL	0.0	0.00	1.1	5.45	1.252	3	9	0.03000	64-6	0.00	0	36	0	7.60	0.00
1	44K	0.7	2.86	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	5	7.60	0.91
1	45K	0.0	0.00	1.8	8.27	1.624	0	0	0.00000	0.00	0.00	0	36	0	7.60	0.00

Normal End of MODRAT

LA County Bulked Flow

Summary Report

OUTLET: 10D BULKED FLOW: 17 cfs

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	17.6

OUTLET: 12E BULKED FLOW: 29 cfs

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	29.8
7	1.567	1.567	0.1

Details Report

OUTLET: 10D BULKED FLOW: 17 cfs

TOTAL UPSTREAM AREA: 0.0050 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 9D: Zone 6 - 0.0050 mi^2,
BULKING FACTORS

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	17.6

OUTLET: 12E BULKED FLOW: 29 cfs

TOTAL UPSTREAM AREA: 0.0085 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 11E: Zone 6 - 0.0085 mi^2, Zone 7 - 0.0000 mi^2,
BULKING FACTORS

Zone	zone area bulk factor	total area bulk factor	bulk flow (cfs)
6	1.607	1.607	29.8
7	1.567	1.567	0.1

LA County Debris Production

Summary Report

OUTLET: 10D TOTAL DEBRIS: 237 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	237.8

OUTLET: 12E TOTAL DEBRIS: 407 yd^3
Excess controlled debris: 0 yd^3

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	406.9
7	28000.0	28000.0	1.2

Details Report

OUTLET: 10D TOTAL DEBRIS: 237 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0050 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 9D: Zone 6 - 0.0050 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	237.8

OUTLET: 12E TOTAL DEBRIS: 407 yd^3
Excess controlled debris: 0 yd^3

TOTAL UPSTREAM AREA: 0.0085 mi^2
SEDIMENT CONTROL STRUCTURES: NONE
CONTRIBUTING BASIN AREA
Basin 11E: Zone 6 - 0.0085 mi^2, Zone 7 - 0.0000 mi^2,
DEBRIS PRODUCTION RATES

Zone	zone area rate (yd^3/mi^2)	total area rate (yd^3/mi^2)	debris produced (yd^3)
6	48000.0	48000.0	406.9
7	28000.0	28000.0	1.2

Appendix 6
Detention Basin Rating Tables

TO BE INCLUDED IN FINAL DESIGN REPORT

Appendix 7
SUSMP Exhibit
(see full size sheet)

SUMMARY OF TREATMENT AREAS (sf)					
Primary Method	Total	Area (ac)	Area %	Qpm (cfs)	Vm (gal)
Planter	30,755	0.70	10.5	0	0
Bioswale	124,630	2.86	42.2	0	0
Reuse	70,370	1.62	23.8	0	0
Mechanical	69,435	1.60	23.5	0	0
	#	0	0	0	0
Total Developed	295,190	6.78	100.0	0	0

TREAMENT AREA LEGEND:*

- Flo-Thru Planter
- Bio Swale (1)
- Bio Swale (2)
- Reuse
- Mechanical

* Final treatment areas subject to change based on final hydrology report. Natural treatment devices to be used to the maximum extent practicable.

Mechanical Treatment Device

Oak Glen Street

Las Virgenes Road

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

SUSMP Exhibit

CITY of CALABASAS

100 Civic Center Way CALABASAS, CA 91302 818.224.1600 FAX 818.225.7338 WWW.CITYOFCALABASAS.COM

PREPARED BY:

DIAMOND WEST INCORPORATED

civil engineering • land surveying • land planning

24005 Ventura Boulevard, Suite 100
Calabasas, California 91302
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www.diamondwest.net

PREPARED FOR:

CALABASAS BLUE, LLC
25340 Prado de los Arboles
Calabasas, CA 91302
phone: 818-225-8395
fax: 818-225-8396

VESTING TENTATIVE TRACT MAP

SHOWING

POR. OF THE NW 1/4 OF THE SE 1/4 OF SEC. 30

T.1N., R.17.W., S.B.M.

CITY OF CALABASAS, COUNTY OF LOS ANGELES

STATE OF CALIFORNIA

PREPARED BY OR UNDER THE DIRECTION OF:

MICHAEL JAMES PERRY No. 57,320 Exp. 12/31/13 CIVIL STATE OF CALIFORNIA

DESIGNED BY:	MP
CHECKED BY:	MH
DRAWN BY:	MP
DW JOB NO:	11-1000
DATE:	07/09/12
SCALE:	1"=40'
SHEET NO.	1 of 5

11-1006-400 08-03-2012

plot date: 08/06/12 7:49am-PRAMOS
dwg name: g:\11-1000 - tr 060438 entrada calabasas\400-grading plan\civil-survey\dwg\11-1000-400-pgd03.dwg

Noise Impact Analysis

APPENDIX E

NOISE IMPACT ANALYSIS

CALABASAS BLUE

CITY OF CALABASAS, CA

Prepared for:

Envicom Corporation
Attn: Primo Tapia
28328 Agoura Road
Agoura Hills, California 91301

Date:

May 30, 2012

Project No.: P12-020 N

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

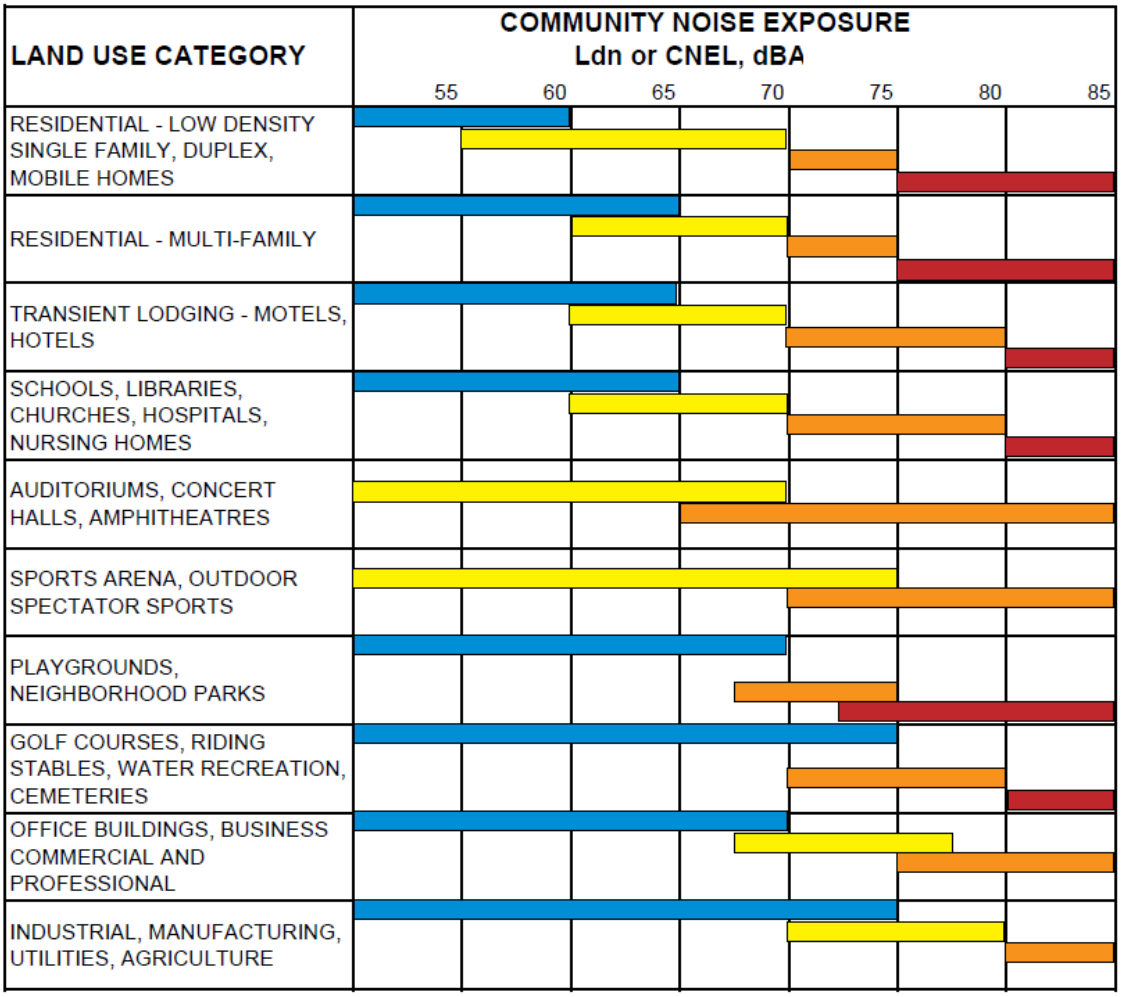
Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called LEQ), or alternately, as a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Ldn (day-night) or the Community Noise Equivalent Level (CNEL). The CNEL metric has gradually replaced the Ldn factor, but the two descriptors are essentially identical.

CNEL-based standards are generally applied to transportation-related sources because local jurisdictions are pre-empted from exercising direct noise control over vehicles on public streets, aircraft, trains, etc. The City of Calabasas therefore regulates the traffic noise exposure of the receiving property through land use controls.

Noise/land use compatibility standards for various classes of land uses are generally expressed in the Noise Element of the General Plan to insure that noise exposure is considered in any development decisions. The City of Calabasas has guidelines for noise exposure standards which are shown in Table 1. For multi-family residential uses such as the Calabasas Blue project, the City recommends an exterior noise exposure of 65 dB CNEL. Noise levels up to 70 dB CNEL are considered “conditionally acceptable” and are permitted if noise mitigation measures have been evaluated.

Table 1

City of Calabasas Land Use Compatibility Guidelines



NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings and hotel and motel rooms. In 1988, the State Building Standards Commission expanded that standard to include all habitable rooms in residential use, included single-family dwelling units. Since normal noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dB CNEL allows the interior standard to be met without any specialized structural attenuation (dual paned windows, etc.). A noise level of 65 dB is also the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice. A noise exposure of 65 dB CNEL is typically the exterior noise land use compatibility guideline for new residential dwellings in California.

BASELINE NOISE LEVELS

Noise measurements were made in order to document existing baseline levels in the area. These help to serve as a basis for projecting future noise exposure from the project upon the surrounding community. Noise measurements were conducted on Tuesday, May 22, 2012. On-site measurements were made at various distance setbacks from Las Virgenes Road east of the school property entry road. The location of the noise monitors is shown in Figure 1 and the monitoring results are provided below.

Measured Noise Levels (dBA)

Site No.	Time	Leq	Lmax	Lmin	L10	L33	L50	L90	Setback
1	12:42-12:57	58.3	73.0	42.0	61.0	58.0	56.5	48.0	75 ft
2	13:00-13:15	54.8	67.0	30.0	58.0	54.5	52.5	42.0	125 ft
3	13:18-13:33	51.9	63.5	30.0	56.0	52.0	48.0	30.0	200 ft

Monitoring experience shows CNELs to be approximately 3 dB higher than early afternoon Leqs. Leqs of 58 dB would equate to area CNELs of 61 dB at 75 feet from roadway centerline. These levels, however, are strongly influenced by the terrain that shielded the monitoring locations from direct view of Las Virgenes Road traffic. An additional noise reading made near the school property driveway at 50 feet from the Las Virgenes Road centerline showed the following traffic noise levels:

Time	Leq	Lmax	Lmin	L10	L33	L50	L90	Setback
13:45-14:00	67.4	76.5	30.0	71.5	68.0	65.0	45.5	50 ft

The effect of the very substantial change in terrain is to reduce noise levels by approximately 8 dB from the direct line-of-sight condition. Because the project will include a large amount of grading that will modify the terrain, the reading on the west side of Las Virgenes Road was considered to be a more appropriate baseline condition. The measurement of 67 dB Leq suggests

that existing traffic noise at the western project façade is 70 dB CNEL at 50 feet from the roadway centerline. This value is very consistent with projections derived from computer modeling of traffic noise at the indicated set-back distances.

Figure 1

Noise Monitor Locations



Meter Location

Meter 1: 75 feet east of Las Virgenes Road centerline

Meter 2: 125 feet east of Las Virgenes Road centerline

Meter 3: 200 feet east of Las Virgenes Road centerline

Meter 5: 50 feet east of Las Virgenes Road centerline

NOISE IMPACTS

NOISE SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they result in:

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.

STANDARDS OF SIGNIFICANCE

Noise impacts are considered significant if they expose persons to levels in excess of standards established in local general plans or noise ordinances. The recommended exterior noise standard for the City of Calabasas for multi-family residential uses is 65 dBA CNEL in usable outdoor space such as backyards, decks, patios, etc. If required, attenuation through setback and noise barriers is anticipated to be used to reduce traffic noise to the 65 dBA CNEL goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

According to the Calabasas General Plan EIR, impacts may also be significant if they create either a substantial permanent or temporary increase as follows:

Significance of Changes in Operational Roadway Noise Exposure

Post- Project Noise Level (CNEL)	Significant Impact
< 60 dB	+ 5.0 dB or more
60 – 65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more

Given that existing noise levels exceed 65 dB CNEL near Las Virgenes Road, a +1.5 dB increase is considered a substantial increase. The following noise impacts due to project-related traffic would be considered significant:

1. If construction activities were to audibly intrude into adjacent residential areas during periods of heightened noise sensitivity.

2. If project traffic noise were to cause an increase by a perceptible amount (+1.5 dB CNEL) on any roadway segment adjacent to a noise sensitive land use.

3. If future, with project noise levels were to expose sensitive receivers to levels exceeding City of Calabasas noise standard of 65 dB CNEL.

PROJECT-RELATED VEHICULAR NOISE IMPACTS

Long-term noise concerns from the development of residential uses at the project site center primarily on mobile source emissions on project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, roadway speeds, or noise barriers. The typical Los Angeles County day-night travel percentages and auto-truck vehicle mixes is then applied to convert one-hour Leq levels to a weighted 24-hour CNEL.

The table below summarizes the calculated 24-hour CNEL level at 50 feet from the roadway centerline along project adjacent roadway segments. Two time frames were evaluated; existing conditions with and without project, and built-out with and without project. The noise analysis utilized data from the project traffic analysis, prepared in May of 2012, by Associated Transportation Engineers, for this project.

The project itself will not cause any roadway segment to exceed the +1.5 dB CNEL threshold. Because of the relatively small amount of traffic generated by the project and the large amount of vehicles currently traveling on local roadways, the project is not expected to cause even a +0.1 noise increase in the existing or future timeframes.

Cumulative impacts compare the “future with project” noise levels with “existing no project” scenario. The majority of the cumulative increases are attributed to area growth that will occur with or without project implementation. Regardless, the project area is primarily considered to be built-out with relatively little traffic increases in the future. The largest cumulative traffic noise increase is +0.4 dB CNEL. Therefore, both project only traffic noise impacts and cumulative traffic noise impacts are considered to be less-than-significant.

Near Term Traffic Noise Impact Analysis
(CNEL in dB at 50 feet from Centerline)

Roadway	Existing	Existing + Project	Future	Future + Project
Las Virgenes/				
N of Agoura	72.2	72.3	72.6	72.6
S of Agoura	71.0	71.0	71.2	71.2
Agoura Rd/				
W of Las Virgenes	68.3	68.3	68.5	68.5

Project Only Impacts
(CNEL in dB at 50 feet from Centerline)

Roadway	Existing	Future	Cumulative*
Las Virgenes/			
N of Agoura	0.0	0.0	0.4
S of Agoura	0.0	0.0	0.2
Agoura Rd/			
W of Las Virgenes	0.0	0.0	0.3

*Difference between future with project and existing levels

ON-SITE NOISE EXPOSURE

Exterior Noise Levels

Residential recreational area traffic noise exposures were calculated at areas of probable use (patio, balcony, etc.). Proposed building closest to the Las Virgenes roadway were selected for analysis Closest units are in Buildings "K", "L" and "C", as shown in Figure 2. These units have upper level balconies (2nd story at the west elevation) fronting Las Virgenes Road. Plan 4 units can have an upper level entrance with a small patio by the front door which was examined for mitigation as well. There are also small patios on the 2nd story (ground level at the west elevation) with a low wall. The following noise levels are expected at the closest units (85 feet from the Las Virgenes Road (LVR) centerline):

Predicted Noise Levels at Buildings K, L and C (85 foot setback) Balconies/Patios

Exposure	Noise Loading	Needed Mitigation
2nd Story*	68 dB CNEL	3 dB
3rd Story*	69 dB CNEL	4 dB

*from the east elevation

Other possibly impacted buildings are their predicted future noise loadings are as follows:

Predicted Noise Levels at Building D (varying 100-140 foot setback) Balconies/Patios

Exposure	Noise Loading (at 100 feet)	Noise Loading (at 140 feet)	Maximal Needed Mitigation**
2nd Story*	67 dB CNEL	64 dB CNEL	2 dB
3rd Story*	68 dB CNEL	66 dB CNEL	3 dB

*from the east elevation ** at the closest units from LVR

Predicted Noise Levels at Building G (180 foot setback) Balconies/Patios

Exposure	Noise Loading	Needed Mitigation
2nd Story*	63dB CNEL	NA
3rd Story*	65 dB CNEL	NA

*from the east elevation

Other Calabasas Blue buildings have increased setback or are noise protected by the buildings fronting the roadway. All 2nd level patios (ground level on the western elevation) are shielded by a partial wall and columns which break the line-of-sight to the roadway and were therefore afforded 3 dB of noise mitigation. No mitigation is necessary for 2nd story (ground level from the western perimeter) patios.

Analyzed receivers were sited 3 feet within the exterior western facing balconies or patios and are representative of what a recreational user might observe. All upstairs (3rd story) balconies on plans 1-3 for buildings C,D,L and K, require mitigation to achieve a 65 dB CNEL exterior noise exposure. Plan 4 units in Buildings C, D, L and K have an upstairs entry patio. These units also require mitigation on the 3rd story patio.

The upper level 3rd story patios or balconies facing LVR will be required to have sound reducing enclosures in order to achieve 65 dB CNEL. These enclosures could be framed sliding glass doors, framed laminated safety plexi-glass or equivalent. Framed sliding glass doors or other transparent enclosures with operable windows would give the greatest flexibility for owners to open or close the transparent balcony enclosure. A transparent noise shield for these upper level units facing LVR would reduce noise by at least 5 dB and provide compatibility compliance.

However, minimum required recreational uses at the Calabasas Blue project may be considered to be common outdoor space sited in the interior of the complex. The ground level pool and recreational area can be considered common use space. This area is noise protected by the perimeter residential units such that noise levels are expected to be well within the 65 dB CNEL goal. Most jurisdictions do not require noise protection for individual recreational space if noise-protected common space is provided.

Figure 2
Units Requiring Mitigation



Interior Noise Levels

Maximum exterior to interior attenuation of 24 dB will be required to meet the interior standard in habitable rooms with Las Virgenes frontage. For typical wood-framed construction with stucco and gypsum board wall assemblies, the noise level reduction is as follows:

Partly open windows - 12 dB

Tightly closed single paned windows – 20 dB

Tightly closed dual-paned windows – 30 dB

Use of dual paned windows is required by code for energy conservation in new residential construction. Interior noise standards will be met as long as the option exists to close windows facing LVR. Where window closure is a requirement for interior noise control, the Building Code requires provision of supplemental ventilation at a specified rate with a specified fraction of fresh make-up air. No mitigation is necessary for Calabasas Blue residences other than the ability to close windows to meet a 45 dB CNEL interior noise level.

The Building Code also requires that horizontal sound transmission be controlled between adjacent units, and the vertical noise and footfall impact be mitigated within stacked units. No stacked units are proposed such that horizontal transmission between adjacent units must meet code requirements "Party walls" must be constructed to achieve a sound transmission class (STC) of 50. If standard structural assemblies are used, their sound transmission characteristics have been tested, and test report results are shown on building plans at plan check. Non-standard assemblies must be field-tested before any certificate of occupancy can be issued.

AREA NOISE CONSTRAINTS

The LVMWD office headquarters is located just south of the project site. However there is no water treatment at this site and therefore no noise typically associated with water treatment. The school across LVR has a playground that may generate student recreational activity noise. However, as seen in Figure 1, the school buildings themselves almost completely block the line of sight between the sports field and the proposed Calabasas Blue project. Some homes on Oak Glen Street back up directly to the fields without any known noise conflicts. The combination of shielding and set-back are believed adequate to preclude any noise nuisance from student outdoor recreation. There are no uses adjacent to the project site which would cause an impediment for planned residential use.

CONSTRUCTION NOISE IMPACTS

Temporary construction noise impacts will vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by demolition of existing structures and large earth-moving sources, then by foundation and parking

lot construction, and finally for finish construction. The demolition and earth-moving sources are the noisiest, with equipment noise typically ranging from 75 to 90 dBA at 50 feet from the source.

Figure 3 shows the range of noise emissions for various pieces of construction equipment. Point sources of noise emissions are attenuated by a factor of 6 dB per doubling of distance through geometrical (spherical) spreading of sound waves. The quieter noise sources will drop to a 65 dBA exterior/45 dBA interior noise level by about 200 feet from the source while the loudest may require over 1,000 feet from the source to reduce the 90+ dBA source strength to a generally acceptable 65 dBA exterior exposure level. This estimate assumes a clear line-of-sight from the source to the receiver. Variations in terrain elevation or existing structures will act as noise barriers that may interrupt equipment noise propagation. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions

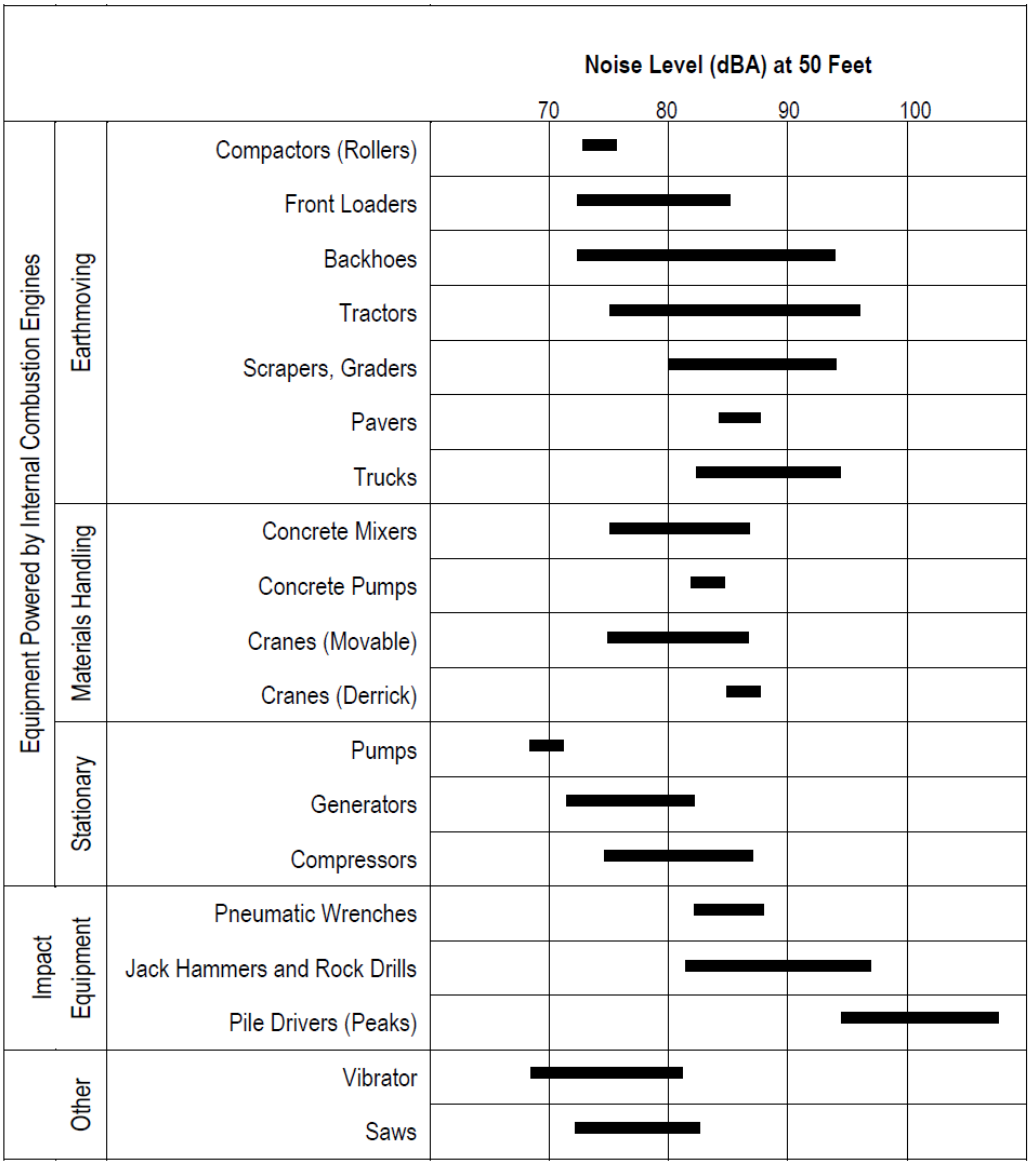
The City has not adopted any specific standards relating to construction noise. According to the City of Calabasas Municipal Code, permissible hours of construction are between the hours of 7 a.m. to 6 p.m. Monday through Friday, and 8 a.m. to 5 p.m. on Saturday. No work is permitted on Sundays and Federal Holidays. These hours are included as conditions on any project construction permits and these limits will serve to minimize any adverse construction noise impact potential.

HAUL TRUCK NOISE

The estimated 118,400 CY of grading material export will require almost 12,000 one-way truck trips for off-site haul. In order for noise associated with truck haul to remain below the +1.5 dB significance threshold, export should occur over at least a 10 day period. The daily noise level associated with truck haul evenly split over 10 days is 67 dB CNEL (at 50 feet from roadway centerline). The addition of 67 dB CNEL and the existing 71 dB CNEL provides a +1.5 dB difference. Therefore, spreading haul trips evenly over at least 10 days will ensure project noise levels remain below significance thresholds. A longer haul period would ensure that the noise threshold is met with an even greater margin of safety.

Figure 3

Typical Construction Equipment Noise Generation Levels



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

CONSTRUCTION ACTIVITY VIBRATION

Typical background vibration levels in residential areas are usually 50 VdB or lower, below the threshold of human perception. Perceptible vibration levels inside residences are typically attributed to the operation of heating and air conditioning systems, door slams or street traffic. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences.

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernable movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the "soft" sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

65 VdB	-	threshold of human perception
72 VdB	-	annoyance due to frequent events
80 VdB	-	annoyance due to infrequent events
94-98 VdB	-	minor cosmetic damage

To determine potential impacts of the project's construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented below:

	Approximate Vibration Levels (VdB)*			
Equipment	**25 feet**	**50 feet**	**100 feet**	**185 feet**
Pile Driver	93	87	81	75
Large Bulldozer	87	81	75	69
Loaded Truck	86	80	74	68
Jackhammer	79	73	67	61
Small Bulldozer	58	52	46	40

* (FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006)

With the exception of pile driving which is not anticipated for use on this project, the on-site construction equipment that will create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdB at 50 feet from the source. The nearest residential receptor is approximately 185 feet from the project site. By 185 feet the vibration level dissipates to 69 VdB which could be marginally perceptible but well outside any damage or annoyance threshold. Also, typically machinery would be setback at a distance much greater distance and vibration from Las Virgenes Road would dominate the vibration background diluting any project related impact. Construction activity vibration impacts are judged as less-than-significant.

NOISE IMPACT MITIGATION

Short-term construction noise intrusion and vibration impacts will be limited by conditions on construction permits requiring compliance with the City of Calabasas Noise Ordinance. Allowable hours of construction are between the hours of 7 a.m. to 6 p.m. Monday through Friday, and 8 a.m. to 5 p.m. on Saturday. No work is permitted on Sundays and Federal Holidays. In addition the following construction practices are recommended:

- Stockpiling and staging activities must be located as far as practicable from dwellings.
- All mobile equipment shall have properly operating and maintained mufflers.
- Haul routes shall avoid residential development and be approved by the City.

For all Building C,D, K and L buildings with 3rd story patios or balconies with exposure to Las Virgenes Road, traffic noise may exceed City of Calabasas standards for outdoor recreational space. Traffic noise on these decks may exceed the threshold by up to 3 dB. In order to create outdoor space that achieves 65 dB CNEL at these units, one of the following measures can be implemented:

- Consider private noise-protected outdoor usable space in a shared common location within the proposed project site, such as the pool/clubhouse recreational area as adequate to meet the 65 dB CNEL standard; or
- Equip 3rd level balconies or decks facing Las Virgenes Road with transparent glass or plastic shields that reduce noise. Shields would need to be 4.5 feet tall along the entire roadway frontage.

Residential habitable rooms facing Las Virgenes will meet the City of Calabasas 45 dB CNEL interior noise standard with no acoustical mitigation except the option to close windows. Window closure requires that supplemental ventilation be provided to rooms facing Las Virgenes.

The project noise impact study indicates a less-than-significant noise impact from project-related traffic on project vicinity receptors. Project-related traffic will not cause noise standards to be exceeded, nor make substantially worse any existing violations.

Spread haul for grading spoils evenly over at least a 10 day period.

Documentation of intra-unit sound isolation shall be included in a final acoustical report required as part of plan check.

Oak Tree Report

APPENDIX F

OAK TREE REPORT

Client:
Calabasas Blue, LLC
25340 Prado de los Arboles
Calabasas, CA 91302

Site:
Vacant Land
4240 Las Virgenes Road
Calabasas, CA 91302

Date:
July 20, 2012

Prepared By:
James Dean, A.S.L.A., I.S.A.
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OAK TREE REPORT

REPORT DATE
July 14, 2012

CLIENT
Calabasas Blue, LLC
25340 Prado de los Arboles
Calabasas, CA 91302

PROJECT
Calabasas Blue, LLC
Vacant Land
4240 Las Virgenes Road
Calabasas, CA 91302

SITUATION
The subject parcel is located upon Malibu Canyon Road within the City of Calabasas. The owner intends to develop the site featuring 78 condominium units.

There are nine native oak trees located in the upper reaches of the site most of which are above the proposed grading for the units. Two off-site oaks are a part of this report since their drip lines extend onto the subject site. Two trees (Nos. 327 & 335) will be affected by the development. This report is to address the grading and the potential impact to the oak tree resource.

OBJECTIVES OF STUDY
The objective of this Oak Tree Report is to present observations and findings of our field review of the tree locations upon the site. The on-site review was conducted May 19, 2012.
The intent was to:

1. Observe and report on the current condition of the subject trees.
2. Observe and report upon signs of any structural defects present.
3. Review proposed development plans to determine the potential impact upon the trees from construction activities.
4. Determine the pruning requirements to achieve the work.
5. Make recommendations to mitigate the affects.
6. Update the status of the existing oak tree resource.

STUDY METHODS:
Specific data was gathered regarding each of the subject trees. Observation from a position on the ground was the method utilized to assess the trees. During the fieldwork the following tasks were performed:

1. Each tree was assigned a number, photographed and was placed upon a map for future identification. Trees were re tagged utilizing a 1.5" metal tag with the tree

number stamped on the surface. The tree numbers are sequential using available tag numbers.

2. An assessment of tree vigor (Condition) was noted.
3. Signs and symptoms that are common to plant disease or insect infestation were identified and each tree was rated accordingly (see Definitions enclosed herein for and explanation of the rating system).
4. Other miscellaneous but pertinent data was recorded

TREE SPECIES

The following trees are the subject of this report:

6	*Quercus agrifolia*	Coast Live Oak
3	*Quercus lobata*	Valley Oak
2	*Quercus agrifolia*	Coast Live Oak (located off-site)

OAK TREE PROTECTION ORDINANCE AND POLICIES

Public law in the form of the Oak Tree Preservation Ordinance and the Oak Tree Preservation and Protection Guidelines within the City of Calabasas (dated 29 April 1993) protect all trees of the genus *Quercus*. City Ordinance makes the cutting, moving and / or removal of an oak tree without a permit a misdemeanor.

The specific area under control of this ordinance is defined as the "Protection Zone" of a tree encompassing the entire area within the leaf canopy and extending to a point 5' outside of the dripline. With smaller oaks the minimum area of protection extends to 15' outward of the tree trunk in all directions. With Heritage size trees, with trunk of 24" and larger, the Protection Zone extends 50' in all directions from the tree trunk

SITE DESCRIPTION

The project site is currently vacant with no improvements. The northern portion of the property is distinguished by a lower-lying west-facing hill that ascends approximately 300 feet above mean sea level southeast from Las Virgenes Road cresting at 1,050 feet above sea level. From the central portion of the site, a north-facing slope ascends approximately 150 feet from a drainage swale to an east-west trending ridge defined by two knolls that occupy the southern portion of the property.

Adjacent land uses include a single-family residential neighborhood to the north, Las Virgenes Road and residential neighborhoods to the west, Las Virgenes Municipal Water District facilities and offices to the south, and open space to the east.

The project proposes to develop a 78-unit multi-family residential project on approximately 5 acres of the 21-acre property, as a revision to the approved 86-unit Entrada at Malibu Canyon Multi-Family Housing Project that has not broken ground.

SOIL OF THE SITE

The site is underlain by bedrock of the Topanga Formation. The bedrock overlay consists of thin to thick sections of soils of Clayey siltstone and claystone. Alluvial deposits were identified in the

lower regions with maximum thicknesses of 28'. Topsoil generally covers the slopes with thicknesses of 2-3'. These soils were found to be porous.

This information is critical to ascertaining the normal rooting depth of the oaks in the region. Most oak rooting occurs in the mineral rich B horizon of a soil profile. Moisture, soil fines and minerals elluviate (migrate) to this zone and are held in place by what is normally identified as the parent material (C horizon) of the soil. With this in mind it is our belief that most significant roots will occur between 1.5' and 3.5' depths. The water holding capacity of the soil is moderate. This soil is well drained. The pH ranges from slightly acid to slightly alkaline. The soil will be low in organic matter. Rooting depth has a direct relationship to the grading and footing depth of tree root system

TREE GROWTH

Fundamental to tree growth is the requirement of adequate water and mineral nutrients, enough oxygen in the soil for roots to function effectively, enough light for photosynthesis and favorable temperature. All of this must occur on a regular basis for the trees to flourish.

Clearly this stand of trees has survived at least one fire event as displayed with the extent of damage present. Localized decay has followed with open lesions present. The degree of healing on the part of individual trees is normal.

CANOPY RETENTION STANDARDS

The community oak tree forest canopy will not be affected in a negative way since no oak trees will be removed as a part of this development.

- Current area of the site:
  913,415 square feet (20.9 acres)

- Current oak tree canopy cover:
  9,318 square feet (0.21 acres)

INVENTORY DATA

There are nine native oak trees that reside upon the parcel. Only two of the nine trees will be affected from the development of this parcel.

Tree No. 327 (tagged)
Heritage status: Tree is of heritage size

SPECIES	Size (dbh)	Appearance	Health
Quercus lobata Valley Oak	24"	B (1)	A (1)

(1) See tree definitions for an explanation of the A-F ratings for individual trees.

Description: See Oak Tree Inventory Form for data concerning this tree.

Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.

Impact: Tree roots are known to extend for long distances from the trunk of an oak tree and do develop more extensively in a downward direction following drainage. Characteristically speaking, the root system begins horizontal distribution within the root crown area with what is known as the root plate, sometimes described as the "zone of rapid taper". This zone extends outward in all directions for a distance of 6-8' for trees of this size. The roots taper quickly within the area spreading in all directions forming a network of fine roots to absorb water and nutrients. The root plate also serves the ability of the tree to stand vertically as it depends upon the integrity of its root plate to absorb and counter external forces applied to the tree.

The top of a cut slope is shown to extend 13 feet horizontally into the Protected Zone of the tree or 12 feet from the tree trunk. Some fine roots, up to 2" in diameter will be subject to removal. The amount of area disturbed by the cut will be 531 square feet or 23% of the overall area within the protected zone (2,248 sf).

There will be some undetectable reaction by the tree from the loss of roots. The root disturbance will not be lethal.

Pruning: No pruning will be required as a result of this proposed grading.

Response to root loss:

The following responses can be expected to occur by reasonably healthy oak trees that suffer root loss due to construction injury. The responses represent a wounded trees attempt to overcome some level of chronic water deficit that will accompany root loss. Through our experience with the "Ben Johnson Oak Tree Study – 1972", a Scientific Study conducted in the North Ranch of Westlake Village, we predict that the tree No. 327 will not receive lethal damage. We expect the tree response to be as follows:

- The tree may enter dormancy earlier during subsequent years.
- May respond with somewhat smaller leaves in the following growing season (not discernible).
- There could be a slight level of defoliation to reduce evapo-transpiration loss.
- Leaves could curl slightly to further reduce evapo-transpiration loss.

See cross section A-A depicting the proposed grading associated with this tree.

Mitigation:

1. Monitor the tree for visible changes in appearance such as leaf drop.

2. Apply a mycrrohriza fungal application to improve the ability of the tree to absorb water and nutrients.
3. Maintain optimum moisture within the root zone of the tree. Do not irrigate withi10' of the tree trunk.
4. Fence tree at an appropriate location to protect against equipment entering the protected zone.
5. Do not store any material or apparatus within Protected Zone of any oak tree.
6. Plant 20 mitigation oaks, 5 gallon, upon the site.

Tree No. 328 (tagged)

SPECIES:	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	46", 17", 15"	A+	B

Heritage status:	Tree is of heritage size
Description:	See Oak Tree Inventory Form for data concerning this tree.
Location:	See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact:	Root disturbance is not anticipated.
Pruning:	No pruning is anticipated.
Mitigation:	None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 329 (Tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus lobata Valley Oak	32"	C	C

Heritage status:	Tree is of heritage size
Description:	See Oak Tree Inventory Form for data concerning this tree.
Location:	See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact:	No root disturbance is anticipated.
Pruning:	No pruning is anticipated.
Mitigation:	None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 330 (Tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	20", 13", 10", 4"	A	A

Heritage status: Tree is of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact: No root disturbance is anticipated.
Pruning: No pruning is anticipated.
Mitigation: None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 331 (Tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	24"	A	D

Heritage status: Tree is of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact: No root disturbance is anticipated.
Pruning: No pruning is anticipated.
Mitigation: None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 332 (Tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	37".24", 15"	A+	B

Heritage status: Tree is of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact: No root disturbance is anticipated.
Pruning: No pruning is anticipated/

Mitigation: None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 333 (Not tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	10", 9", 9"	A	B

Heritage status: Tree is of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact: No root disturbance is anticipated.
Pruning: No pruning is anticipated.
Mitigation: None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 334 (Not tagged-No picture)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	10", 12"	B	B

Heritage status: Tree is not of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact: No root disturbance is anticipated.
Pruning: No pruning is anticipated.
Mitigation: None required. Due to the distance from grading activity no fencing is proposed.

Tree No. 335 (Not tagged)

SPECIES	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	16"	C	C

Heritage status: Tree is not of heritage size
Description: See Oak Tree Inventory Form for data concerning this tree.
Location: See Oak Tree Location Map for the location of this tree within the undeveloped parcel.

Impact:	Root disturbance is anticipated.
Impact:	The top of a cut slope is shown to extend 10 feet horizontally into the Protected Zone of the tree or 9+ feet from the tree trunk. Some fine roots, up to 2" in diameter will be subject to removal. The amount of area disturbed by the cut will be 297square feet or 18% of the overall area within the protected zone (1,650 sf). There will be some undetectable reaction by the tree from the loss of roots. The root disturbance will not be lethal.
Pruning:	Some pruning is anticipated. .
Mitigation:	None required. Due to the distance from grading activity no fencing is proposed.

Tree No. OS-1 (tagged)

SPECIES:	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	18"	A	A

Heritage status:	Tree is not of heritage size
Description:	See Oak Tree Inventory Form for data concerning this tree.
Location:	See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact:	Root disturbance is not anticipated.
Pruning:	No pruning is anticipated.
Mitigation:	None required. Due to the distance from grading activity no fencing is proposed.

Tree No. OS-2 (tagged)

SPECIES:	Size (dbh)	Appearance	Health
Quercus agrifolia Coast Live Oak	21"	A	A

Heritage status:	Tree is of heritage size
Description:	See Oak Tree Inventory Form for data concerning this tree.
Location:	See Oak Tree Location Map for the location of this tree within the undeveloped parcel.
Impact:	Root disturbance is not anticipated.
Pruning:	No pruning is anticipated.
Mitigation:	None required. Due to the distance from grading activity no fencing is proposed.

PRC VALUE

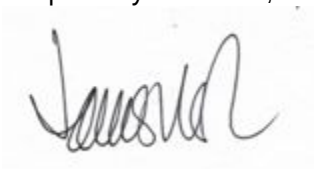
		Value
Oak No. 327	$ 4,600 + $ 2,700(24-7) x .80	$ 36,729.00
Oak No. 328	$ 4,600 + $ 2,700(26-7) x .75	$ 36,475.00
Oak No. 329	$ 4,600 + $ 2,700(32-7) x .80	$ 54,000.00
Oak No. 330	$ 4,600 + $ 2,700(47-7) x .60	$ 64,800.00
Oak No. 331	$ 4,600 + $ 2,700(18-7) x .50	$ 12,850.00
Oak No. 332	$ 4,600 + $ 2,700(74-7) x .80	$ 80,900.00
Oak No. 333	$ 4,600 + $ 2,700(24-7) x .40	$ 18,360.00
Oak No. 334	$ 4,600 + $ 2,700(26-7) x .80	$ 41,040.00
Oak No. 335	$ 4,600 + $ 2,700(16-7) x .80	$ 19,440.00
Oak No OS-1	$ 4,600 + $ 2,700(18-7) x .95	$ 32,585.00
Oak No OS-2	$ 4,600 + $ 2,700(21-7) x .95	$ 40,280.00
TOTAL OF PRC VALUE		$437,459.00

RECOMMENDATION

Following the standard requirements of the City and with adequate supervision on the part of the Oak Tree Consultant the proposed improvements can be accomplished without major disturbance to the oak resource. The overall vigor of all nine trees is above average with good yearly growth extension.

There is significant disease present on a number of the trees. Over time with minimum disturbance of the natural environment the trees will control the disease through the natural process of compartmentalization.

Respectfully submitted,



James Dean, A.S.L.A., I.S.A.
Landscape Architect
License No. 1146
Enclosures

NOTICE OF DISCLAIMER:
Opinions given in this report are those of James Dean, A.S.L.A. and are derived from current professional standards based on visual recordings at the time of inspection. This visual record does not include aerial or subterranean inspections, and therefore may not reveal existing hidden hazards. Records may not remain accurate after inspection due to changeable deterioration of the inventoried plant material. James Dean, A.S.L.A. provides no warranty regarding errors of omission resulting from the lack of communication of facts available only to the requester of this report which are expressed or implied as to the fitness of the urban forests for safe uses. This report is offered for your consideration.

REPORT
DEFINITIONS

The following is an explanation of general information and terminology that may be presented within the body of the Oak Tree Report for the subject site.

PHYSICAL DESCRIPTION OF OAK TREES

1. Tree number- each tree in the field has been assigned a number that corresponds to a tree location on the "Oak Tree Location Map".
2. Species - is the classification of tree that is being evaluated.
3. Number of Trunks- as measured in accordance existing measurements at the time of evaluation.
4. Diameter of Trunks- as measured at 4 ½' above mean natural grade, existing at the time of evaluation. Diameter is referred to as the trunk diameter at breast height (dbh).
5. Drip line measurements are taken in eight compass directions. Measurements are taken from the center point of the trunk to the outer limits of the leaf growth in that direction.
6. When trees are growing in a forest condition and the drip lines are not easily discernible they are referred to being in a shared canopy or forested condition (sc).
6. Leaning- is the direction the tree is inclined from the natural vertical position.

PLANT DISEASE AND INSECT VECTORS

Plant disease causes a dysfunction in the physiological processes of a tree that causes it to lose vigor. Four diseases that are of major importance are: Avocado Root Rot (*Phytophthora cinnamomi*) and Oak Root Fungus (*Armillaria mellea*) and Butt Rot (*Ganoderma spp*.) and Hypoxylon Canker (*Hypoxylon spp*.).

Phytophthora is an aggressive pathogen. It is classified as a water mold that causes crown or root rot. This organism can infect and grow readily through uninjured trunk or root bark. It can infect a tree at any time of the year in California. Some chemical applications can be effective.

Armillaria is a weaker pathogen. It generally infects through the roots or root crown of a weakened or stressed tree. Once infected the tree gradually declines and most often the tree dies from girdling. There is no effective treatment available.

Ganoderma is a pathogenic disease that attacks the tissue immediate below the bark concentrating upon the base of a tree and rapidly causes death. There is no effective treatment available.

Hypoxylon is a canker causing fungus that is pathogenic. It most often enters a tree through open wound causing local cankers that are depressed from the surface. While it primarily attacks the phloem and cambium of a tree in spreading it eventually will kill a tree. Decline or death of the tree is rapid.

Small half domed black bubbles appear on the surface. These are the fruiting bodies of the fungus. As many cankers ultimately join a tree dies for girdling. There is no effective treatment available.

While the previous specific disease information is important, a long discourse in plant pathology or entomology is not necessarily a prerequisite to develop a basic understanding of the casual effects of disease and insects upon living plant tissue. Disease and insect infection, along with the disruption and damage caused by the alteration of the natural tree environment is the main cause in decline of the oak resource in California.

Decline is manifested by changes plant vigor. Visible signs and symptoms associated with oak tree decline cause a change in visible appearance.

An Oak tree is rated as to vigor by it's visual appearance as follows:

VIGOR CLASS

Vigor is the capacity of a tree for growth and survival. A vigorous tree has bright green leaves of large size for the species. The bark is relatively smooth, free from cracks and decay. It will more easily ward off disease and insect attacks and will recover from impacts more quickly than a weak tree.

A A vigorous tree with a healthy, dense, full leaf canopy, normal yearly growth extension, excellent foliage color, normal leaf size and reasonably free from structural defect.

B Tree with slightly less vigor, slightly thinner foliage density, healthy leaf canopy with good color, normal yearly growth extension, normal leaf size and my have minor structural defects (open cavity exposing decay, etc.)

C Displays plant stress, level of vigor is average or less, fair to poor leaf size or color, may have a minor level of twig or small branch dieback, exudation, insect infestation and/or exfoliating bark. The tree may have significant correctable structural defect.

D Tree with severe conditions of disease, thin to very-thin leaf canopy with dwarfed leaf size, poor to non-existent yearly growth extension, poor callusing at wounds, major cavities with decay, major dieback of main stem or scaffolding branches and limbs, exfoliating bark, wounds with exudation, lesions on stems or distorted bark, fungal conks present, epitomic growth (short, twiggy growth along major branches), thin foliage characterized by small leaves which may be discolored, may have mistletoe: little chance of recovery.

F Dead or almost dead tree.

A basic knowledge of disease and insects should include an understanding of the following information:

COMPARABLES

INDEX TREES:

To evaluate the subject trees we have observed the status of oak trees of the same species located within the local region. As an index trees they serve as our guide for comparison of the status of any oak of the same species and approximate size in the local region. Given that the

plant environment the subject onsite trees should display a similar visual appearance. Tree No. 2 located upon this site is our index tree for evaluating the subject trees

Quality of an Index Tree:

Leaf density:	Very dense
Leaf size:	Large
Branch development:	Extensive with abundant twig development. The trees are balanced in physical form. Normal yearly growth extension is present.
Defects:	Not evident
Leaf Color:	Rich green
Vigor:	High level

PHYSICAL DEFECTS OF OAK TREES

1. Trunk Cavity- is a hollow area in the trunk, usually due to the decay of wood.
2. Co dominant Trunks – equal in size and relative importance that often creates a hazardous condition due to the expanding growth of both trunks competing for the same physical space.
3. Trunk Damage- is a damaged area on the trunk, usually due to external force onto the tree. This damage is also described as a lesion.
4. Exposed Roots- roots exposed near tree; e.g. in creek bed.
5. Exfoliating Bark- the flaking off of bark from trunk, branches and/or twigs.
6. Water Pocket- pockets formed at branch crotches that can hold water and possibly weaken the tree's structure (possible hazard).
7. Exudation- the issuance or expelling of liquid, usually from wounds. The cause is generally an agent of a bacteria or fungus.
8. Fruiting Bodies- are the outward signs (i.e. mushrooms, conks, etc.) of decay in the interior wood of the tree.
9. Insect / Mite Damage- are some form of damage to the tree caused by insects or mites (i.e. scale, caterpillars, weevils, borers, mites, etc.)
10. Galls- are an abnormal hypertrophy growth (tumors) on the tree, which may be caused by insects, mites, bacteria, etc.
11. Oak Pit Scale- has a severe weakening effect on the twigs, frequently resulting in their death. When the scale settles on the twigs, a swelling of the twig tissue occurs so the insect in the effect is in a pit; hence, the name.
12. Main stem Dieback- Atrophy or death of healthy main stems from the growing tip back.
13. Branch Cavities- hollow areas in the trunk or limbs in the upper tree, usually due to the decay of wood.
14. Weak Crotches- poorly formed branch attachments.
15. Twig / Branch Dieback- death of unhealthy twigs from the growing tip back.
16. Epicormic Growth- manifested as excessive growth along main limbs, rather than on twigs.
17. Thin Foliage- defoliation and twig dieback throughout the canopy.
18. Potential Hazard - any tree may be a hazard to humans, depending on its location and / or health.

APPEARANCE

The Appearance (Aesthetic) quality of the trees was visually determined from an overall inspection of appearance. The following system was to describe their conditions:

A. OUTSTANDING
The tree is visually symmetrical having the ideal form and appearance for the species.

B. AVERAGE
The tree, though non-symmetrical, has an appealing form for the species with very little dieback of foliage or twigs/branches.

C. POOR
The tree may be intermediate, codominant or suppressed by other trees, may be in debilitated condition with a level of significant decline that affects its visual appearance to a degree that it lacks an overall satisfactory visual quality.

END OF REPORT

EXHIBIT A
TREE RESPONSE TO TREE ROOT DAMAGE

The following responses can be expected to occur by reasonably healthy oak trees that suffer root loss due to transplanting or construction injury. The responses represent a wounded trees attempt to overcome some level of chronic water deficit that will accompany root loss. Through our experience with the "Ben Johnson Oak Tree Study – 1972", a Scientific Study conducted in the North Ranch of Westlake Village, we predict that none of trees presented in this report will receive lethal damage. We expect the tree response to be as follows:

- They will likely enter dormancy earlier during subsequent years.
- Will respond with less and smaller leaves in the following growing season.
- There will be a significant level of defoliation to reduce evapo- transpirational loss.
- Leaves will curl to further reduce evapo-transpiration loss.

RECOMMENDATIONS:

Trees damaged by construction:

- Monitor the tree for visible changes in appearance such as leaf drop, thinning leaf crown, dieback and leaf color.
- Apply a rooting hormone such as "Superthirive".
- Maintain optimum moisture within the root zone of the tree. Do not irrigate within 10' of the tree trunk if possible. If construction damage is closer than 10' to the tree trunk, maintain moisture local to the area of wounded roots.
- Seek professional advice when changes in visual appearance appear.

EXHIBIT B
TREE RESPONSE TO PRUNING

Response to Pruning:

Successful healing of pruning wounds to oaks is a function of time, the condition of the tree, size of the roots/branches and the proper execution of the pruning wound. Trees generate new callous tissue growth around a wound to gain closure thereby protecting the inner xylem tissue from invasion of pathogens and insect vectors.

Trees control infection of wounds through a natural process known as Compartmentalization. In this process the tree responds to infection by creating barriers (walls) in all four directions at the margins of the infected tissue. This action delays the advancement of the disease organism until the tree has gained closure at the wound site. Closure of the wound effectively stops or delays the disease process.

Time plays an important role in recovery from pruning wounds to roots and branches. Clearly, smaller root/branch wounds will recover in a short period of time with little consequence to the tree. Rapid closure means that the inner core (Xylem) of the tree is less likely to be exposed to decay causing disease organisms. Larger wounds (10" and greater) could require many years to gain closure. During this period of time more aggressive pathogens can invade the inner wood by successfully breaking down the natural barriers formed by the tree. This allows entry of saprophytic organisms that consume wood and cause decay. Decay within the inner core of the tree is most often not a threat to the life of the tree. Rather, it presents a problem of structural stability.

Psychopathologist Dr. Alex Shag (deceased) and other notable scientists have demonstrated that smaller pruning wounds are not likely to produce significant areas of decay. Smaller roots/branches of a tree that are properly pruned will gain closure in 5-10 years. After closure small pruning wounds are not a liability to a tree. When pruning to remove small tree roots/branches, and in some cases larger roots/branches, man is immolating the normal and natural process of a tree shedding a root/branch.

TREE INVENTORY FORM

TREE INVENTORY FORM

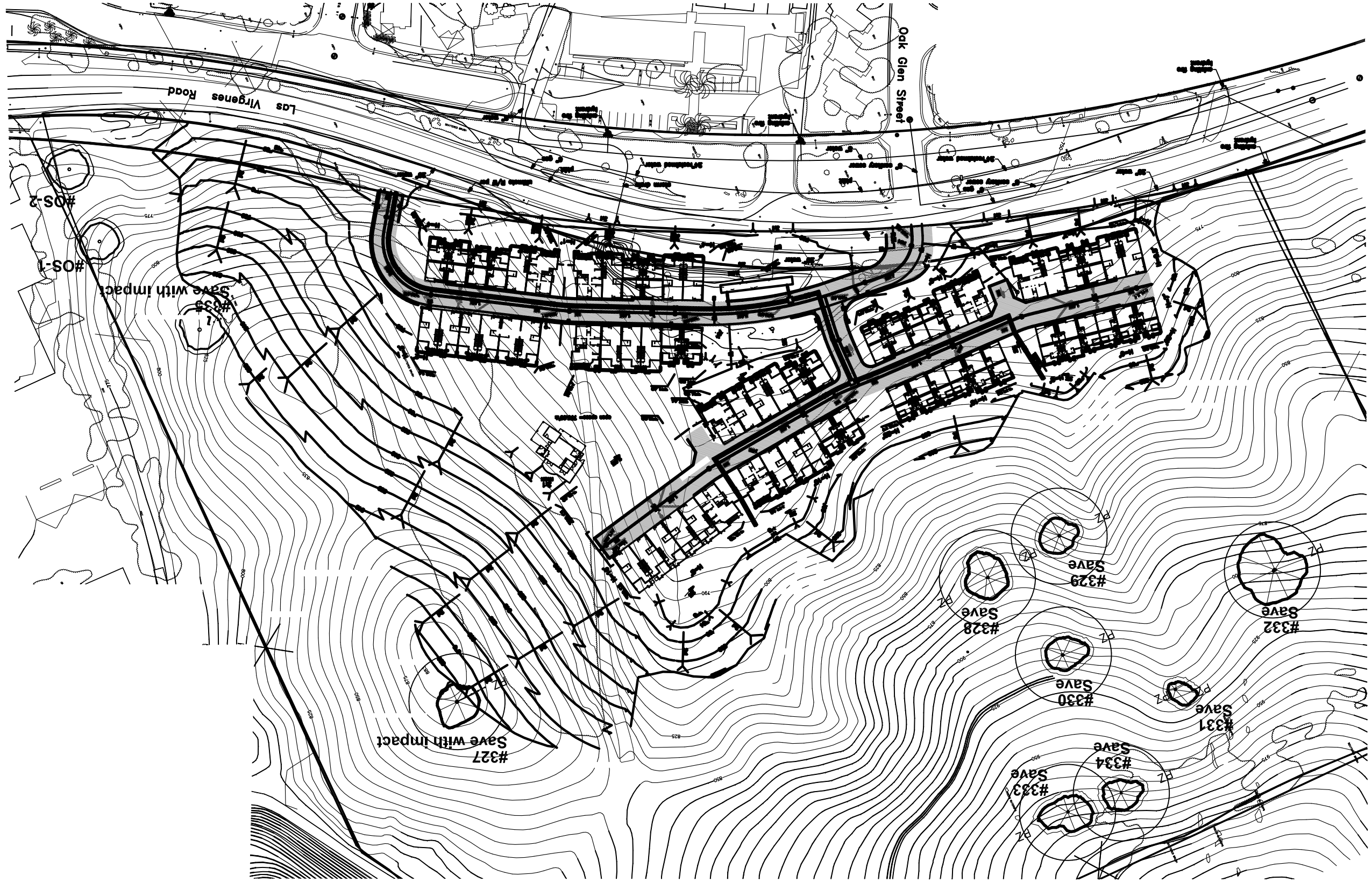
					HEIGHT ABOVE GRADE (feet)				PHYSICAL DESCRIPTION DRIPLINE (feet)								CONDITION		
TREE NO.	SPECIES	COMMON NAME	HERITAGE TREE	TRUNK DIAMETER (inches)	NORTH	EAST	SOUTH	WEST	NORTH	NORTHEAST	EAST	SOUTHEAST	SOUTH	SOUTHWEST	WEST	NORTHWEST	APPEARANCE	HEALTH	REMARKS
327	*Quercus lobata*	Valley Oak	Y	24	20	6	6	20	22	22	22	28	20	18	18	16	B	A	Vigorous tree, branching height varies
328	*Quercus agrifolia*	Coast Live Oak	Y	46,17,15	0	0	0	0	18	21	21	21	23	20	35	21	A+	B	The Perfect Oakextreme vigor, very dense foliage, rot present
329	*Quercus agrifolia*	Coast Live Oak	Y	32	0	10	2	15	20	18	15	18	21	18	18	15	C	C	Fire damage main trunk east side
330	*Quercus agrifolia*	Coast Live Oak	Y	20, 13,10, 4	4	4	4	18	24	18	22	23	22	18	15	17	A	A	Codominant at base,fire damage, extensive lesions. good healing
331	*Quercus agrifolia*	Coast Live Oak	N	18	10	12	12	15	23	18	15	15	15	15	16	18	B	D	Fire damage main trunk east side and lower branches
332	*Quercus agrifolia*	Coast Live Oak	Y	15, 37, 24	18	0	0	0	32	28	32	34	35	38	38	17	A+	B	
333	*Quercus lobata*	Valley Oak	Y	10, 9, 9	5	7	6	7	23	12	23	26	21	31	16	17	A	B	Fire damage
334	*Quercus agrifolia*	Coast Live Oak	Y	12,10	10	8	7	12	24	18	18	19	19	17	18	19	B	B	
335	*Quercus lobata*	Valley Oak	N	16	3	5	9	14	25	16	15	18	15	12	12	15	C	C	
OS-1	*Quercus agrifolia*	Coast Live Oak	N	18	9	8	12	12	22	24	18	18	20	22	20	20	A	A	
OS-2	*Quercus agrifolia*	Coast Live Oak	N	21	10	12	10	9	25	16	17	17	19	22	21	22	A	A	

TREE LOCATION MAP

CALABASAS BLUE, LLC

25340 PRADO DE LOS ARBOLES
CALABASAS, CALIFORNIA 91302

OAK TREE LOCATION MAP



SCALE:
NTS

WET SIGNATURE

JAMES DEAN DESIGN
LANDSCAPE ARCHITECTURE
PLANNING
URBAN DESIGN
23 E. Thousand Oaks Blvd. Suite 304
Thousand Oaks, CA 91360 · 805.494.0623

REVISIONS:

DATE:07/20/2012

PRINT DATE:

CALABASAS BLUE, LLC

OAK TREE LOCATION MAP

PHOTOGRAPHS


TREE NO. 330


TREE NO 331
REGENERATING
STUMP



TREE NO. 332



TREE NO. 327



TREE 328



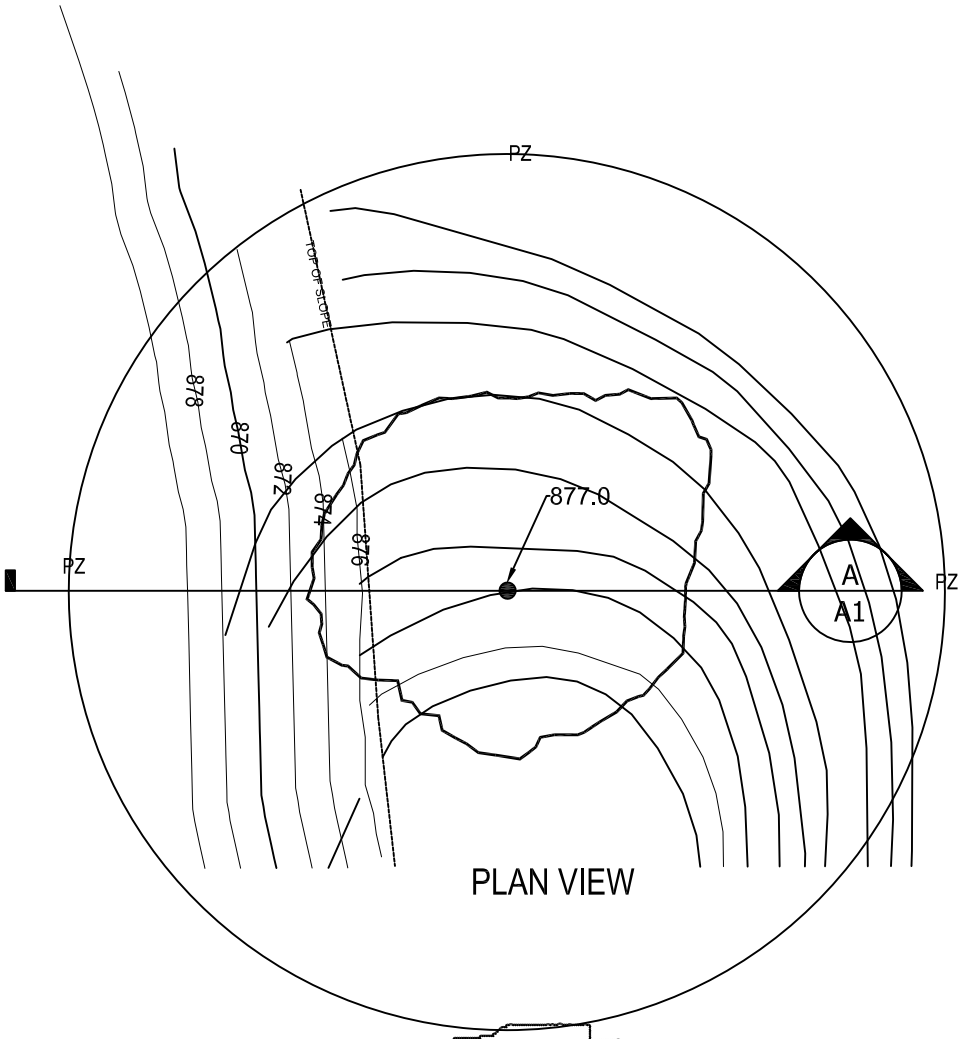

TREE NO. 329


TREE NO 329 -
FIRE DAMAGE

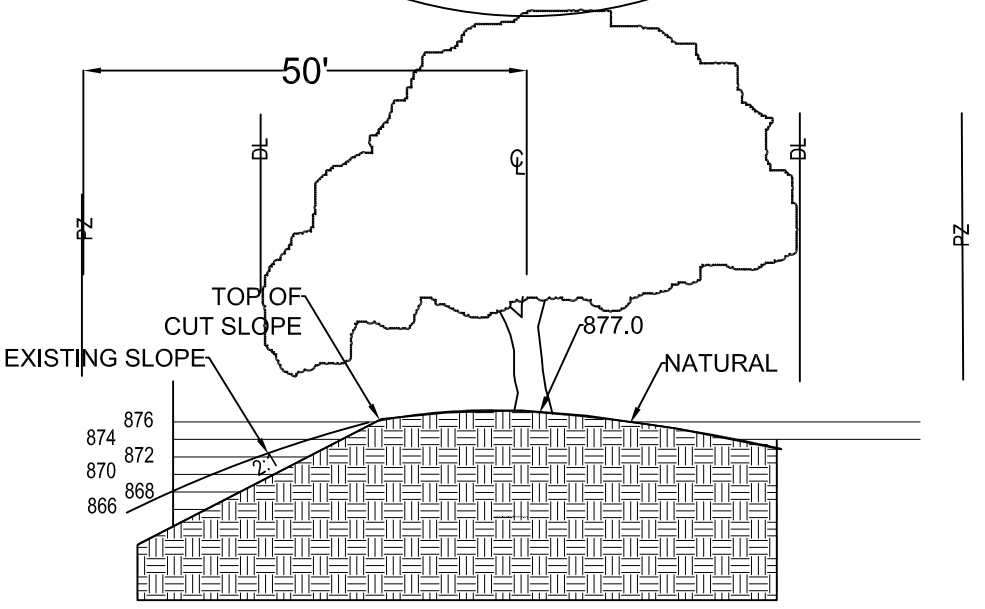

TREE NO. 333


TREE NO. 335

SECTION



PLAN VIEW



PLAN VIEW

OAK NO. 327

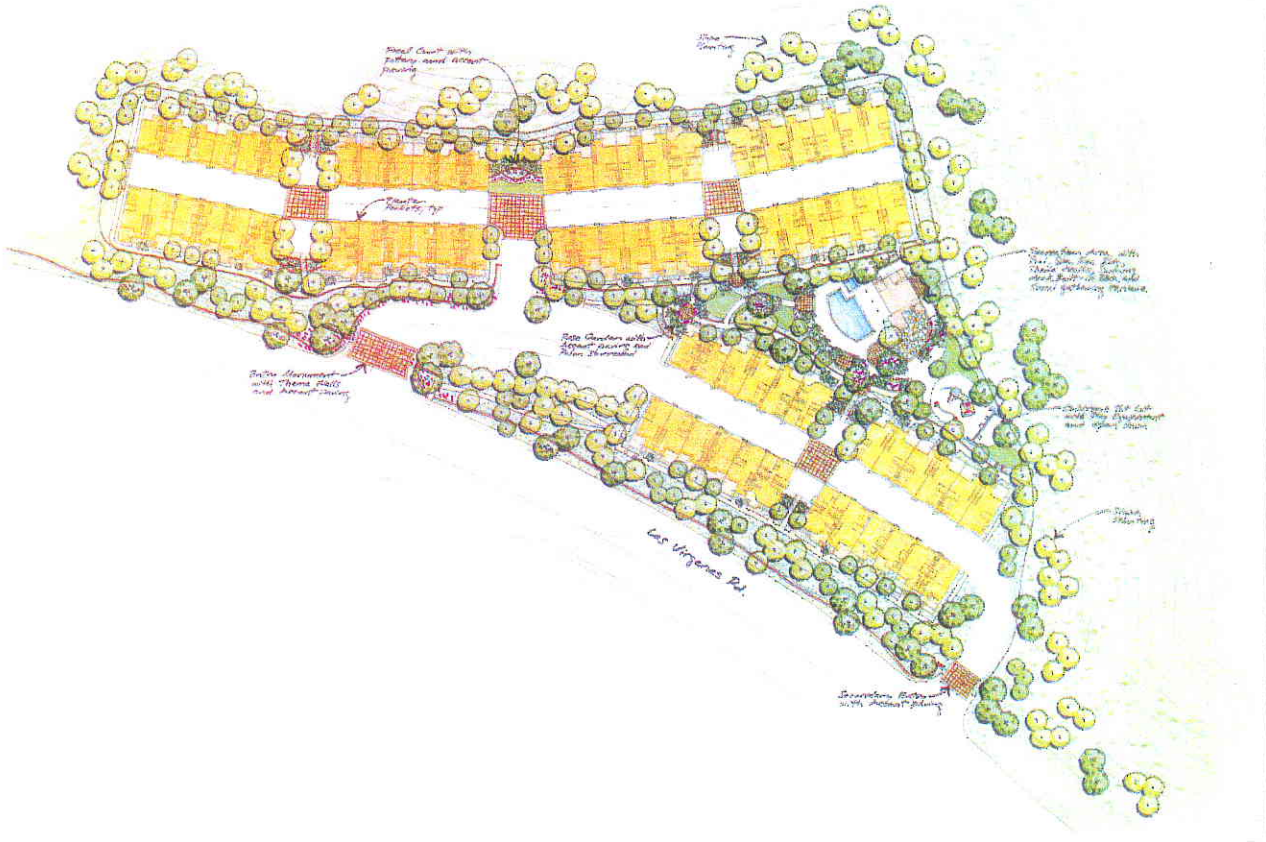
SC: NOT TO SCALE

Traffic and Circulation Study

APPENDIX G

CALABASAS BLUE RESIDENTIAL PROJECT
CITY OF CALABASAS, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY



May 16, 2012

ATE Project #12040

Prepared for:

Envicom Corporation
28328 Agoura Road
Agoura Hills, CA 91301

ASSOCIATED TRANSPORTATION ENGINEERS

100 N. Hope Avenue, Suite 4, Santa Barbara, CA 93110-1686 • (805) 687-4418 • FAX (805) 682-8509

ASSOCIATED TRANSPORTATION ENGINEERS
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Since 1978

Richard L. Pool, P.E.
Scott A. Schell, AICP, PTP

May 16, 2012 12040R01.WPD

Primo Tapia, AICP
Envicom Corporation
28328 Agoura Road
Agoura Hills, CA 91301

TRAFFIC AND CIRCULATION STUDY FOR THE CALABASAS BLUE RESIDENTIAL PROJECT, CITY OF CALABASAS, CALIFORNIA

Associated Transportation Engineers (ATE) has prepared the following traffic and circulation study for the Calabasas Blue Residential Project, proposed on Las Virgenes Road in the City of Calabasas. The study evaluates the potential traffic and circulation impacts associated with the project and identifies mitigation measures where appropriate.

We appreciate the opportunity to assist you with this project.

Associated Transportation Engineers

Scott A. Schell, AICP, PTP
Principal Transportation Planner

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INTRODUCTION

The following traffic study contains an analysis of the potential traffic impacts associated with the Calabasas Blue Residential Project. The traffic study provides information regarding existing and future traffic conditions within the project study-area and recommends improvements where necessary. The study also provides an analysis of the project's consistency with the policies outlined in the Los Angeles County Congestion Management Program (CMP).

PROJECT DESCRIPTION

The Calabasas Blue Residential Project site is located directly east of the Las Virgenes Road/Oak Glen Street intersection in the City of Calabasas. Figure 1 shows the project site location within the City. The project is proposing development of 81condominium units. The project is consistent with the General Plan land use designations for the subject property. Access to the project site would be provided by two access connections to Las Virgenes Road. The primary access connection would be located opposite Oak Glen Street, and would be signalized. The unsignalized secondary access connection is proposed approximately 550' south of the Las Virgenes Road/Oak Glen Street intersection. Figure 2 presents the project site plan.

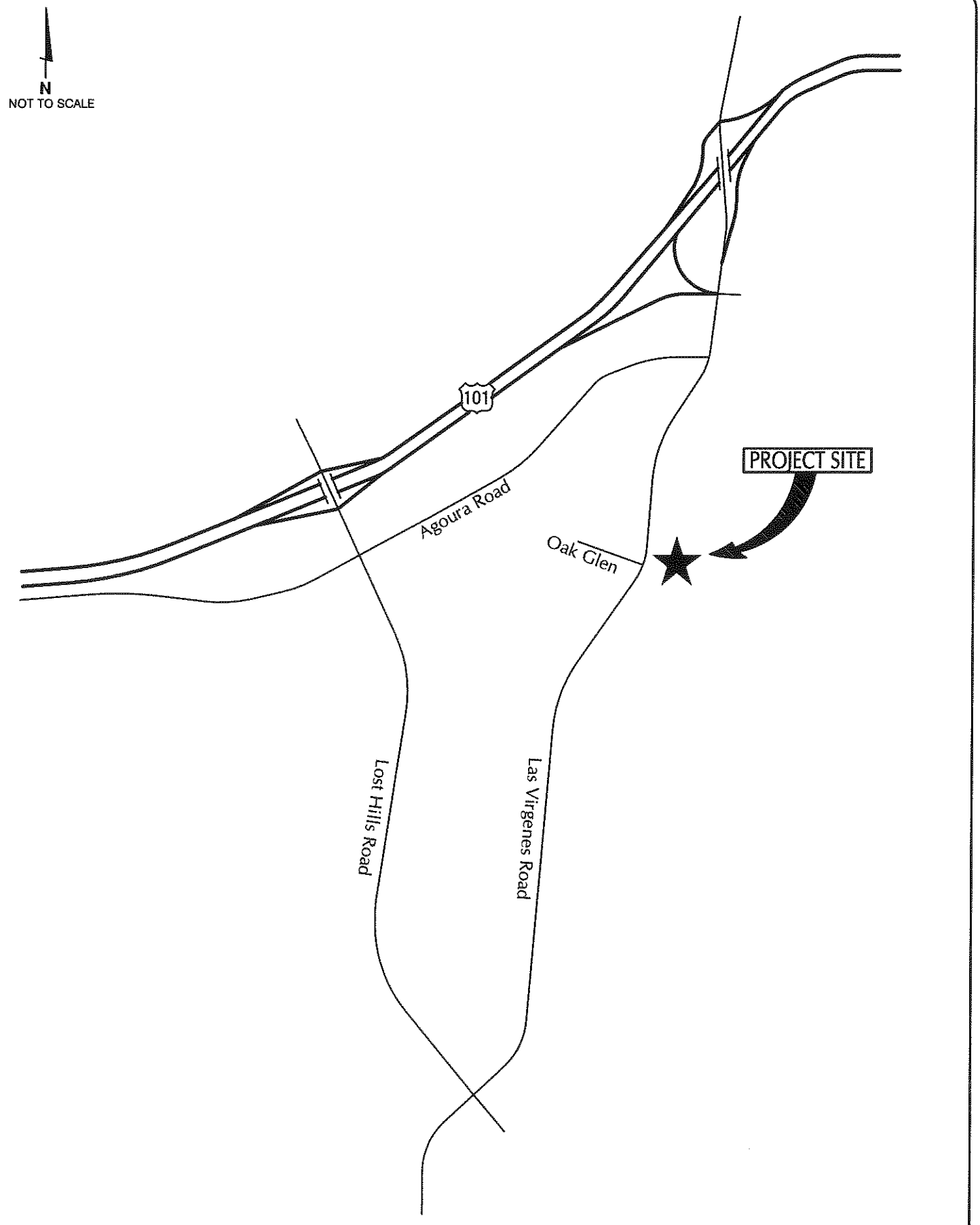
EXISTING CONDITIONS

Street Network

The project site is served by a network of highways, arterial roads and collector streets as shown in Figure 1. The following text provides a brief description of the major components of the study-area street network.

U.S. Highway 101, located north of the project site, is a multi-lane interstate highway serving the Pacific Coast between Los Angeles and San Francisco. U.S. Highway 101 is the principal route between the City of Calabasas and the adjacent cities of Ventura, Oxnard, Camarillo Thousand Oaks, Westlake Village, Agoura Hills, Hidden Hills to the west; and the City of Los Angeles to the east. Access between the site and U.S. Highway 101 is provided via the Las Virgenes Road interchange.

Las Virgenes Road, located along the project's western frontage, is a north-south arterial street that connects Calabasas to the Malibu area via its junction with Malibu Canyon Road. Las Virgenes Road contains 4-lanes from U.S. Highway 101 to a point south of Agoura Road, where it transitions to 2-lane roadway. Two proposed driveway connections to Las Virgenes Road would provide access to the project site.

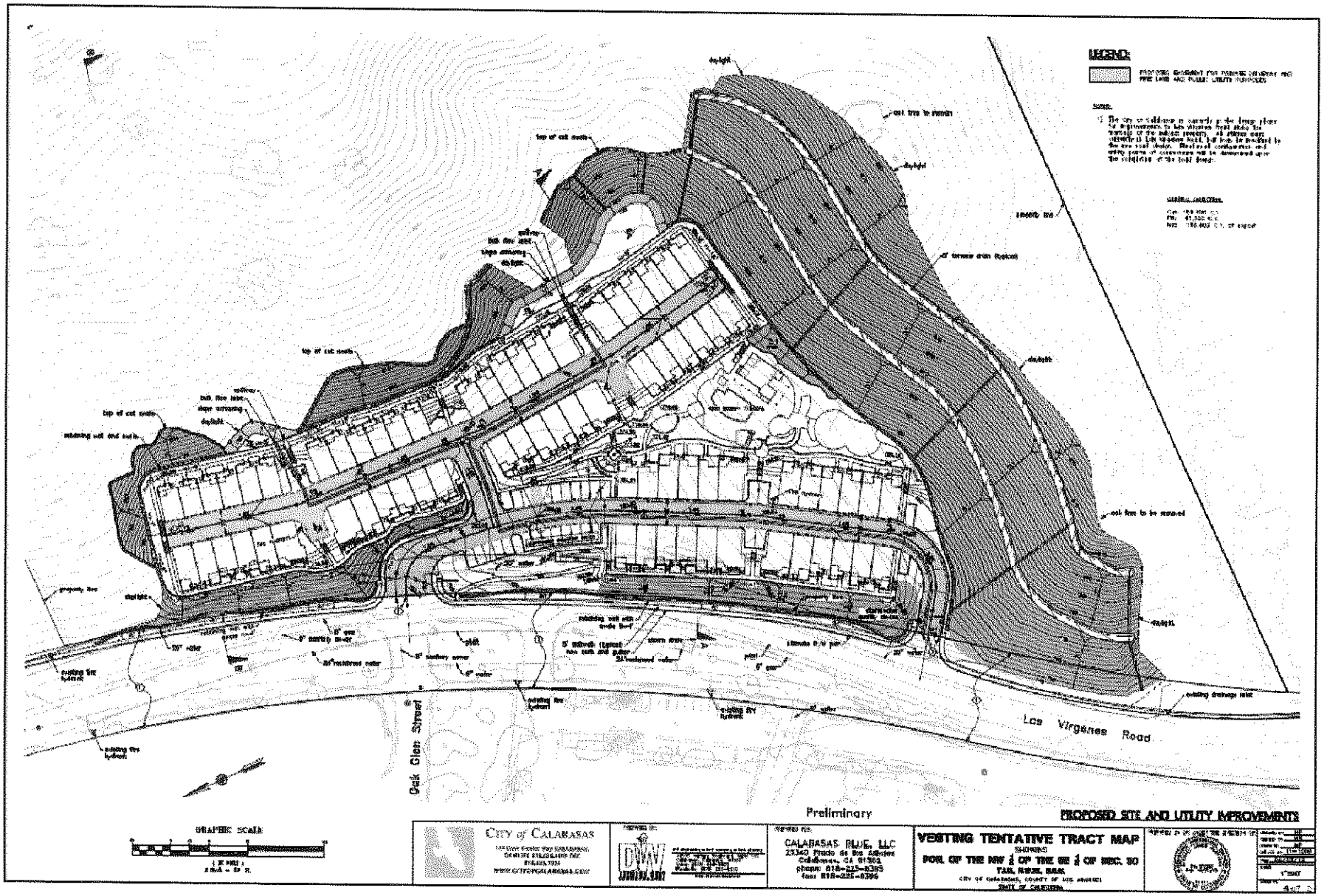


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EXISTING STREET NETWORK AND PROJECT LOCATION

FIGURE 1

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ENGINEERS

PROJECT SITE PLAN

FIGURE 2

MMF - #12040

Agoura Road is an east-west arterial roadway that extends westward from Las Virgenes Road to the Lost Hills Road area and beyond to the communities of Agoura Hills and West Lake Village.

Lost Hills Road, located west of the project site, is a 2- to 4-lane north-south arterial street that extends northerly from Las Virgenes Road to its terminus at the County Landfill north of U.S. Highway 101. The roadway provides one of the major north-south travel routes in the western portion of the City of Calabasas.

Existing Roadway Operations

Existing average daily traffic (ADT) volumes for the study-area roadway segments were collected in June 2011 during periods when the local schools were in session (traffic count data is contained in the Technical Appendix for reference). The existing average daily traffic volumes are shown on Figure 3. In rating roadway segment operations, "Levels of Service" (LOS) A through F are used, with LOS A indicating free flow operations and LOS F indicating congested operations (more complete definitions of levels of service are included in the Technical Appendix). The City of Calabasas' General Plan has adopted a level of service threshold of LOS C or better as the minimum acceptable operating standard for City roadway segments. Table 1 lists the existing levels of service for the study-area roadway segments.

Table 1
Existing Roadway Levels of Service

Roadway Segment	Geometry	ADT	LOS
Las Virgenes Road n/o Agoura Road	4-Lane	27,600	LOS C
Las Virgenes Road s/o Agoura Road	2-Lane	**20,600**	**LOS F**
Agoura Road w/o Las Virgenes Road	4-Lane	11,100	LOS A

The data presented in Table 1 indicates that the 2-lane segment of Las Virgenes Road south of Agoura Road operates at LOS F under existing conditions. These operations are considered unacceptable based on the City's LOS C operating standard.

Existing Intersection Operations

Because traffic flow on urban arterial roadways is most constrained at intersections, detailed traffic flow analyses focus on the operating conditions of critical intersections during peak travel periods. The level of service rating system used for roadways is also applied to intersections. Existing A.M. and P.M. peak hour traffic volumes for the study-area intersections

were collected in June 2011 and May 2012 during periods when the local schools were in session (traffic count data is contained in the Technical Appendix for reference). The A.M. and P.M. peak hour traffic volumes for the study-area intersections are illustrated on Figures 3 and 4. Figure 5 presents the existing traffic controls and lane geometries for the study-area intersections.

The City of Calabasas General Plan has adopted a level of service threshold of LOS C (V/C ratio 0.80) or better as the minimum acceptable operating standard for City intersections, and LOS D (V/C ratio 0.90) or better as the minimum acceptable operating standard for freeway interchanges within the City. Levels of service were calculated for the signalized intersections based on the "Intersection Capacity Utilization" (ICU) methodology. The freeway interchange intersection operations were calculated using the Highway Capacity Manual (HCM) [1] methodology as per Caltrans guidelines and direction provided by City staff. Level of service for the Las Virgenes Road/Oak Glen Street intersection was calculated using the HCM unsignalized intersection methodology. Table 2 lists the existing levels of service for the study-area intersections (calculation worksheets are contained in the Technical Appendix).

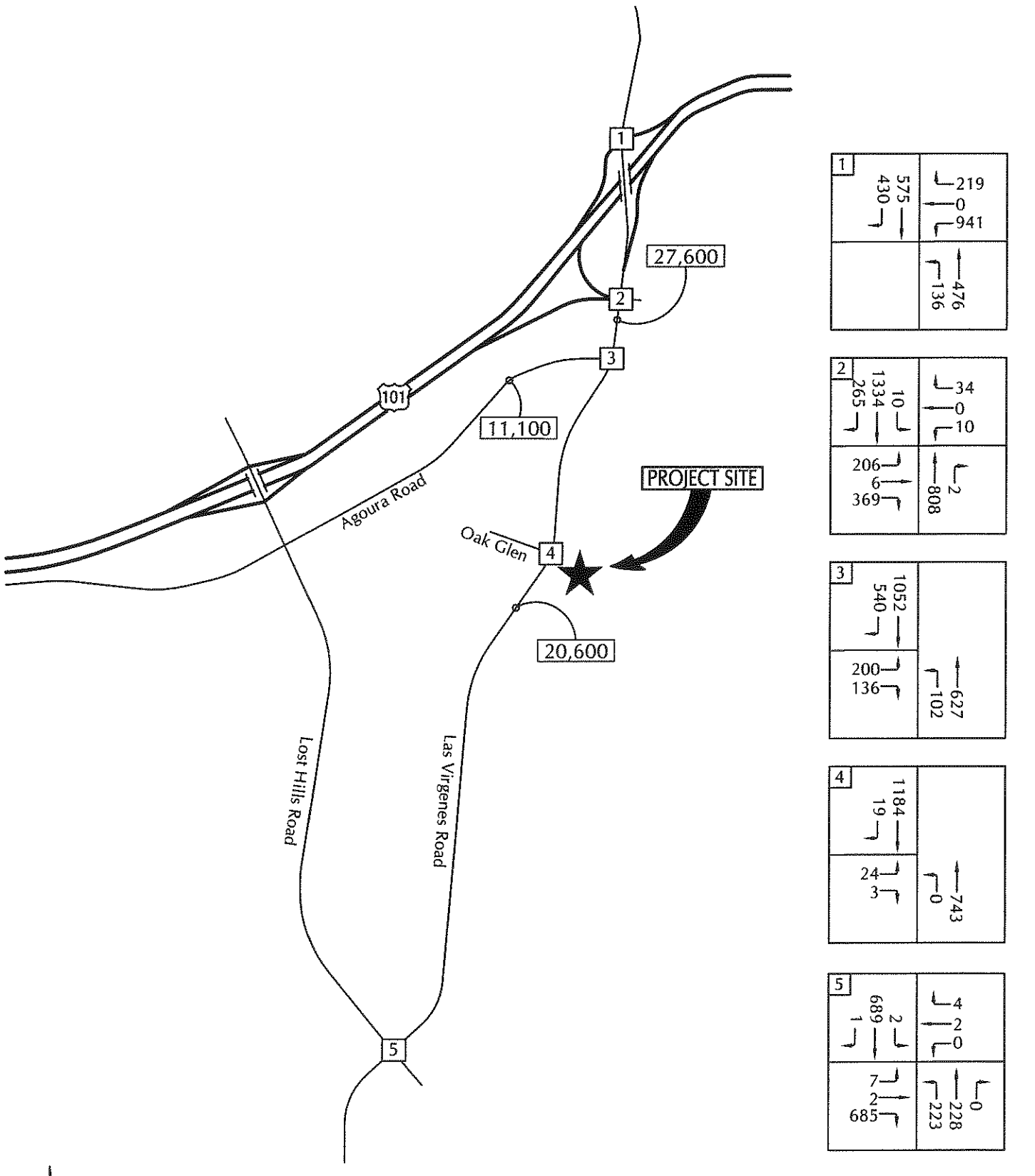
Table 2
Existing Intersection Levels of Service

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	ICU/Delay	LOS	ICU/Delay	LOS
Las Virgenes Rd./U.S. 101 NB Ramps	20.1 sec.	LOS C	15.1 sec.	LOS B
Las Virgenes Rd/U.S. 101 SB Ramps	14.9 sec.	LOS B	39.1 sec.	LOS D
Las Virgenes Rd./Agoura Rd.	0.691	LOS B	0.601	LOS A
Las Virgenes Rd./Oak Glen Street (a)	24.4 sec.	LOS C	19.9 sec.	LOS C
Las Virgenes Rd./Lost Hills Rd.	**0.963**	**LOS E**	0.547	LOS A

Bold Values exceed City's LOS C/D standard.
(a) Unsignalized Intersection. LOS based on average weighted delay per vehicle.

The data presented in Table 2 show that the Las Virgenes Road/Lost Hills Road intersection currently operate below the City's LOS C standard during the A.M. peak hour. The remaining study-area intersections operations are considered acceptable based on the City's operating standards.

[1] Highway Capacity Manual, Transportation Research Board, National Research Council, 2000.

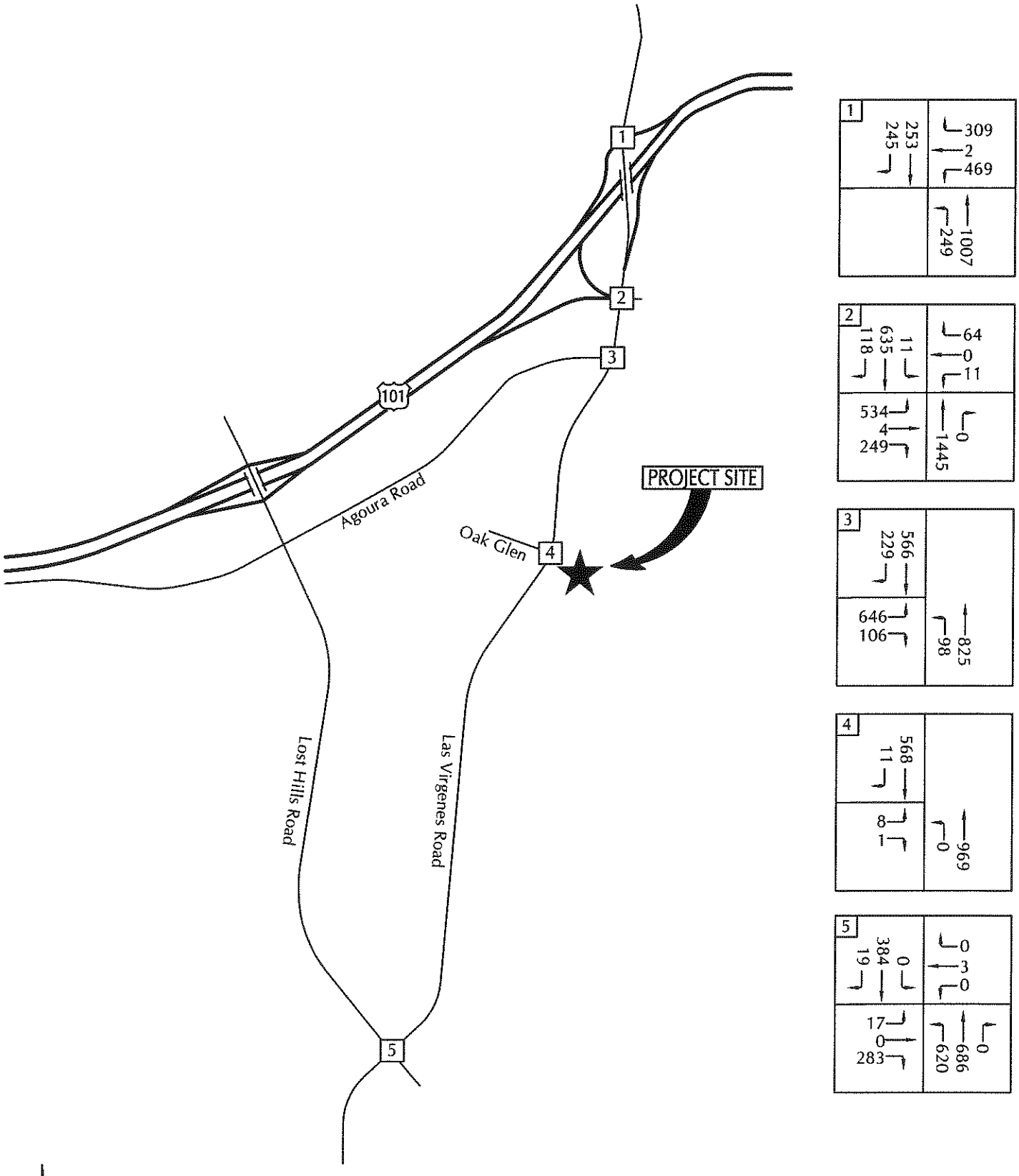


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EXISTING AVERAGE DAILY AND A.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 3

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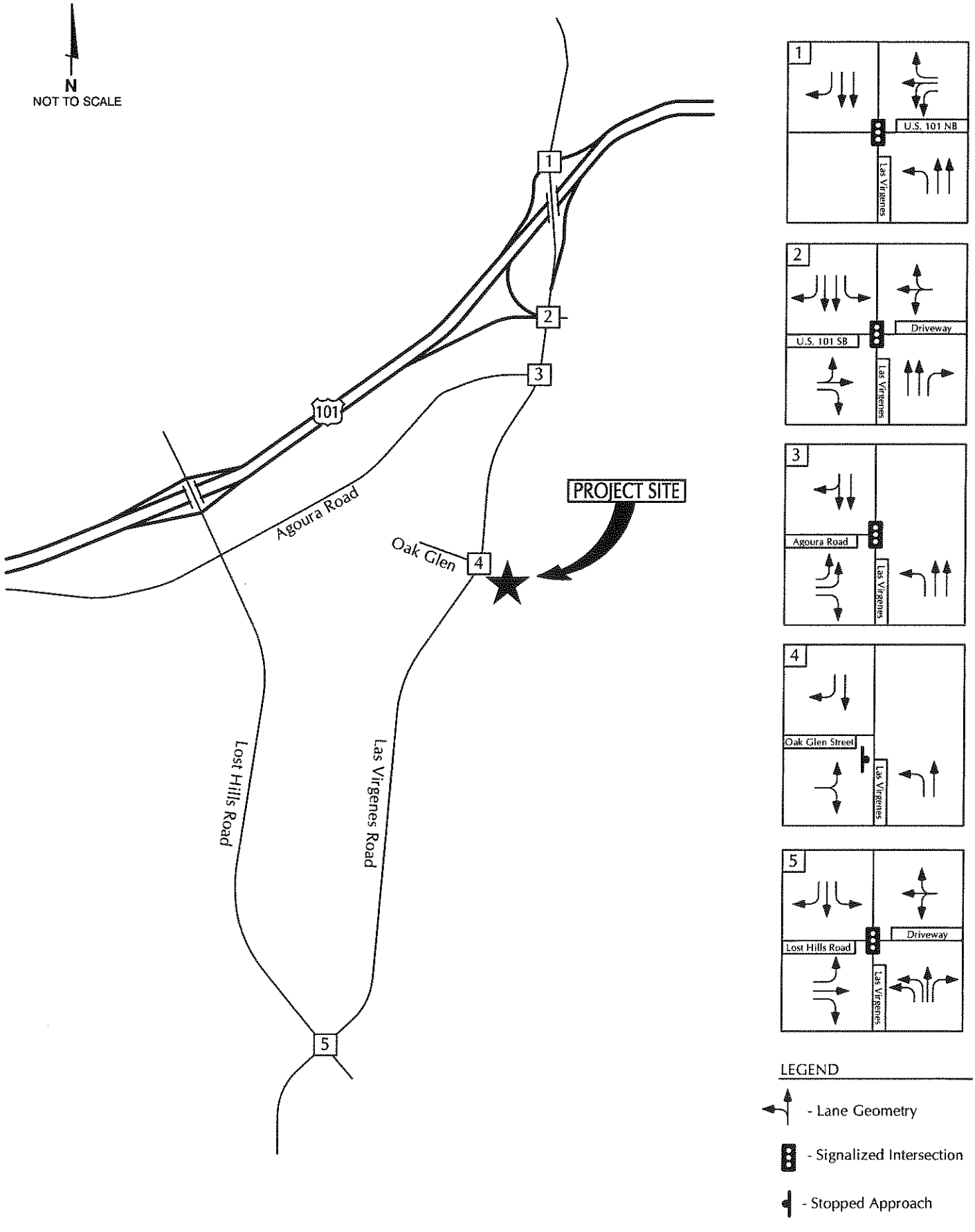


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EXISTING P.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 4

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EXISTING LANE GEOMETRIES AND TRAFFIC CONTROLS

FIGURE 5

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CEQA THRESHOLDS OF SIGNIFICANCE

The City of Calabasas considers LOS C (ICU 0.80) acceptable for City roadways and intersections located within the urban areas of the jurisdiction, and LOS D (V/C ratio 0.90) as the minimum acceptable operating standard for freeway interchanges within the City. Projects that degrade roadways and/or intersection below the LOS C/D standard must provide measures to mitigate their impacts. Table 3 presents the City's impact criteria as presented in the City of Calabasas 2030 General Plan Transportation Element.

Table 3
City of Calabasas Traffic Impact Thresholds

Project Related Traffic Increases that Constitute a Significant Impact Where Roadway Performance Standards Are or Will Be Exceeded (Urban Areas)		
Existing or Future Link/Intersection LOS	**Volume to Capacity (V/C) Ratio**	**Maximum Peak Hour V/C Increase**
LOS D	0.81 - 0.90	0.020
LOS E	0.91 - 1.00	0.015
LOS F	> 1.00	0.010

PROJECT-SPECIFIC ANALYSIS

Project Trip Generation

Trip generation forecasts for the project were developed based on the rates contained in the Institute of Transportation Engineers (ITE) Trip Generation report[2] for Residential Condominiums/Townhouses (Land Use Code #230). Table 4 presents the trip generation estimates for the project.

[2] Trip Generation, Institute of Transportation Engineers, 8th Edition, 2008.

Table 4
Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips (In/Out)	Rate	Trips (In/Out)
Condominium/Townhouse	81 units	5.81	471	0.44	36 (6/30)	0.52	42 (28/14)

The data in Table 4 show that the project is forecast to generate 471 daily trips, 36 A.M. peak hour trips and 42 P.M. peak hour trips. *It is noted that the project size has been reduced to 78 units, which reduces the trip generation to 453 ADT, 34 A.M. peak hour trips and 41 P.M. peak hour trips. The traffic analysis was completed assuming the 81 units. Since the change in trip generation is nominal (18 ADT, 2 A.M. peak hour trips, and 1 P.M. peak hour trip), the findings in the study would not change as a result of the slightly smaller project.*

Project Trip Distribution

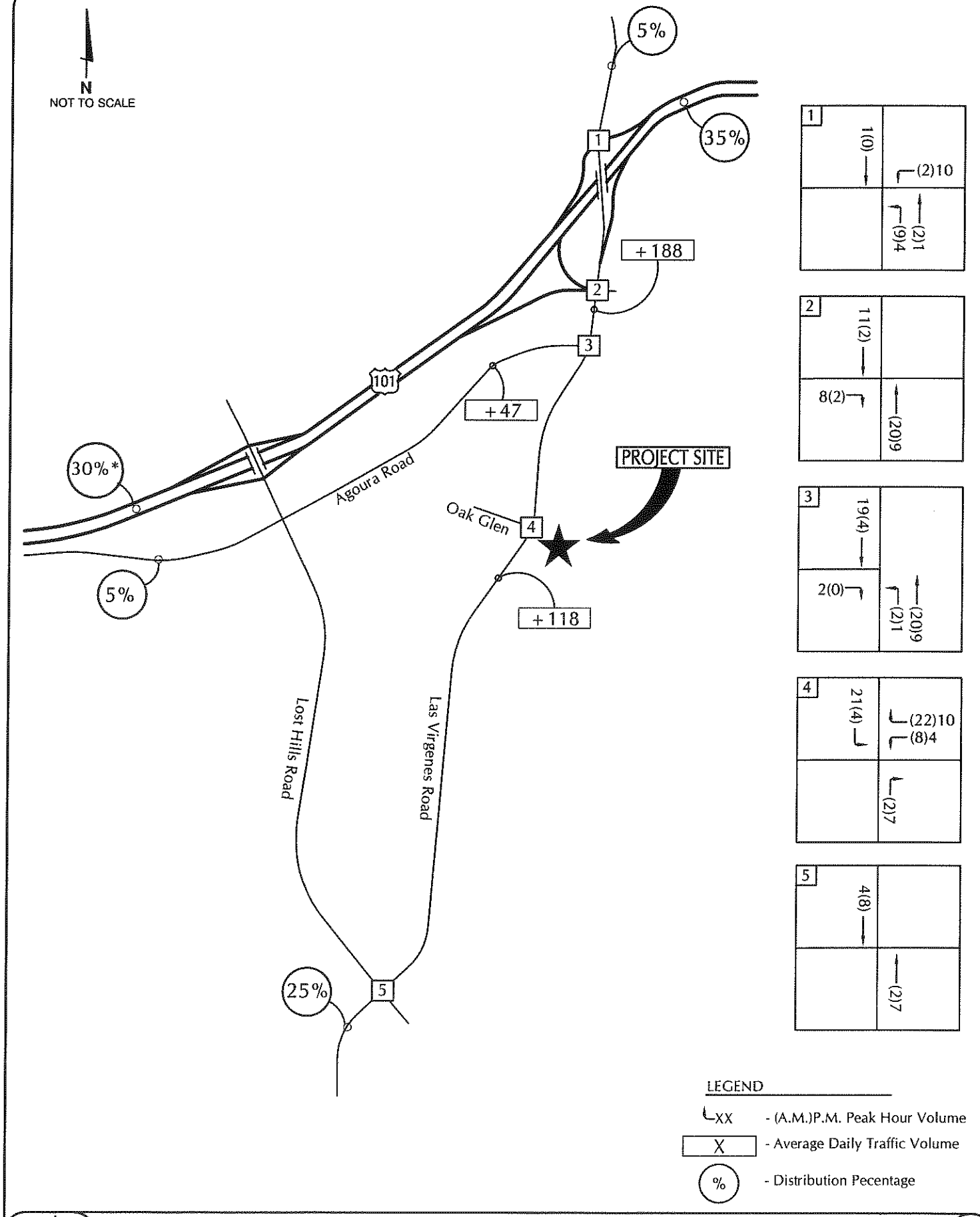
The project-generated traffic volumes were distributed and assigned to the adjacent street network based on the percentages shown in Table 5 and on Figure 6. The trip distribution percentages were developed for the project based on existing traffic patterns observed in the study-area, recent traffic studies, and input provided by City staff. The project-added traffic volumes are also shown on Figure 6.

Table 5
Project Trip Distribution

Origin/Destination	Direction	Distribution %
U.S. Highway 101	East West	35% 30%
Las Virgenes Road	North South	5% 25%
Agoura Road	West	5%
Total		**100%**

Existing + Project Roadway Operations

Levels of service were calculated for the study-area roadway segments assuming the Existing + Project traffic volumes presented on Figure 7. Table 6 presents the Existing + Project levels of service and identifies project-specific impacts based on City thresholds.



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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 6

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Table 6
Existing + Project Roadway Levels of Service

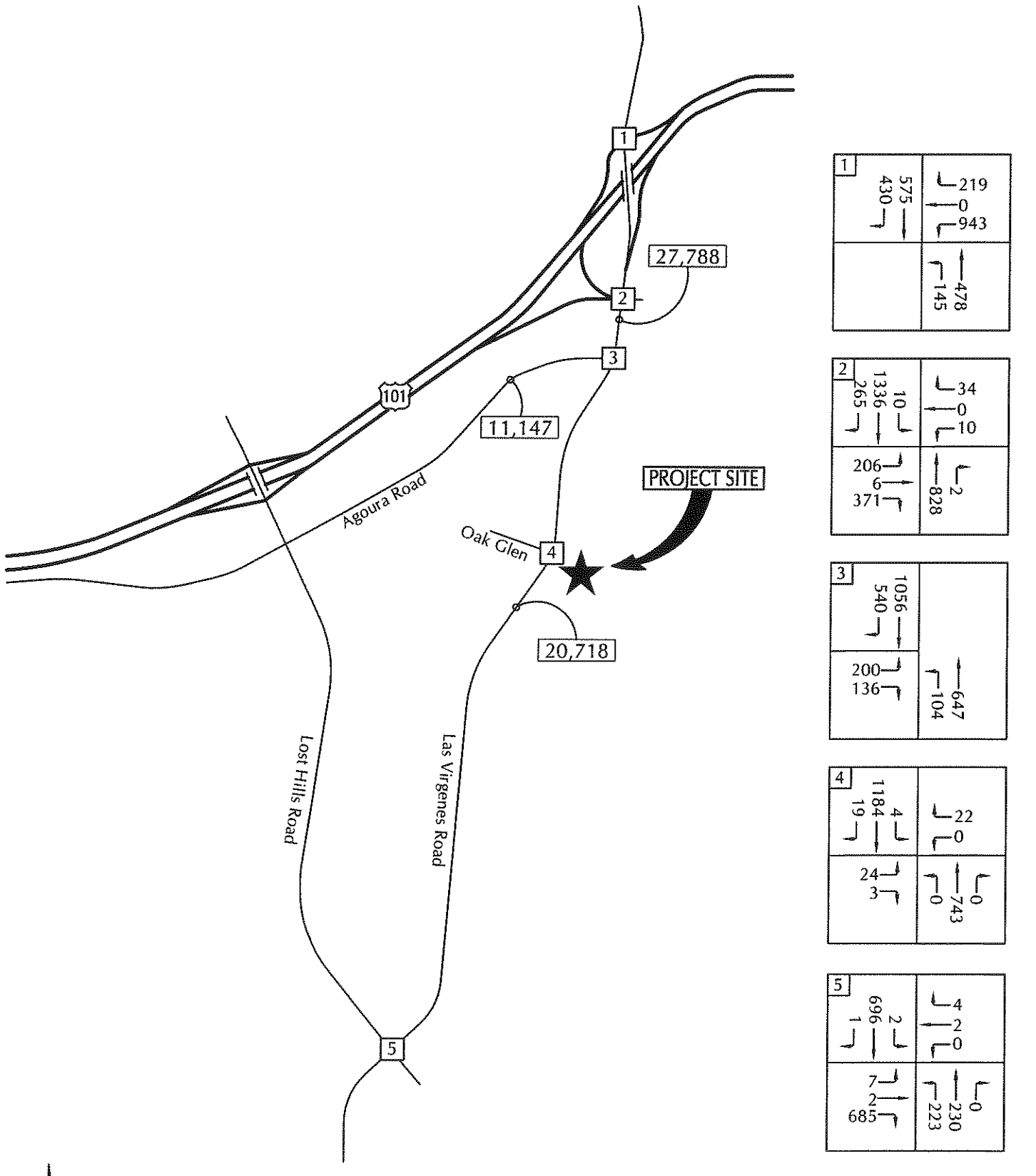
Roadway Segment	ADT		LOS	V/C Increase	Impact
	Existing	Existing + Proj.			
Las Virgenes Rd. n/o Agoura Rd.	27,600	27,778	LOS C	0.006	NO
Las Virgenes Rd. s/o Agoura Rd.	20,600	20,718	LOS F	0.006	NO
Agoura Rd. w/o Las Virgenes Rd.	11,100	11,147	LOS A	0.004	NO

The data in Table 6 show that the segment of Las Virgenes Road south of Agoura Road is forecast to operate at LOS F with Existing and Existing + Project traffic volumes. The project would increase the traffic demands by less than the adopted City thresholds and thus would not generate a project-specific impact to this roadway segment.

Existing + Project Intersection Operations

Levels of service were calculated for the study-area intersections assuming the Existing + Project peak hour traffic volumes shown on Figures 7 and 8.

The City of Calabas requires projects with primary access on Las Virgenes Road to improve Las Virgenes Road from 2 travel lanes to 4 travel lanes along the project frontage, with a raised median and Class II bike lanes (a more detailed discussion of the improvements is provided in the Site Access and Circulation section). The widening was therefore assumed for the Existing + Project analysis. The City has also required that the project install traffic signals at the Las Virgenes Road/Oak Glen Street intersection prior to occupancy to accommodate the additional traffic generated by the project. The LOS analysis completed for this intersection therefore assumes signalized control in the future.

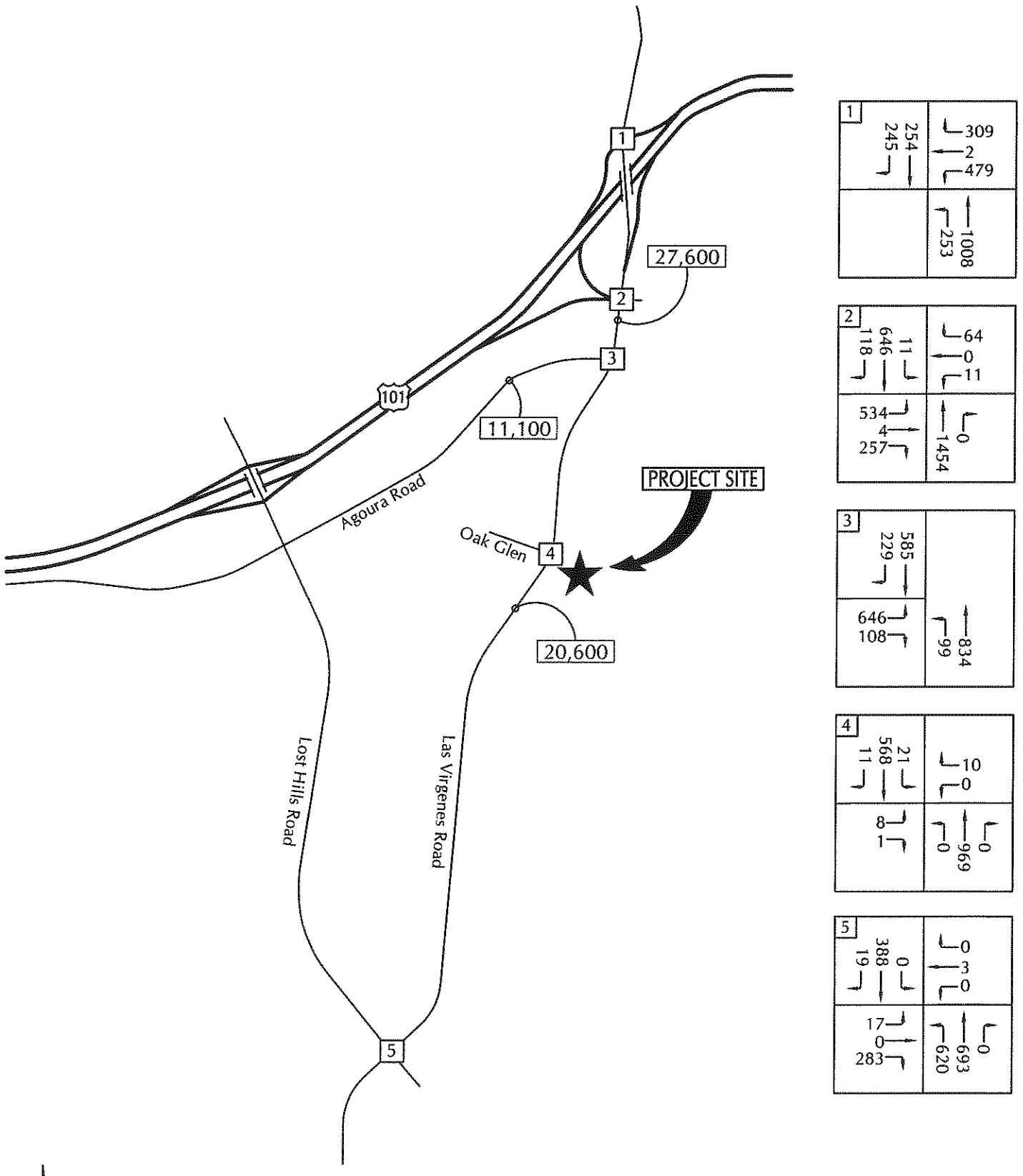


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EXISTING + PROJECT AVERAGE DAILY AND A.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 7

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EXISTING + PROJECT P.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 8

MMF - #12040

Table 7
Existing and Existing + Project A.M. Peak Hour Levels of Service

Intersection	Existing		Existing + Project		Project-Added	
	ICU/Delay	LOS	ICU/Delay	LOS	Increase	Impact
Las Virgenes Rd./U.S.101 NB Ramps	20.1 sec	C	21.1 sec	C	0.006	NO
Las Virgenes Rd./U.S. 101 SB Ramps	14.9 sec	B	14.9 sec	B	0.001	NO
Las Virgenes Rd./Agoura Rd.	0.691	B	0.693	B	0.002	NO
Las Virgenes Rd./Oak Glen Street. (a)	0.493	A	0.495	A	0.002	NO
Las Virgenes Rd./Lost Hills Rd.	**0.963**	**E**	**0.968**	E	0.005	NO

Bold Values exceed City's LOS C/D standard.
(a) Assumes Signalized Intersection.

Table 8
Existing and Existing + Project P.M. Peak Hour Levels of Service

Intersection	Existing		Existing + Project		Project-Added	
	ICU/Delay	LOS	ICU/Delay	LOS	Increase	Impact
Las Virgenes Rd./U.S.101 NB Ramps	15.1 sec	B	15.2 sec	B	0.003	NO
Las Virgenes Rd./U.S. 101 SB Ramps	39.1 sec	D	39.2 sec	D	0.002	NO
Las Virgenes Rd./Agoura Rd.	0.601	A	0.604	B	0.003	NO
Las Virgenes Rd./Oak Glen Street. (a)	0.409	A	0.425	A	0.016	NO
Las Virgenes Rd./Lost Hills Rd.	0.547	A	0.550	A	0.003	NO

Bold Values exceed City's LOS C/D standard.
(a) Assumes Signalized Intersection.

The data presented in Tables 7 and 8 indicate that most of the City intersections would operate at LOS C or better under Existing + Project conditions. The Las Virgenes Road/Lost Hills Road intersection is forecast to operate at LOS E during the A.M. peak hour with Existing and Existing + Project traffic volumes. The project would not generate a significant impact to this location as it would not increase the V/C by more than the adopted City threshold (0.015).

SITE ACCESS AND CIRCULATION

Access to the project site would be provided via two new connections to Las Virgenes Road. The main project driveway would be located opposite the Oak Glen Street intersection with secondary access provided by another connection to Las Virgenes Road located at the southern project boundary. The secondary access connection would be restricted to right-turns in and out of the project site. The project would be required to install a traffic signal at the main driveway location. The City will also require the project to improve Las Virgenes Road from 2 travel lanes to 4 travel lanes along the project frontage, with a raised median and Class II bike lanes.

The Existing+Project and Cumulative+Project intersection analyses show that the Las Virgenes Road/Oak Glen Street - Project Driveway intersection is forecast to operate at LOS A during the A.M. and P.M. peak hour conditions. These operations meet the City's LOS C operating standards and would adequately accommodate project traffic. The secondary driveway would be restricted to right-turns in and out only and would also operate at LOS A during the peak hour periods .

CUMULATIVE ANALYSIS

Traffic Forecasts

Cumulative traffic volumes were forecast for the study-area intersections assuming development of approved and pending projects proposed within the City of Calabasas which would impact the study-area transportation facilities. City staff provided the list of approved and pending projects included in this traffic study. Trip generation estimates were developed for the cumulative projects using the rates presented in the ITE Trip Generation report. Figure 9 presents the location of the cumulative projects within the City. Table 9 summarizes the average daily, A.M. and P.M. peak hour trip generation estimates for the approved and pending projects.



SOURCE: GOOGLE MAPS

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CUMULATIVE PROJECT LOCATIONS

FIGURE 9

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Table 9
Approved/Pending Development Projects Trip Generation

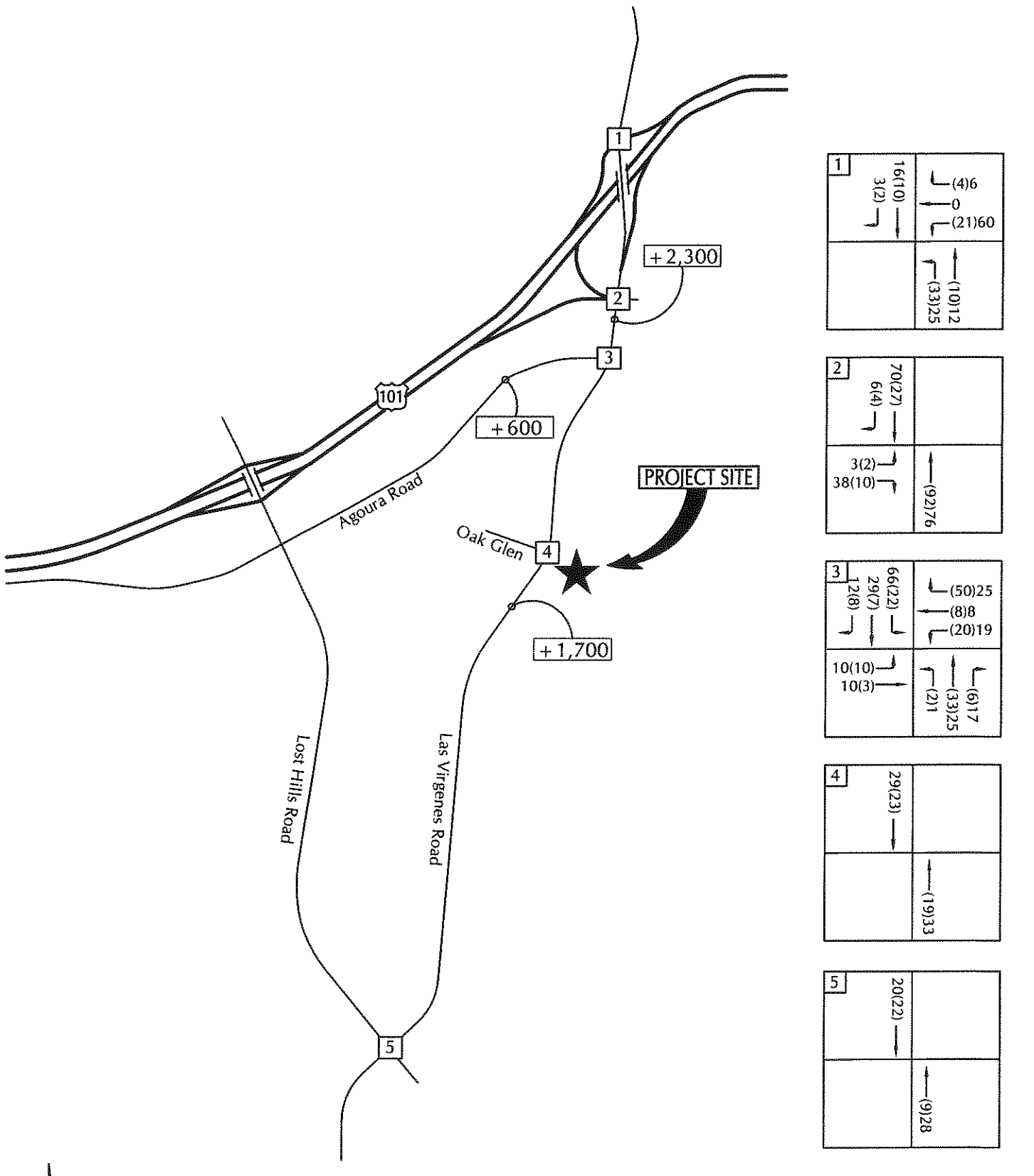
Project	Land Use	Size	ADT	A.M. Peak Hour	P.M. Peak Hour
Messenger Project [a]	Single Family Res. Multi-Family Res. Senior Housing Speciality Retail	75 Units 75 Units 8 Units 21,400 SF	1,933	110	172
Malibu Hills Senior	Multi-Family Res.	60 units	349	26	31
Vidovich Commercial	Office Commercial	33,740 SF 25,778 SF	371 1,140	52 34	50 83
Calabasas Inn [a]	Multi-Family Res. Commercial	79 units 15,000 SF	1,510	74	133
Malamut [b]	Vintage Dealership	20,983 SF	198	0	26
		Total Trips:	5,501	296	495

Note: (a) Trip Generation taken from traffic studies prepared by Associated Transportation Engineers
(b) Trip Generation taken from traffic study prepared by Kimley-Horn & Associates Inc.

The data presented in Table 9 indicates that the approved and pending projects would generate a total of 5,501 average daily trips, 296 A.M. peak hour trips and 495 P.M. peak hour trips. The approved and pending projects' traffic volumes were distributed and assigned to the study-area intersections based on the location of each project, recent traffic studies, existing traffic patterns observed in the study-area as well as a general knowledge of the population, employment and commercial centers located in and around the City of Calabasas. Figure 10 presents the cumulative-added traffic volumes and the Cumulative traffic volumes are presented on Figures 11 and 12.

Cumulative + Project Roadway Operations

Levels of service were calculated for the study-area roadway segments assuming the Cumulative + Project traffic volumes presented on Figure 13. Table 10 presents the Cumulative + Project levels of service and identifies cumulative impacts based on City thresholds.

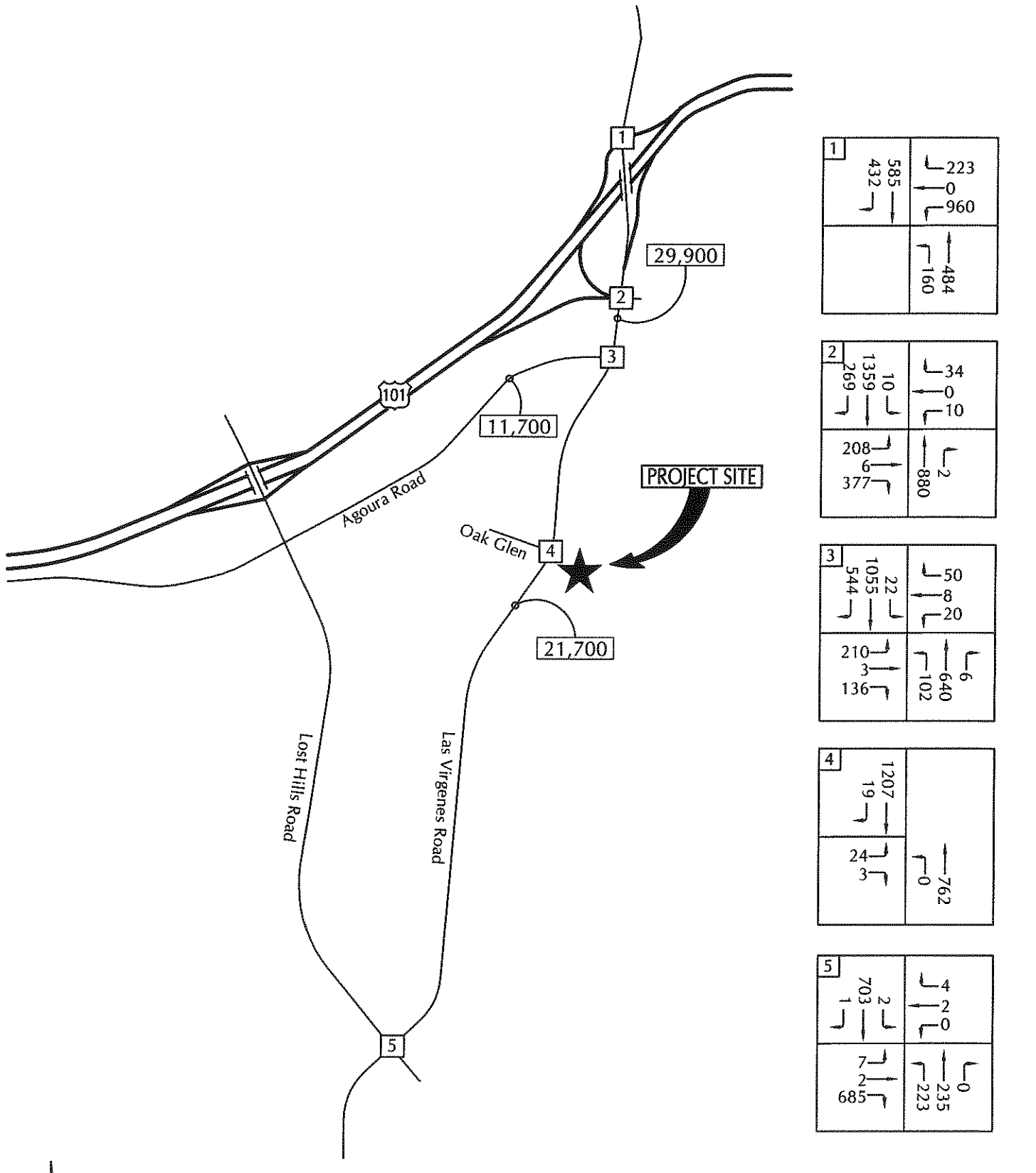


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CUMULATIVE-ADDED TRAFFIC VOLUMES

FIGURE 10

MMF - #12040

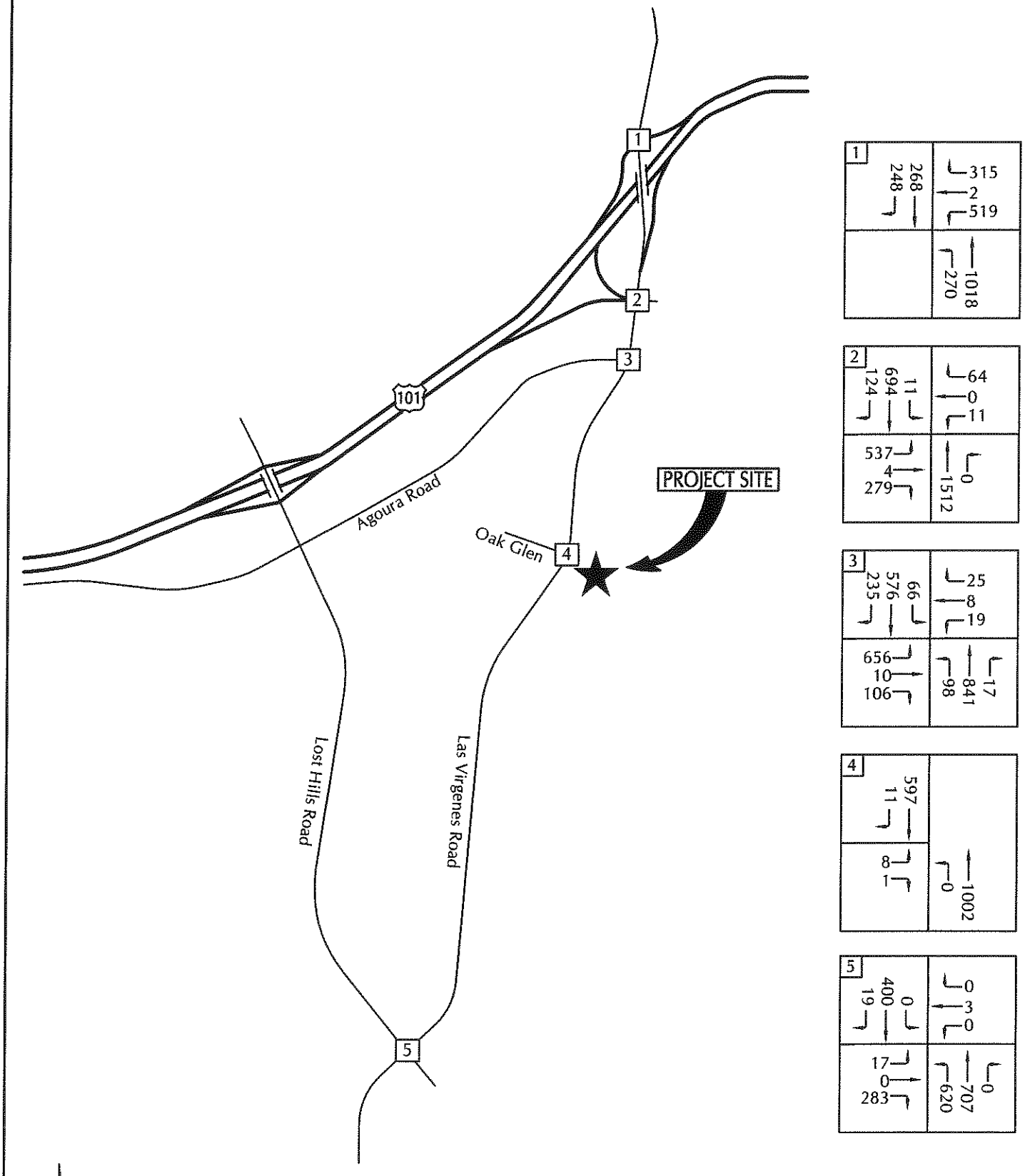


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CUMULATIVE AVERAGE DAILY AND A.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 11

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CUMULATIVE P.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 12

MMF - #12040

Table 10
Cumulative + Project Roadway Levels of Service

Roadway Segment	ADT		LOS	V/C Increase	Impact
	Cumulative	Cumulative + Project			
Las Virgenes Rd. n/o Agoura Rd.	29,900	30,008	LOS C	0.004	NO
Las Virgenes Rd. s/o Agoura Rd.	21,700	21,818	**LOS F**	0.005	NO
Agoura Rd. w/o Las Virgenes Rd.	11,700	11,747	LOS A	0.004	NO

The data in Table 10 show that the segment of Las Virgenes Road south of Agoura Road is forecast to operate at LOS F with Cumulative and Cumulative + Project traffic volumes. he project would increase the traffic demands by less than the adopted City thresholds and thus would not generate a project-specific impact to this roadway segment.

Cumulative + Project Intersection Operations

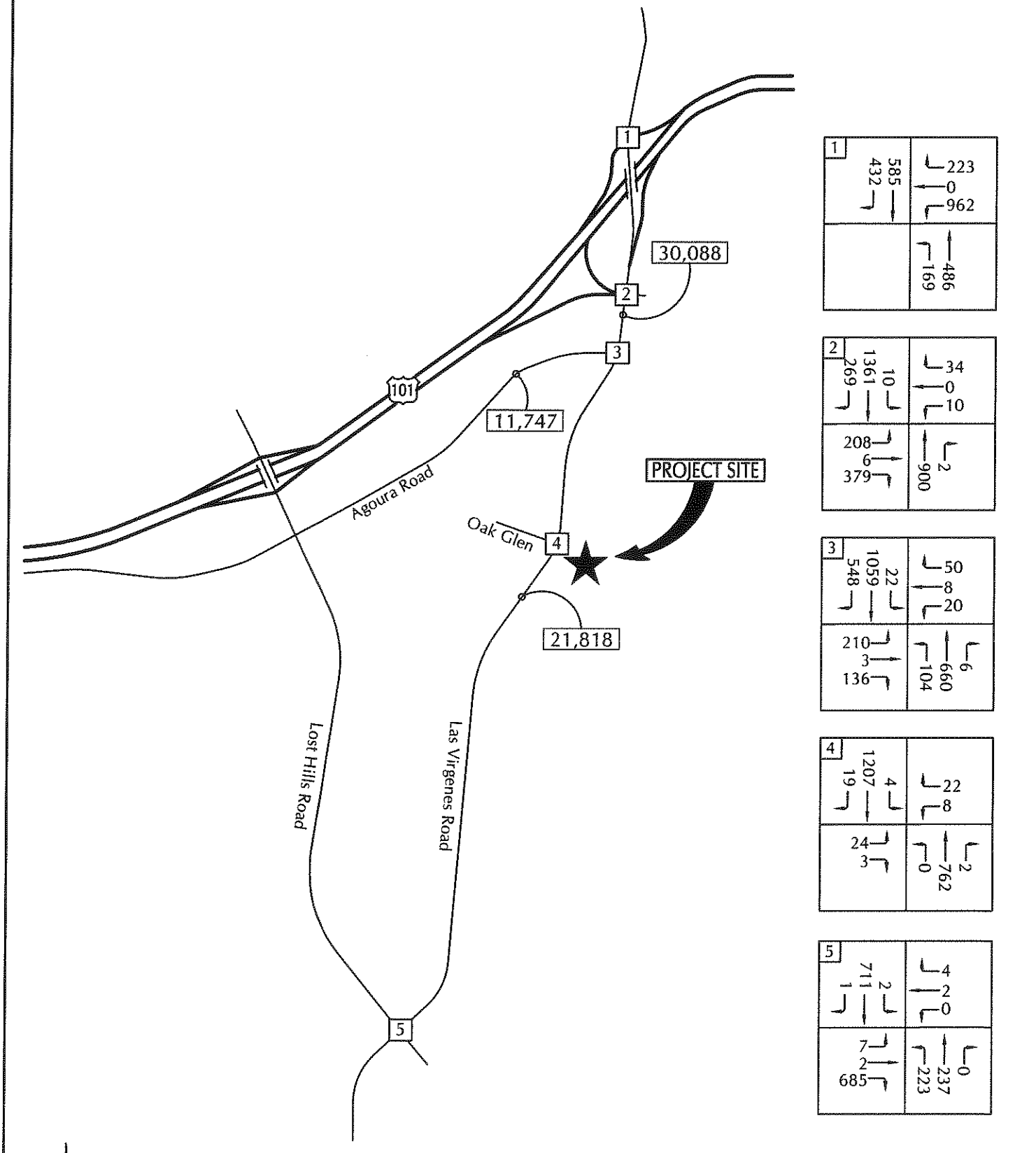
Levels of service were calculated for the study-area intersections assuming the Cumulative and Cumulative + Project traffic volumes. The Cumulative + Project peak traffic volumes are illustrated on Figures 13 and 14. Tables 11 and 12 compare the Cumulative and Cumulative + Project levels of service for the study-area intersections and identify cumulative impacts based on City thresholds.

Table 11
Cumulative and Cumulative + Project A.M. Peak Hour Levels of Service

Intersection	Cumulative		Cum. + Project		Project Added	
	ICU	LOS	ICU	LOS	Increase	Impact
Las Virgenes Rd./U.S. Highway 101 NB Ramps	21.2 sec	C	21.4 sec	B	0.007	NO
Las Virgenes Rd./U.S. Highway 101 SB Ramps	15.0 sec	B	15.1 sec	B	0.000	NO
Las Virgenes Rd./Agoura Rd.	0.733	C	0.735	C	0.002	NO
Las Virgenes Rd./Oak Glen St.-Project Dwy. (a)	0.500	A	0.502	A	0.002	NO
Las Virgenes Rd./Lost Hills Rd.	**0.971**	**E**	**0.976**	**E**	0.005	NO

Bold *Values exceed City's LOS C/D standard.*

(a) Assumes Signalized Intersection.

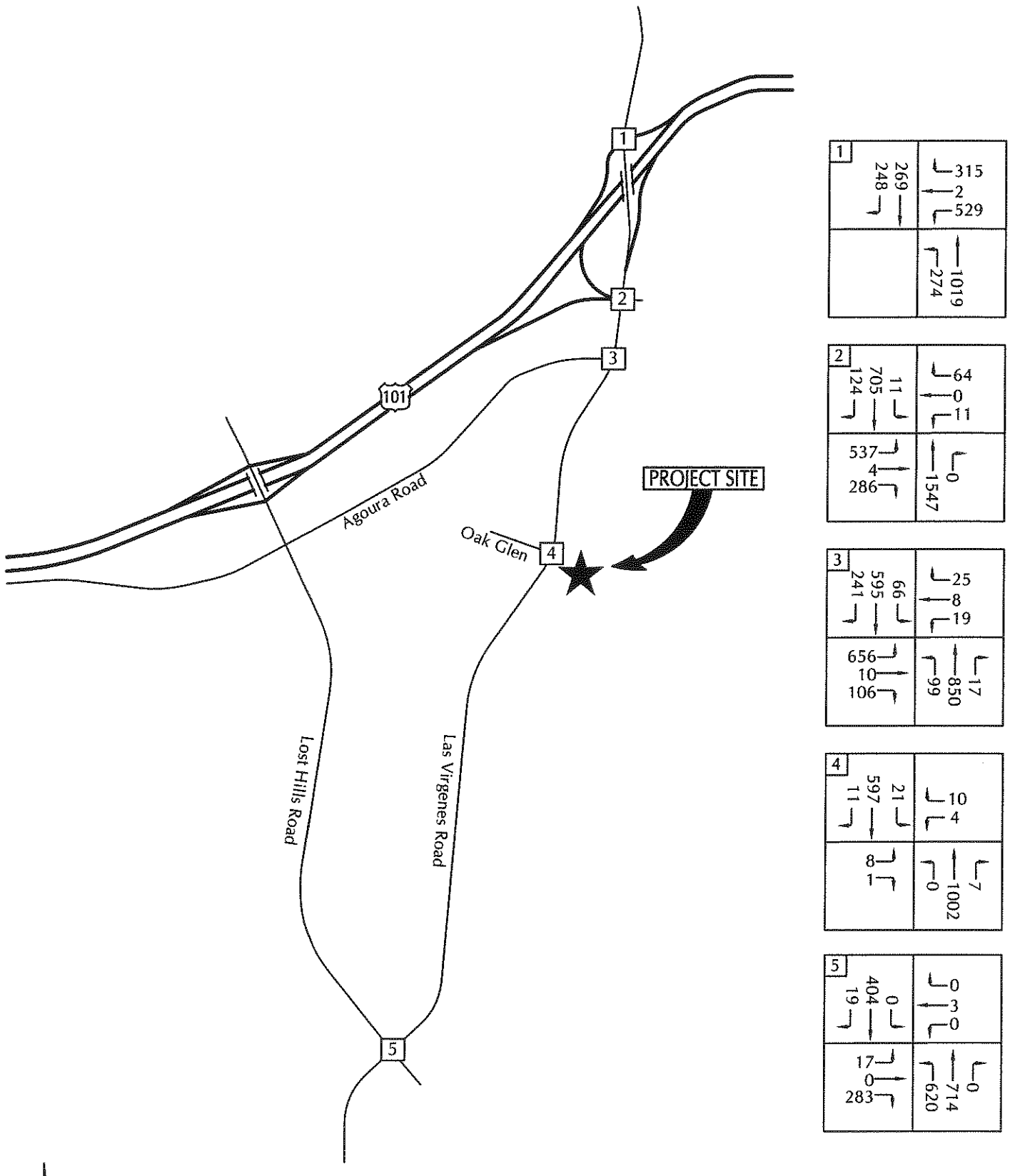


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CUMULATIVE + PROJECT AVERAGE DAILY AND A.M. PEAK HOUR TRAFFIC VOLUMES

FIGURE 13

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FIGURE 14

CUMULATIVE + PROJECT P.M. PEAK HOUR TRAFFIC VOLUMES

MMF - #12040

Table 12
Cumulative and Cumulative + Project P.M. Peak Hour Levels of Service

Intersection	Cumulative		Cum. + Project		Project Added	
	ICU	LOS	ICU	LOS	Increase	Impact
Las Virgenes Rd/U.S. Highway 101 NB Ramps	17.0 sec	B	17.2 sec	B	0.003	NO
Las Virgenes Rd/U.S. Highway 101 SB Ramps	38.3 sec	D	40.3 sec	D	0.002	NO
Las Virgenes Rd./Agoura Rd.	0.632	B	0.639	B	0.002	NO
Las Virgenes Rd./Oak Glen St.-Project Dwy. (a)	0.419	A	0.436	A	0.017	NO
Las Virgenes Rd./Lost Hills Rd.	0.557	A	0.560	A	0.003	NO

Bold *Values exceed City's LOS C/D standard.*
(a) Assumes Signalized Intersection.

The data presented in Tables 11 and 12 indicate that most of the study-area intersections would operate at LOS C or better under Cumulative + Project conditions. The Las Virgenes Road/Lost Hills Road intersection is forecast to operate at LOS E during the A.M. peak hour under Cumulative + Project traffic volumes. The project would not generate an impact to this location as it would not increase the V/C by more than the adopted City thresholds (0.015).

PLANNED IMPROVEMENTS

The City has programmed several improvements for the study-area roadways and intersections that are schedule to be completed within the next two years. The programmed improvements are discussed below.

Las Virgenes Road: The City of Calabasas has adopted a long range planning document that includes beautification, circulation and traffic improvements along the Las Virgenes Road corridor. The scope of the Las Virgenes Road Corridor Design Plan (LVRCDP) extends from Mulholland Highway on the south to the Ventura County line on the north. The LVRCDP includes improvements to the 2-lane segment of Las Virgenes Road adjacent to the project site (Zone Two in the design plan that extends between Lost Hills Road and Agoura Road). The improvements include widening of the existing two-lane road to provide four travel lanes, a landscaped median with left-turn pockets at intersections, and Class II bike lanes. These improvements are consistent with the 2030 General Plan Circulation Element. The widening would be implemented as frontage improvements for future developments located adjacent to Las Virgenes Road as well as a capital improvement project by the City. The City has developed preliminary improvement designs for the widening project and is initiating the environmental review process. Figures showing the widening plans are contained in the Technical Appendix.

U.S. Highway 101 Southbound Ramps/Las Virgenes Road: The northbound approach of the intersection would be re-striped to provide for two through lanes and a shared through-right lane. The through movements using the shared through/right-turn lane would be restricted to vehicles accessing the U.S. Highway 101 southbound ramp.

Lost Hills Road/Las Virgenes Road: The City is currently designing an improvement project to implement a merge lane on southbound Las Virgenes Road south of this intersection. The new merge lane will allow the southbound approach to be re-striped to provide one left-turn lane, one through lane and one through + right-turn lane. The eastbound approach will also be re-striped to provide one left + through lane and dual right-turn lanes.

Roadway Operations

Table 13 presents the roadway level of service for the segment of Las Virgenes Road south of Agoura Road assuming the planned widening improvements.

Table 13
Cumulative Roadway Levels of Service With Improvements

Roadway Segment	Geometry	Cumulative + Project ADT	LOS
Las Virgenes Road s/o Agoura Road	4-Lane	21,818	LOS C

The data in Table 13 show that the roadway segment would operate at LOS C under Cumulative + Project traffic volumes. These operations are considered acceptable based on the City's LOS C operating standard.

Intersection Operations

Levels of service were calculated for the Las Virgenes Road/U.S. 101 SB Ramps and Las Virgenes Road/Lost Hills Road intersections assuming the programmed improvements developed by the City. Table 14 presents the Cumulative and Cumulative + Project levels of service with the programmed improvements.

Table 14
Cumulative Intersection Levels of Service With Improvements

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Cumulative	CU + PR	Cumulative	CU + PR
Las Virgenes Rd/U.S. 101 SB Ramps	14.7 sec/LOS B	14.7 sec/LOS B	30.8 sec/LOS C	31.0 sec/LOS C
Las Virgenes Rd./Lost Hills Rd.	0.573/LOS A	0.576/LOS A	0.436/LOS A	0.437/LOS A

As shown, the programmed improvements would provide acceptable operations at the Las Virgenes Road/U.S. 101 SB Ramps and Las Virgenes Road/Lost Hills Road intersections with Cumulative + Project traffic volumes.

MITIGATION MEASURES

The impact analysis prepared for the project indicate that the Project would not generate significant project-specific or cumulative impacts to the study-area roadways and intersections. The project would be responsible for widening Las Virgenes Road from 2 travel lanes to 4 travel lanes along the project frontage, with a raised median and Class II bike lanes. The project would also be required to install traffic signals at the Las Virgenes Road/Oak Glen Street intersection prior to occupancy.

CONGESTION MANAGEMENT PROGRAM ANALYSIS

Impact Criteria

The following section reviews the potential impacts of the project to the Congestion Management Program (CMP) system. This analysis has been prepared according to the procedures outlined in Appendix D of the Congestion Management Program for Los Angeles County[3].

Potential Intersection Impacts

The CMP guidelines require that intersection monitoring locations must be examined if the proposed project would add 50 peak hour trips (PHT) or more during the A.M. or P.M. peak hours. The project adds less than 50 peak hour trips to any intersection and none of the intersections included in this traffic study are part in the CMP network. Thus, no further review of potential impacts to CMP intersections is required.

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[3] 20010 Draft Congestion Management Program for Los Angeles County, County of Los Angeles Metropolitan Transportation Authority, 2010.

Potential Freeway Impacts

The CMP guidelines require that freeway monitoring locations must be examined if the proposed project would add 150 PHT or more (in either direction) during the A.M. or P.M. peak hours. The proposed project is forecast to add 9 A.M. and 4 P.M. PHT to northbound U.S. Highway 101, and 9 A.M. and 5 P.M. PHT to southbound U.S. Highway 101, which is less than 150 PHT. Based on CMP criteria the project would not generate a significant impact to the freeway segments located within the study-area.

■ ■ ■

REFERENCES AND PERSONS CONTACTED

Associated Transportation Engineers

Scott A. Schell, AICP, PTP, Principal Planner
Matthew Farrington, Transportation Planner I

References

Highway Capacity Manual , Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 2000.

Trip Generation, Institute of Transportation Engineers, 8th Edition, 2003.

City of Calabasas 2030 General Plan, City of Calabasas, 2008.

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Malamut Vintage Automotive Dealership, Kimley-Horn and Associates, 2010.

2010 Draft Congestion Management Program for Los Angeles County, County of Los Angeles Metropolitan Transportation Authority.

Persons Contacted

Marc Seferian, P.E., City of Calabasas

TECHNICAL APPENDIX

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ROADWAY DESIGN CAPACITY TABLE

LEVEL OF SERVICE DEFINITIONS

TRAFFIC COUNT DATA

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Reference 1 - Las Virgenes Road/U.S. Highway 101 Northbound Ramps
Reference 2 - Las Virgenes Road/U.S. Highway 101 Southbound Ramps
Reference 3 - Las Virgenes Road/Agoura Road
Reference 4 - Las Virgenes Road/Oak Glen Street
Reference 5 - Las Virgenes Road/Lost Hill Road

LAS VIRGENES CORRIDOR IMPROVEMENT PLANS

ROADWAY DESIGN CAPACITY TABLE

ENGINEERING ROADWAY DESIGN CAPACITIES

TYPE OF ROADWAY	# OF LANES	LOS A		LOS B		LOS C		LOS D		LOS E	
		Low	High	Low	High	Low	High	Low	High	Low	High
Arterial	2 Lanes	8,100	12,000	9,400	14,000	10,800	16,000	12,100	18,000	13,500	20,000
Arterial	4 Lanes	16,100	23,900	18,900	27,900	21,600	31,900	24,300	35,900	27,000	39,900
Major	2 Lanes	6,500	9,600	7,500	11,200	8,600	12,800	9,700	14,400	10,800	16,000
Major	4 Lanes	12,900	19,200	15,100	22,300	17,200	25,500	19,400	28,700	21,600	31,900
Collector	- -	4,600	7,100	5,400	8,200	6,200	9,400	6,900	10,600	7,700	11,800

The roadway capacities listed above are "rule of thumb" figures only. Some factors which affect these capacities are intersections (numbers and configuration), degrees of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, level of truck and bus traffic and level of pedestrian and bicycle traffic.

ASSOCIATED TRANSPORTATION ENGINEERS
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LEVEL OF SERVICE DEFINITIONS

Signalized Intersection Level of Service Definitions

LOS	Delay[a]	V/C Ratio	Definition
A	< 10.0	< 0.60	Progression is extremely favorable. Most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	10.1 - 20.0	0.61 - 0.70	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20.1 - 35.0	0.71 - 0.80	Only fair progression, longer cycle lengths, or both, result in higher cycle lengths. Cycle lengths may fail to serve queued vehicles, and overflow occurs. Number of vehicles stopped is significant, though many still pass through intersection without stopping.
D	35.1 - 55.0	0.81 - 0.90	Congestion becomes more noticeable. Unfavorable progression, long cycle lengths and high v/c ratios result in longer delays. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1 - 80.0	0.91 - 1.00	High delay values indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent
F	> 80.0	> 1.00	Considered unacceptable for most drivers, this level occurs when arrival flow rates exceed the capacity of lane groups, resulting in many individual cycle failures. Poor progression and long cycle lengths may also contribute to high delay levels.

[a] Average control delay per vehicle in seconds.

Unsignalized Intersection Level of Service Definitions

The HCM[1] uses *control delay* to determine the level of service at unsignalized intersections. Control delay is the difference between the travel time actually experienced at the control device and the travel time that would occur in the absence of the traffic control device. Control delay includes deceleration from free flow speed, queue move-up time, stopped delay and acceleration back to free flow speed.

LOS	Control Delay Seconds per Vehicle
A	< 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	> 50.0

[1] Highway Capacity Manual, National Research Board, 2000

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TRAFFIC COUNT DATA

Prepared by NDS/ATD

VOLUME

Agoura Rd w/o Las Virgenes Rd

Day: Thursday
Date: 5/26/2011

City: Calabasas
Project #: CA11_5184_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,678	5,402	11,080

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		6		12		12:00			132		103		235	
00:15			3		3		6		12:15			110		124		234	
00:30			1		3		4		12:30			122		106		228	
00:45			2	12	6	18	8	30	12:45			124	488	99	432	223	920
01:00			2		6		8		13:00			90		123		213	
01:15			3		3		6		13:15			94		143		237	
01:30			3		2		5		13:30			94		113		207	
01:45			2	10	0	11	2	21	13:45			100	378	101	480	201	858
02:00			1		2		3		14:00			98		87		185	
02:15			9		3		12		14:15			79		77		156	
02:30			6		3		9		14:30			68		72		140	
02:45			0	16	1	9	1	25	14:45			75	320	69	305	144	625
03:00			0		2		2		15:00			95		55		150	
03:15			0		3		3		15:15			93		73		166	
03:30			0		1		1		15:30			120		81		201	
03:45			0		1	7	1	7	15:45			117	425	76	285	193	710
04:00			2		10		12		16:00			123		78		201	
04:15			2		1		3		16:15			105		65		170	
04:30			3		6		9		16:30			158		61		219	
04:45			3	10	29	46	32	56	16:45			130	516	61	265	191	781
05:00			8		12		20		17:00			189		81		270	
05:15			6		8		14		17:15			186		76		262	
05:30			14		23		37		17:30			195		81		276	
05:45			13	41	26	69	39	110	17:45			168	738	77	315	245	1053
06:00			37		41		78		18:00			129		68		197	
06:15			31		47		78		18:15			116		69		185	
06:30			26		73		99		18:30			101		46		147	
06:45			51	145	65	226	116	371	18:45			105	451	59	242	164	693
07:00			44		83		127		19:00			81		72		153	
07:15			68		114		182		19:15			81		68		149	
07:30			82		138		220		19:30			67		47		114	
07:45			56	250	140	475	196	725	19:45			66	295	50	237	116	532
08:00			71		163		234		20:00			53		61		114	
08:15			94		169		263		20:15			47		31		78	
08:30			98		162		260		20:30			58		37		95	
08:45			83	346	154	648	237	994	20:45			53	211	39	168	92	379
09:00			71		113		184		21:00			44		46		90	
09:15			56		106		162		21:15			32		25		57	
09:30			62		90		152		21:30			25		18		43	
09:45			52	241	80	389	132	630	21:45			29	130	19	108	48	238
10:00			60		69		129		22:00			29		12		41	
10:15			52		61		113		22:15			16		22		38	
10:30			71		59		130		22:30			14		20		34	
10:45			71	254	56	245	127	499	22:45			14	73	13	67	27	140
11:00			72		61		133		23:00			9		6		15	
11:15			83		79		162		23:15			9		8		17	
11:30			62		73		135		23:30			16		19		35	
11:45			71	288	99	312	170	600	23:45			6	40	10	43	16	83
TOTALS				1613		2455		4068	TOTALS				4065		2947		7012
SPLIT %				39.7%		60.3%		36.7%	SPLIT %				58.0%		42.0%		63.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,678	5,402	11,080

AM Peak Hour	11:45	08:00	08:00	PM Peak Hour	17:00	13:00	17:00
AM Pk Volume	435	648	994	PM Pk Volume	738	480	1053
Pk Hr Factor	0.824	0.959	0.945	Pk Hr Factor	0.946	0.839	0.954
7 - 9 Volume	596	1123	1719	4 - 6 Volume	1254	580	1834
7 - 9 Peak Hour	08:00	08:00	08:00	4 - 6 Peak Hour	17:00	17:00	17:00
7 - 9 Pk Volume	346	648	994	4 - 6 Pk Volume	738	315	1053
Pk Hr Factor	0.883	0.959	0.945	Pk Hr Factor	0.946	0.972	0.954

Prepared by NDS/ATD

VOLUME

Las Virgenes Rd n/o Agoura Rd

Day: Thursday
Date: 5/26/2011

City: Calabasas
Project #: CA11_5184_002

DAILY TOTALS	NB	SB	EB	WB	Total
	13,720	13,896	0	0	27,616

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	29		21				50		12:00	210		201				411	
00:15	27		18				45		12:15	215		240				455	
00:30	13		13				26		12:30	226		211				437	
00:45	16	85	11	63			27	148	12:45	227	878	250	902			477	1780
01:00	11		13				24		13:00	216		314				530	
01:15	8		8				16		13:15	342		276				618	
01:30	10		10				20		13:30	239		235				474	
01:45	14	43	7	38			21	81	13:45	263	1060	190	1015			453	2075
02:00	7		16				23		14:00	255		188				443	
02:15	7		15				22		14:15	238		161				399	
02:30	9		5				14		14:30	237		176				413	
02:45	6	29	6	42			12	71	14:45	209	939	172	697			381	1636
03:00	4		8				12		15:00	260		157				417	
03:15	0		10				10		15:15	262		170				432	
03:30	1		3				4		15:30	326		196				522	
03:45	4	9	8	29			12	38	15:45	349	1197	232	755			581	1952
04:00	3		13				16		16:00	410		177				587	
04:15	6		9				15		16:15	287		192				479	
04:30	11		15				26		16:30	471		197				668	
04:45	14	34	44	81			58	115	16:45	331	1499	184	750			515	2249
05:00	10		34				44		17:00	343		190				533	
05:15	16		38				54		17:15	437		212				649	
05:30	38		69				107		17:30	332		195				527	
05:45	29	93	81	222			110	315	17:45	189	1301	202	799			391	2100
06:00	56		145				201		18:00	141		202				343	
06:15	69		201				270		18:15	137		208				345	
06:30	78		273				351		18:30	154		164				318	
06:45	93	296	275	894			368	1190	18:45	146	578	171	745			317	1323
07:00	96		242				338		19:00	171		195				366	
07:15	122		319				441		19:15	161		146				307	
07:30	234		321				555		19:30	148		136				284	
07:45	146	598	330	1212			476	1810	19:45	129	609	113	590			242	1199
08:00	155		371				526		20:00	168		87				255	
08:15	178		428				606		20:15	178		102				280	
08:30	242		479				721		20:30	169		82				251	
08:45	247	822	325	1603			572	2425	20:45	204	719	79	350			283	1069
09:00	191		258				449		21:00	199		80				279	
09:15	174		255				429		21:15	123		78				201	
09:30	158		241				399		21:30	133		67				200	
09:45	162	685	216	970			378	1655	21:45	97	552	63	288			160	840
10:00	141		195				336		22:00	70		64				134	
10:15	146		171				317		22:15	68		54				122	
10:30	154		180				334		22:30	72		53				125	
10:45	173	614	182	728			355	1342	22:45	37	247	39	210			76	457
11:00	171		193				364		23:00	39		37				76	
11:15	181		198				379		23:15	33		27				60	
11:30	172		193				365		23:30	42		30				72	
11:45	173	697	206	790			379	1487	23:45	22	136	29	123			51	259
TOTALS		4005		6672				10677	TOTALS		9715		7224				16939
SPLIT %		37.5%		62.5%				38.7%	SPLIT %		57.4%		42.6%				61.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	13,720	13,896	0	0	27,616

AM Peak Hour	08:15	07:45	08:00	PM Peak Hour	16:30	12:45	16:30
AM Pk Volume	858	1608	2425	PM Pk Volume	1582	1075	2365
Pk Hr Factor	0.868	0.839	0.841	Pk Hr Factor	0.840	0.856	0.885
7 - 9 Volume	1420	2815	4235	4 - 6 Volume	2800	1549	4349
7 - 9 Peak Hour	08:00	07:45	08:00	4 - 6 Peak Hour	16:30	17:00	16:30
7 - 9 Pk Volume	822	1608	2425	4 - 6 Pk Volume	1582	799	2365
Pk Hr Factor	0.832	0.839	0.841	Pk Hr Factor	0.840	0.942	0.885

Prepared by NDS/ATD

VOLUME

Las Virgenes Rd s/o Agoura Rd

Day: Thursday
Date: 5/26/2011

City: Calabasas
Project #: CA11_5184_003

DAILY TOTALS	NB	SB	EB	WB	Total
	10,333	10,262	0	0	20,595

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	15		18				33		12:00	124		143				267	
00:15	14		13				27		12:15	134		149				283	
00:30	5		10				15		12:30	141		163				304	
00:45	14	48	7	48			21	96	12:45	137	536	194	649			331	1185
01:00	6		7				13		13:00	151		219				370	
01:15	4		6				10		13:15	320		188				508	
01:30	8		6				14		13:30	184		157				341	
01:45	10	28	6	25			16	53	13:45	167	822	146	710			313	1532
02:00	5		14				19		14:00	175		119				294	
02:15	4		8				12		14:15	168		108				276	
02:30	7		6				13		14:30	193		123				316	
02:45	4	20	6	34			10	54	14:45	161	697	106	456			267	1153
03:00	1		7				8		15:00	189		113				302	
03:15	0		6				6		15:15	202		114				316	
03:30	1		3				4		15:30	244		130				374	
03:45	2	4	7	23			9	27	15:45	291	926	168	525			459	1451
04:00	1		2				3		16:00	257		160				417	
04:15	5		5				10		16:15	222		162				384	
04:30	5		12				17		16:30	270		155				425	
04:45	6	17	10	29			16	46	16:45	238	987	164	641			402	1628
05:00	4		20				24		17:00	246		163				409	
05:15	11		25				36		17:15	226		172				398	
05:30	20		51				71		17:30	250		175				425	
05:45	22	57	66	162			88	219	17:45	191	913	170	680			361	1593
06:00	22		104				126		18:00	143		167				310	
06:15	48		163				211		18:15	140		137				277	
06:30	52		224				276		18:30	113		116				229	
06:45	49	171	223	714			272	885	18:45	205	601	133	553			338	1154
07:00	70		202				272		19:00	214		126				340	
07:15	97		245				342		19:15	168		110				278	
07:30	175		225				400		19:30	162		85				247	
07:45	102	444	231	903			333	1347	19:45	128	672	73	394			201	1066
08:00	119		237				356		20:00	147		72				219	
08:15	158		298				456		20:15	131		65				196	
08:30	228		413				641		20:30	122		56				178	
08:45	229	734	233	1181			462	1915	20:45	142	542	56	249			198	791
09:00	140		179				319		21:00	153		64				217	
09:15	137		172				309		21:15	68		61				129	
09:30	117		185				302		21:30	69		47				116	
09:45	117	511	160	696			277	1207	21:45	68	358	47	219			115	577
10:00	104		150				254		22:00	60		49				109	
10:15	105		131				236		22:15	55		37				92	
10:30	113		136				249		22:30	49		44				93	
10:45	122	444	138	555			260	999	22:45	37	201	31	161			68	362
11:00	121		129				250		23:00	28		25				53	
11:15	130		149				279		23:15	26		22				48	
11:30	131		134				265		23:30	32		27				59	
11:45	117	499	144	556			261	1055	23:45	15	101	25	99			40	200
TOTALS		2977		4926				7903	TOTALS		7356		5336				12692
SPLIT %		37.7%		62.3%				38.4%	SPLIT %		58.0%		42.0%				61.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,333	10,262	0	0	20,595

AM Peak Hour	08:15	08:00	08:00	PM Peak Hour	15:45	12:30	15:45
AM Pk Volume	755	1181	1915	PM Pk Volume	1040	764	1685
Pk Hr Factor	0.824	0.715	0.747	Pk Hr Factor	0.893	0.872	0.918
7 - 9 Volume	1178	2084	3262	4 - 6 Volume	1900	1321	3221
7 - 9 Peak Hour	08:00	08:00	08:00	4 - 6 Peak Hour	16:00	17:00	16:30
7 - 9 Pk Volume	734	1181	1915	4 - 6 Pk Volume	987	680	1634
Pk Hr Factor	0.801	0.715	0.747	Pk Hr Factor	0.914	0.971	0.961

ITM Peak Hour Summary

Prepared by:

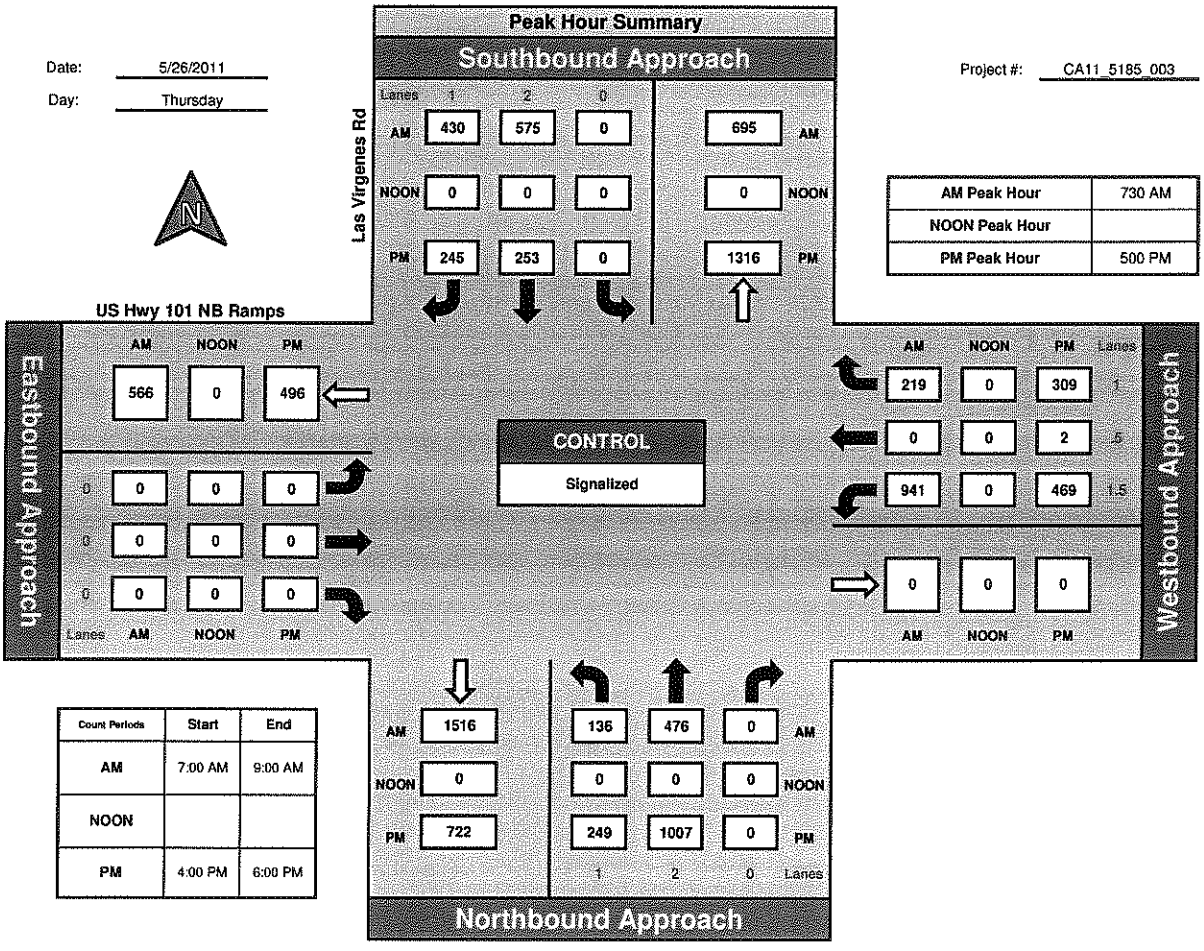
National Data & Surveying Services

Las Virgenes Rd and US Hwy 101 NB Ramps , City of Calabasas

Date: 5/26/2011

Day: Thursday

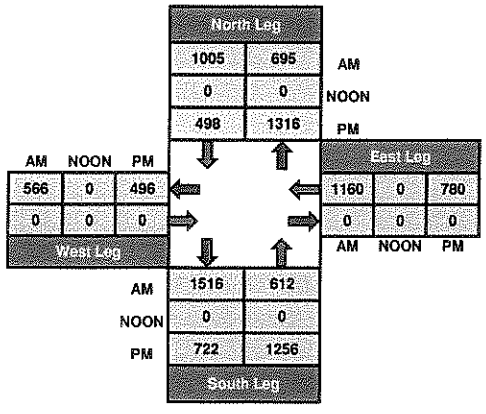
Project #: CA11_5185_003



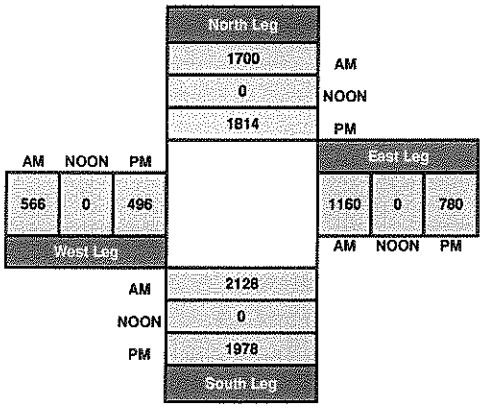
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

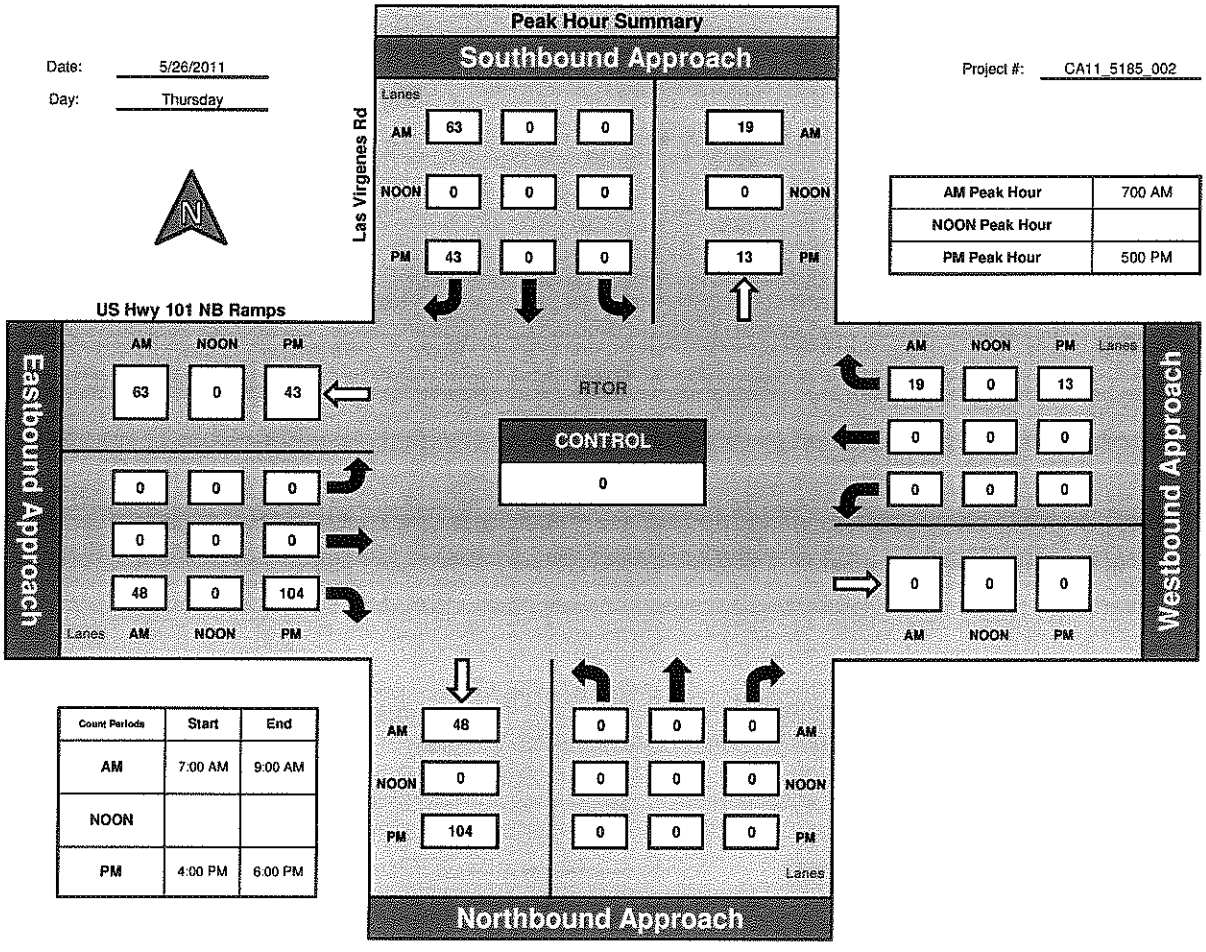
National Data & Surveying Services

Las Virgenes Rd and US Hwy 101 NB Ramps , City of Calabasas

Date: 5/26/2011

Day: Thursday

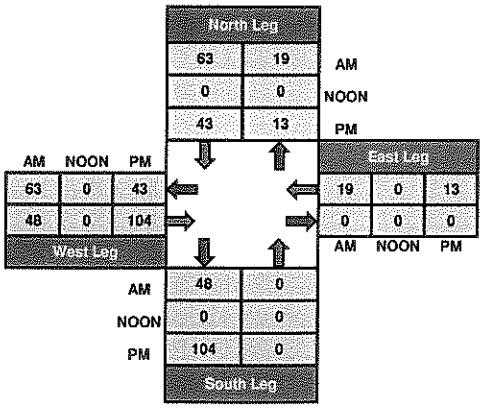
Project #: CA11_5185_002



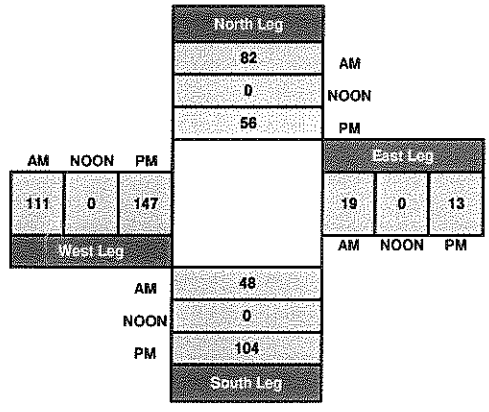
AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

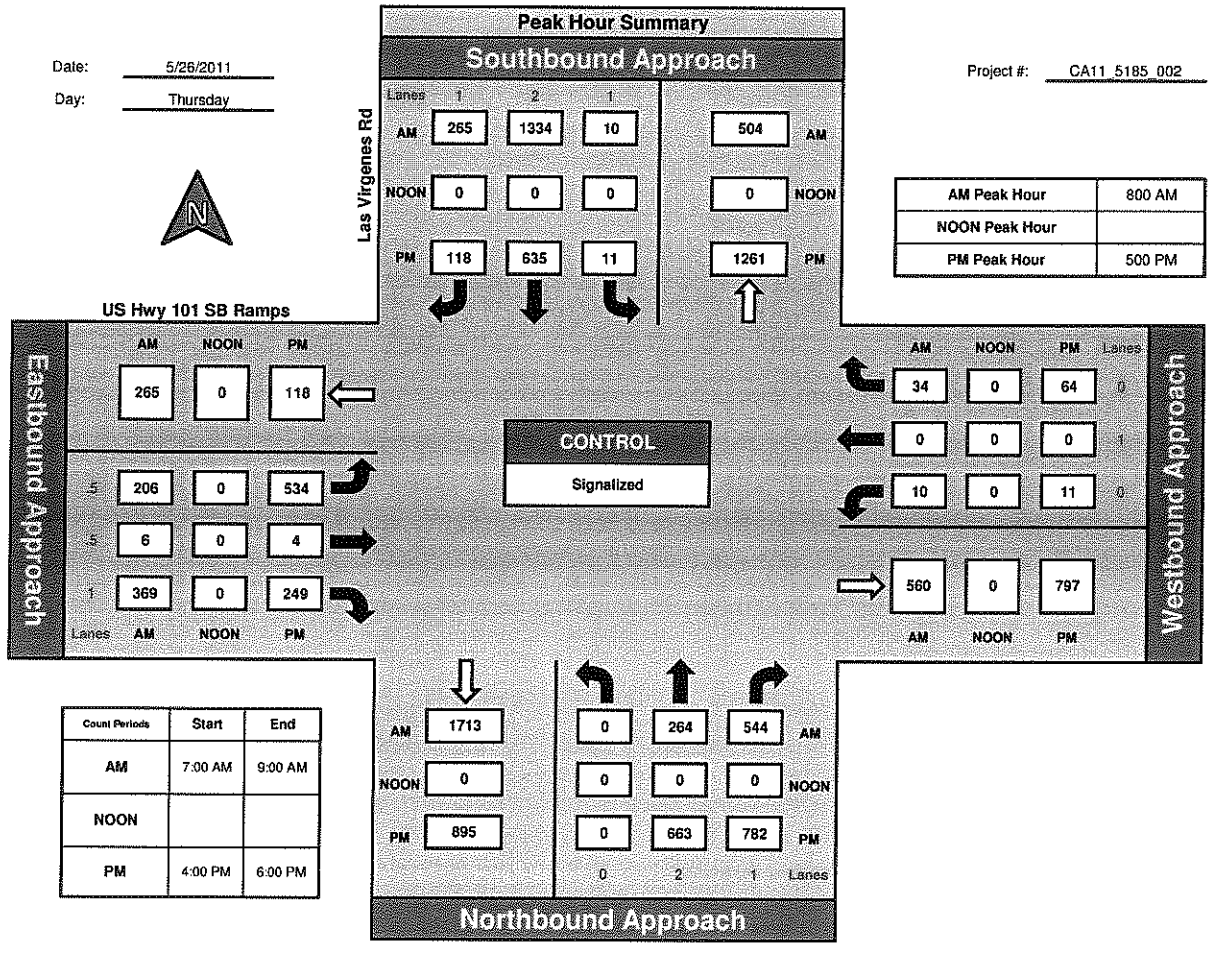
National Data & Surveying Services

Las Virgenes Rd and US Hwy 101 SB Ramps , City of Calabasas

Date: 5/26/2011

Day: Thursday

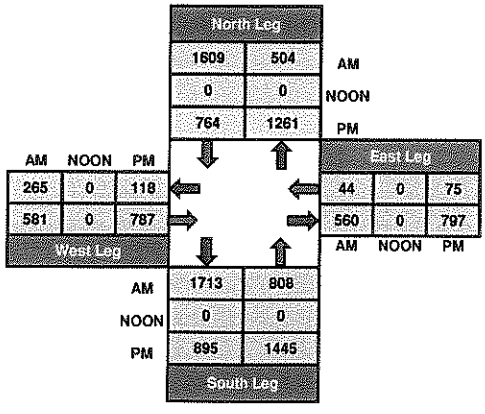
Project #: CA11 5185 002



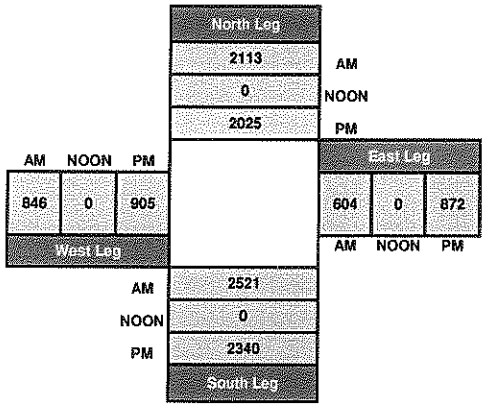
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

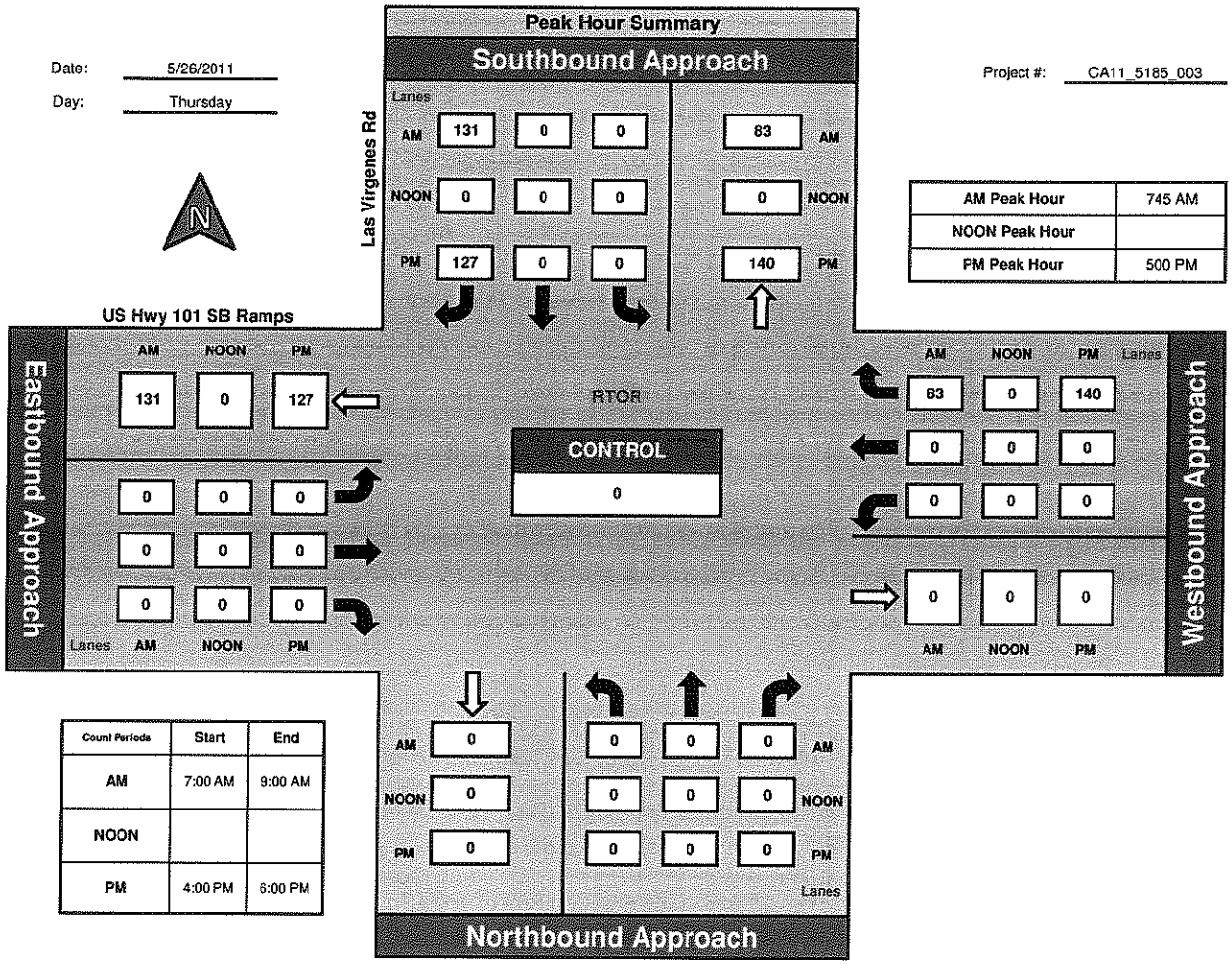
National Data & Surveying Services

Las Virgenes Rd and US Hwy 101 SB Ramps , City of Calabasas

Date: 5/26/2011

Day: Thursday

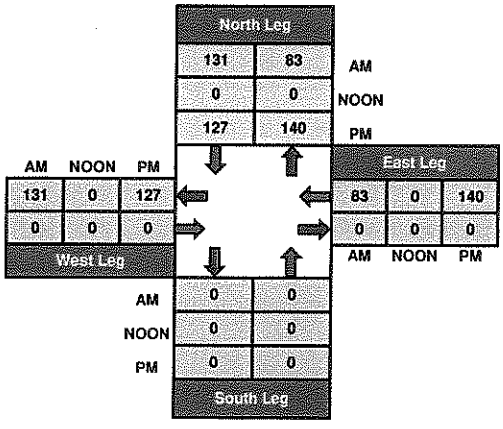
Project #: CA11_5185_003



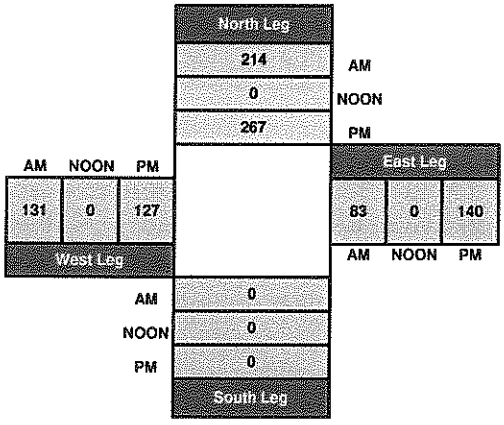
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

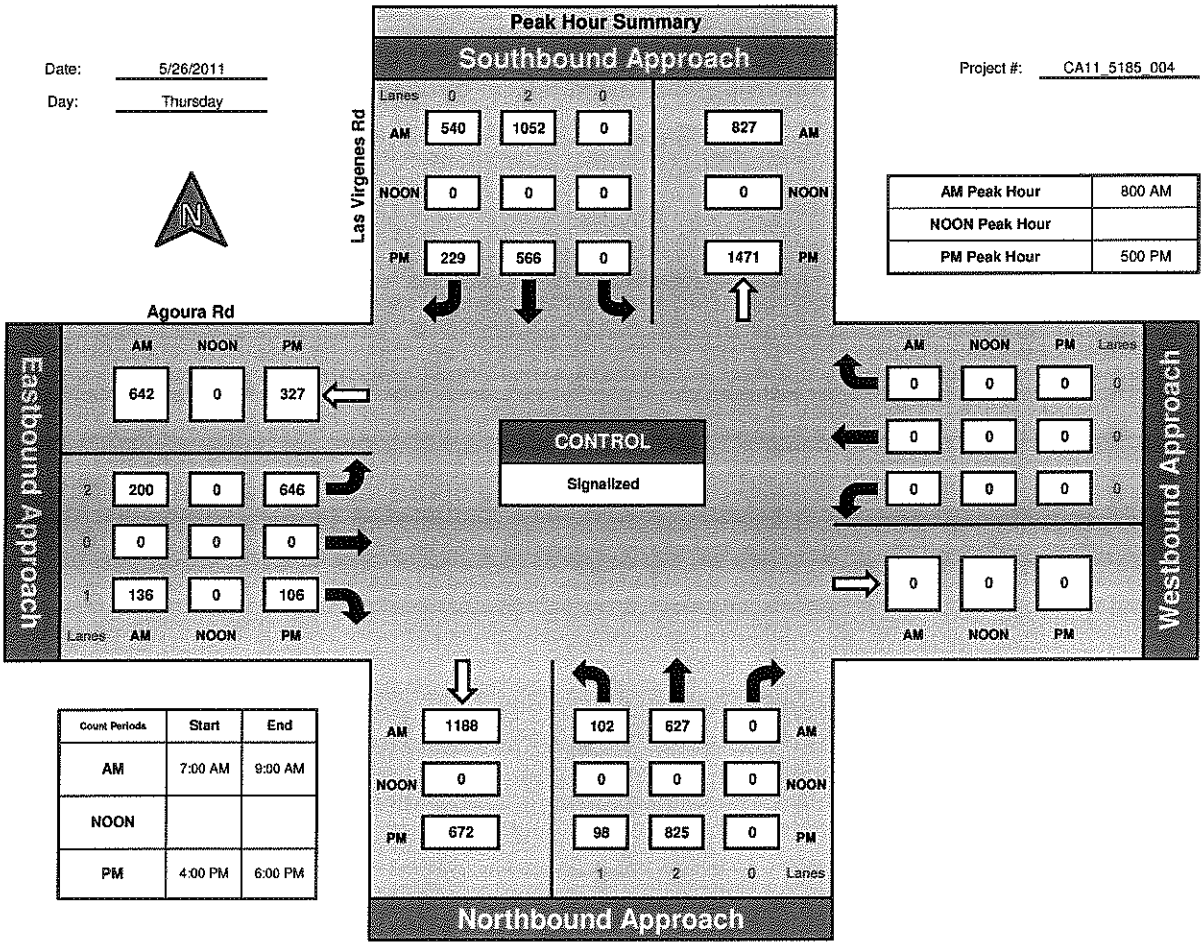
National Data & Surveying Services

Las Virgenes Rd and Agoura Rd , City of Calabasas

Date: 5/26/2011

Day: Thursday

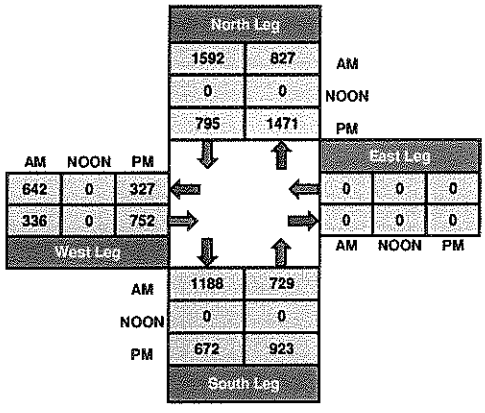
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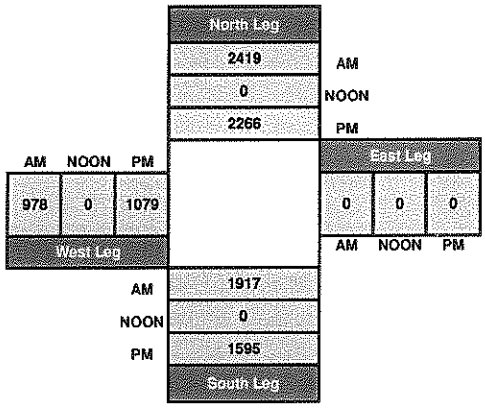
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

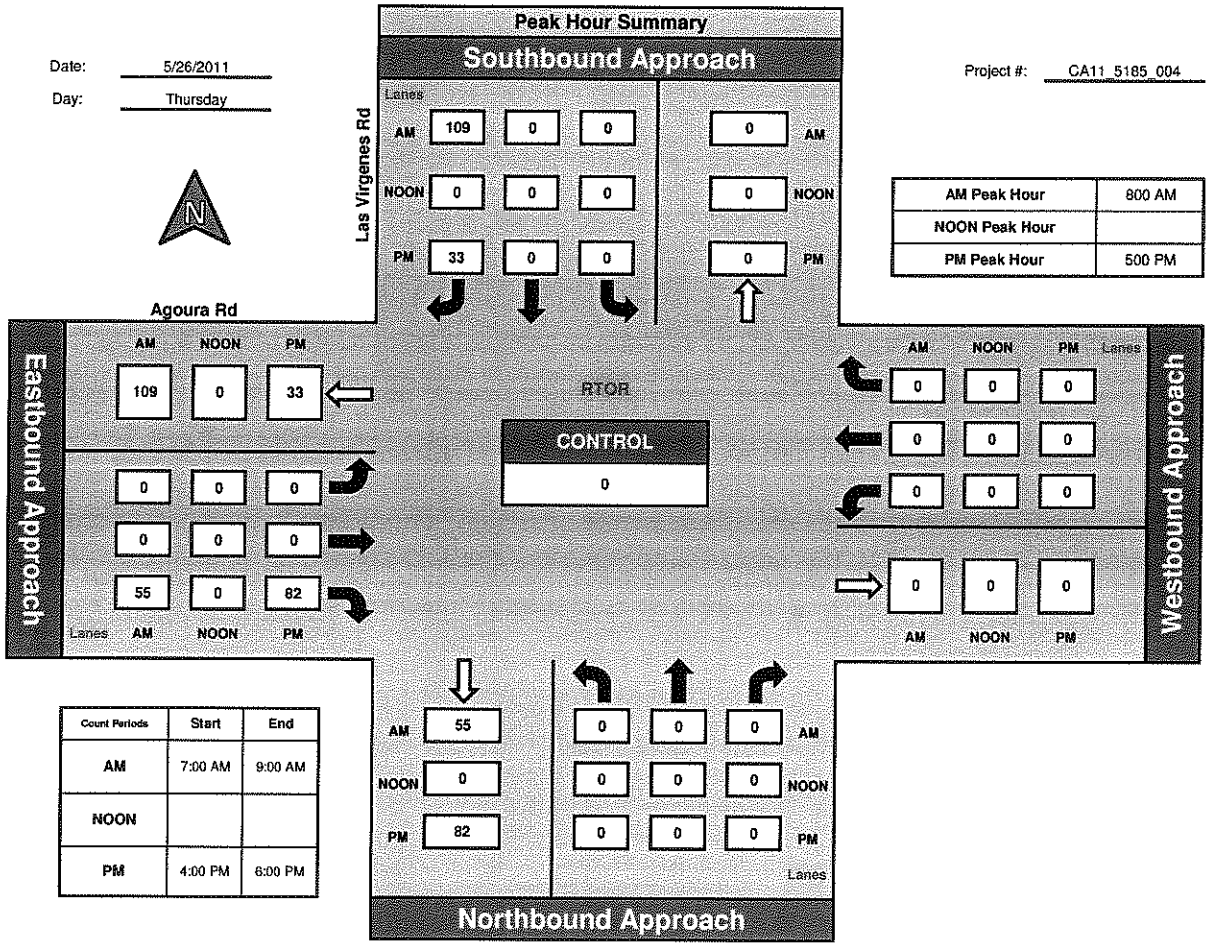
National Data & Surveying Services

Las Virgenes Rd and Agoura Rd , City of Calabasas

Date: 5/26/2011

Day: Thursday

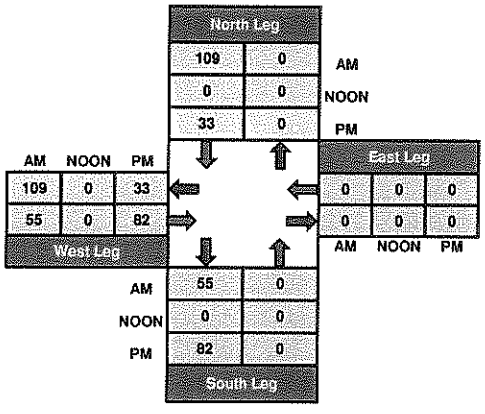
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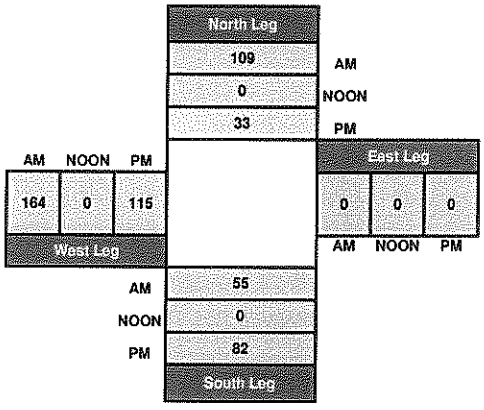
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg

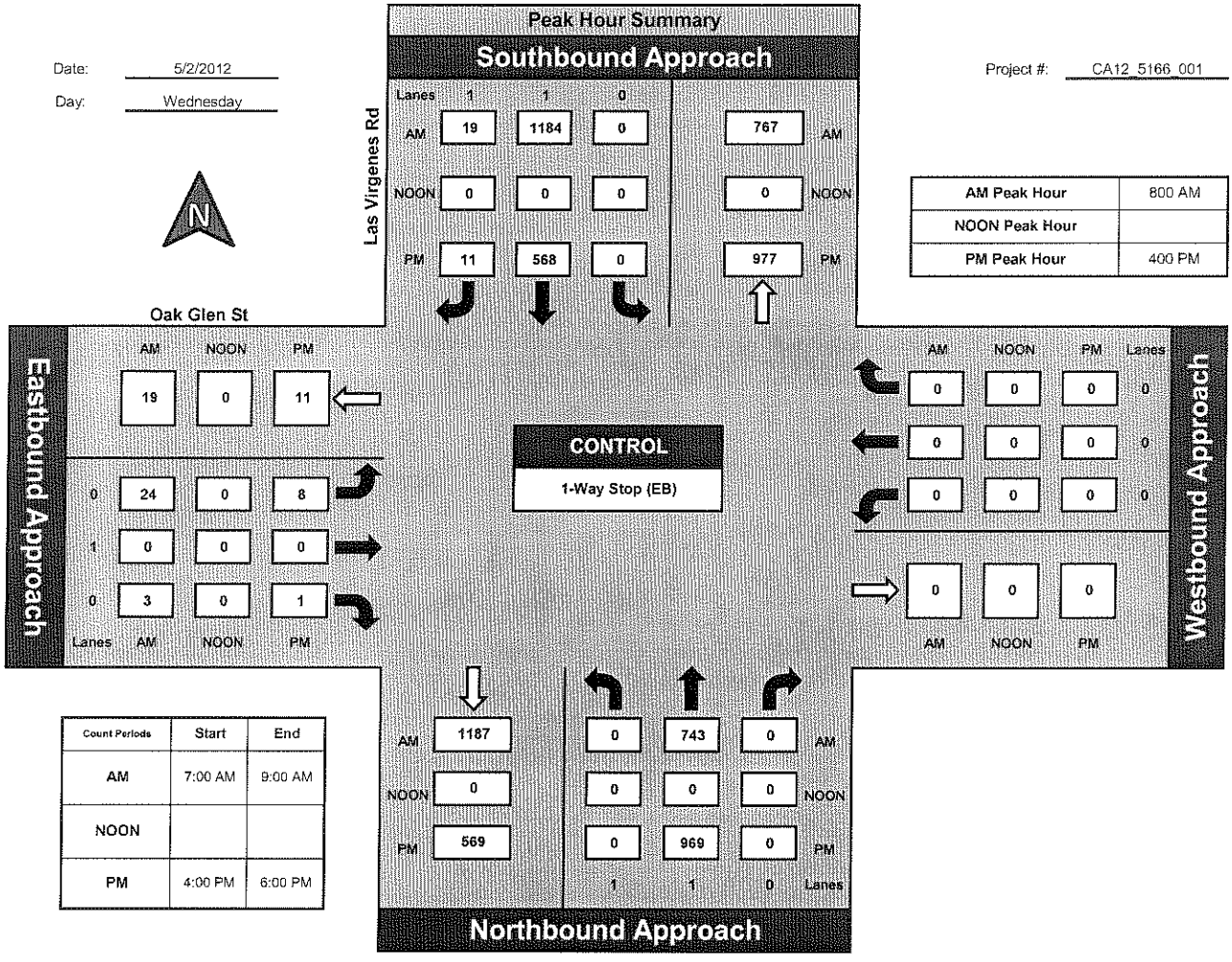


ITM Peak Hour Summary

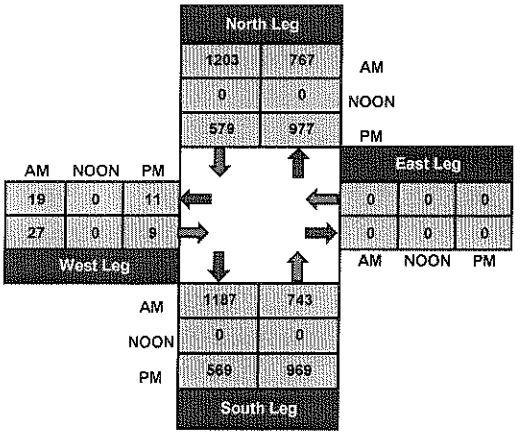
Prepared by:

National Data & Surveying Services

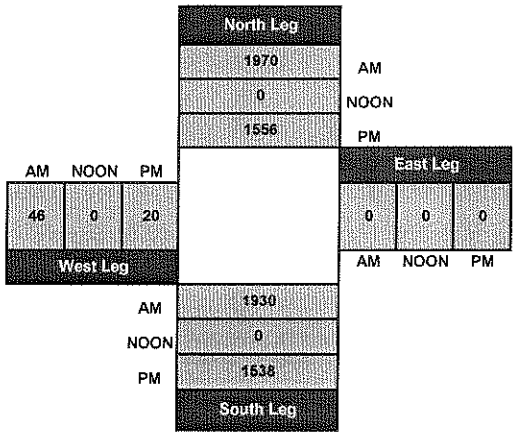
Las Virgenes Rd and Oak Glen St , City of Calabasas



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

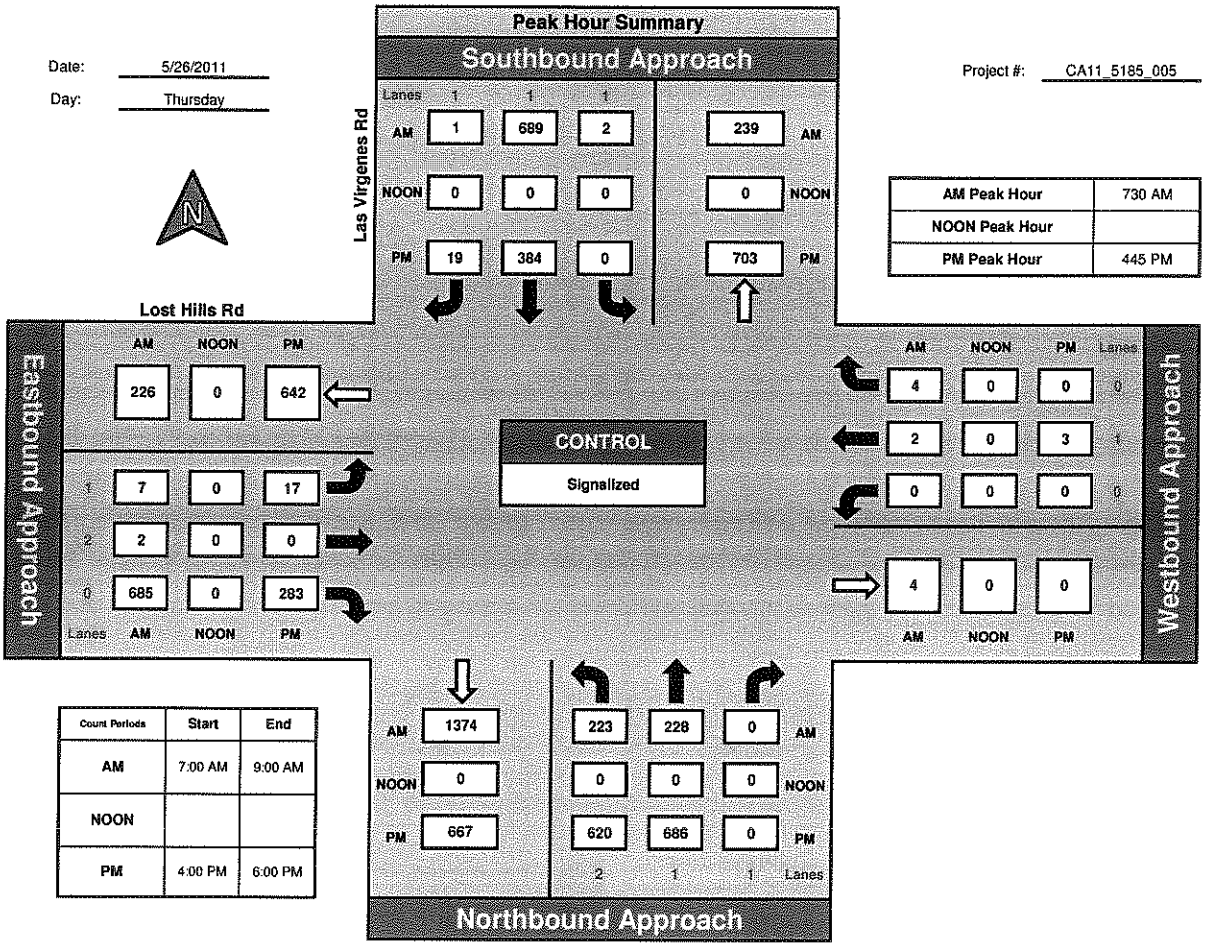
National Data & Surveying Services

Las Virgenes Rd and Lost Hills Rd , City of Calabasas

Date: 5/26/2011

Day: Thursday

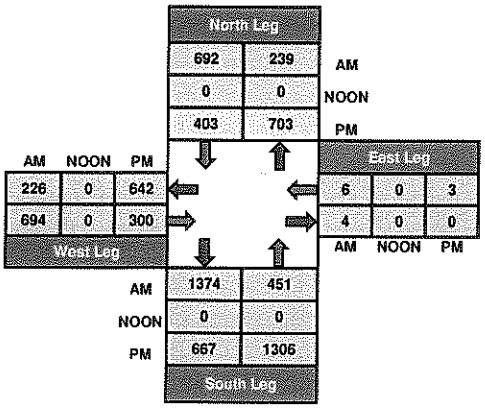
Project #: CA11_5185_005



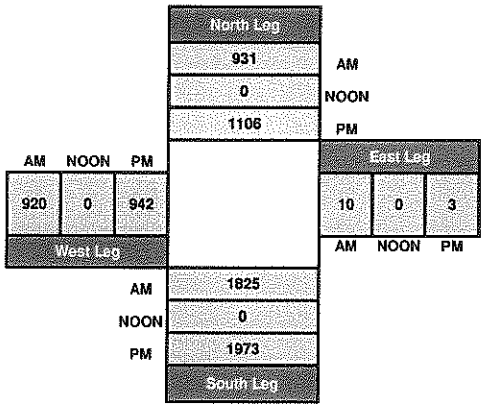
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

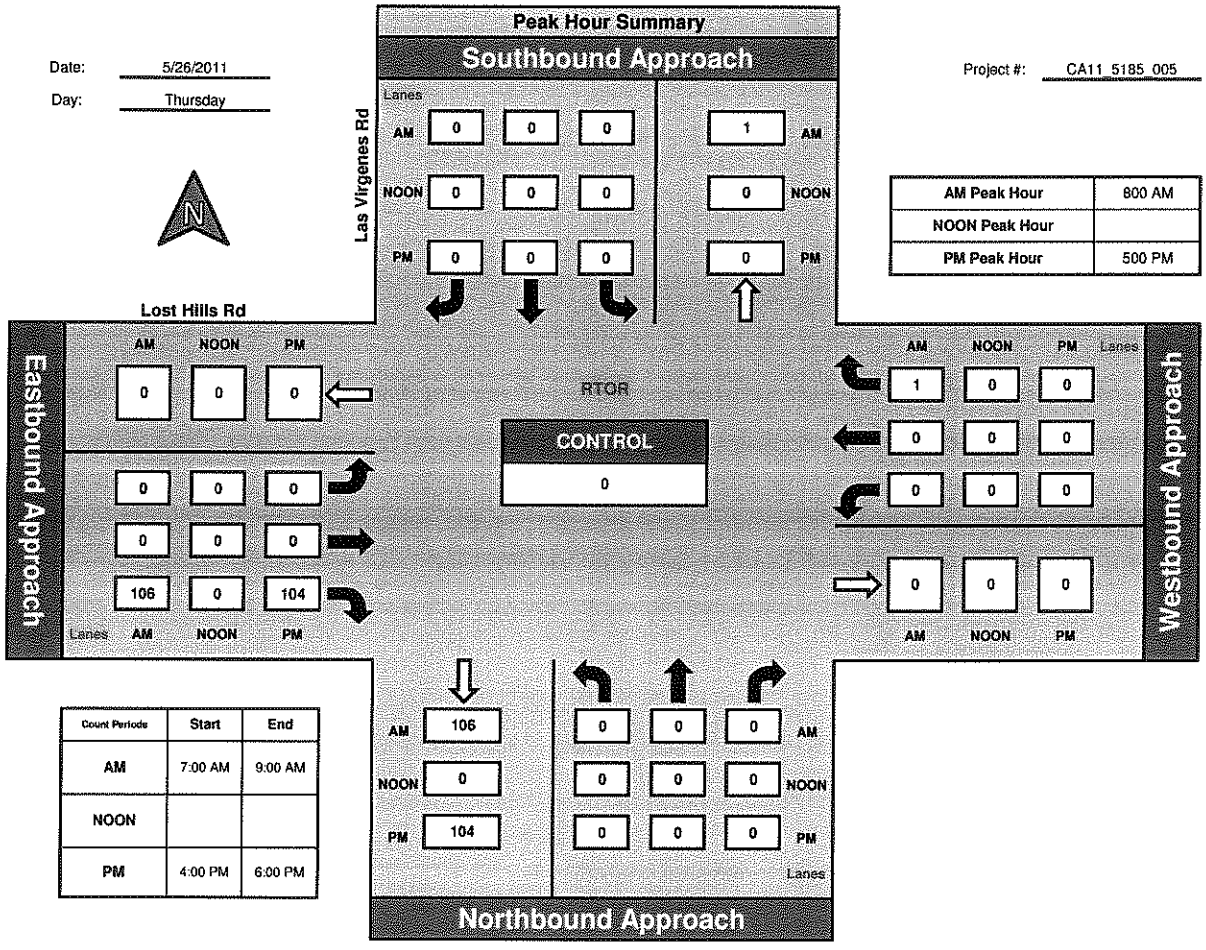
National Data & Surveying Services

Las Virgenes Rd and Lost Hills Rd , City of Calabasas

Date: 5/26/2011

Day: Thursday

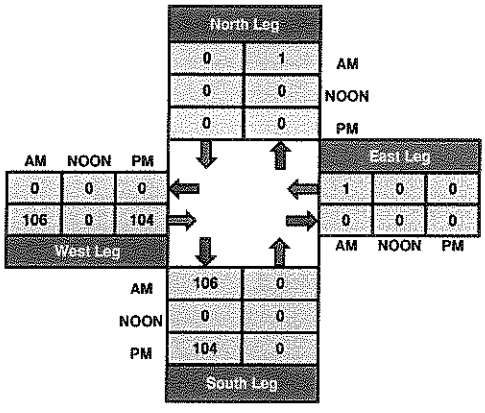
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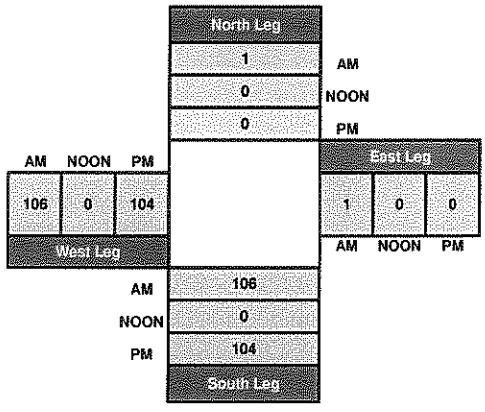
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



LEVEL OF SERVICE CALCULATION WORKSHEETS

Reference 1 - U.S. Highway 101 Northbound Ramps/Las Virgenes Road
Reference 2 - U.S. Highway 101 Southbound Ramps/Las Virgenes Road
Reference 3 - Las Virgenes Road/Agoura Road
Reference 4 - Las Virgenes Road/Oak Glen Street
Reference 5 - Las Virgenes Road/Lost Hill Road

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #01AM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 NB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A) EXISTING	136	476	0	0	575	430	0	0	0	941	2	219
(B) PROJECT	9	2	0	0	0	0	0	0	0	2	0	0
(C) CUMULATIVE	160	484	0	0	585	432	0	0	0	960	0	223

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L TT	TT R		L LT R

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	136	145	160	169	0.085 *	0.091 *	0.100 *	0.106 *
NBT	2	3200	476	478	484	486	0.149	0.149	0.151	0.152
NBR	0	0	0	0	0	0	0.000	0.000	0.000	0.000
SBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
SBT	2	3200	575	575	585	585	0.180	0.180	0.183	0.183
SBR *(a)*	1	1600	301	301	302	302	0.188 *	0.188 *	0.189 *	0.189 *
EBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
EBT	0	0	0	0	0	0	0.000	0.000	0.000	0.000
EBR	0	0	0	0	0	0	0.000	0.000	0.000	0.000
WBL	0	0	941	943	960	962	0.000	0.000	0.000	0.000
WBT	2	3200	2	2	0	0	0.295 *	0.295 *	0.300 *	0.301 *
WBR *(b)*	1	1600	136	136	138	138	0.085	0.085	0.086	0.086
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					INTERSECTION CAPACITY UTILIZATION:		**0.668**	**0.674**	**0.689**	**0.696**
					LEVEL OF SERVICE:		**B**	**B**	**B**	**B**

NOTES:

(a) 30% R.T.O.R.

(b) 38% R.T.O.R.

05/10/12



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1681	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1681	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	941	0	219	136	476	0	0	575	430
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1023	0	238	148	517	0	0	625	467
RTOR Reduction (vph)	0	0	0	0	0	152	0	0	0	0	0	321
Lane Group Flow (vph)	0	0	0	512	511	86	148	517	0	0	625	146
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				21.8	21.8	21.8	7.5	30.2			18.7	18.7
Effective Green, g (s)				21.8	21.8	21.8	7.5	30.2			18.7	18.7
Actuated g/C Ratio				0.36	0.36	0.36	0.12	0.50			0.31	0.31
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				611	611	575	221	1781			1103	493
v/s Ratio Prot							c0.08	0.15			0.18	
v/s Ratio Perm				0.30	0.30	0.15						0.29
v/c Ratio				0.84	0.84	0.15	0.67	0.29			0.57	0.30
Uniform Delay, d1				17.5	17.5	12.9	25.1	8.7			17.3	15.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				9.8	9.7	0.1	7.5	0.4			2.1	1.5
Delay (s)				27.3	27.2	13.0	32.6	9.1			19.4	17.2
Level of Service				C	C	B	C	A			B	B
Approach Delay (s)		0.0			24.5			14.3			18.4	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1681	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1681	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	943	0	219	145	478	0	0	575	430
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1025	0	238	158	520	0	0	625	467
RTOR Reduction (vph)	0	0	0	0	0	153	0	0	0	0	0	311
Lane Group Flow (vph)	0	0	0	513	512	85	158	520	0	0	625	156
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				21.4	21.4	21.4	6.6	30.6			20.0	20.0
Effective Green, g (s)				21.4	21.4	21.4	6.6	30.6			20.0	20.0
Actuated g/C Ratio				0.36	0.36	0.36	0.11	0.51			0.33	0.33
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				600	600	565	195	1805			1180	528
v/s Ratio Prot							c0.09	0.15			0.18	
v/s Ratio Perm				0.31	0.30	0.15						0.29
v/c Ratio				0.86	0.85	0.15	0.81	0.29			0.53	0.29
Uniform Delay, d1				17.9	17.8	13.1	26.1	8.4			16.2	14.8
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				11.4	11.3	0.1	21.8	0.4			1.7	1.4
Delay (s)				29.3	29.2	13.2	47.9	8.8			17.9	16.2
Level of Service				C	C	B	D	A			B	B
Approach Delay (s)		0.0			26.2			18.0			17.2	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1681	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1681	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	960	0	223	160	484	0	0	585	432
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1043	0	242	174	526	0	0	636	470
RTOR Reduction (vph)	0	0	0	0	0	154	0	0	0	0	0	331
Lane Group Flow (vph)	0	0	0	522	521	88	174	526	0	0	636	139
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				21.7	21.7	21.7	8.6	30.3			17.7	17.7
Effective Green, g (s)				21.7	21.7	21.7	8.6	30.3			17.7	17.7
Actuated g/C Ratio				0.36	0.36	0.36	0.14	0.50			0.30	0.30
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				608	608	573	254	1787			1044	467
v/s Ratio Prot							c0.10	0.15			0.18	
v/s Ratio Perm				0.31	0.31	0.15						0.30
v/c Ratio				0.86	0.86	0.15	0.69	0.29			0.61	0.30
Uniform Delay, d1				17.7	17.7	12.9	24.4	8.6			18.2	16.3
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				11.6	11.4	0.1	7.4	0.4			2.6	1.6
Delay (s)				29.3	29.2	13.1	31.9	9.1			20.8	18.0
Level of Service				C	C	B	C	A			C	B
Approach Delay (s)		0.0			26.2			14.7			19.6	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1681	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1681	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	962	0	223	169	486	0	0	585	432
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1046	0	242	184	528	0	0	636	470
RTOR Reduction (vph)	0	0	0	0	0	154	0	0	0	0	0	333
Lane Group Flow (vph)	0	0	0	523	523	88	184	528	0	0	636	137
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				21.8	21.8	21.8	8.7	30.2			17.5	17.5
Effective Green, g (s)				21.8	21.8	21.8	8.7	30.2			17.5	17.5
Actuated g/C Ratio				0.36	0.36	0.36	0.14	0.50			0.29	0.29
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				611	611	575	257	1781			1032	462
v/s Ratio Prot							c0.10	0.15			0.18	
v/s Ratio Perm				0.31	0.31	0.15						0.30
v/c Ratio				0.86	0.86	0.15	0.72	0.30			0.62	0.30
Uniform Delay, d1				17.6	17.6	12.9	24.5	8.7			18.4	16.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				11.3	11.3	0.1	9.1	0.4			2.8	1.6
Delay (s)				29.0	29.0	13.0	33.6	9.1			21.1	18.1
Level of Service				C	C	B	C	A			C	B
Approach Delay (s)		0.0			26.0			15.4			19.8	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #01PM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 NB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A) EXISTING	249	1007	0	0	253	245	0	0	0	469	2	309
(B) PROJECT	4	1	0	0	1	0	0	0	0	10	0	0
(C) CUMULATIVE	270	1018	0	0	268	248	0	0	0	519	2	315

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L TT	TT R		L LT R

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

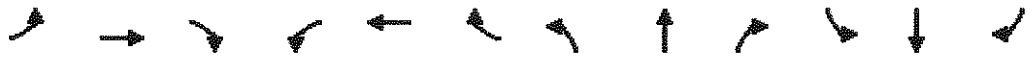
MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	249	253	270	274	0.156	0.158	0.169	0.171
NBT	2	3200	1007	1008	1018	1019	0.315 *	0.315 *	0.318 *	0.318 *
NBR	0	0	0	0	0	0	0.000	0.000	0.000	0.000
SBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
SBT	2	3200	253	254	268	269	0.079	0.079	0.084	0.084
SBR *(a)*	1	1600	118	118	119	119	0.074	0.074	0.074	0.074
EBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
EBT	0	0	0	0	0	0	0.000	0.000	0.000	0.000
EBR	0	0	0	0	0	0	0.000	0.000	0.000	0.000
WBL	0	0	469	479	519	529	0.000	0.000	0.000	0.000
WBT	2	3200	2	2	2	2	0.147 *	0.150 *	0.163 *	0.166 *
WBR *(b)*	1	1600	170	170	173	173	0.106	0.106	0.108	0.108
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.562**	**0.565**	**0.581**	**0.584**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:

(a) 52% R.T.O.R.

(b) 45% R.T.O.R.

05/10/12



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1686	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1686	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	469	2	309	249	1007	0	0	253	245
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	510	2	336	271	1095	0	0	275	266
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	172
Lane Group Flow (vph)	0	0	0	255	257	267	271	1095	0	0	275	94
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				14.3	14.3	14.3	12.5	37.7			21.2	21.2
Effective Green, g (s)				14.3	14.3	14.3	12.5	37.7			21.2	21.2
Actuated g/C Ratio				0.24	0.24	0.24	0.21	0.63			0.35	0.35
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				401	402	377	369	2224			1250	559
v/s Ratio Prot							c0.15	c0.31			0.08	
v/s Ratio Perm				0.15	0.15	0.21						0.17
v/c Ratio				0.64	0.64	0.71	0.73	0.49			0.22	0.17
Uniform Delay, d1				20.5	20.5	20.9	22.2	6.0			13.6	13.3
Progression Factor				1.00	1.00	1.00	0.97	0.85			1.00	1.00
Incremental Delay, d2				3.3	3.3	6.0	3.5	0.4			0.4	0.6
Delay (s)				23.8	23.9	27.0	25.0	5.4			14.0	14.0
Level of Service				C	C	C	C	A			B	B
Approach Delay (s)		0.0			25.1			9.3			14.0	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1686	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1686	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	479	2	309	253	1008	0	0	254	245
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	521	2	336	275	1096	0	0	276	266
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	0	0	0	173
Lane Group Flow (vph)	0	0	0	261	262	268	275	1096	0	0	276	93
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				14.4	14.4	14.4	12.6	37.6			21.0	21.0
Effective Green, g (s)				14.4	14.4	14.4	12.6	37.6			21.0	21.0
Actuated g/C Ratio				0.24	0.24	0.24	0.21	0.63			0.35	0.35
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				403	405	380	372	2218			1239	554
v/s Ratio Prot							c0.16	c0.31			0.08	
v/s Ratio Perm				0.16	0.16	0.21						0.17
v/c Ratio				0.65	0.65	0.70	0.74	0.49			0.22	0.17
Uniform Delay, d1				20.5	20.5	20.9	22.2	6.1			13.7	13.5
Progression Factor				1.00	1.00	1.00	0.97	0.85			1.00	1.00
Incremental Delay, d2				3.6	3.5	5.8	3.5	0.4			0.4	0.7
Delay (s)				24.1	24.0	26.7	25.1	5.5			14.2	14.1
Level of Service				C	C	C	C	A			B	B
Approach Delay (s)		0.0			25.1			9.4			14.1	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1686	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1686	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	519	2	315	270	1018	0	0	268	248
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	564	2	342	293	1107	0	0	291	270
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	0	178
Lane Group Flow (vph)	0	0	0	282	284	275	293	1107	0	0	291	92
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				14.6	14.6	14.6	12.9	37.4			20.5	20.5
Effective Green, g (s)				14.6	14.6	14.6	12.9	37.4			20.5	20.5
Actuated g/C Ratio				0.24	0.24	0.24	0.22	0.62			0.34	0.34
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				409	410	385	381	2206			1209	541
v/s Ratio Prot							c0.17	c0.31			0.08	
v/s Ratio Perm				0.17	0.17	0.22						0.17
v/c Ratio				0.69	0.69	0.72	0.77	0.50			0.24	0.17
Uniform Delay, d1				20.6	20.7	20.8	22.1	6.2			14.2	13.8
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				4.8	5.0	6.2	9.0	0.8			0.5	0.7
Delay (s)				25.4	25.7	27.0	31.2	7.0			14.6	14.5
Level of Service				C	C	C	C	A			B	B
Approach Delay (s)		0.0			26.1			12.1			14.6	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1686	1583	1770	3539			3539	1583
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1681	1686	1583	1770	3539			3539	1583
Volume (vph)	0	0	0	529	2	315	274	1019	0	0	269	248
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	575	2	342	298	1108	0	0	292	270
RTOR Reduction (vph)	0	0	0	0	0	66	0	0	0	0	0	179
Lane Group Flow (vph)	0	0	0	288	289	276	298	1108	0	0	292	91
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				14.7	14.7	14.7	13.0	37.3			20.3	20.3
Effective Green, g (s)				14.7	14.7	14.7	13.0	37.3			20.3	20.3
Actuated g/C Ratio				0.24	0.24	0.24	0.22	0.62			0.34	0.34
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				412	413	388	384	2200			1197	536
v/s Ratio Prot							c0.17	c0.31			0.08	
v/s Ratio Perm				0.17	0.17	0.22						0.17
v/c Ratio				0.70	0.70	0.71	0.78	0.50			0.24	0.17
Uniform Delay, d1				20.6	20.6	20.7	22.1	6.3			14.3	13.9
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				5.1	5.1	6.1	9.5	0.8			0.5	0.7
Delay (s)				25.8	25.8	26.8	31.6	7.1			14.8	14.6
Level of Service				C	C	C	C	A			B	B
Approach Delay (s)		0.0			26.1			12.3			14.7	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #02AM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 SB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A) EXISTING	0	808	2	10	1334	265	206	6	369	10	0	34
(B) PROJECT	0	20	0	0	2	0	0	0	2	0	0	0
(C) CUMULATIVE	0	880	2	10	1359	269	208	6	377	10	0	34

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	TT R	L TT R	LT R	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
NBT	2	3200	808	828	880	900	0.253	0.259	0.275	0.281
NBR	1	1600	2	2	2	2	0.001	0.001	0.001	0.001
SBL	1	1600	10	10	10	10	0.006	0.006	0.006	0.006
SBT	2	3200	1334	1336	1359	1361	0.417 *	0.418 *	0.425 *	0.425 *
SBR *(a)*	1	1600	201	201	204	204	0.126	0.126	0.128	0.128
EBL	0	0	206	206	208	208	0.000	0.000	0.000	0.000
EBT	1	1600	6	6	6	6	0.133 *	0.133 *	0.134 *	0.134 *
EBR *(b)*	1	1600	321	323	328	330	0.201	0.202	0.205	0.206
WBL	0	0	10	10	10	10	0.000	0.000	0.000	0.000
WBT	1	1600	0	0	0	0	0.016 *	0.016 *	0.016 *	0.016 *
WBR *(c)*	0	0	15	15	15	15	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.666**	**0.667**	**0.675**	**0.675**
			LEVEL OF SERVICE:				**B**	**B**	**B**	**B**

NOTES:

(a) 24% R.T.O.R.
(b) 13% R.T.O.R.
(c) 56% R.T.O.R.

05/10/12



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			3539	1583	1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			3539	1583	524	3539	1583
Volume (vph)	206	6	369	10	0	34	0	808	2	10	1334	265
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	7	401	11	0	37	0	878	2	11	1450	288
RTOR Reduction (vph)	0	0	265	0	35	0	0	0	1	0	0	109
Lane Group Flow (vph)	0	231	136	0	13	0	0	878	1	11	1450	179
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		14.1	14.1		4.3			49.6	49.6	49.6	49.6	49.6
Effective Green, g (s)		14.1	14.1		4.3			49.6	49.6	49.6	49.6	49.6
Actuated g/C Ratio		0.18	0.18		0.05			0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		313	279		89			2194	981	325	2194	981
v/s Ratio Prot		0.13			c0.03			0.25			c0.41	
v/s Ratio Perm			0.25						0.00	0.02		0.18
v/c Ratio		0.74	0.49		0.15			0.40	0.00	0.03	0.66	0.18
Uniform Delay, d1		31.2	29.7		36.1			7.7	5.8	5.9	9.8	6.5
Progression Factor		1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		8.8	1.3		0.8			0.5	0.0	0.2	1.6	0.4
Delay (s)		40.0	31.0		36.9			8.2	5.8	6.1	11.4	6.9
Level of Service		D	C		D			A	A	A	B	A
Approach Delay (s)		34.3			36.9			8.2			10.6	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			3539	1583	1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			3539	1583	508	3539	1583
Volume (vph)	206	6	371	10	0	34	0	828	2	10	1336	265
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	7	403	11	0	37	0	900	2	11	1452	288
RTOR Reduction (vph)	0	0	265	0	35	0	0	0	1	0	0	109
Lane Group Flow (vph)	0	231	138	0	13	0	0	900	1	11	1452	179
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		14.1	14.1		4.3			49.6	49.6	49.6	49.6	49.6
Effective Green, g (s)		14.1	14.1		4.3			49.6	49.6	49.6	49.6	49.6
Actuated g/C Ratio		0.18	0.18		0.05			0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		313	279		89			2194	981	315	2194	981
v/s Ratio Prot		0.13			c0.03			0.25			c0.41	
v/s Ratio Perm			0.25						0.00	0.02		0.18
v/c Ratio		0.74	0.49		0.15			0.41	0.00	0.03	0.66	0.18
Uniform Delay, d1		31.2	29.7		36.1			7.7	5.8	5.9	9.8	6.5
Progression Factor		1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		8.8	1.4		0.8			0.6	0.0	0.2	1.6	0.4
Delay (s)		40.0	31.1		36.9			8.3	5.8	6.1	11.4	6.9
Level of Service		D	C		D			A	A	A	B	A
Approach Delay (s)		34.3			36.9			8.3			10.6	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			3539	1583	1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			3539	1583	469	3539	1583
Volume (vph)	208	6	377	10	0	34	0	880	2	10	1359	269
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	7	410	11	0	37	0	957	2	11	1477	292
RTOR Reduction (vph)	0	0	264	0	35	0	0	0	1	0	0	111
Lane Group Flow (vph)	0	233	146	0	13	0	0	957	1	11	1477	181
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		14.2	14.2		4.3			49.5	49.5	49.5	49.5	49.5
Effective Green, g (s)		14.2	14.2		4.3			49.5	49.5	49.5	49.5	49.5
Actuated g/C Ratio		0.18	0.18		0.05			0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		315	281		89			2190	979	290	2190	979
v/s Ratio Prot		0.13			c0.03			0.27			c0.42	
v/s Ratio Perm			0.26						0.00	0.02		0.18
v/c Ratio		0.74	0.52		0.15			0.44	0.00	0.04	0.67	0.18
Uniform Delay, d1		31.2	29.8		36.1			8.0	5.8	6.0	10.0	6.6
Progression Factor		1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		8.8	1.6		0.8			0.6	0.0	0.2	1.7	0.4
Delay (s)		39.9	31.4		36.9			8.6	5.8	6.2	11.7	7.0
Level of Service		D	C		D			A	A	A	B	A
Approach Delay (s)		34.5			36.9			8.6			10.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			3539	1583	1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			3539	1583	455	3539	1583
Volume (vph)	208	6	379	10	0	34	0	900	2	10	1361	269
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	7	412	11	0	37	0	978	2	11	1479	292
RTOR Reduction (vph)	0	0	264	0	35	0	0	0	1	0	0	111
Lane Group Flow (vph)	0	233	148	0	13	0	0	978	1	11	1479	181
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		14.2	14.2		4.3			49.5	49.5	49.5	49.5	49.5
Effective Green, g (s)		14.2	14.2		4.3			49.5	49.5	49.5	49.5	49.5
Actuated g/C Ratio		0.18	0.18		0.05			0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		315	281		89			2190	979	282	2190	979
v/s Ratio Prot		0.13			c0.03			0.28			c0.42	
v/s Ratio Perm			0.26						0.00	0.02		0.18
v/c Ratio		0.74	0.53		0.15			0.45	0.00	0.04	0.68	0.18
Uniform Delay, d1		31.2	29.9		36.1			8.0	5.8	6.0	10.0	6.6
Progression Factor		1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		8.8	1.8		0.8			0.7	0.0	0.3	1.7	0.4
Delay (s)		39.9	31.6		36.9			8.7	5.8	6.2	11.7	7.0
Level of Service		D	C		D			A	A	A	B	A
Approach Delay (s)		34.6			36.9			8.7			10.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #02PM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 SB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	0	1445	0	11	635	118	534	4	249	11	0	64
(B) PROJECT	0	9	0	0	11	0	0	0	8	0	0	0
(C) CUMULATIVE	0	1538	0	11	694	124	537	4	278	11	0	64

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	TT R	L TT R	LT R	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
NBT	2	3200	1445	1454	1538	1547	0.452 *	0.454 *	0.481 *	0.483 *
NBR	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	11	11	11	11	0.007 *	0.007 *	0.007 *	0.007 *
SBT	2	3200	635	646	694	705	0.198	0.202	0.217	0.220
SBR *(a)*	1	1600	76	76	79	79	0.048	0.048	0.049	0.049
EBL	0	0	534	534	537	537	0.000	0.000	0.000	0.000
EBT	1	1600	4	4	4	4	0.336 *	0.336 *	0.338 *	0.338 *
EBR *(b)*	1	1600	144	149	161	166	0.090	0.093	0.101	0.104
WBL	0	0	11	11	11	11	0.000	0.000	0.000	0.000
WBT	1	1600	0	0	0	0	0.039 *	0.039 *	0.039 *	0.039 *
WBR *(c)*	0	0	51	51	51	51	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.934**	**0.936**	**0.965**	**0.967**
			LEVEL OF SERVICE:				**E**	**E**	**E**	**E**

NOTES:

(a) 36% R.T.O.R.
(b) 42% R.T.O.R.
(c) 20% R.T.O.R.

05/14/12

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			3539		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.06	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			3539		121	3539	1583
Volume (vph)	534	4	249	11	0	64	0	1445	0	11	635	118
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	580	4	271	12	0	70	0	1571	0	12	690	128
RTOR Reduction (vph)	0	0	183	0	45	0	0	0	0	0	0	62
Lane Group Flow (vph)	0	584	88	0	37	0	0	1571	0	12	690	66
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		39.0	39.0		7.2			61.8		61.8	61.8	61.8
Effective Green, g (s)		39.0	39.0		7.2			61.8		61.8	61.8	61.8
Actuated g/C Ratio		0.32	0.32		0.06			0.52		0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		577	514		98			1823		62	1823	815
v/s Ratio Prot		c0.33			c0.05			c0.44			0.19	
v/s Ratio Perm			0.17							0.10		0.08
v/c Ratio		1.01	0.17		0.38			0.86		0.19	0.38	0.08
Uniform Delay, d1		40.5	28.9		54.2			25.4		15.7	17.5	14.7
Progression Factor		1.00	1.00		1.00			1.00		1.29	1.36	2.49
Incremental Delay, d2		40.5	0.2		2.4			5.6		6.4	0.6	0.2
Delay (s)		81.0	29.1		56.7			31.0		26.6	24.4	36.9
Level of Service		F	C		E			C		C	C	D
Approach Delay (s)		64.6			56.7			31.0			26.4	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM Average Control Delay	39.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			3539		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.06	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			3539		121	3539	1583
Volume (vph)	534	4	257	11	0	64	0	1454	0	11	646	118
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	580	4	279	12	0	70	0	1580	0	12	702	128
RTOR Reduction (vph)	0	0	188	0	45	0	0	0	0	0	0	62
Lane Group Flow (vph)	0	584	91	0	37	0	0	1580	0	12	702	66
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		39.0	39.0		7.2			61.8		61.8	61.8	61.8
Effective Green, g (s)		39.0	39.0		7.2			61.8		61.8	61.8	61.8
Actuated g/C Ratio		0.32	0.32		0.06			0.52		0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		577	514		98			1823		62	1823	815
v/s Ratio Prot		c0.33			c0.05			c0.45			0.20	
v/s Ratio Perm			0.18							0.10		0.08
v/c Ratio		1.01	0.18		0.38			0.87		0.19	0.39	0.08
Uniform Delay, d1		40.5	29.0		54.2			25.5		15.7	17.6	14.7
Progression Factor		1.00	1.00		1.00			1.00		1.29	1.36	2.50
Incremental Delay, d2		40.5	0.2		2.4			5.8		6.4	0.6	0.2
Delay (s)		81.0	29.2		56.7			31.3		26.6	24.6	37.0
Level of Service		F	C		E			C		C	C	D
Approach Delay (s)		64.3			56.7			31.3			26.5	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM Average Control Delay	39.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			3539		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.06	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			3539		110	3539	1583
Volume (vph)	537	4	261	11	0	64	0	1471	0	11	664	124
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	584	4	284	12	0	70	0	1599	0	12	722	135
RTOR Reduction (vph)	0	0	190	0	46	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	588	94	0	36	0	0	1599	0	12	722	70
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		43.0	43.0		7.4			67.6		67.6	67.6	67.6
Effective Green, g (s)		43.0	43.0		7.4			67.6		67.6	67.6	67.6
Actuated g/C Ratio		0.33	0.33		0.06			0.52		0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		587	524		93			1840		57	1840	823
v/s Ratio Prot		c0.33			c0.05			c0.45			0.20	
v/s Ratio Perm			0.18							0.11		0.09
v/c Ratio		1.00	0.18		0.38			0.87		0.21	0.39	0.09
Uniform Delay, d1		43.5	30.9		59.1			27.3		16.8	18.8	15.7
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		37.6	0.2		2.6			5.9		8.2	0.6	0.2
Delay (s)		81.1	31.1		61.7			33.2		25.0	19.4	15.9
Level of Service		F	C		E			C		C	B	B
Approach Delay (s)		64.8			61.7			33.2			19.0	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.95		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			3539		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.06	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			3539		109	3539	1583
Volume (vph)	537	4	286	11	0	64	0	1547	0	11	705	124
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	584	4	311	12	0	70	0	1682	0	12	766	135
RTOR Reduction (vph)	0	0	202	0	42	0	0	0	0	0	0	64
Lane Group Flow (vph)	0	588	109	0	40	0	0	1682	0	12	766	71
Turn Type	Split		Perm	Split					Perm	Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4						2	6		6
Actuated Green, G (s)		42.0	42.0		7.6			68.4		68.4	68.4	68.4
Effective Green, g (s)		42.0	42.0		7.6			68.4		68.4	68.4	68.4
Actuated g/C Ratio		0.32	0.32		0.06			0.53		0.53	0.53	0.53
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		573	511		96			1862		57	1862	833
v/s Ratio Prot		c0.33			c0.05			c0.48			0.22	
v/s Ratio Perm			0.20							0.11		0.09
v/c Ratio		1.03	0.21		0.41			0.90		0.21	0.41	0.09
Uniform Delay, d1		44.0	32.0		59.0			27.8		16.4	18.6	15.3
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		44.4	0.2		2.9			7.7		8.2	0.7	0.2
Delay (s)		88.4	32.2		61.9			35.5		24.6	19.3	15.5
Level of Service		F	C		E			D		C	B	B
Approach Delay (s)		69.0			61.9			35.5			18.8	
Approach LOS		E			E			D			B	

Intersection Summary			
HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #02AM_MIT**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM*** ***WITH PROGRAMMED IMPROVEMENTS***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 SB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A) EXISTING	0	808	2	10	1334	265	206	6	369	10	0	34
(B) PROJECT	0	20	0	0	2	0	0	0	2	0	0	0
(C) CUMULATIVE	0	880	2	10	1359	269	208	6	377	10	0	34

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	TT TR	L TT R	LT R	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
NBT	3	4800	808	828	880	900	0.169	0.173	0.184	0.188
NBR	0	0	2	2	2	2	0.000	0.000	0.000	0.000
SBL	1	1600	10	10	10	10	0.006	0.006	0.006	0.006
SBT	2	3200	1334	1336	1359	1361	0.417 *	0.418 *	0.425 *	0.425 *
SBR *(a)*	1	1600	201	201	204	204	0.126	0.126	0.128	0.128
EBL	0	0	206	206	208	208	0.000	0.000	0.000	0.000
EBT	1	1600	6	6	6	6	0.133 *	0.133 *	0.134 *	0.134 *
EBR *(b)*	1	1600	321	323	328	330	0.201	0.202	0.205	0.206
WBL	0	0	10	10	10	10	0.000	0.000	0.000	0.000
WBT	1	1600	0	0	0	0	0.016 *	0.016 *	0.016 *	0.016 *
WBR *(c)*	0	0	15	15	15	15	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.666**	**0.667**	**0.675**	**0.675**
			LEVEL OF SERVICE:				**B**	**B**	**B**	**B**

NOTES:

(a) 24% R.T.O.R.
(b) 13% R.T.O.R.
(c) 56% R.T.O.R.

05/15/12



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.91		1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			5084		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.27	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			5084		497	3539	1583
Volume (vph)	208	6	377	10	0	34	0	880	2	10	1359	269
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	7	410	11	0	37	0	957	2	11	1477	292
RTOR Reduction (vph)	0	0	264	0	35	0	0	0	0	0	0	111
Lane Group Flow (vph)	0	233	146	0	13	0	0	959	0	11	1477	181
Turn Type	Split		Perm	Split						Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.2	14.2		4.3			49.5		49.5	49.5	49.5
Effective Green, g (s)		14.2	14.2		4.3			49.5		49.5	49.5	49.5
Actuated g/C Ratio		0.18	0.18		0.05			0.62		0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		315	281		89			3146		308	2190	979
v/s Ratio Prot		0.13			c0.03			0.19			c0.42	
v/s Ratio Perm			0.26							0.02		0.18
v/c Ratio		0.74	0.52		0.15			0.30		0.04	0.67	0.18
Uniform Delay, d1		31.2	29.8		36.1			7.2		5.9	10.0	6.6
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		8.8	1.6		0.8			0.3		0.2	1.7	0.4
Delay (s)		39.9	31.4		36.9			7.4		6.2	11.7	7.0
Level of Service		D	C		D			A		A	B	A
Approach Delay (s)		34.5			36.9			7.4			10.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.91		1.00	0.95	1.00
Frt		1.00	0.85		0.90			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1650			5084		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.26	1.00	1.00
Satd. Flow (perm)		1777	1583		1650			5084		484	3539	1583
Volume (vph)	208	6	379	10	0	34	0	900	2	10	1361	269
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	7	412	11	0	37	0	978	2	11	1479	292
RTOR Reduction (vph)	0	0	264	0	35	0	0	0	0	0	0	111
Lane Group Flow (vph)	0	233	148	0	13	0	0	980	0	11	1479	181
Turn Type	Split		Perm	Split						Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.2	14.2		4.3			49.5		49.5	49.5	49.5
Effective Green, g (s)		14.2	14.2		4.3			49.5		49.5	49.5	49.5
Actuated g/C Ratio		0.18	0.18		0.05			0.62		0.62	0.62	0.62
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		315	281		89			3146		299	2190	979
v/s Ratio Prot		0.13			c0.03			0.19			c0.42	
v/s Ratio Perm			0.26							0.02		0.18
v/c Ratio		0.74	0.53		0.15			0.31		0.04	0.68	0.18
Uniform Delay, d1		31.2	29.9		36.1			7.2		5.9	10.0	6.6
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		8.8	1.8		0.8			0.3		0.2	1.7	0.4
Delay (s)		39.9	31.6		36.9			7.5		6.2	11.7	7.0
Level of Service		D	C		D			A		A	B	A
Approach Delay (s)		34.6			36.9			7.5			10.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #02PM_MIT**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM*** ***PLANNED IMPROVEMENTS***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***US101 SB RAMPS***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	0	1445	0	11	635	118	534	4	249	11	0	64
(B) PROJECT	0	9	0	0	11	0	0	0	8	0	0	0
(C) CUMULATIVE	0	1538	0	11	694	124	537	4	278	11	0	64

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	TT TR	L TT R	LT R	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
NBT	3	4800	1445	1454	1538	1547	0.301 *	0.303 *	0.320 *	0.322 *
NBR	0	0	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	11	11	11	11	0.007 *	0.007 *	0.007 *	0.007 *
SBT	2	3200	635	646	694	705	0.198	0.202	0.217	0.220
SBR *(a)*	1	1600	76	76	79	79	0.048	0.048	0.049	0.049
EBL	0	0	534	534	537	537	0.000	0.000	0.000	0.000
EBT	1	1600	4	4	4	4	0.336 *	0.336 *	0.338 *	0.338 *
EBR *(b)*	1	1600	144	149	161	166	0.090	0.093	0.101	0.104
WBL	0	0	11	11	11	11	0.000	0.000	0.000	0.000
WBT	1	1600	0	0	0	0	0.039 *	0.039 *	0.039 *	0.039 *
WBR *(c)*	0	0	51	51	51	51	0.000	0.000	0.000	0.000
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					INTERSECTION CAPACITY UTILIZATION:		**0.783**	**0.785**	**0.804**	**0.806**
					LEVEL OF SERVICE:		C	C	C	D

NOTES:

(a) 36% R.T.O.R.
(b) 42% R.T.O.R.
(c) 20% R.T.O.R.

05/15/12



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.91		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			5085		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.08	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			5085		158	3539	1583
Volume (vph)	537	4	261	11	0	64	0	1471	0	11	664	124
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	584	4	284	12	0	70	0	1599	0	12	722	135
RTOR Reduction (vph)	0	0	182	0	67	0	0	0	0	0	0	67
Lane Group Flow (vph)	0	588	102	0	15	0	0	1599	0	12	722	68
Turn Type	Split		Perm	Split						Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4							6		6
Actuated Green, G (s)		46.6	46.6		6.3			65.1		65.1	65.1	65.1
Effective Green, g (s)		46.6	46.6		6.3			65.1		65.1	65.1	65.1
Actuated g/C Ratio		0.36	0.36		0.05			0.50		0.50	0.50	0.50
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		636	567		79			2546		79	1772	793
v/s Ratio Prot		c0.33			c0.05			c0.31			0.20	
v/s Ratio Perm			0.18							0.08		0.09
v/c Ratio		0.92	0.18		0.19			0.63		0.15	0.41	0.09
Uniform Delay, d1		40.0	28.6		59.4			23.6		17.5	20.4	16.9
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		19.3	0.2		1.2			1.2		4.0	0.7	0.2
Delay (s)		59.3	28.7		60.6			24.8		21.6	21.0	17.1
Level of Service		E	C		E			C		C	C	B
Approach Delay (s)		49.3			60.6			24.8			20.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00			0.91		1.00	0.95	1.00
Frt		1.00	0.85		0.88			1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.99			1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1636			5085		1770	3539	1583
Flt Permitted		0.95	1.00		0.99			1.00		0.07	1.00	1.00
Satd. Flow (perm)		1775	1583		1636			5085		135	3539	1583
Volume (vph)	537	4	286	11	0	64	0	1547	0	11	705	124
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	584	4	311	12	0	70	0	1682	0	12	766	135
RTOR Reduction (vph)	0	0	187	0	67	0	0	0	0	0	0	67
Lane Group Flow (vph)	0	588	124	0	15	0	0	1682	0	12	766	68
Turn Type	Split		Perm	Split						Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases			4							6		6
Actuated Green, G (s)		46.6	46.6		6.3			65.1		65.1	65.1	65.1
Effective Green, g (s)		46.6	46.6		6.3			65.1		65.1	65.1	65.1
Actuated g/C Ratio		0.36	0.36		0.05			0.50		0.50	0.50	0.50
Clearance Time (s)		4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		636	567		79			2546		68	1772	793
v/s Ratio Prot		c0.33			c0.05			c0.33			0.22	
v/s Ratio Perm			0.20							0.09		0.09
v/c Ratio		0.92	0.22		0.19			0.66		0.18	0.43	0.09
Uniform Delay, d1		40.0	29.0		59.4			24.2		17.8	20.7	16.9
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2		19.3	0.2		1.2			1.4		5.6	0.8	0.2
Delay (s)		59.3	29.2		60.6			25.6		23.4	21.4	17.1
Level of Service		E	C		E			C		C	C	B
Approach Delay (s)		48.9			60.6			25.6			20.8	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #03AM_EX**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***AGOURA ROAD***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A) EXISTING	102	627	0	0	1052	540	200	0	136	0	0	0
(B) PROJECT	2	20	0	0	4	0	0	0	0	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L TT	T TR	LL R	

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)

SCENARIO 2: EXISTING + PROJECT (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	102	104			0.064 *	0.065 *		
NBT	2	3200	627	647			0.196	0.202		
NBR	0	0	0	0			0.000	0.000		
SBL	0	0	0	0			0.000	0.000		
SBT	2	3200	1052	1056			0.464 *	0.465 *		
SBR *(a)*	0	0	432	432			0.000	0.000		
EBL	2	3200	200	200			0.063 *	0.063 *		
EBT	0	0	0	0			0.000	0.000		
EBR *(b)*	1	1600	82	82			0.051	0.051		
WBL	0	0	0	0			0.000	0.000		
WBT	0	0	0	0			0.000	0.000		
WBR	0	0	0	0			0.000	0.000		
			LOST TIME:				0.100 *	0.100 *		
			INTERSECTION CAPACITY UTILIZATION:				**0.691**	**0.693**		
			LEVEL OF SERVICE:				**B**	**B**		

NOTES:

(a) 20% R.T.O.R.

(b) 40% R.T.O.R.

05/10/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #03PM_EX**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***AGOURA ROAD***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	98	825	0	0	566	229	646	0	106	0	0	0
(B) PROJECT	1	9	0	0	19	0	0	0	2	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L TT	T TR	LL R	

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)

SCENARIO 2: EXISTING + PROJECT (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	98	99			0.061 *	0.062 *		
NBT	2	3200	825	834			0.258	0.261		
NBR	0	0	0	0			0.000	0.000		
SBL	0	0	0	0			0.000	0.000		
SBT	2	3200	566	585			0.238 *	0.240 *		
SBR *(a)*	0	0	197	183			0.000	0.000		
EBL	2	3200	646	646			0.202 *	0.202 *		
EBT	0	0	0	0			0.000	0.000		
EBR *(b)*	1	1600	24	65			0.015	0.041		
WBL	0	0	0	0			0.000	0.000		
WBT	0	0	0	0			0.000	0.000		
WBR	0	0	0	0			0.000	0.000		
				LOST TIME:			0.100 *	0.100 *		
			INTERSECTION CAPACITY UTILIZATION:				**0.601**	**0.604**		
			LEVEL OF SERVICE:				**A**	**A**		

NOTES:

(a) 14% R.T.O.R.

(b) 77% R.T.O.R.

05/10/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #03AM_CU**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***AGOURA ROAD***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) CUMULATIVE	102	640	6	22	1055	548	210	3	136	20	8	50
(B) PROJECT	2	20	0	0	4	0	0	0	0	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND L TT R	SOUTH BOUND L T TR	EAST BOUND LL TR	WEST BOUND LT R

TRAFFIC SCENARIOS

SCENARIO 1: CUMULATIVE (A)

SCENARIO 2: CUMULATIVE + PROJECT (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1		2		3	4
NBL	1	1600	102	104			0.064	*	0.065	*		
NBT	2	3200	640	660			0.200		0.206			
NBR	1	1600	6	6			0.004		0.004			
SBL	1	1600	22	22			0.014		0.014			
SBT	2	3200	1055	1059			0.467	*	0.468	*		
SBR *(a)*	0	0	438	438			0.000		0.000			
EBL	2	3200	210	210			0.066	*	0.066	*		
EBT	1	1600	3	3			0.053		0.053			
EBR *(b)*	0	0	82	82			0.000		0.000			
WBL	1	1600	20	20			0.013		0.013			
WBT	1	1600	8	8			0.036	*	0.036	*		
WBR	0	0	50	50			0.000		0.000			
						LOST TIME:	0.100	*	0.100	*		
						INTERSECTION CAPACITY UTILIZATION:	**0.733**		**0.735**			
						LEVEL OF SERVICE:	**C**		**C**			

NOTES:

(a) 20% R.T.O.R.

(b) 40% R.T.O.R.

05/14/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #03PM_CU**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***AGOURA ROAD***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) CUMULATIVE	98	841	17	66	576	241	656	10	104	19	8	25
(B) PROJECT	1	9	0	0	19	0	0	0	2	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L TT R	L T TR	LL TR	LT R

TRAFFIC SCENARIOS

SCENARIO 1: CUMULATIVE (A)

SCENARIO 2: CUMULATIVE + PROJECT (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	98	99			0.061 *	0.062 *		
NBT	2	3200	841	850			0.263	0.266		
NBR	1	1600	17	17			0.011	0.011		
SBL	1	1600	66	66			0.041	0.041		
SBT	2	3200	576	595			0.245 *	0.251 *		
SBR *(a)*	0	0	207	207			0.000	0.000		
EBL	2	3200	656	656			0.205 *	0.205 *		
EBT	1	1600	10	10			0.021	0.021		
EBR *(b)*	0	0	24	24			0.000	0.000		
WBL	1	1600	19	19			0.012	0.012		
WBT	1	1600	8	8			0.021 *	0.021 *		
WBR	0	0	25	25			0.000	0.000		
						LOST TIME:	0.100 *	0.100 *		
						INTERSECTION CAPACITY UTILIZATION:	**0.632**	**0.639**		
						LEVEL OF SERVICE:	**B**	**B**		

NOTES:

(a) 14% R.T.O.R.

(b) 77% R.T.O.R.

05/16/12

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MMF*	Intersection	*04_EX_AM*
Agency/Co.	*ATE*	Jurisdiction	*CITY OF CALABASAS*
Date Performed	*5/10/2012*	Analysis Year	*EXISTING*
Analysis Time Period	*A.M. PEAK HOUR*		

Project Description	*#12040 - CALBASAS BLUE RESIDENTIAL PROJECT*
East/West Street: *OAK GLEN STREET*	North/South Street: *LAS VIRGENES ROAD*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*743*			*1184*	*19*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*743*	*0*	*0*	*1184*	*19*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*		*3*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*24*	*0*	*3*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*0*						*27*	
C (m) (veh/h)	*587*						*231*	
v/c	*0.00*						*0.12*	
95% queue length	*0.00*						*0.40*	
Control Delay (s/veh)	*11.1*						*24.4*	
LOS	*B*						*C*	
Approach Delay (s/veh)	--	--					*24.4*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MMF*	Intersection	*04_EX_PM*
Agency/Co.	*ATE*	Jurisdiction	*CITY OF CALABASAS*
Date Performed	*5/10/2012*	Analysis Year	*EXISTING*
Analysis Time Period	*P.M. PEAK HOUR*		

Project Description	*#12040 - CALBASAS BLUE RESIDENTIAL PROJECT*
East/West Street: *OAK GLEN STREET*	North/South Street: *LAS VIRGENES ROAD*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*969*			*568*	*11*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*969*	*0*	*0*	*568*	*11*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*		*1*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*8*	*0*	*1*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*0*						*9*	
C (m) (veh/h)	*1005*						*263*	
v/c	*0.00*						*0.03*	
95% queue length	*0.00*						*0.11*	
Control Delay (s/veh)	*8.6*						*19.9*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*19.9*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MMF*	Intersection	*04_CU_AM*
Agency/Co.	*ATE*	Jurisdiction	*CITY OF CALABASAS*
Date Performed	*5/10/2012*	Analysis Year	*CUMULATIVE*
Analysis Time Period	*A.M. PEAK HOUR*		

Project Description *#12040 - CALBASAS BLUE RESIDENTIAL PROJECT*

East/West Street: *OAK GLEN STREET* | North/South Street: *LAS VIRGENES ROAD*

Intersection Orientation: *North-South* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*762*			*1207*	*19*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*762*	*0*	*0*	*1207*	*19*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*		*3*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*24*	*0*	*3*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*Y*			*N*	
Storage		*1*			*1*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*0*						*27*	
C (m) (veh/h)	*576*						*222*	
v/c	*0.00*						*0.12*	
95% queue length	*0.00*						*0.41*	
Control Delay (s/veh)	*11.3*						*25.3*	
LOS	*B*						*D*	
Approach Delay (s/veh)	--	--					*25.3*	
Approach LOS	--	--					*D*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MMF*	Intersection	*04_CU_PM*
Agency/Co.	*ATE*	Jurisdiction	*CITY OF CALABASAS*
Date Performed	*5/10/2012*	Analysis Year	*CUMULATIVE*
Analysis Time Period	*P.M. PEAK HOUR*		

Project Description *#12040 - CALBASAS BLUE RESIDENTIAL PROJECT*

East/West Street: *OAK GLEN STREET* | North/South Street: *LAS VIRGENES ROAD*

Intersection Orientation: *North-South* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1002*			*597*	*11*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*1002*	*0*	*0*	*597*	*11*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*		*1*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*8*	*0*	*1*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*Y*			*Y*	
Storage		*1*			*1*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*0*						*9*	
C (m) (veh/h)	*980*						*248*	
v/c	*0.00*						*0.04*	
95% queue length	*0.00*						*0.11*	
Control Delay (s/veh)	*8.7*						*20.9*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*20.9*	
Approach LOS	--	--					*C*	

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#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #04AM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/02/12***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***OAK GLEN STREET***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	0	743	0	0	1184	19	24	0	3	0	0	0
(B) PROJECT	0	0	2	4	0	0	0	0	0	8	0	22
(C) CUMULATIVE	0	762	0	0	1207	19	24	0	3	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND L T TR	SOUTH BOUND L T TR	EAST BOUND LTR	WEST BOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (D)
SCENARIO 4: CUMULATIVE + PROJECT (D+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	0	0	0	0	0.000 *	0.000 *	0.000 *	0.000 *
NBT	2	3200	743	743	762	762	0.232	0.233	0.238	0.239
NBR	0	0	0	2	0	2	0.000	0.000	0.000	0.000
SBL	1	1600	0	4	0	4	0.000	0.003	0.000	0.003
SBT	2	3200	1184	1184	1207	1207	0.376 *	0.376 *	0.383 *	0.383 *
SBR	0	0	19	19	19	19	0.000	0.000	0.000	0.000
EBL	0	0	24	24	24	24	0.000	0.000 *	0.000	0.000 *
EBT	1	1600	0	0	0	0	0.017 *	0.017	0.017 *	0.017
EBR	0	0	3	3	3	3	0.000	0.000	0.000	0.000
WBL	0	0	0	8	0	8	0.000 *	0.000	0.000	0.000
WBT	1	1600	0	0	0	0	0.000	0.019 *	0.000 *	0.019 *
WBR	0	0	0	22	0	22	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.493**	**0.495**	**0.500**	**0.502**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:

05/14/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #04PM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/02/12***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***OAK GLEN STREET***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	0	969	0	0	568	11	8	0	1	0	0	0
(B) PROJECT	0	0	2	4	0	0	0	0	0	8	0	22
(C) CUMULATIVE	0	1002	0	0	597	11	8	0	1	0	0	0

GEOMETRICS

GEOMETRICS	NORTH BOUND L T TR	SOUTH BOUND L T TR	EAST BOUND LTR	WEST BOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (D)
SCENARIO 4: CUMULATIVE + PROJECT (D+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
NBT	2	3200	969	969	1002	1002	0.303 *	0.303 *	0.313 *	0.314 *
NBR	0	0	0	2	0	2	0.000	0.000	0.000	0.000
SBL	1	1600	0	4	0	4	0.000 *	0.003 *	0.000 *	0.003 *
SBT	2	3200	568	568	597	597	0.181	0.181	0.190	0.190
SBR	0	0	11	11	11	11	0.000	0.000	0.000	0.000
EBL	0	0	8	8	8	8	0.000	0.000 *	0.000	0.000 *
EBT	1	1600	0	0	0	0	0.006 *	0.006	0.006 *	0.006
EBR	0	0	1	1	1	1	0.000	0.000	0.000	0.000
WBL	0	0	0	8	0	8	0.000 *	0.000	0.000 *	0.000
WBT	1	1600	0	0	0	0	0.000	0.019 *	0.000	0.019 *
WBR	0	0	0	22	0	22	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.409**	**0.425**	**0.419**	**0.436**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:

05/14/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #05AM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***LOST HILLS RD.***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	223	228	0	2	689	1	7	2	685	0	2	4
(B) PROJECT	0	2	0	0	8	0	0	0	0	0	0	0
(C) CUMULATIVE	223	235	0	2	703	1	7	2	685	0	2	4

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L L T R	L T R	L T TR	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (D)
SCENARIO 4: CUMULATIVE + PROJECT (D+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	2	3200	223	223	223	223	0.070 *	0.070 *	0.070 *	0.070 *
NBT	1	1600	228	230	235	237	0.143	0.144	0.147	0.148
NBR	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	2	2	2	2	0.001	0.001	0.001	0.001
SBT	1	1600	689	697	703	711	0.431 *	0.436 *	0.439 *	0.444 *
SBR	1	1600	1	1	1	1	0.001	0.001	0.001	0.001
EBL	1	1600	7	7	7	7	0.004	0.004	0.004	0.004
EBT	1	1600	2	2	2	2	0.001	0.001	0.001	0.001
EBR *(a)*	1	1600	575	575	575	575	0.359 *	0.359 *	0.359 *	0.359 *
WBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
WBT	1	1600	2	2	2	2	0.003 *	0.003 *	0.003 *	0.003 *
WBR *(b)*	0	0	3	3	3	3	0.000	0.000	0.000	0.000
			LOST TIME:				0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.963**	**0.968**	**0.971**	**0.976**
			LEVEL OF SERVICE:				**E**	**E**	**E**	**E**

NOTES:

(a) 16% R.T.O.G. (Green Arrow Overlap w/NB Left-Turn Phase)

(b) 25% R.T.O.R.

05/10/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #05PM**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***LOST HILLS RD.***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	620	686	0	0	384	19	17	0	283	0	3	0
(B) PROJECT	0	7	0	0	4	0	0	0	0	0	0	0
(C) CUMULATIVE	620	707	0	0	400	19	17	0	283	0	3	0

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L L T R	L T R	L T TR	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	2	3200	620	620	620	620	0.194 *	0.194 *	0.194 *	0.194 *
NBT	1	1600	686	693	707	714	0.429	0.433	0.442	0.446
NBR	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBT	1	1600	384	388	400	404	0.240 *	0.243 *	0.250 *	0.253 *
SBR	1	1600	19	19	19	19	0.012	0.012	0.012	0.012
EBL	1	1600	17	17	17	17	0.011 *	0.011 *	0.011 *	0.011 *
EBT	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
EBR *(a)*	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
WBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
WBT	1	1600	3	3	3	3	0.002 *	0.002 *	0.002 *	0.002 *
WBR *(b)*	0	0	0	0	0	0	0.000	0.000	0.000	0.000
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					INTERSECTION CAPACITY UTILIZATION:		**0.547**	**0.550**	**0.557**	**0.560**
					LEVEL OF SERVICE:		**A**	**A**	**A**	**A**

NOTES:

(a) 100% R.T.O.G. (Green Arrow Overlap w/NB Left-Turn Phase)

(b) 25% R.T.O.R.

05/10/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #05AM_MIT**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***AM*** ***WITH PROGRAMMED IMPROVEMENTS***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***LOST HILLS RD.***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	223	228	0	2	689	1	7	2	685	0	2	4
(B) PROJECT	0	2	0	0	8	0	0	0	0	0	0	0
(C) CUMULATIVE	223	235	0	2	703	1	7	2	685	0	2	4

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L L T R	L T TR	LT RR	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (D)
SCENARIO 4: CUMULATIVE + PROJECT (D+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	2	3200	223	223	223	223	0.070 *	0.070 *	0.070 *	0.070 *
NBT	1	1600	228	230	235	237	0.143	0.144	0.147	0.148
NBR	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	2	2	2	2	0.001	0.001	0.001	0.001
SBT	2	3200	689	697	703	711	0.216 *	0.218 *	0.220 *	0.223 *
SBR	0	0	1	1	1	1	0.000	0.000	0.000	0.000
EBL	0	0	7	7	7	7	0.000	0.000	0.000	0.000
EBT	1	1600	2	2	2	2	0.006	0.006	0.006	0.006
EBR *(a)*	2	3200	575	575	575	575	0.180 *	0.180 *	0.180 *	0.180 *
WBL	0	0	0	0	0	0	0.000	0.000	0.000	0.000
WBT	1	1600	2	2	2	2	0.003 *	0.003 *	0.003 *	0.003 *
WBR *(b)*	0	0	3	3	3	3	0.000	0.000	0.000	0.000
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					INTERSECTION CAPACITY UTILIZATION:		**0.569**	**0.571**	**0.573**	**0.576**
					LEVEL OF SERVICE:		**A**	**A**	**A**	**A**

NOTES:

(a) 16% R.T.O.C. (Green Arrow Overlap w/NB Left-Turn Phase)

(b) 25% R.T.O.R.

05/15/12

#12040 - CALABASAS BLUE RESIDENTIAL PROJECT **REFERENCE #05PM_MIT**

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***05/26/11***

TIME PERIOD: ***PM*** ***WITH PROGRAMMED IMPROVEMENTS***

N/S STREET: ***LAS VIRGENES RD.***

E/W STREET: ***LOST HILLS RD.***

CONTROL TYPE: SIGNAL

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A) EXISTING	620	686	0	0	384	19	17	0	283	0	3	0
(B) PROJECT	0	7	0	0	4	0	0	0	0	0	0	0
(C) CUMULATIVE	620	707	0	0	400	19	17	0	283	0	3	0

GEOMETRICS

GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L L T R	L T TR	LT RR	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING (A)
SCENARIO 2: EXISTING + PROJECT (B+C)
SCENARIO 3: CUMULATIVE (C)
SCENARIO 4: CUMULATIVE + PROJECT (C+B)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	2	3200	620	620	620	620	0.194 *	0.194 *	0.194 *	0.194 *
NBT	1	1600	686	693	707	714	0.429	0.433	0.442	0.446
NBR	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBL	1	1600	0	0	0	0	0.000	0.000	0.000	0.000
SBT	2	3200	384	388	400	404	0.126 *	0.127 *	0.131 *	0.132 *
SBR	0	0	19	19	19	19	0.000	0.000	0.000	0.000
EBL	0	0	17	17	17	17	0.000	0.000	0.000	0.000
EBT	1	1600	0	0	0	0	0.011 *	0.011 *	0.011 *	0.011 *
EBR *(a)*	2	3200	0	0	0	0	0.000	0.000	0.000	0.000
WBL	0	0	0	0	0	0	0.000 *	0.000 *	0.000 *	0.000 *
WBT	1	1600	3	3	3	3	0.002	0.002	0.002	0.002
WBR *(b)*	0	0	0	0	0	0	0.000	0.000	0.000	0.000
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
			INTERSECTION CAPACITY UTILIZATION:				**0.431**	**0.432**	**0.436**	**0.437**
			LEVEL OF SERVICE:				A	A	A	A

NOTES:

(a) 100% R.T.O.C. (Green Arrow Overlap w/NB Left-Turn Phase)

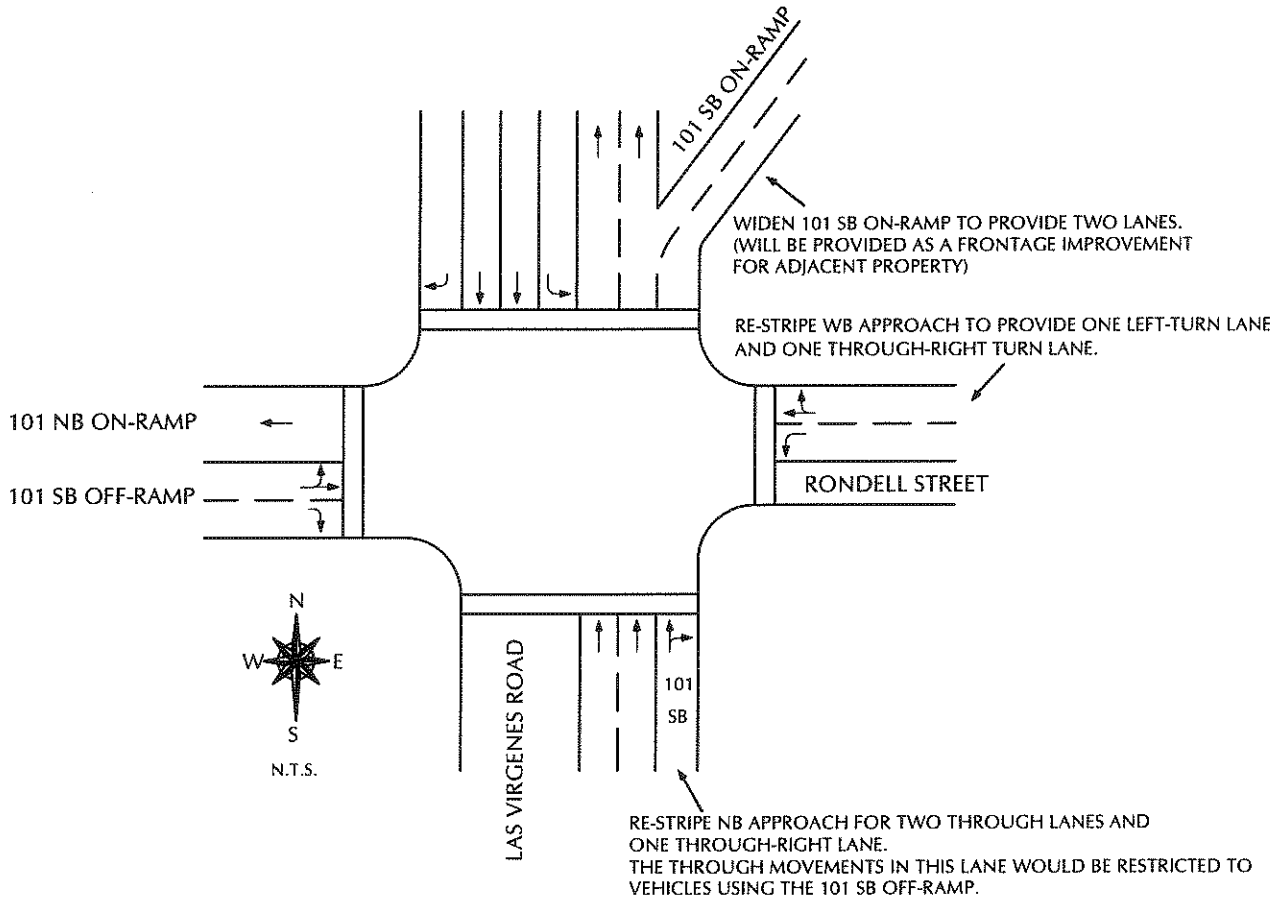
(b) 25% R.T.O.R.

05/15/12

LAS VIRGENES CORRIDOR IMPROVEMENT PLANS

B & T DISTRICT IMPROVEMENT COST ESTIMATE

LOCATION: LAS VIRGENES ROAD/101 SB RAMPS INTERSECTION

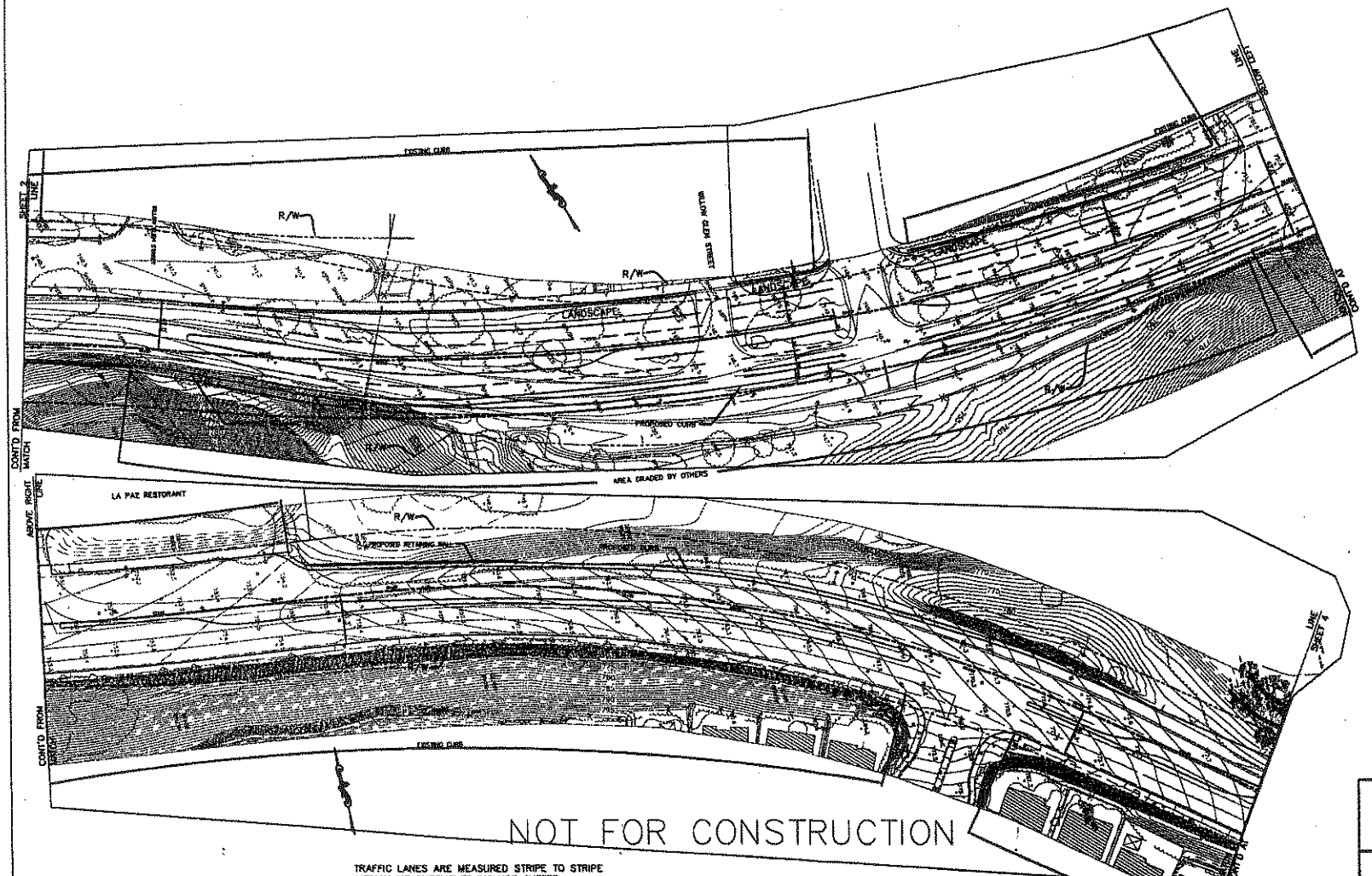


DESCRIPTION:

RE-STRIPE NB APPROACH TO ONE THROUGH-RIGHT LANE.
RE-STRIPE WB APPROACH TO PROVIDE ONE LEFT-TURN LANE AND ONE THROUGH-RIGHT TURN LANE.
WIDEN 101 SB ON-RAMP TO PROVIDE TWO LANES (WILL BE PROVIDED AS A FRONTAGE IMPROVEMENT FOR THE ADJACENT DEVELOPMENT).

IMPROVEMENT COST ESTIMATE

IMPROVEMENT	COST
CONSTRUCTION: SIGNAL MODIFICATION CONSTRUCTION SUBTOTAL:	 $ 25,000 $ 15,000 $ 40,000
CONTINGENCY (20%) DESIGN ENGINEERING (15%): CONSTRUCTION ENGINEERING (30%):	$ 8,000 $ 6,000 $ 12,000
TOTAL COST ESTIMATE:	$ 66,000



NOT FOR CONSTRUCTION

TRAFFIC LANES ARE MEASURED STRIPE TO STRIPE
MEDIAN MEASUREMENTS INCLUDE GUTTER

REVISIONS				
No.	DESCRIPTION	REVISED BY	APPROVED BY	DATE

RECORD DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN ON DRAWING No. _____ SHEET No. _____ THROUGH _____ SHOWED AS "RECORD DRAWING" HAS BEEN CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, NOTE REVISED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THE REVISION BLOCK.

_____ _____
NAME SIGNATURE

_____ _____
DATE INSPECTOR

AS-BUILT DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN HEREON, MARKED AS "AS-BUILT", HAS BEEN CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, REFERENCED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THE REVISION BLOCK.

_____ _____
PROJECT ENGINEER'S SIGNATURE DATE

_____ _____
PROJECT ENGINEER'S NAME CITY LAND DEVELOPMENT REP.

APPROVED FOR CONSTRUCTION:

_____ _____
ROBERT YALDA, P.E., CITY ENGINEER/PUBLIC WORKS DIRECTOR DATE

PREPARED BY:

GM Engineering
civil engineers & land surveyors

PREPARED FOR:

CITY OF CALABASAS

CITY of CALABASAS
PUBLIC WORKS DEPARTMENT

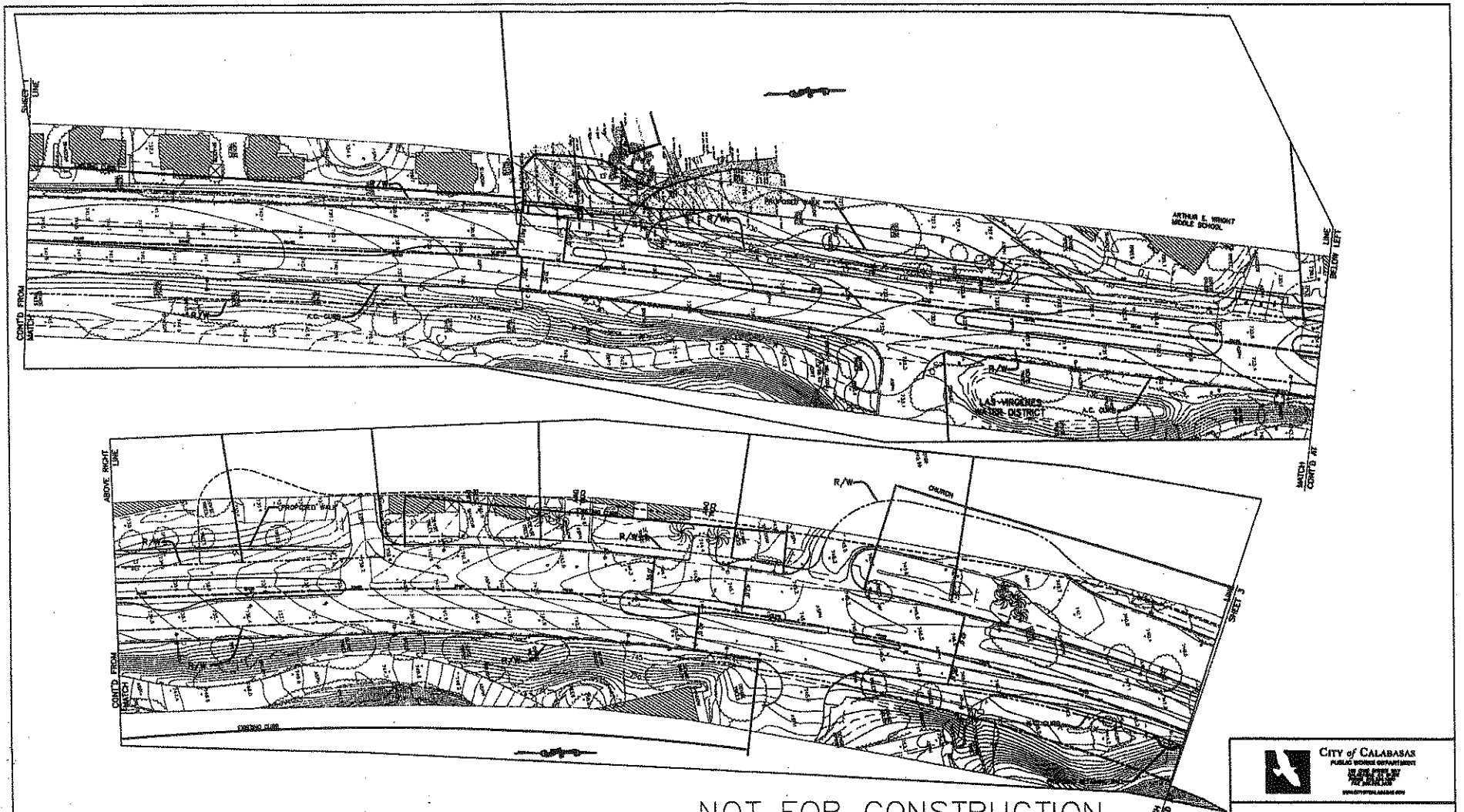
SIGNING AND STRIPING PLANS

LAS VIRGENES ROAD

SCALE: 1" = 40'

SHEET No. 3 OF 4

DIGALERT
TOLL FREE 1-800-422-4133
GRAPHICAL SCALE: 1"=40'



NOT FOR CONSTRUCTION

TRAFFIC LANES ARE MEASURED STRIPE TO STRIPE
MEDIAN MEASUREMENTS INCLUDE GUTTER

GRAPHICAL SCALE: 1"=40'

REVISIONS				
No.	DESCRIPTION	REVISED BY	APPROVED BY	DATE

RECORD DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN ON DRAWING No. _____ SHEETS No. _____ THROUGH _____ MARKED AS 'RECORD DRAWING', HAS BEEN CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, REFERENCED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THE REVISION BLOCK.

DATE _____ INSPECTOR _____

PREPARED BY _____ DATE _____

AS-BUILT DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN HEREON, MARKED AS 'AS-BUILT', HAS BEEN CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, REFERENCED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THIS REVISION BLOCK.

OR

PROJECT ENGINEER'S SIGNATURE _____ DATE _____

PREPARED BY _____

PROJECT ENGINEER'S NAME _____ CITY LAND DEVELOPMENT ADE

APPROVED FOR CONSTRUCTION:

ROBERT TALDA, P.E., CITY ENGINEER/PUBLIC WORKS DIRECTOR DATE

PREPARED BY:

GM Engineering
civil engineers & land surveyors

CITY of CALABASAS
PUBLIC WORKS DEPARTMENT

SIGNING AND STRIPING PLANS

LAS VIRGENES ROAD

PREPARED FOR:

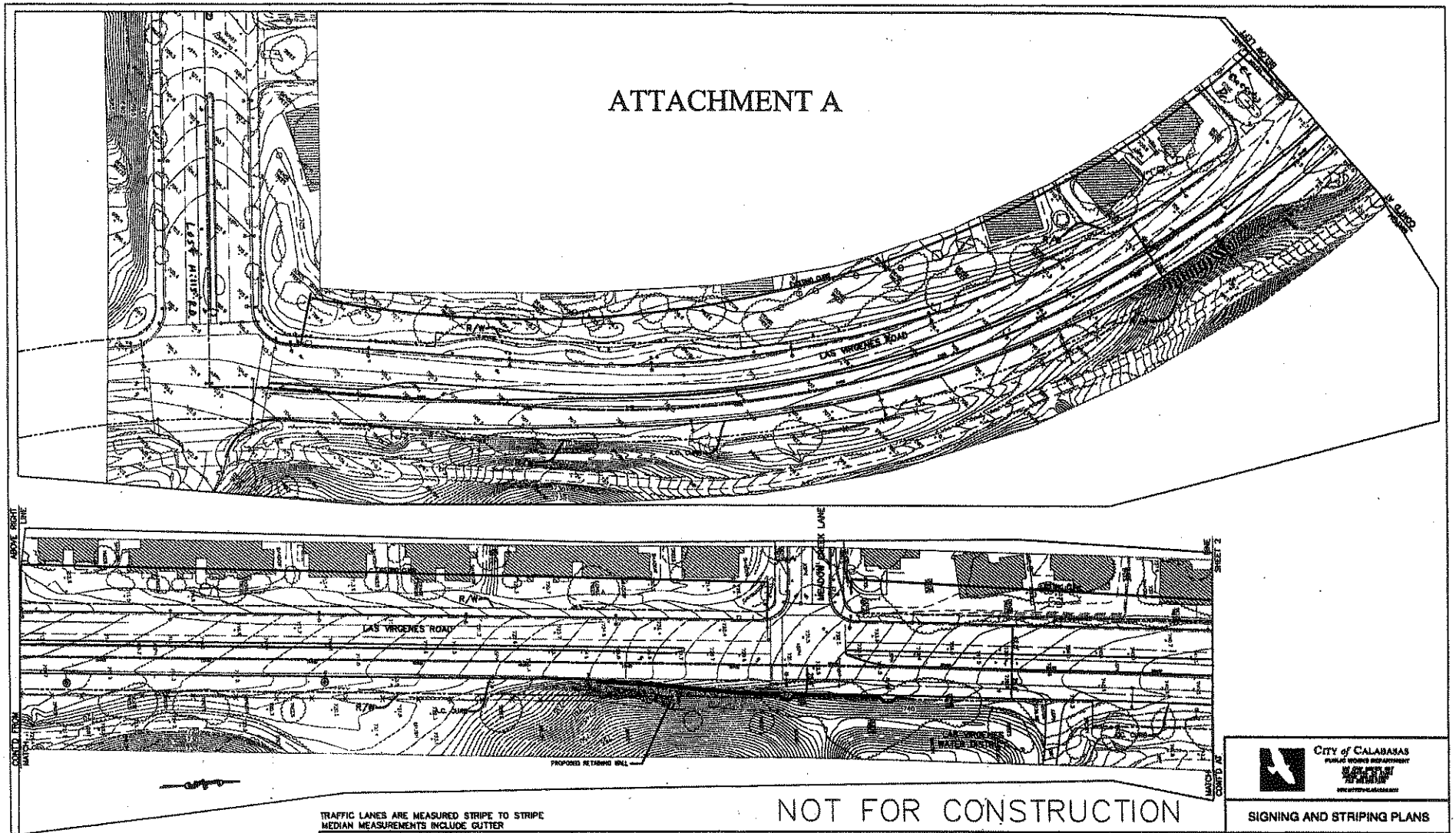
CITY OF CALABASAS

SCALE: 1" = 40'

SHEET NO. 2 OF 4

DIGALERT
CALL TOLL FREE
1-800-422-4133
BEFORE YOU DIG

ATTACHMENT A



NOT FOR CONSTRUCTION

TRAFFIC LANES ARE MEASURED STRIPE TO STRIPE
MEDIAN MEASUREMENTS INCLUDE GUTTER

REVISIONS				
NO.	DESCRIPTION	REVISED BY	APPROVED BY	DATE

RECORD DRAWING

AS-BUILT DRAWING

APPROVED FOR CONSTRUCTION

ROBERT YALDA, P.E., CITY ENGINEER/PUBLIC WORKS DIRECTOR DATE

PREPARED BY:

GM Engineering
civil engineers & land surveyors

CITY of CALABASAS
PUBLIC WORKS DEPARTMENT

SIGNING AND STRIPING PLANS

LAS VIRGENES ROAD

PREPARED FOR:

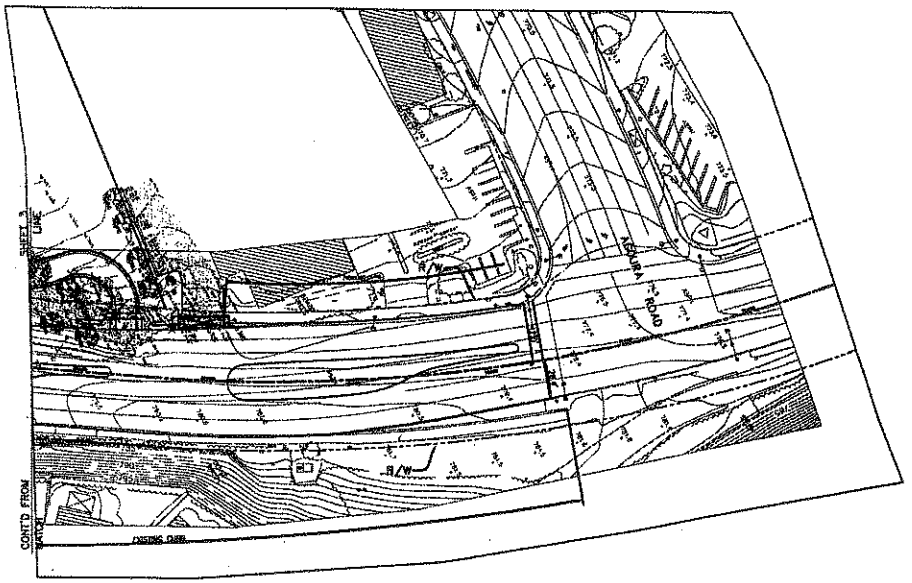
CITY OF CALABASAS

SCALE: 1" = 40'

SHEET NO. 1 OF 4

DIGALERT
811
DIAL 811 OR
1-800-422-4133
AT LEAST TWO DAYS
BEFORE YOU DIG

GRAPHICAL SCALE: 1"=40'



TRAFFIC LANES ARE MEASURED STRIPE TO STRIPE
MEDIAN MEASUREMENTS INCLUDE GUTTER

NOT FOR CONSTRUCTION

DIGALERT
DIAL TOLL FREE
1-800-422-4133
AT LEAST TWO DAYS
BEFORE YOU DIG

0 40 80 120
GRAPHICAL SCALE 1"=40'

REVISIONS				
NO.	DESCRIPTION	REVISED BY:	APPROVED BY:	DATE

RECORD DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN HEREON, MARKED AS "RECORD DRAWING", IN SHEET NO. ____ REVISION ____ WAS CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, REFERENCED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THE REVISION BLOCK.

DATE ____ SIGNATURE ____

RCE ____ EXPIRATION ____

AS-BUILT DRAWING

I HEREBY CERTIFY THAT THE WORK SHOWN HEREON, MARKED AS "AS-BUILT", WAS AREA CONSTRUCTED IN CONFORMANCE WITH LINES AND GRADES AS SHOWN ON SAID PLANS, DRAWINGS, REFERENCED SPECIFICATIONS, AND APPROVED CHANGE ORDERS, AS INDICATED IN THE REVISION BLOCK.

PROJECT ENGINEER'S SIGNATURE ____ DATE ____

PROJECT MANAGER'S NAME ____ CITY LAND DEVELOPMENT REP.

APPROVED FOR CONSTRUCTION:

ROBERT YALDA, P.E., CITY ENGINEER/PUBLIC WORKS DIRECTOR DATE

PREPARED BY:

GM Engineering
civil engineers & land surveyors

CITY of CALABASAS
PUBLIC WORKS DEPARTMENT

SIGNING AND STRIPING PLANS

LAS VIRGENES ROAD

PREPARED FOR:

CITY OF CALABASAS

DESIGNED BY: ____
DRAWN BY: ____
CHECKED BY: ____

SCALE: 1" = 40'

SHEET NO. 4 OF 4