City of Calabasas

Malamut Vintage Automotive Dealership

Final

Initial Study/ Mitigated Negative Declaration

November 2010

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Mitigated Negative Declaration

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November 2010

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INITIAL STUDY

1. **Project title:**

   Malamut Vintage Automotive Dealership

2. **Lead agency name and address:**

   City of Calabasas
   100 Civic Center Way
   Calabasas, California 91302

3. **Contact Person and Phone Number:**

   Talyn Mirzakhanian, Planner
   (818) 224-1712

4. **Project location:** The project site is identified as Assessor Parcel Number 2069-009-029. The site is located in the City of Calabasas, within western Los Angeles County, California. The site encompasses 37,897 square feet (0.87 acre) on a single parcel at 24439 Calabasas Road, immediately south of the Ventura Freeway (U.S. 101). Figure 1 shows the location of the project site within the greater Los Angeles region. Figure 2 shows the location of the project site within the City of Calabasas. Figure 3 shows photos of the project site.

5. **Project sponsor's name and address:**

   Michael Malamut
   272 West Stafford Road
   Thousand Oaks, California 91361

6. **Existing Land Use:** The project site is currently used as a paved vehicle storage lot for the Bob Smith BMW dealership. Photos of the site are shown on Figure 3.

7. **General Plan and Zoning:** The project site is zoned Commercial, Limited (CL) and designated in the General Plan as Business Limited Intensity (B-LI). The site is located within the designated Ventura Freeway Scenic Corridor overlay zone.

8. **Description of project:** The proposed project consists of a two-story, 21,302 square-foot Tuscan-style building that would house a vintage automotive dealership and other automotive retail supporting businesses. As part of the proposed project, the applicant is requesting a General Plan Amendment to change the land use designation of the project site from Business-Limited Intensity (B-LI) to Business-Business Park (B-BP) and zone change from Commercial, Limited (CL) to Commercial, Business Park (C-BP) to accommodate the proposed automotive dealership.

The proposed project would include 9,359 square feet of indoor dealership display space, 3,213 square feet of outdoor dealership display space, 1,497 square feet of dealership office space, 4,232 square feet of supporting retail use and a 1,109 square-foot café. Customer parking would be provided in a two-level subterranean parking garage and an at-grade parking lot. The proposed site plan is shown on Figure 4, the ground floor plan is shown on Figure 5 and the second level plan is shown on Figure 6. The proposed project would be 35 feet in height, with an approximately 50-foot tall architectural tower feature. Proposed building elevations are shown on figures 7 and 8. The project would include landscaping around the perimeter of the site, as shown on the proposed landscape plan on Figure 9. Table 1 provides a summary of project components.

Table 1
Project Characteristics

Use	Size (Square Feet)
Indoor dealership space	9,359
Outdoor dealership space	3,213
Office space	1,497
Supporting retail uses	4,232
Cafe	1,109

The site slopes down gradually toward the east where surface water is directed to the southeast corner of the site. Drainage on the project site currently occurs by sheet flow. As part of the proposed project, a drainage system consisting of gutters, grass swales and drains would be constructed. Onsite stormwater would be conveyed toward the northeastern portion of the site, where the drainage system would connect to an existing Caltrans stormwater drain.

The proposed building would include stone and brick veneer exterior finishes and clay roof tiles. As shown in the landscape plan (Figure 9), 41 trees would be planted on the project site. Lighting on the project site would be typical of auto dealerships and commercial developments. The proposed project would include lighting at pedestrian and vehicle access locations as well as in the surface parking lot.

The proposed project would require the removal of the existing asphalt that covers the project site. Removal of the asphalt would be followed by site grading and excavation for the subterranean parking garage and building foundations. Approximately 18,000 cubic yards of soil would be excavated and hauled to an offsite location. In addition, in order to accommodate the proposed project, two existing Southern California Edison utility poles currently located in the southern portion of the project site would be relocated closer to Calabasas Road. One of the two utility poles would be relocated approximately 20 feet to

the southeast of its current location and the other utility pole would be relocated approximately eight feet to the south of its current location.

Proposed hours of operation for the dealership and its supporting business would be from 9:00 AM to 7:00 PM. The project is anticipated to employ 15 people.

The applicant is requesting the following discretionary approvals from the City:

- *Conditional Use Permit*
- *Site Plan Review*
- *General Plan Amendment from Business-Limited Intensity (B-LI) to Business-Business Park (B-BP)*
- *Zone Change from Commercial Limited (CL) to Commercial Business (CB)*
- *Scenic Corridor Permit*
- *Development Plan (for modification of the CB development standards)*

9. **Surrounding land uses and setting:** The project site is bordered by the Ventura Freeway to the north and Calabasas Road to the south. A surface parking lot used by the Volvo of Calabasas auto dealership to store cars is located immediately adjacent to the east of the project site. The western tip of the project site borders an approximately 15-foot wide strip of vacant land that is located between the Ventura Freeway and Calabasas Road. Land uses located to the south of the project site, across Calabasas Road, include the Volvo of Calabasas auto dealership, the Sperling Nursery (plant nursery) and the Bob Smith BMW auto dealership.

10. **Other public agencies whose approval is required:** None. The City of Calabasas is the only agency with discretionary approval authority over the proposed project.

11. **General Plan Consistency Review.** A review of the project's consistency with applicable City of Calabasas 2030 General Plan policies is included in the table below.

General Plan Consistency Review

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
General Plan Consistency Review Program		
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.**	The proposed project would be located on a previously disturbed site, in between Calabasas Road and the Ventura Freeway. As such, the project would not cause an urban area to expand into a natural environmental setting.	Consistent

General Plan Consistency Review

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Open Space Element		
Policy III-11 **Maintain the existing visual character of hillsides, recognizing both the visual importance of hillsides from public view areas and the importance of providing panoramic views from hillsides.**	The project site is not located on a hillside. The proposed project would be located on a previously disturbed site, in between Calabasas Road and the Ventura Freeway. As discussed in Section I, *Aesthetics*, the project would be required to comply with the City's Scenic Corridor Development Guidelines pursuant to CMC Section 17.20.070.	Consistent
Conservation Element		
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 site is located in an urban area, in between the Ventura Freeway and Calabasas Road. As shown on the proposed landscape plan on Figure 9, approximately 41 trees would be planted on the project site.	Consistent
Policy IV-13 **Expand the inventory of City street trees.**	The five existing onsite trees are located along the southern side of the site, along Calabasas Road. These trees would be removed as to accommodate the project. As shown on the proposed landscape plan on Figure 9, 13 trees would be planted on the project site along Calabasas Road. Therefore, the project would result in a net increase of eight street trees on the site.	Consistent
Policy IV-17 **Ensure that construction activity within Calabasas complies with applicable South Coast Air Quality Management District rules and policies.**	As discussed in Section III, *Air Quality*, the project would comply with SCAQMD rules and policies and would not exceed SCAQMD thresholds.	Consistent
Circulation Element		
Policy VI-2 **Limit the intensity and traffic generation of new development in the City to that which would not compromise attainment and/or maintenance of roadway level of service standards.**	As discussed under the Section XVI, *Transportation and Circulation*, traffic generated by the proposed project would not cause a significant impact at study area intersections. Study area intersections would continue to operate at acceptable levels of service with the project.	Consistent

General Plan Consistency Review

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not Consistent
Community Design Element		
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.**	As discussed in Section I, *Aesthetics*, the project would be required to comply with the City's Scenic Corridor Development Guidelines pursuant to CMC Section 17.20.070.	Consistent
Policy IX-44 **Preserve large areas of natural hillsides and other dominant natural environmental features visible from the Ventura Freeway.**	The proposed project would be located on a previously disturbed site, in between Calabasas Road and the Ventura Freeway. The project site is not on a hillside and does not support natural environmental features.	Consistent
Services, Infrastructure and Technology Element		
Policy XII-1 **Facilitate retail and service businesses in those sectors patronized by the local population and travelers along the Ventura Freeway.**	It is anticipated that the proposed vintage automotive dealership would be patronized by the local population and travelers along the Ventura Freeway. The project site is located immediately adjacent to the Ventura Freeway and approximately 2,000 feet southwest of the Parkway Calabasas exit, which would provide convenient access to the project site from the Ventura Freeway.	Consistent
Policy XII-2 **Facilitate attractive retail development in Old Town, Calabasas Road, Agoura Road, and Ventura Freeway interchanges at Parkway Calabasas, Las Virgenes Road, and Lost Hills Road.**	The project site is located immediately adjacent to the Ventura Freeway and approximately 2,000 feet southwest of the Parkway Calabasas exit, which would provide convenient access to the project site from the Ventura Freeway. The project design would comply with the Scenic Corridor Design Guidelines and would be consistent with the West Calabasas Road Planning Guidelines.	Consistent

General Plan Consistency Review

Applicable General Plan Policies	Consistency Analysis	Consistent/ Not 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.**	The project would be located in an urbanized area where adequate existing municipal facilities and services are available to serve the project.	Consistent
Policy XII-31 **Encourage the use of semi-pervious or pervious surfaces and other low-impact development techniques to minimize stormwater runoff from individual sites.**	As shown on the proposed landscape plan on Figure 9, the project would include pervious surfaces on the project site.	Consistent

ENVIRONMENTAL FACTORS AFFECTED

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

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

DETERMINATION:

On the basis of this initial evaluation:

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

☒ I find that although the proposed project could have a significant effect on the environment, there 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 potential 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, nothing further is required.

Signature

Oct. 13, 2010
Date

Thomas M. Bartlett
Printed Name

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 state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. The project site is currently paved, relatively flat, and used as a vehicle storage lot for the Bob Smith BMW dealership. As such, the project site itself is not part of a scenic vista. However, the site is located between the Ventura Freeway and Calabasas Road, in an area designated as a "scenic corridor" in the City of Calabasas 2030 General Plan. The Ventura Freeway Scenic Corridor provides views of Calabasas' oak studded hillsides, peaks, ridgelines, and canyons. According to the Calabasas General Plan EIR, the ridgelines serve as reference points, and provide natural scenic backdrops for the viewshed in which they occur. Ridgelines to the south of the project site are identified in the City of Calabasas 2030 General Plan as "significant ridgelines." Architectural design features of the proposed building that are intended to preserve views of the hillsides and ridgelines to the south of the site, include the hip roof and the deck on the second story on the west side of the building. The hip roof provides a roofline height that is lower than a typical gabled roof, thereby, allowing more expansive views of hillsides to the south. Likewise, the inclusion of the second-story deck causes the roofline on the western portion of the building to be lower than the rest of the second story, which also allows more expansive views of hillsides to the south.

Motorists traveling along the Ventura Freeway can see the ridgelines when looking south. The proposed project would be visible from Calabasas Road and the Ventura Freeway. Figures 10 a-d show existing views of the project site from Calabasas Road and the Ventura Freeway, and photosimulations of the project from the same viewing locations. As shown on figures 10c and 10d, views from the northbound lane of the Ventura Freeway of ridgelines to the south of the site would not be blocked by the proposed project.

The southbound lane of the Ventura Freeway is closer to the project site. As motorists approach

approach the proposed building in the southbound direction on the Ventura Freeway, views of ridgelines south of the site would not be blocked by the proposed project. However, when a motorist is directly in front of the proposed building, portions of the building may partially obstruct views of ridgelines to the south. The partial obstruction of ridgelines would occur for the amount of time it takes to pass by the proposed building, which is dependent upon the speed that the motorist is travelling. Assuming a vehicle is traveling 65 miles per hour in a southbound lane of the Ventura Freeway, it would take approximately two seconds to pass by the proposed building, which measures approximately 202 feet in length. Therefore, for motorists traveling southbound on the Ventura Freeway, the proposed building would partially obstruct views of the designated ridgelines for an estimated two seconds.

Given that the project would not block views of ridgelines to the south of the site from the northbound lanes of the Ventura Freeway, and that, with the exception of an estimated two-second time period, the views of ridgelines from the southbound lanes would not be blocked, impacts to the views from the Ventura Freeway of the designated ridgelines south of the site would be **less than significant.** However, because the proposed two-story structure would be become a part of views from the Ventura Freeway, which include views of the designated ridgelines south of the site, mitigation is recommended to soften the visual effect of the proposed onsite structures.

b. The Ventura Freeway is not officially designated as a state scenic highway. However, it is eligible for designation as a state scenic highway. There are five non-native trees on the project site. The trees are non-native "Trees of Heaven" (Ailanthus altissima) and can be highly invasive. These trees would be removed as part of the project. However, as shown in the landscape plan (Figure 9), 41 trees would be planted on the project site to replace existing trees for a net increase in 36 trees on the site. The project site does not contain any buildings, including historic buildings. The site does not include any rock outcroppings. The proposed project would not result in damage to trees that are a significant scenic resource, rock outcroppings, or historic buildings, and impacts would be **less than significant**.

c. The proposed project would include construction of a 21,302 square feet, two-story auto dealership on a site that is currently used as a surface parking lot. The project is within the Ventura Freeway Scenic Corridor and the Scenic Corridor overlay zone.

Because the project site is within the Scenic Corridor overlay zone, the project would be required to comply with the City's Scenic Corridor Development Guidelines pursuant to CMC Section 17.20.070. The Scenic Corridor Development Guidelines include the following requirements for development applicable to the proposed project:

- *All roofs visible from Scenic Corridors shall be surfaced with medium dark colored fire-retardant, non-glare materials, and no obtrusive equipment shall be placed thereon.*
- *The roofs of buildings constructed on sloping land shall be parallel to the natural topography in order to protect the line-of-sight within the view corridor. Projecting elements above roof lines shall be minimized and shall be integrated into structure's overall design.*
- *All structures within Scenic Corridors shall avoid large 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.*

- *The color of fences and walls shall blend with the natural environment.*
- *All structures shall be designed and situated on site to minimize adversely impacting views.*
- *Vines and/or other clinging plant material shall be used to visually accent walls and fences where space may preclude the use of other larger plants.*
- *Building setbacks from freeways and open spaces between buildings adjacent to the freeways shall be increased to allow landscaping and reduced visual impact. Distances shall be determined by viewshed, site topography and configuration, and architectural design of the proposed structures.*
- *Landscaping and tree planting should visually enhance, soften, or conceal, as much as possible, developments and commercial properties within visual proximity of any Urban Zone.*
- *Lighting standards within Urban Scenic Corridors rights-of-way shall use fixtures with cut-offs that focus the light directly onto the street and shoulders, and shall be redesigned and placed in such a manner as to prevent ambient illumination beyond the boundaries of the project site.*
- *Vehicle parking lots within Urban Scenic Corridors shall be screened by utilizing combinations of earthen berm, landscaping, and innovative decorative wall designs to reduce the visual impact of rows of vehicles. Appropriate building placement can also serve as a method of screening parking lots.*

The addition of a building to the site would change the existing visual character of the site. However, the design guidelines, recommendations, and requirements intended to preserve the scenic vistas from the Highway 101-Ventura Freeway Scenic Corridor have been incorporated into the site design through architectural colors and materials similar to the natural surrounding environment, including tan, bronze and dark green colors; landscaping with native and non-native vegetation; and minimizing the obstruction of views. Given that the site is currently paved and used as an automobile storage lot, which is not of high aesthetic value, the proposed vintage automotive dealership would not substantially degrade the visual character of the site and its surroundings. Impacts would be **less than significant.**

d. Currently, the site is a surface parking lot that is used as a vehicle storage lot by the Bob Smith BMW dealership. The site does not contain high levels of light. Vehicles parked on the site generate some glare. The proposed project would introduce new lighting from the proposed building and exterior lighting. However, the project site is in an urban area of Calabasas. Surrounding land uses include commercial developments, including a Volvo dealership, a BMW dealership, and a nursery. Therefore, the proposed project would not emit lighting that would be out of character with the surrounding uses. In addition, any onsite lighting proposed in association with the project would be subject to the requirements of the City of Calabasas Dark Skies and Lighting Ordinance (Municipal Code §17.27). The project would include surface parking spaces which, when occupied by vehicles, could generate glare. However, because the majority of parking would be contained in the proposed subterranean parking garage, it is anticipated that onsite glare would be incrementally lower compared to existing conditions. Therefore, impacts associated with lighting and glare would be **less than significant.**

Mitigation Measures

As discussed above, impacts to aesthetic resources would be less than significant without mitigation. However, because the proposed two-story structure would be become a part of views from the Ventura Freeway, which include views of the designated ridgelines south of the site, mitigation measures AES-1 and AES-2 are recommended to soften the visual effect of the project.

AES-1 **Landscape Plan.** The applicant shall submit a landscape plan to Community Development Department for review and approval prior to issuance of grading permits. At a minimum, the landscape plan shall include the following specific features :

- *Plant Screening – plant materials shall screen at least 50% of all architecture facing the Ventura Freeway. In addition, in order to soften building edges, landscaping shall be included adjacent to proposed buildings facing the Ventura Freeway.*

- *Random Shrub Placement – **s**hrubs shall be randomly placed in masses in the northern and western portions of the site that are visible from the Ventura Freeway***.**

AES-2 **Natural Building Colors.** All colors, textures, materials and forms shall be compatible with the natural setting. Medium to dark colors, which blend with the surrounding environment, shall be used for building elevations and roof materials.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
II. <u>AGRICULTURE AND FOREST RESOURCES</u> -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:				
a) Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

a, e. The proposed project involves the construction of a two-story building on a site that is currently paved and used by the Bob Smith BMW dealership to store vehicles. The proposed building would be used as an automotive dealership and for automotive retail uses. According to the California Department of Conservation Farmland Mapping and Monitoring Program (2008), the project site is designated as Other Land, and is not designated as prime or unique farmland, or farmland of statewide importance. The proposed project would not involve changes to the existing environment that would result in the conversion of farmland to non-agricultural use. Therefore, **no impact** related to the conversion of farmland to non-agricultural use would occur.

b, c. The project site is zoned as Commercial, Limited (CL) and designated in the General Plan as Business Limited Intensity (B-LI). The site is located within the designated Ventura Freeway Scenic Corridor overlay zone. Therefore, project site is not zoned for agricultural use, forestland, timberland or Timberland Production. The Williamson Act does not apply to the project site. **No impact** would occur.

d. The project site is a paved parking lot used by the Bob Smith BMW dealership to store vehicles. No forestland is located on the project site. Therefore, **no impact** related to the conversion of forest land to non-forest land would occur.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
III. <u>AIR QUALITY</u> -- Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

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

Depending on whether or not the standards are met or exceeded, the air basin is classified as being in "attainment" or "nonattainment." The South Coast Air Basin is in nonattainment for both the federal and state standards for ozone and particulate matter (PM_{10} and $PM_{2.5}$). Thus, the basin currently exceeds several state and federal ambient air quality standards and is required to implement strategies that would reduce the pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local air shed to eliminate pollutants from the air, and the number, type, and density of emission sources within the South Coast Air Basin. The SCAQMD has adopted an Air Quality Management Plan (AQMP) that provides a strategy for the attainment of state and federal air quality standards.

The SCAQMD has established the following significance thresholds for construction activities within the South Coast Air Basin:

- *100 pounds per day of NOx*
- *550 pounds per day of CO*
- *150 pounds per day of PM_{10}*
- *55 pounds per day of $PM_{2.5}$*

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

- *55 pounds per day of ROC*
- *55 pounds per day of NOx*
- *550 pounds per day of CO*
- *150 pounds per day of SOx*
- *150 pounds per day of PM10*
- *55 pounds per day of PM2.5*

The South Coast Air Basin is classified as being in "attainment" for federal and state carbon monoxide standards. According to the AQMP, all areas within the South Coast Air Basin have been in attainment of federal carbon monoxide standards since 2003 and no area exceeded state standards in 2005. The highest levels of carbon monoxide concentrations listed in the AQMP were 5.9 ppm, substantially lower than the California 8-hour standard of 9.0 ppm. (Greenhouse gas emissions are addressed below in Section VII, *Greenhouse Gas Emissions*.)

a. Generally, a project would conflict with or potentially obstruct implementation of an air quality plan if it would contribute to population growth in excess of that forecasted in the air quality management plan. Currently, the population in the City of Calabasas is 23,788 people (California Department of Finance, 2010). The proposed automotive dealership and automotive retail supporting business would employ an estimated 15 people. Some of the new employees may be drawn from outside of Calabasas; others would be drawn from the local labor pool.

Those from outside of the area may commute from their existing residences, others may move to Calabasas and still others may move to surrounding cities. If all new employees move to Calabasas, the population would increase to 23,803 people. The SCAG estimates the population in 2015 to be 24,813 in the City. Therefore, an increase of 15 residents in the City would not exceed population growth forecasts. Impacts would be **less than significant.**

b, c. Emissions generated by the proposed project would include long-term operational emissions and temporary construction emissions.

Long-term emissions generated by the proposed project would be primarily from vehicle trips to the site by employees and customers. The project would be required to adhere to City standards regarding emissions and would also be required to meet the latest building energy efficiency standards set forth by Title 24 (California Energy Commission, 2008).

The long-term air quality emissions associated with the proposed project were estimated using the URBEMIS 2007 v.9.2.4 air quality model. Appendix A contains the air quality modeling assumptions and detailed results. Operational emissions were determined based on the proposed square footage combined with the trip generation rates contained in the traffic impact study that was prepared for the project by Kimley-Horn and Associates, Inc. (see Appendix B). Estimated project emissions estimates as determined in the modeling analysis are presented in Table 2. Mobile emissions are those associated with vehicle trips, while the use of natural gas and landscaping maintenance equipment are included in the area emissions.

Table 2
Operational Emissions (pounds per day)

Emission Source	Emissions (lbs/day)				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Mobile Emissions	5.4	7.9	71.7	13.1	2.5
Area Emissions	0.3	0.2	1.7	0.01	0.01
Gross Emissions	**5.6**	**8.1**	**73.4**	**13.1**	**2.6**
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*55*
Exceed SCAQMD Thresholds?	***NO***	***NO***	***NO***	***NO***	***NO***

Mobile emissions are based on trip generation rates determined by Kimley-Horn and Associates, Inc. See Appendix B for the Traffic Study.
Source: URBEMIS 2007 v.9.2.4 (See Appendix A for model assumptions and results)

As shown in Table 2, operation of the proposed project would generate an estimated 5.6 lbs of ROG per day; 8.1 lbs of NOx per day; 73.4 lbs of CO per day, 13.1 pounds of PM_{10} per day; and 2.6 lbs of $PM_{2.5}$ per day. The emissions generated by the proposed project would not exceed the SCAQMD's daily operational thresholds for any pollutant; therefore, regional air quality impacts would be **less than significant.**

Construction vehicles and equipment traveling along unpaved roads, grading, trenching, and stockpiled soils have the potential to generate fugitive dust (PM_{10}) through the exposure of soil to wind erosion and dust entrainment. In addition, exhaust emissions associated with heavy construction equipment would potentially degrade air quality.

Temporary construction emissions were estimated using the URBEMIS 2007 v.9.2.4 computer model (see Appendix A for air quality data). The number and type of construction equipment was estimated based on construction projects similar in size to the proposed project. The length of construction of the proposed project was estimated to last approximately one year. During project site preparation, the soils that underlie portions of the site could be turned over and pushed around, exposing the soil to wind erosion and dust entrainment by onsite operating equipment.

The majority of emissions associated with construction activities onsite come from off-road vehicles such as cranes and backhoes, but some emissions are also associated with construction worker trips and the application of architectural coatings, which release volatile or reactive organic gases (ROG) during the drying phase. Rule 403 of the SCAQMD Handbook requires implementation of measures to minimize emissions for all dust generating activity, regardless of whether it exceeds thresholds. The non-attainment status of the South Coast Air Basin for PM_{10} dust emissions requires that Best Available Control Measures (BACMs) be used to minimize regional cumulative PM_{10} impacts from all construction activities, even if any single project does not cause the thresholds to be exceeded.

SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that would not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, distance to the sensitive receptor, etc. However, LSTs only apply to emissions within a fixed stationary location, including idling emissions during both project construction and operation. LSTs have been developed only for NOx, CO, PM_{10} and $PM_{2.5}$. LSTs are not applicable to mobile sources such as cars on a roadway (Final Localized Significance Threshold Methodology, SCAQMD, June 2003). As such, LSTs for operational emissions would not apply to the proposed project, as cars on roadways would generate the majority of emissions.

LSTs have been developed for emissions within areas up to 5 acres in size, with air pollutant modeling recommended for activity within larger areas. The SCAQMD provides a lookup table for sites that measure 1, 2, 3, 4 or 5 acres. The project site measure 0.87 acres, so construction emission thresholds shown in Table 3 are from the 1-acre LST lookup table. The site is located in Source Receptor Area 6 (SRA-6), which is designated by the SCAQMD as the West San Fernando Valley and includes the City of Calabasas. The thresholds in Table 3 were determined based on the distance of nearby sensitive receptors to the project site. The closest sensitive receptor population to the project site includes residences approximately 0.2 miles south of the site.

Table 3
SCAQMD LSTs for Construction in SRA-6

Pollutant	Allowable emissions 656 feet from the 1-acre site boundary (lbs/day)
Gradual conversion of NO_x to NO_2	157
CO	2,096
PM_{10}	59
$PM_{2.5}$	18

Source: http://www.aqmd.gov/CEQA/handbook/LST/appC.pdf, accessed online June 2010.

Table 4 shows the estimated maximum construction emissions that would result from construction of the proposed project. As indicated, the estimated daily construction emissions of criteria pollutants are below SCAQMD construction thresholds and LSTs for each phase of construction. Therefore, impacts would be **less than significant.**

Table 4
Maximum Daily Construction Emissions[1] (pounds per day)

Emission Source	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Grading	3.5	31.6	16.2	6.4	2.4
Building Construction	1.2	8.8	6.2	0.6	0.5
Coating and Paving	25.4	11.7	8.8	1.0	1.0
SCAQMD Thresholds (peak day)	*75*	*100*	*550*	*150*	*55*
Exceed SCAQMD Thresholds?	***NO***	***NO***	***NO***	***NO***	***NO***
Localized Significance Thresholds	*N/A*	*157*	*2,096*	*59*	*18*
Exceed Localized Significance Thresholds?	***N/A***	***NO***	***NO***	***NO***	***NO***

Note: The grading phase and the building construction phase do not occur simultaneously.
[1]Includes worker trips and architectural coatings.
Source: URBEMIS 2007 v.9.2.4 (See Appendix A for model assumptions and results)

d. Certain population groups are considered particularly sensitive to air pollution. Sensitive receptors include health care facilities, retirement homes, school and playground facilities, and residential areas. The closest sensitive receptors to the project site are residents of houses located approximately 0.2 miles south of the site. As discussed in items b and c above, the proposed project would not result in an exceedance of either the SCAQMD or the LST thresholds for construction or operational emissions. Daily thresholds are established to protect human receptors from potentially significant health impacts. Therefore, since the project would not exceed established thresholds, the project would not expose sensitive receptors to

substantial pollutant concentrations during both construction and operational phases. Impacts to sensitive receptors would be **less than significant.**

e. The proposed automotive dealership building would not generate any objectionable odors. Therefore, the proposed project would not generate objectionable odors that would adversely affect people. **No impact** associated with odors would occur**.**

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

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the project:				
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?	☐	☐	☒	☐

a, d. The project site encompasses an area of approximately 37,897 square feet (0.87-acre). The project site is a paved parking lot used by the Bob Smith BMW dealership to store vehicles. There is no significant vegetation or habitat on the site for any species identified as a candidate, sensitive, or special status species. The southern portion of the site along Calabasas Road contains a mulched landscaped area consisting of several trees and shrubs. The project site is not located in a designated significant ecological area, wildlife linkage/corridor area, or ecological area/corridor (2030 City of Calabasas General Plan FEIR). Therefore, the proposed project would not substantially impede the movement of wildlife in the area. Impacts would be **less than significant.**

b, c, f. The project site is not located in an area designated as a significant ecological area or ecological area/corridor (2030 City of Calabasas General Plan FEIR) and is not subject to an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Neither riparian habitat nor wetlands would be adversely affected as a result of project development. Impacts would be **less than significant.**

e. As discussed in Section I, *Aesthetics*, there are five tress on the site that have been identified as "Trees of Heaven" (Ailanthus altissima), which are known to be highly invasive. Current project design would include removal of existing trees onsite. These trees may provide habitat for protected native bird species. As such, implementation of the proposed project could potentially affect onsite nesting birds. California Department of Fish and Game Code 3513 provides protection to birds listed under the Migratory Bird Treaty Act (MBTA), which includes almost all native bird species. Therefore, impacts to nesting birds would be **potentially significant unless mitigation incorporated.** Implementation of mitigation measure BIO-1 requires compliance with the Migratory Bird Species Act. This measure would ensure that impacts to nesting birds would be reduced to a less than significant level.

Mitigation Measures

Implementation of Mitigation Measure BIO-1 would reduce potential impacts to native bird species that may utilize the trees to a less than significant level.

BIO-1 **Migratory Bird Species Act Compliance.** To avoid the accidental take of any migratory bird species or raptors, the removal or pruning of trees shall be conducted between September 15 and February 15, outside of the typical breeding season, as feasible. If avoidance of the nesting season is not feasible, a qualified biologist/ornithologist satisfactory to the City's Environmental Analyst shall conduct focused nesting surveys weekly for 30 days prior to grading or initial construction activity. The results of the nest survey shall be submitted to the City within one week of completion for review via a letter report prior to initiation of grading or other construction activity with the last survey conducted no more than three days prior to any clearance of vegetation or other construction activity. In the event that a nesting migratory bird species or raptor is observed in habitat/trees to be removed or within 250 feet of the construction work areas, the applicant has the option of delaying all construction work in the suitable habitat area or within 250 feet of the nesting activity until after September 15, or continuing focused surveys in order to determine when nesting activity has ceased. If an active nest is found, clearing and construction within 50-250 feet of the nest, depending on the species involved (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest site shall be established in the field with flagging and stakes or construction fencing. Construction personnel shall be instructed regarding the ecological sensitivity of the fenced area.

Once the pre-construction bird surveys are conducted by a qualified biologist during the proper seasons, the report results, including survey dates, exact species observed and location of species onsite, shall be submitted to the City and CDFG for review and approval. No construction shall begin prior to this approval.

Significance After Mitigation

Implementation of Mitigation Measure BIO-1 would reduce potential impacts to native bird species to a less than significant level.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §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?	☐	☒	☐	☐

a. The project site is a paved parking lot used by the Bob Smith BMW dealership to store vehicles. The southern portion of the site along Calabasas Road contains a mulched landscaped area consisting of several trees and shrubs. There are no structures on the site. There are no known historical resources on or adjacent to the project site. **No impact** would occur.

b. Ground disturbance within the project area would involve grading for the building pad and excavation for the proposed subterranean garage. No cultural resources are known to exist within the project area and the project site is not within an area of potential archaeological sensitivity (City of Calabasas 2030 General Plan FEIR, 2009). However, as with any ground-disturbing activity, project grading and excavation would have the potential to adversely affect undiscovered cultural resources and impacts could be **potentially significant unless mitigation incorporated**.

c. As discussed above, ground disturbance within the project area would involve grading and excavation. No paleontological resources are known to exist on the project site. However, as natural residual soils underlie the site at depths of approximately 8 to 14 feet below the surface (Grover Hollingsworth and Associates, Inc., 2008), there exists the possibility that paleontological resources could exist. Because the proposed subterranean parking garage would require excavation up to approximately 25 feet below the surface, impacts related to the disturbance of previously unknown buried paleontological resources would be **potentially significant unless mitigation incorporated**.

d. The project site has been previously disturbed during construction of the Ventura Freeway, Calabasas Road and grading of the project site. As such, the potential for human remains to exist on the project site is low. Nonetheless, development of the proposed project would involve grading and excavation. Such activities would have the potential to adversely affect

undiscovered human remains. Therefore, impacts would be **potentially significant unless mitigation incorporated**.

Mitigation Measures

The following measures would reduce impacts relating to the possible discovery of as yet undetected archeological, paleontological and human remains during grading and excavation to a less than significant level.

CR-1 **Resource Recovery Procedures.** If unanticipated cultural resource remains are encountered during construction or land modification activities, the developer shall follow the applicable procedures established by the Advisory Council on Historic Preservation concerning protection and preservation of Historic and Cultural Properties (36 CFR 8700). In this event, the developer/construction contractor shall cease work until the nature, extent, and possible significance of any cultural remains can be assessed and, if necessary, remediated. Such assessment and remediation shall be implemented by the developer and shall be subject to review and approval by the Deputy Director/City Planner prior to commencement with onsite construction/grading activities. If remediation is needed, possible techniques include removal, documentation, or avoidance of the resource, depending upon the nature of the find.

CR-2 **Human Remains Recovery Procedures.** In the event that human remains are discovered during construction or land modification activities, the developer shall follow the procedures in Section 7050.5 of the California Health and Safety Code. These procedures require notification of the County coroner and the Native American Heritage Commission if the coroner determines the remains to be those of Native American ancestry. Onsite construction/grading/excavation shall not commence until evidence has been presented to the City manager that the developer has adhered to these procedures.

CR-3 **Paleontological Materials.** If any paleontological materials are encountered during the course of onsite construction, construction activities shall be halted.

CR-4 **Paleontologist Review.** If undisturbed basement sediments are encountered during site development or if any paleontological artifacts are discovered, the services of a paleontologist shall be secured to assess the find. Such assessment and remediation shall be implemented by the developer and shall be subject to review and approval by the Deputy Director/City Planner prior to commencement with onsite construction/grading activities.

CR-5 **Paleontological Study.** If the services of a paleontologist are required, copies of the paleontological survey, study, or report shall be submitted to the Los Angeles County Natural History Museum.

Significance After Mitigation

Implementation of mitigation measures CR-1 through CR-5 would reduce impacts to unknown archeological, paleontological and human remains to a less than significant level.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable 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 1-B of the Uniform Building Code, 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?	☐	☐	☐	☒

A Soils Engineering Exploration report, dated February 15, 2008 was prepared for the project by Grover Hollingsworth and Associates, Inc. (GHA). The report is contained in Appendix C. A Geotechnical Site Evaluation and Response to City of Calabasas Engineering Geology and Engineering Review Letter, dated May 10, 2010, was prepared for the site by Gorian, Inc. The report is contained in Appendix D. The Soils Engineering Exploration report prepared by GHA and the Geotechnical Site Evaluation and Response to City of Calabasas Engineering Geology and Engineering Review Letter prepared by Gorian were used in part for analysis of the project's impacts related to Geology and Soils.

a(i-ii). The project site does not lie within an Earthquake Fault Studies Zone and is not known to be underlain by active or potentially active faults. The nearest zoned fault is in the western portion of the Malibu Coast Fault zone located approximately 11 miles to the south. The potential for substantial adverse effects related to fault rupture is low. Like most of Southern California, the proximity of active faults is such that the site has experienced and will continue to experience strong seismically induced ground motion. However, development would be subject to the International Building Code (IBC) as referenced by the California Building Code (CBC) with Los Angeles amendments, and would be required to adhere to recommendations in the approved site-specific soils and geotechnical engineering reports (as appropriate). As such, the design and construction of new structures would be engineered to withstand the expected ground acceleration and seismic shaking that may occur onsite. Therefore, impacts would be **less than significant**.

a(iii). Liquefaction describes the phenomenon in which ground shaking works cohesionless soil particles into a tighter packing which induces excess pore pressure. These soils may acquire a high degree of mobility that can lead to structurally damaging deformations. Liquefaction begins below the water table, but after liquefaction has developed, the groundwater table rises and causes the overlying soil to mobilize. Liquefaction typically occurs in loose to medium dense sand and silty sand soils below the groundwater table. Predominantly fine-grained soils, such as silts and clay, are less susceptible to liquefaction. The site is not included within a zone of potentially liquefiable soil on the on the State's Seismic Hazard Zone Map for the Calabasas Quadrangle. According to the geotechnical study prepared for the proposed project by GHA, liquefaction is not considered a hazard on the project site because the alluvial soils underlying the site are comprised predominantly of silt and clay. Therefore, impacts related to liquefaction would be **less than significant**.

(iv). The geologic character of an area determines its potential for landslides. Steep slopes, the extent of erosion, and the rock composition of a hillside all contribute to the potential for slope failure and landslide events. In order to fail, unstable slopes need to be disturbed. Common triggering mechanisms of slope failure include undercutting slopes by erosion or grading, saturation of marginally stable slopes by rainfall or irrigation, and shaking of marginally stable slopes during earthquakes. The probability of seismically-induced landslides affecting the proposed development is considered remote due to the relatively flat nature of the project site and surrounding areas. No evidence of active or historic landslides was observed during field investigation conducted by Gorian, Inc. No landslides are shown onsite or directly adjacent to the site on regional geologic maps (Dibblee 1992 & Weber 1994) or on the State's Seismic Hazard Zone Map for the Calabasas Quadrangle. Therefore, impacts relating to landslide hazards would be **less than significant**.

b. The project site is underlain by an approximately 36 to 47-foot thick section of soil overlying bedrock of the Topanga Formation. Fill occurs throughout the site at depths between 4 to 8 feet below the site grade. The fill typically consists of clayey silt and silty clay. Natural residual soils occur 4 to 6 ½ feet beneath the fill material. The natural residual soils are generally very firm to stiff silty clay. Alluvial soils underlie the natural residual soils and predominantly consist of clayey silt and silty clay.

Construction activities would include the excavation and grading of the site, which would cause the disruption and displacement of onsite soils. Although the potential for onsite erosion is not high due to the type of onsite soils, construction activities could result in increased erosion and offsite sedimentation. Implementation of all appropriate recommendations in the approved geotechnical reports, standard City-required erosion control techniques, such as those contained in Section 15.11 of the City of Calabasas Municipal Code, and construction Best Management Practices (BMPs) would reduce soil erosion effects to a **less than significant level.** Examples of City-required erosion control techniques contained in Section 15.11 of the City of Calabasas Municipal Code include grading outside of the rainy season, revegetation of disturbed areas, use of plastic coverings over exposed surfaces and detention ponds.

c. As previously discussed, the project site is not located in an area susceptible to landslides or liquefaction. Therefore, impacts would be **less than significant.**

d. Expansive soils expand or swell when wetted, and contract or shrink when dried. Expansive soils can cause damage to structure foundations. According to the Soil Engineering Exploration report prepared by GHA and the Geotechnical Site Evaluation prepared by Gorian, Inc., the project site is underlain by moderately to highly expansive soils. Therefore, impacts relating to expansive soils would be **potentially significant unless mitigated**.

e. The proposed project would utilize connection to the City sewer system. A septic system would not be installed in association with the proposed project. **No impact** would occur.

<u>Mitigation Measure</u>

Implementation of Mitigation Measures GEO-1 would reduce impacts relating to expansive soils to a less than significant level.

GEO-1 **Expansive Soils.** All recommendations included in the Soils Engineering Exploration report prepared by Grover Hollingsworth and Associates, Inc and the Geotechnical Site Evaluation prepared by Gorian, Inc. shall be implemented. As discussed in the two reports prepared for the project, measures to reduce impacts from expansive soils shall include but not be limited to the following:

- *Existing soils that have been identified as expansive soils shall be excavated and replaced with non-expansive soils.*
- *Excavated areas shall be observed by the soils engineer and/or geologist prior to placing compacted fill.*

- *The exposed grade shall be scarified to a depth of 6 inches, moistened to approximately equal to or slightly above optimum moisture content, and recompacted to 92% of the maximum density as determined by the latest version of ASTM D1557.*
- *Fill, consisting of earth materials approved by the soils engineer, shall be placed in compacted layers with suitable compaction equipment. Rocks larger than 6 inches in diameter shall not be used in the fill.*
- *Positive drainage shall be provided away from the structure*
- *Joints in the flatwork shall be sealed to minimize water entering the subgrade.*

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 would reduce impacts related to expansive soils to a less than significant level.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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 any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Global climate change (GCC) is a change in the average weather of the earth that is measured by temperature, wind patterns, precipitation, and storms over a long period of time. The baseline, against which these changes are measured, originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed an unprecedented acceleration in the rate of warming during the past 150 years.

GCC is a documented effect. Although the degree to which the change is caused by anthropogenic (man-made) sources is still under study, the increase in warming has coincided with the global industrial revolution, which has seen the widespread reduction of forests to accommodate urban centers, agriculture, and the use of fossil fuels – primarily the burning of coal,

coal, oil, and natural gas for energy. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2007), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (90% or greater chance) that the global average net effect of human activities since 1750 has been one of warming. Most of the observed increase in global average temperatures, since the mid-20th century, is likely due to the observed increase in anthropogenic GHG concentrations per the Intergovernmental Panel on Climate Change (IPCC) (2007). While there is some disagreement by individual scientists with some of the findings of the IPCC, the majority of scientists working on climate change agree with the main conclusions, as do the majority of major scientific societies and national academies of science. Disagreement within the scientific community is always present for all issues; however, the current state of knowledge suggests that GCC warming is occurring, with eleven of the last twelve years (1995-2006) ranking among the twelve warmest years in the instrumental record of global surface temperature since 1850 (IPCC, 2007). In addition, the majority of scientists agree that anthropogenic sources are a main, if not primary, contributor to the GCC warming.

Greenhouse Gases (GHGs). Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHG), in reference to the fact that greenhouses retain heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O_x), fluorinated gases, and ozone. GHG are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere. Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CDE), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane (CH_4) has a GWP of 21, meaning its global warming effect is 21 times greater than carbon dioxide on a molecule per molecule basis.

The accumulation of GHG in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The following discusses the primary GHGs of concern.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (U.S. Environmental Protection Agency [USEPA], April 2008). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th Century. Concentrations of CO_2 in the atmosphere have risen approximately 35% since the industrial revolution. Per the IPCC (2007), the global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 parts per

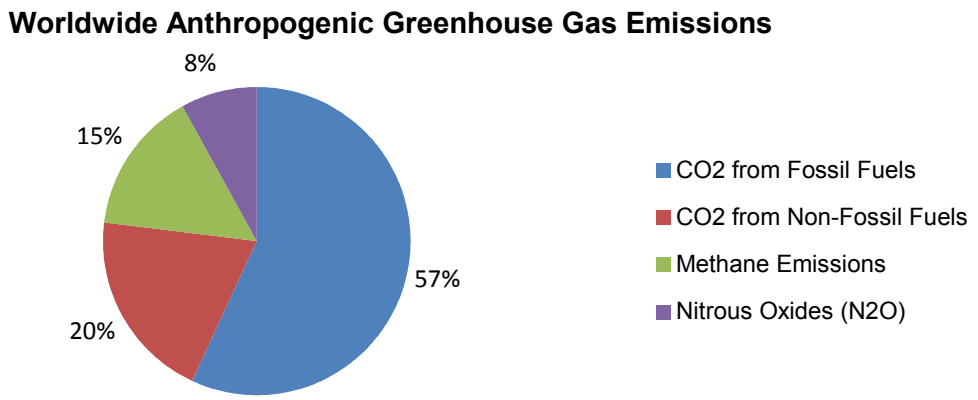
million (ppm) to 379 ppm in 2005. The atmospheric concentration of CO_2 in 2005 exceeds the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The average annual carbon dioxide concentration growth rate was larger during the last 10 years (1995–2005 average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates. Currently, CO_2 represents an estimated 82.7% of total GHG emissions (DOE, EIA, December 2008). The largest source of CO_2, and of overall GHG emissions, is fossil fuel combustion.

Methane. Methane (CH_4) is an effective absorber of radiation; though, its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10 to 12 years. It has a global warming potential (GWP) approximately 21 times that of CO_2 (refer to *Greenhouse Gas Inventory* below for a discussion of GWP). Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148% (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH_4 include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (USEPA, April 2008).

Nitrous Oxide. Concentrations of nitrous oxide (N_2O) began to rise at the beginning of the industrial revolution. N_2O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of N_2O emissions. Nitrous oxide's GWP is approximately 310 times that of CO_2.

Fluorinated Gases (HFCS, PFCS and SF_6). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfurhexafluoride (SF_6), are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the *Montreal Protocol* and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but these compounds have much higher GWPs. SF_6 is the most potent GHG the IPCC has evaluated.

<u>Greenhouse Gas Inventory.</u> Carbon dioxide equivalent (CDE or CO_2E) is a quantity that describes, for a given mixture and amount of GHGs, the amount of CO_2 (usually in metric tons) that would have the same global warming potential (GWP) when measured over a specified timescale (generally, 100 years). Worldwide anthropogenic emissions of GHG were approximately 40,000 million metric tons (MMT) CDE in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). As shown in the chart below, CO_2 emissions from fossil fuel use account for about 57% of the total emissions of 40,000 million metric tons CDE (includes land use changes) and all CO_2 emissions are about 77% of the total. Methane emissions account for about 15% of GHG and N_2O emissions for about 8% (IPCC, 2007).



Source: IPCC, 2007

Total U.S. GHG emissions were 7,282 million metric tons CDE in 2007 (Department of Energy [DOE], Energy Information Administration [EIA], December 2008), or about 14% of worldwide GHG emissions. U.S. emissions rose by 16.7% from 1990 to 2007, while emissions fell by 1.1% from 2005 to 2006 (75.7 MMT CDE). The following factors were primary contributors to this decrease: (1) warmer winter conditions in 2006, which reduced consumption of heating fuels, as well as cooler summer conditions, which reduced demand for electricity; (2) restraint on fuel consumption caused by rising fuel prices, primarily in the transportation sector; and (3) increased use of natural gas and renewables in the electric power sector.

The residential and commercial end-use sectors accounted for 17% and 15%, respectively, of CO_2 emissions from fossil fuel combustion in 2007 (DOE, EIA, December 2008). Both sectors rely heavily on electricity for meeting energy demands, with 72% and 79%, respectively, of their emissions attributable to electricity consumption for lighting, heating, cooling, and operating appliances. The remaining emissions were due to the consumption of natural gas and petroleum for heating and cooking.

Among the states, California is the second largest contributor of GHGs in the United States. If California were a country, it would be the sixteenth largest contributor in the world (Association of Environmental Professionals [AEP], 2007). Based upon the California Air Resources Board (ARB) *California Greenhouse Gas Inventory for 2000*-2006 (http://www.arb.ca.gov/cc/inventory/data/data.htm), California produced 480 MMT CDE in 2006. The major source of GHG in California is transportation, contributing 39% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 22% of the state's GHG emissions. California emissions are due in part to its large size and large population. By contrast, California had the fourth lowest CO_2 emissions per capita from fossil fuel combustion in the country in 2004, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have otherwise been (California Energy Commission [CEC], December 2006). Another factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate.

Effects of Global Climate Change. GCC has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and

precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC, 2007).

According to the California Energy Commission's (CEC) Draft Climate Action Team Biennial Report, potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CEC, March 2009). Below is a summary of some of the potential effects reported by an array of studies that could be experienced in California as a result of global climate change.

Air Quality. Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CEC, March 2009).

Water Supply. Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain, until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change" (California Department of Water Resources [DWR], 2006). For example, some studies identify little change in total annual precipitation in projections for California (California Climate Change Center [CCCC], 2006). Other studies show significantly more precipitation (DWR, 2006). Even assuming that climate change leads to long-term increases in precipitation, analysis of the impact of climate change is further complicated by the fact that no studies have identified or quantified the runoff impacts that such an increase in precipitation would have in particular watersheds (CCCC, 2006). Also, little is known about how groundwater recharge and water quality will be affected (Id.). Higher rainfall could lead to greater groundwater recharge, although reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge (Ibid.).

The California Department of Water Resources (DWR, 2006) report on climate change and effects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta concludes that "[c]limate change will likely have a significant effect on California's future water resources… [and] future water demand." DWR also reports that "much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain" (DWR, 2006).

This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood (DWR, 2006). DWR adds that "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky, 2003; DWR, 2006; Cayan, 2006, Cayan, D., et al, 2006).

Hydrology. As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise may be a product of climate change through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a $30 billion agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

Ecosystems and Wildlife. Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise as discussed previously: 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as two feet along most of the U.S. coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith, 2004)

The above mentioned potential impacts identify the possible effects of climate change at a global and potentially statewide level; however, in general scientific modeling tools are currently unable to predict what impacts would potentially occur locally.

<u>Regulatory Setting.</u>

International and Federal Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was signed on March 21, 1994. The Kyoto Protocol is a treaty, made under the UNFCCC, and was the first

international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5% from 1990 levels, during the first commitment period of 2008–2012. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007)

The United States is currently using a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative (USEPA, December 2007; http://www.epa.gov/climatechange/policy/cctp.html).

To date, the United States Environmental Protection Agency (USEPA) has not regulated GHGs under the Clean Air Act; however, the U.S. Supreme Court in *Massachusetts v. EPA* (April 2, 2007) held that the USEPA can, and should, consider regulating motor-vehicle GHG emissions. The USEPA has not yet promulgated federal regulations limiting GHG emissions. On June 30, 2009, the USEPA granted California's request for a waiver to directly limit GHG tailpipe emissions for new motor vehicles beginning with the current model year.

California Regulations. Assembly Bill (AB) 1493, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State was signed into law in September 2002. In 2005, Executive Order S-3-05 established statewide GHG emissions reduction targets. S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80% of 1990 levels (CalEPA 2006).

In response to S-3-05, the California Environmental Protection Agency (CalEPA) created the Climate Action Team (CAT), which in March 2006, published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the S-3-05 targets are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/ infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

AB 32, the "California Global Warming Solutions Act of 2006," was signed into law in the fall of 2006. AB 32 required the ARB to adopt regulations to require reporting and verification of statewide GHG emissions. The ARB was required to produce a plan by January 1, 2009 to indicate how emission reductions will be achieved from major GHG sources via regulations, market mechanisms, and other actions. In addition, this law requires the ARB to adopt regulations by January 1, 2010 to implement the early action GHG emission reduction measures that can be implemented before the adoption of those recommended by the 2009 plan. The bill requires achievement by 2020 of a statewide GHG emissions limit equivalent to 1990 emissions

(essentially a 25% reduction below 2005 emission levels; the same requirement as under S-3-05), and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions.

In response to the requirements of AB 32, the ARB produced a list of 37 early actions for reducing GHG emissions in June 2007. The ARB expanded this list in October 2007 to 44 measures that have the potential to reduce GHG emissions by at least 42 million metric tons of CO_2 emissions by 2020, representing about 25% of the estimated reductions needed by 2020 (ARB, October 2007). After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CDE. The scoping plan required under AB 32 was approved by the ARB Board on December 12, 2008, and it provides the outline for actions to reduce GHG in California. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program.

Senate Bill (SB) 97, signed in August 2007, acknowledges that GCC is an environmental issue that requires analysis under CEQA. In December 2009, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and GCC impacts.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. In addition, a Low Carbon Fuel Standard ("LCFS") for transportation fuels is to be established for California.

Senate Bill (SB) 375, signed in August 2008, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing GHG emissions. The bill requires ARB to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles, for 2020 and 2035. On January 23, 2009 ARB appointed a Regional Targets Advisory Committee (RTAC) to provide recommendations on factors to be considered and methodologies to be used in the ARB target setting process, as required under SB 375. The RTAC final report, issued on September 30, 2009, recommended "ambitious but achievable" targets, with a significant emphasis on improving home affordability (rents and mortgages) near job centers as a means to reduce driving. The California Air Resources Board will set the final targets by September 30, 2010.

For more information on the Senate and Assembly bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and http://www.arb.ca.gov/cc/cc.htm.

CEQA Requirements. Quantitative significance thresholds for this topic have not been adopted by the State of California, or the South Coast Air Quality Management District (SCAQMD). Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide regulatory guidance on the

analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and GCC impacts. In addition, in an effort to guide professional planners, land use officials and CEQA practitioners, OPR prepared *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA)*. This document offers informal guidance regarding the steps lead agencies should take to address climate change in CEQA documents. This guidance was developed in cooperation with the Resources Agency, Cal EPA, and the ARB.

Climate Change Impact Analysis. The information provided in this section is based on recently established California goals for reducing GHG emissions, as well as a project-specific emissions inventory developed for the proposed project. How a proposed project might contribute to GCC and the overall effect of an individual project based on that contribution are still being debated. As previously discussed, no statewide thresholds or methodologies for determining the significance of a project's potential cumulative contribution to GCC have been adopted to date. An individual project (unless it is a massive construction project, such as a dam or a new freeway project, or a large fossil-fuel fired power plant) does not generate sufficient GHG emissions to directly influence GCC; therefore, the issue of global climate change typically involves an analysis of whether a project's contribution towards a cumulative impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Methodology. This analysis is based on the methodologies recommended by the California Air Pollution Control Officers Association [CAPCOA] (January 2008) *CEQA and Climate Change* white paper. CAPCOA conducted an analysis of various approaches and significance thresholds, ranging from a zero threshold (all projects are cumulatively considerable) to a high of 40,000 – 50,000 metric tons CDE per year. For example, assuming a zero threshold and the AB 32 2020 targets, this approach would require all discretionary projects to achieve a 33% reduction from projected "business-as-usual" emissions to be considered less than significant. A zero threshold approach could be considered based on the concept that climate change is a global phenomenon in that all GHG emissions generated throughout the earth contribute to it, and failing to control small source emissions would potentially neglect a major portion of the GHG inventory. Another method based on a market capture approach that requires mitigation for greater than 90% of likely future discretionary development would use a quantitative threshold of greater than 900 metric tons CDE/year for most projects, which would generally correspond to office projects of approximately 35,000 square feet, retail projects of approximately 11,000 square feet, or supermarket space of approximately 6,300 square feet. Another potential threshold of 10,000 metric tons was considered by the Market Advisory Committee for inclusion in a GHG Cap and Trade System in California. A 10,000 metric ton significance threshold would correspond to the GHG emissions of approximately 550 residential units, 400,000 square feet of office space, 120,000 square feet of retail, and 70,000 square feet of supermarket space (CAPCOA, January 2008). This threshold would capture roughly half of new residential or commercial development (CAPCOA, January 2008). The basic concepts for the various approaches suggested by CAPCOA are used herein to determine whether or not the proposed project's GHG emissions are "cumulatively considerable."

Calculations of CO_2, CH_4, and N_2O are provided for full disclosure of the magnitude of potential project effects. The analysis focuses on CO_2, N_2O, and CH_4 as GHG emissions that the project would emit in the largest quantities, as compared to other GHGs (such as chlorofluorocarbons [CFCs]). Calculations were based on the methodologies discussed in the CAPCOA white paper (January 2008) and included the use of the California Climate Action Registry General Reporting Protocol (March 2007).

Indirect Emissions. Operational emissions of CO_2 associated with space heating and landscape maintenance were quantified using the ARB's URBEMIS 2007 (version 9.2.4) computer model. N_2O and CH_4 emissions were quantified using the California Climate Action Registry General Reporting Protocol (March 2007) indirect emission factors for electricity use (see Appendix A for calculations). The calculations and emission factors contained in the General Reporting Protocol were selected based on technical advice provided to the Registry by the California Energy Commission. This methodology is considered reasonable and reliable for use, as it has been subjected to peer review by numerous public and private stakeholders, in particular the California Energy Commission, and is recommended by CAPCOA (January 2008).

Direct Emissions from Mobile Combustion. Emissions of CO_2 from transportation sources were quantified using the California Air Resource Board's URBEMIS 2007 (version 9.2.4) computer model. N_2O and CH_4 emissions were quantified using the California Climate Action Registry General Reporting Protocol (March 2007) direct emission factors for mobile combustion (see Appendix A for calculations). Total daily mileage was calculated in URBEMIS 2007 and extrapolated to derive total annual mileage. Emission rates were based on the vehicle mix output, generated by URBEMIS, and emission factors found in the California Climate Action Registry General Reporting Protocol.

It should be noted that one of the limitations to a quantitative analysis is that emission models, such as URBEMIS, evaluate aggregate emissions and do not demonstrate, with respect to a global impact, what proportion of these emissions are "new" emissions, specifically attributable to the proposed project in question. For most projects, the main contribution of GHG emissions is from motor vehicles and the total vehicle miles traveled (VMT), but the quantity of these emissions appropriately characterized as "new" is uncertain. Traffic associated with a project may be relocated trips from other locales, and consequently, may result in either a higher or lower net VMT. In this instance, it is likely that some of the proposed project-related GHG emissions, associated with traffic and energy demand, would be truly "new" emissions; but, it is also likely that some of the emissions represent diversion of emissions from other locations. Thus, although GHG emissions are associated with the project, it is not possible to discern how much diversion is occurring or what fraction of those emissions represents global increases. In the absence of information regarding the types of trips, the VMT generated by URBEMIS is used as a conservative, worst-case estimate.

a,b. The following is a discussion of project generated GHG emissions and a comparison of GHG emissions generated by the project to suggested thresholds.

<u>Estimate of GHG Emissions.</u>

Operational Indirect and Stationary Direct Emissions. Operation of the project is estimated to consume approximately 356,809 kWh/year of electricity (see Table 6). The generation of

electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent N_2O and CH_4. As discussed above, annual electricity emissions can be calculated using the California Climate Action Registry General Reporting Protocol, which has developed emission factors based on the mix of fossil-fueled generation plants, hydroelectric power generation, nuclear power generation, and alternative energy sources associated with the regional grid. CO_2 emission estimates using the URBEMIS model also take into account emissions from other operational sources such as natural gas use for space heating.

Table 6
Estimated Electricity Consumption

Type of Use	Amount	Electricity Demand Factor	Annual Electricity Demand (kWh/year)
Auto Dealership	21,302 sf	16,750 kWH/ksf/year*	356,809
		Total Electricity Consumption	356,809

sf = square feet kWH = kilowatt hour
**Demand factor from CAPCOA, January 2008. CEQA and Climate Change.*
***Demand factor from Energy Information Administration, 2008. 2003 CBECS Detailed Tables*

Table 7 shows the operational emissions of GHGs associated with proposed project electricity consumption, estimated at 159 metric tons per year.

Table 7
Estimated Annual Operational
Emissions of Greenhouse Gases

Emission Source	Annual Emissions	
	Emissions	CDE [3]
Carbon Dioxide (CO_2)[1]	31.6 (short, US)	28.7 metric tons
Methane (CH_4) [2]	0.0011 metric tons	0.0 metric tons
Nitrous Oxide (N_2O) [2]	0.0006 metric tons	0.2 metric tons
Total		**159 metric tons**

[1] See Appendix A for calculations.
[2] California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2,March 2007, page 30-35.
See Appendix A for GHG emission factor assumptions.
[3] Carbon dioxide equivalent (CDE or CO2E) is a quantity that describes, for a given mixture and amount of GHGs, the amount of CO2 (usually in metric tons; million metric tons [megatonne] = MMTCO2E = terragram [Tg] CO2 Eq; 1,000 MMT = gigatonne) that would have the same global warming potential (GWP) when measured over a specified timescale (generally, 100 years).

Transportation Emissions. Mobile source GHG emissions were estimated using the average daily trips estimate generated by the traffic study (Appendix B) and the total vehicle miles traveled estimated in URBEMIS 2007 (v. 9.2.4). The URBEMIS 2007 model estimates that proposed project would generate approximately 7,555 daily VMT. Table 8 shows the

anticipated mobile emissions of GHGs associated with the proposed project, which includes 1,214 metric tons.

Table 8
Estimated Existing Annual Mobile Emissions of Greenhouse Gases

	Annual Emissions	
Emission Source	**Emissions**	**CDE [3]**
Carbon Dioxide (CO_2)[1]	1,337.7 tons (short, US)	1,213 metric tons
Methane (CH_4) [2]	0.0004 metric tons	0.0 metric tons
Nitrous Oxide (N_2O) [2]	0.0005 metric tons	0.2 metric tons
	Project Total	**1,214 metric tons**

[1] Mobile Emissions from URBEMIS 2007 (version 9.2.4).
[2] California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2,March 2007, page 30-35.
See Appendix A for GHG emission factor assumptions.
[3] Carbon dioxide equivalent (CDE or CO2E) is a quantity that describes, for a given mixture and amount of GHGs, the amount of CO2 (usually in metric tons; million metric tons [megatonne] = MMTCO2E = terragram [Tg] CO2 Eq; 1,000 MMT = gigatonne) that would have the same global warming potential (GWP) when measured over a specified timescale (generally, 100 years).

Combined Stationary and Mobile Source Emissions. Table 9 combines the operational and mobile GHG emissions associated with the proposed project. As shown in Table 9, the project would result in 1,373 metric tons per year in CO_2 equivalency units.

Table 9
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions
Operational	159 metric tons CDE
Mobile	1,214 metric tons CDE
Project Total	**1,373 metric tons CDE**

Sources: Operational Emissions from URBEMIS 2007 (version 9.2.4).
California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2, March 2007.

Operational Indirect and Stationary Direct Emissions. The generation of electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent N_2O and CH_4. As discussed above, annual electricity emission can be calculated using the California Climate Action Registry General Reporting Protocol, which has developed emission factors, based on the mix of fossil-fueled generation plants, hydroelectric power generation, nuclear power

generation, and alternative energy sources associated with the regional grid. The CO_2 emission estimates in Table 7 and 8 are partially based on the URBEMIS model (see Appendix A), which also takes into account emissions from other operational sources, such as natural gas used for space heating.

GHG Cumulative Significance. As discussed above under *Methodology*, CAPCOA (January 2008) provided several approaches to consider potential cumulative significance of projects with respect to GHGs. Table 10 shows CAPCOA's suggested thresholds for GHG emissions. A zero threshold approach can be considered based on the concept that climate change is a global phenomenon in that all GHG emissions generated throughout the earth contribute to it, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. However, the *CEQA Guidelines* also recognize that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (*CEQA Guidelines*, Section 15130 (a)). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA, particularly in a built out community such as Santa Monica where all projects are infill.

Table 10
CAPCOA Suggested Thresholds for Greenhouse Gases

Quantitative (900 tons)	~900 tons CDE/year
Quantitative CARB Reporting Threshold/Cap and Trade	Report: 25,000 tons CDE/year Cap and Trade: 10,000 tons CDE/year
Quantitative Regulated Inventory Capture	~40,000 - 50,000 tons CDE/year
Qualitative Unit-Based Threshold	Commercial space > 50,000 sf*
Statewide, Regional or Area-wide (CEQA Guidelines 15206(b)).	Office Space > 250,000 sf

**sf = square feet*
Sources: California Air Pollution Control Officers Association (CAPCOA), CEQA & Climate Change, January 2008.

The proposed project is anticipated to result in an increase of 1,373 metric tons CDE per year. This increase would exceed the 900 tons CDE/year CAPCOA threshold, but would not exceed the other four CAPCOA suggested thresholds listed in Table 10.

The project would be infill development, which results in intensification and reuse of already developed lands as opposed to low density development on undeveloped lands; therefore, it would be expected to generally reduce reliance on the drive-alone automobile and regional vehicle miles traveled (VMT). This would be expected to result in a reduction in fuel consumption and associated air pollutant emissions, including GHG emissions. Recent research indicates that

indicates that infill development reduces VMT and associated air pollutant emissions, as compared to development on sites at the periphery of metropolitan areas, also known as "greenfield" sites. For example, a 1999 simulation study conducted for the U.S. Environmental Protection Agency (EPA), comparing infill development to greenfield development, found that infill development results in substantially fewer VMT per capita (39% to 52%) and generates fewer emissions of most air pollutants and greenhouse gases. Table 11 summarizes the results of the EPA study.

Table 11
Comparison of VMT and Emissions:
Infill versus Greenfield Development

Case Study	Per Capita Daily VMT, Infill as a Percentage of Greenfield	Emissions, Infill as a Percentage of Greenfield	
San Diego, CA	52%	CO	88%
		NO_x	58%
		SO_x	51%
		PM	58%
		CO_2	55%
Montgomery County, MD	42%	CO	52%
		NO_x	69%
		SO_x	110%
		PM	50%
		CO_2	54%
West Palm Beach, FL	39%	CO	75%
		NO_x	72%
		SO_x	94%
		PM	47%
		CO_2	50%

Source: Allen, E., Anderson, G., and Schroeer, W., "The Impacts of Infill vs. Greenfield Development: A Comparative Case Study Analysis," U.S. Environmental Protection Agency, Office of Policy, EPA Publication #231-R-99-005, September 2, 1999.

CAPCOA's suggested quantitative thresholds are generally more applicable to development on greenfield sites, where there would be an increase in VMT and associated GHG emissions than to infill development that would generally reduce regional VMT and associated emissions. For this reason, the most conservative (i.e., lowest) thresholds suggested by CAPCOA would not be appropriate for this project. Consequently, the threshold methodology considers the 10,000 tons CDE/year threshold (the second lowest non-zero threshold) as a quantitative benchmark for significance and qualitative consideration of the CalEPA's GHG emissions reduction strategies that were prepared by CalEPA's CAT for projects below 10,000 tons CDE/year. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05 (www.climatechange.ca.gov). A project's contribution of cumulative impacts to global climate change is considered cumulatively considerable if the project would generate 10,000 tons CDE/year. For projects that would generate fewer than 10,000 tons CDE/year, impacts would be considered cumulatively considerable if the project would be inconsistent with one or more of the CAT's GHG reduction strategies or applicable Attorney General GHG reduction strategies. In addition to CAT and Attorney General GHG reduction strategies, the California Office of Planning and Research (OPR) CEQA guidelines include

recommended mitigation strategies to reduce GHG impacts. The project would be consistent with CAT and Attorney General strategies, as shown in tables 12 and 13.

Table 12
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
California Air Resources Board	
Vehicle Climate Change Standards AB 143 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB I September 2004.	**Consistent** The vehicles that travel to and from the project site on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling In July 2004, the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling	**Consistent** Current state law restricts diesel truck idling to five minutes or less. Diesel trucks traveling to the project site, including construction vehicles, would be subject to this state-wide law.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	**Consistent** This strategy applies to consumer products. All applicable products would comply with the regulations that are in effect at the time of manufacture.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	**Consistent** The ARB is in the process of developing regulations that would increase the use of biodiesel for transportation uses. Currently, it is unknown when such regulations would be implemented; however, it is expected that upon implementation of such a regulation that would require increase biodiesel blends, the diesel fuel used vehicles that travel to and from the project site, including construction vehicles, would be correspondingly displaced by biodiesel.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	**Consistent** As data becomes available on the impacts of fuel specifications on the current and future vehicle fleets, the ARB will review and update motor vehicle fuel specifications as appropriate. In reviewing the specifications, the ARB will consider the emissions performance, fuel supply consequences, potential greenhouse gas reduction benefits, and cost issues surrounding E85. The auto dealership could purchase flex-fuel vehicles and utilize this fuel once it is commercially available in the region and local vicinity.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy-duty vehicle sector.	**Consistent** The heavy-duty vehicles that travel to and from the project site on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieving 50% Statewide Recycling Goal Achieving the State's 50% waste reduction mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions, associated with energy intensive material extraction and production, as well as methane emission from landfills. A diversion rate of 48% has been	**Consistent** State Law AB 939 requires every city in California to divert 50% of their waste. In 2008, Calabasas City Council adopted a resolution establishing the 75% diversion goal by the end of 2012. (City of Calabasas, 2009).

Table 12
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	
Zero Waste – High Recycling Efforts to exceed the 50% goal would allow for additional reductions in climate change emissions	**Consistent** As discussed above, the City is required to meet the State's 50% goal. In addition, Calabasas City Council adopted a resolution establishing the 75% diversion goal by the end of 2012. (City of Calabasas, 2009).
Department of Forestry	
Urban Forestry A new statewide goal of planning 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent** The landscaping proposed for the project would include planting 41 trees and additional landscaping on the project site.
Department of Water Resources	
Water Use Efficiency Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent** As discussed in Section XVII, *Utilities and Services Systems*, The project could be accommodated by existing Las Virgenes Municipal Water District supplies of water. In addition, the project would be required to comply with the following pursuant to Municipal Code Section 17.20.230: "Landscaped areas shall be clustered to maximize the efficiency of irrigation systems. Irrigation systems shall be designed to eliminate watering of impervious surfaces and reduce runoff. Water conserving kitchen and bathroom fixtures and appliances shall be installed along with, thermostatically controlled mixing valves for baths and showers. Hot water lines shall be insulated. Where reclaimed water is or can be feasibly made available by the Las Virgenes Municipal Water District and where use of reclaimed wastewater is legally permissible, the installation of a reclaimed water system for irrigation purposes will be required. "
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and alterations to existing buildings).	**Consistent** The City requires new development, including the proposed project, to be constructed to meet the standards of Title 24 that are in effect at the time of development. In addition, pursuant to Section 17.20.090 of the Calabasas Municipal Code, Energy Conservation Performance Standards are required for all new development, including the proposed project.
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	**Consistent** Under State law, appliances that are purchased for the project – both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture. In addition, pursuant to Section 17.20.090 of the Calabasas Municipal Code, Energy Conservation Performance Standards are required for all new development, including the proposed project.
Business, Transportation and Housing	
Measures to Improve Transportation Energy Efficiency Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	**Consistent** The project would be infill development in an urban area that is accessible by public transit. The City of Calabasas Line 1 shuttle makes a stop approximately 2,500 feet northeast of the project site at the intersection of Parkway

Table 12
Project Consistency with 2006 CAT Report
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
	Calabasas/Calabasas Road and a stop approximately 1,500 feet west of the site at the intersection of Mureau Road/Calabasas Road. This would encourage employees who work at the auto dealership to walk and use public transportation.
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors.	**Consistent** The project would include infill development along a transit corridor. In addition, the project would be located in an urban area that is accessible by public transit. This would encourage employees on the project site to walk and use public transportation.

Table 13
Project Consistency with Applicable Attorney General
Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	**Consistent** Currently, the California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to, the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Transportation Emissions Reduction Contribute transportation impact fees per residential and commercial unit to the City, to facilitate and increase public transit service.	**Consistent** The applicant would be required to pay any transportation management fees that the Cit may require.
Transportation Emissions Reduction Provide shuttle service to public transportation.	**Consistent** Shuttle service to public transportation would be unnecessary as the proposed project is located in close proximity to transit opportunities, including the Line 1 Calabasas shuttle.
Transportation Emissions Reduction Incorporate bike lanes into the project circulation system.	**Not applicable** The proposed project would use the existing City circulation system. In addition, the project is located along Calabasas Road, which is designated as a Class II bicycle facility and a Regional Bicycle Facility (City of Calabasas Bicycle Master Plan Update, 2005).

Table 13
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Transportation Emissions Reduction Provide onsite bicycle and pedestrian facilities (showers, bicycle parking, etc.) for commercial uses, to encourage employees to bicycle or walk to work.	**Consistent** The proposed project would provide bicycle parking facilities as required by Section 17.28 of the Municipal Code. In addition, the project is located along Calabasas Road, which is designated as a Class II bicycle facility and a Regional Bicycle Facility (City of Calabasas Bicycle Master Plan Update, 2005).
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Project construction shall require reuse and recycling of construction and demolition waste.	**Consistent** The proposed project would be required to comply with AB 939 to reach diversion goals. In addition, the project would be required to comply with Municipal Code regulations (Section 8.16) related to construction and demolition waste. The City has a waste diversion goal of 75% by 2012. Therefore, it is anticipated that the project would divert more than 50 percent of its solid waste during construction.
Water Use Efficiency Require measures that reduce the amount of water sent to the sewer system – see examples in CAT standard above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.	**Consistent** The proposed project would be required to comply with Section 17.20.230 of the City's Municipal Code which is related to the reduction of water consumption, including water conservation standards.
Land Use Measures, Smart Growth Strategies and Carbon Offsets	
Smart Land Use and Intelligent Transportation Systems Encourage mixed-use and high density development to reduce vehicle trips, promote alternatives to vehicle travel and promote efficient delivery of services and goods.	**Consistent** The proposed project is an infill development project that would increase the density of the project site. In addition, the project is located along a major transit corridor and would therefore promote efficient delivery of services and goods.
Smart Land Use and Intelligent Transportation Systems Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling.	**Consistent** The proposed project is located along a major transit corridor in Calabasas and would be accessible to pedestrians, cyclists, and buses.

The California Office of Planning and Research (OPR) CEQA guidelines include recommended mitigation strategies to reduce GHG impacts. According to this document, mitigation measures may include:

1. *Potential measures to reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, maintenance and/or removal.*

2. *The potential of siting, orientation, and design to minimize energy consumption, including transportation energy, water conservation and solid-waste reduction.*

3. *The potential for reducing peak energy demand.*

4. *Alternative fuels (particularly renewable ones) or energy systems.*

5. *Energy conservation which could result from recycling efforts.*

In addition, the project would be required to be designed to comply with requirements of Part 6, Title 24 of the California Building Standards Code – California Energy Code.

As indicated above, CDE emissions associated with the proposed project would not exceed the quantitative benchmark for significance (10,000 tons CDE/year). In addition, the project would be consistent with CAT and Attorney General strategies. Therefore, the contribution of onsite development to cumulative global climate change impacts would be **less than significant**.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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 ¼ mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous material 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
VIII. HAZARDS AND HAZARDOUS MATERIALS - Would the project:				
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

a. The proposed project involves the construction of a two-story building on a site that is currently paved and used by the Bob Smith BMW dealership to store vehicles. The proposed building would be used as an automotive dealership and for automotive retail supporting businesses. The project would not involve the storage, use, or disposal of any hazardous substances or materials, other than those which are typical of automotive dealerships and automotive retail uses. The project would not create a significant hazard to the public or the environment. **No impact** related to the use, storage, transportation, storage or emissions of hazardous materials would occur.

b, d. Operation of the proposed automotive dealership and supporting retail business would not release hazardous materials into the environment. Development of the proposed project would require the removal of the existing asphalt surface and grading and excavation for the proposed subterranean parking garage and building pads. The following databases were searched to determine whether or not the hazardous materials have been identified on the project site:

- *United States Environmental Protection Agency's Superfund Site Information (CERCLIS)*
- *California State Water Resources Control Board's Geotracker*
- *California Department of Substance Control's Cortese list of Hazardous Waste and Substances Sites*
- *United States Environmental Protection Agency's Brownfields Database*

Neither the project site nor adjacent properties were listed on any of the databases listed above.

Therefore, onsite grading and excavation activities would not release hazardous materials into the environment. **No impact** related to the release of hazardous materials into the environment during construction or operation would occur.

c. The nearest school, Round Meadow Elementary School, is located approximately 0.5 miles northwest of the project site. This school would not be directly affected by any emissions, materials, substances or waste from the project. **No impact** would occur.

e, f. The project site is not in the vicinity of an airstrip. The closest airport is the Van Nuys Airport, located approximately five miles northeast of the site. **No impact** would occur.

g. The proposed automotive dealership and automotive retail uses would not interfere with an emergency response/evacuation plan. The project does not include closures, rerouting or reconfiguration of roads or access points. **No impact** would occur.

h. The entire City of Calabasas is designated as a high fire hazard zone (City of Calabasas 2030 General Plan EIR, 2008). However, the project site is not within 500 feet of native vegetation and is within the 5-minute emergency response time; therefore, impacts related to wildland fire would be **less than significant.**

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
d) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a, f. The proposed project involves development of a two-story, 21,302 square-foot vintage automotive dealership on a 0.87-acre paved site on Calabasas Road that is currently used as a surface parking lot. If large amounts of bare soil are exposed during construction of the proposed project, finely grained soils could be entrained, eroded from the site, and transported to drainages. The amount of material that could potentially erode from the site during temporary construction activities would be greater than under existing conditions due to the loss of vegetation and movement of soils.

The project site is currently paved and used by the Bob Smith BMW dealership to store new vehicles. Following construction, a portion of the project site would be paved and devoted to the parking and circulation of vehicles. Paved surfaces accumulate pollutants such as deposits

of oil, grease, and other vehicle fluids and hydrocarbons. Traces of heavy metals deposited on streets and parking areas from auto operation and/or fall out of airborne contaminants are common urban surface water pollutants. During storm events, these pollutants would be transported by runoff into storm drain systems and ultimately into the regional watershed. It is anticipated that there would be more cars entering and exiting the site than there are currently. In addition, because the cars currently occupying the site are brand new, they are expected to leak a lower amount of fluids than the cars that would be on the site upon completion of the project. The introduction of urban pollutants to runoff from the project area could adversely affect the water quality of runoff from the project site.

In accordance with California's Porter/Cologne Act, the Regional Water Quality Control Boards (RWQCBs) of the State Water Resources Control Board (SWRCB) are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the Clean Water Act. Calabasas is within the jurisdiction of the Los Angeles RWQCB. The Los Angeles RWQCB adopted water quality objectives in its Stormwater Quality Management Plan (SQMP). This SQMP is designed to ensure that stormwater generated by a development does not exceed the limitations of receiving waters, and thus does not exceed water quality standards. Section 402 of the Clean Water Act ensures compliance with the SQMP. Under this section, municipalities are required to obtain permits for the water pollution generated by stormwater in their jurisdiction. These permits are part of the National Pollutant Discharge Elimination System (NPDES) permits, and Municipal Separate Storm Sewer Systems (MS4) permits. In accordance with the Countywide MS4 permit, each permitted municipality is required to implement the SQMP and all new developments must comply with the SQMP.

In accordance with Section 8.28 of the Calabasas Municipal Code, "no person shall cause any illicit discharge to enter the municipal storm water system unless such discharge: (1) consists of non-storm water that is authorized by an NPDES point source permit obtained from the Regional Board, provided that the discharger is in full compliance with all requirements of the permit or waiver and other applicable laws or regulation; (2) is associated with fire fighting activities or exempted by the Regional Board; or (3) is deemed by the city engineer or designee to be necessary to public health, safety or welfare." Section 8.28 of the Municipal Code lists prohibited discharges, which include the discharge of wash waters from automotive service facilities; the discharge of runoff from storage areas of materials containing grease, oil, or other hazardous substances; landscape debris; and construction debris.

Pursuant to Section 8.28 of the Municipal Code, construction and operation of the project would be required to implement Best Management Practices (BMPs) that reduce water quality impacts, including erosion and siltation, to the maximum extent practicable. Pursuant to Section 8.28.125, "All persons engaged in construction activity within the city shall implement best management practices to avoid, to the maximum extent practicable, the discharge of pollutants to the MS4, in accordance with the city's grading permit requirements. Prior to issuance of a grading permit, the developer will be required to submit a Local Storm Water Pollution Prevention Plan/Wet Weather Erosion Control Plan ("SWPPP/WWECP") setting forth appropriate construction site BMPs and maintenance schedules and setting forth the rationale used for selecting or rejecting BMPs and certified in accordance with the municipal NPDES Permit." In addition, the City would evaluate the proposed project using the applicable SUSMP, guidelines and BMP list approved by the Regional Board, and erosion and grading requirements of the City building official or director.

As discussed above, potential water quality impacts could occur during construction of the project and during operation of the project. However, with implementation of the standard requirements discussed above, water quality impacts from runoff during temporary construction activities and long-term operational activities would be **less than significant**.

b. The proposed project would not adversely affect groundwater recharge as the City of Calabasas does not contain any groundwater recharge areas (City of Calabasas 2030 General Plan FEIR). Impacts to groundwater recharge would be **less than significant.**

c,d. Existing drainage on the project site occurs by sheet flow over the existing contours. The site slopes down gradually toward the east where surface water is directed to the southeast corner of the site. Upon completion of the proposed project, runoff would continue to flow toward the east of the site. As part of the proposed project, a drainage system consisting of gutters, grass swales and drains would be constructed. Onsite stormwater would be conveyed toward the northeastern portion of the site, where the drainage system would connect to the existing Caltrans stormwater drain. Development of the proposed subterranean garage may require temporary or permanent dewatering of ground water. Treatment and discharge of this water would be subject to the requirements of the Los Angeles RWQCB's NPDES permit. The project would not substantially alter the existing drainage pattern of the site. The project would not cause substantial erosion or flooding on or offsite. Impacts would be **less than significant**.

e. The proposed project would include construction of an auto dealership with a surface parking lot on a site that is currently used as a surface parking lot. During construction of the project, grading activities would be subject to implementation of standard erosion control BMPs, as described above under item "a". The project design would be required to meet all TMDLs applicable to the area to ensure the site would not exceed targets adopted by the EPA or NPDES general construction permit.

Upon completion of the proposed project, the amount of impervious surfaces on the project site would be reduced compared to existing conditions. As part of the project, a drainage system consisting of gutters, grass swales and drains and the use of pervious surfacing on the site would be constructed. The proposed onsite drainage system would improve onsite drainage over existing conditions. Therefore, upon completion of the project, there would be a decrease in pollutant loads and volume of runoff from the project site. In addition, the site would be required to meet NPDES requirements, which would reduce the amount of pollutants in runoff from the site. Therefore, impacts would be **less than significant**.

g-i. The project site is not located within a 100-year flood hazard area (FEMA, Zone X, Map Number 06037C1268F, September 2008). Calabasas is not in the dam inundation area for any major stream or river in the region. Bard Reservoir, Chatsworth Reservoir, and the Encino Reservoir are all located within 10 miles of the City of Calabasas. However, due to the topography of the surrounding areas as well as the location and size of the reservoirs, flooding risk from these reservoirs would be low. It is highly unlikely that flood waters from dam failures at these reservoirs could physically reach the City of Calabasas (City of Calabasas 2030 General Plan EIR). Therefore impacts from flood hazards and risks associated with flood would be **less than significant.**

j. Inundation by a seiche, tsunami or mudflow is not expected to occur, as there are no major bodies of water in the vicinity of the project site and project site is generally flat. **No impact** would occur.

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

a. Currently, the project site is developed with a surface parking lot that is used by the Bob Smith BMW dealership to store vehicles. The project site is adjacent to auto dealerships and major transportation corridors in a commercial area of the City. Project development would include the construction of a two-story automotive dealership. No roads or access points would be closed or obstructed. The project would not physically divide an established community. **No impact** would occur.

b. The project site is zoned Commercial, Limited (CL) and designated as Business – Limited Intensity (B-LI) (City of Calabasas General Plan, 1993). The project is within the Ventura Freeway Scenic Corridor (City of Calabasas 2030 General Plan), the Scenic Corridor overlay zone and the West Calabasas Road Master Plan area.

Because the project site is within the Scenic Corridor overlay zone, the project would be required to comply with the City's Scenic Corridor Development Guidelines pursuant to CMC Section 17.20.070. The development guidelines include the following requirements applicable to the proposed project:

- *All roofs visible from Scenic Corridors shall be surfaced with medium dark colored fire-retardant, non-glare materials, and no obtrusive equipment shall be placed thereon.*
- *All structures within Scenic Corridors shall avoid large 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.*

- *The color of fences and walls shall blend with the natural environment.*
- *All structures shall be designed and situated on site to minimize adversely impacting views.*
- *Vines and/or other clinging plant material shall be used to visually accent walls and fences where space may preclude the use of other larger plants.*
- *Building setbacks from freeways and open spaces between buildings adjacent to the freeways shall be increased to allow landscaping and reduced visual impact. Distances shall be determined by viewshed, site topography and configuration, and architectural design of the proposed structures.*
- *Landscaping and tree planting should visually enhance, soften, or conceal, as much as possible, developments and commercial properties within visual proximity of any Urban Zone.*
- *Lighting standards within Urban Scenic Corridors rights-of-way shall use fixtures with cut-offs that focus the light directly onto the street and shoulders, and shall be redesigned and placed in such a manner as to prevent ambient illumination beyond the boundaries of the project site.*
- *Vehicle parking lots within Urban Scenic Corridors shall be screened by utilizing combinations of earthen berm, landscaping, and innovative decorative wall designs to reduce the visual impact of rows of vehicles. Appropriate building placement can also serve as a method of screening parking lots.*
- *All developments shall include drainage system designs which result in no increase in flows and non point source pollution control devices which remove all urban pollutants including herbicides and pesticides.*

The West Calabasas Road Master Plan guidelines are intended to provide clear and useful recommendations for the design of all development in the West Calabasas Road Master Plan area. The proposed project would be a two-story, vintage automotive dealership and would include a café onsite. The project would be consistent with the type of land use recommended: a "boutique auto" dealership for "classic cars" and "espresso bar." The project would also be consistent with several of the design guidelines suggested in the Master Plan, including but not limited to: (a) smaller outdoor areas to display vehicles for sale; (b) using paving materials varying in texture and color where pedestrian and vehicular areas overlap; (c) providing bicycle parking; (d) adequately screening parking lot adjacent to and visible from public streets through landscaping or changes in elevation; (e) locating trees though parking areas; (f) using canopy trees to reduce the impact of larger expanses of paving and to provide shade; (g) clearly distinguishing the main entrance via emphasis on lighting, landscaping and architecture; (h) capturing the desired architecture of the building by carefully designing windows, doors and entries; (i) incorporating 360-degree, by articulating all facades via variation in massing, roof forms, wall planes, and surface articulation; and (j) incorporating high quality and authentic building materials. The Master Plan also recommends that buildings be one story in height on the north side of Calabasas Road in order to protect views of ridgelines from the Ventura Freeway. The project would exceed the suggested height; however, as discussed in Section I, *Aesthetics*, the project would not block views of ridgelines to the south of the site from the northbound lanes of the Ventura Freeway and that, with the exception of an estimated two-second time period, the views of ridgelines afforded to motorists in the southbound lanes would not be blocked. Therefore, although the project would exceed the building height suggested for the project site by the West Calabasas Master Plan, the project would be consistent with the intent of the Plan's suggested use of the site as well as most of the design

guidelines and would not completely block views from the Ventura Freeway of the ridgelines south of the site.

As part of the project, a Conditional Use Permit, General Plan Amendment from B-LI to B-BP, a zone change from CL to Commercial Business Park (CB), Scenic Corridor permit, and a Development Plan for modification of the CB development standards would be requested. With the requested approvals and required compliance with the Scenic Corridor Development Guidelines, the proposed project would be consistent with applicable land use plans and policies. The project is not subject to a local coastal program. **No impact** would occur.

c. The proposed project would not conflict with any habitat conservation plan or natural community conservation plan as the project site is not located in an area where these plans exist. **No impact** would occur.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

a-b. The primary mineral resource found in southern California is construction aggregate. The City of Calabasas lies mainly on sedimentary rock, which is typically not associated with aggregate resources. A 1994 report by the California Geological Survey designated areas in the western portion of Calabasas as Mineral Resource Zone (MRZ) 1, indicating that no significant mineral deposits are present. The California Surface Mining and Reclamation Act (SMARA) of 1975 does not require local governments to protect land designated as MRZ 1.

The remainder of the City, including the project site, is designated MRZ 3, indicating that the significance of mineral resources could not be evaluated from available data (City of Calabasas 2030 General Plan). The proposed project would not result in the loss of availability of a mineral resource of local, regional, or statewide importance. Impacts to mineral resources would be **less than significant.**

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE – Would the project 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 above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise?	☐	☐	☐	☒

a. A weekday 20-minute noise measurement was taken on the project site using an ANSI Type II integrating sound level meter onsite on June 8, 2010. The measurement indicated an average ambient noise level onsite of 71.6 dBA Leq (see Appendix E for measurement results), which is within the conditionally acceptable range for office and commercial development identified in the 2030 Calabasas General Plan FEIR. According to the FEIR Noise Section, in the conditionally acceptable range, "the potential for project approval should not be encumbered by land use/noise compatibility issues, provided the applicant has included measures or conditions that are acceptable to the Planning Commission or appropriate planning authority and ultimately result in land use/noise compatibility."

Noise levels associated with existing and future traffic along Calabasas Road were calculated using the noise modeling equations adapted from the Federal Highway Administration noise prediction model (Noise Modeling Data sheets can be viewed in Appendix E of this document). For traffic-related noise, impacts are considered significant if project-generated traffic results in exposure of sensitive receptors to unacceptable noise levels. The Federal Interagency

Committee on Noise (FICON) recommendations were used to determine whether or not increases in roadway noise would be considered significant. Table 14 shows the significance thresholds for increases in traffic related noise levels caused either by the project alone or by cumulative development.

Table 14
Significance of Changes in
Operational Roadway Noise Exposure

Ambient Noise Level Without Project (Ldn or 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

Source: Federal Interagency Committee on Noise (FICON), August 1993

The proposed 21,302 square-foot vintage automotive dealership and automotive retail supporting businesses would generate an estimated 198 average daily vehicle trips (see section XV, *Transportation / Traffic*). The estimated project-generated traffic would result in an increase of approximately 0.1 dBA (see Appendix E for results of noise modeling spreadsheets). Therefore, based on the traffic noise significance thresholds shown in Table 14, the noise level increase associated with project-generated traffic would not be significant. In addition, the project itself is not a noise sensitive use. Therefore impacts related to noise level exposure would be **less than significant**.

b. Construction of the proposed project would entail site grading, clearing, excavation and building activities. Construction-related activities associated with the project have the potential to create temporary noise and groundborne vibration in the immediate vicinity of the project site. Noise typically associated with construction activities is shown in Table 15.

Noise levels typically attenuate at a rate of 6 dB per doubling of distance from point sources such as industrial machinery (Harris, 1979). For example, a person standing 25 feet from an industrial machine may experience noise levels of 75 dBA, while a person standing 50 feet from the same noise source would experience noise levels of 69 dBA, and a person standing 100 feet from the source would experience noise levels of 63 dBA. Table 16 below shows anticipated noise levels at nearby sensitive receptor locations during construction of the project.

As shown in Table 16, the maximum anticipated noise levels associated with temporary construction activities would be 62.0 dBA at the closest sensitive receptor location. A noise level of 62.0 dBA at the residences south of the site is within the conditionally acceptable noise range for residential development (City of Calabasas 2030 General Plan FEIR) and a noise level of 52.4 is within the normally acceptable noise range for nursing homes. Therefore, construction noise would be **less than significant**.

Table 15
Typical Noise Levels at Construction Sites

Construction Phase	Average Noise Level at 50 Feet	
	Minimum Required Equipment Onsite	All Pertinent Equipment Onsite
Clearing	84 dBA	84 dBA
Excavation	78 dBA	88 dBA
Foundation/Conditioning	88 dBA	88 dBA
Laying Subbase, Paving	78 dBA	79 dBA
Finishing and Cleanup	84 dBA	84 dBA

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the U.S. Environmental Protection Agency, 1971.

Table 16
Anticipated Noise Levels at Sensitive Receptor Locations due to Project Construction

Sensitive Receptor	Distance to Sensitive Receptor	Maximum Anticipated Noise Level
Residences	1,000 feet	62.0
Senior Living Center	3,000 feet	52.4

c. Please see discussion under item a.

d. Please see discussion under item b.

e, f. The proposed project would not expose people to excessive noise levels generated by air traffic as there is no airport or private airstrip in the City of Calabasas. The closest airport is the Van Nuys Airport, located approximately 10 miles northeast of the project site. **No impact** would occur.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

a. The proposed project involves the construction of a vintage auto dealership. The project does not include residential units, and therefore would not directly induce population growth. However, the project may generate indirect population growth by increasing new permanent employment opportunities that would induce population growth.

Currently, the population in the City of Calabasas is 23,788 people (California Department of Finance, 2010). The proposed automotive dealership and automotive retail supporting business would employ an estimated 15 people. Some of the new employees may be drawn from outside of Calabasas; others would be drawn from the local labor pool. Those from outside of the area may commute from their existing residences, others may move to Calabasas and still others may move to surrounding cities. If all new employees move to Calabasas, the population would increase to 23,803 people. The SCAG estimates the population in 2015 to be 24,813 in the City. Therefore, an increase of 15 residents in the City would not exceed population growth forecasts. Impacts related to population growth would be **less than significant.**

b-c. The project site is currently a surface parking lot. There are no residential units on the project site. Therefore, the project would not displace any housing or people. **No impact** would occur.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
a) Would the project 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 governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

a (i). The closest fire station to the project site is Station #68 which is located at 24130 Calabasas Road, approximately 2,000 feet east of the project site. Station #68 is part of the Los Angeles County Fire Department. An increase in development within the City would incrementally increase demand for fire services. However, given that the project would be located within 2,000 feet of an existing fire station, the project would not cause a strain on existing fire protection service (Captain Tiberio, June 17, 2010). Improvements to fire protection infrastructure would not be required (Captain Tiberio, June 17, 2010). Impacts to fire protection service would be **less than significant.**

a (ii). The Los Angeles County Sheriffs Department provides police service to residents of Calabasas. An increase in employment in the City may increase the population in the City, as discussed in Section XIII, *Population and Housing*, above. An increase in population would incrementally increase demand for police service. However, the proposed vintage auto dealership would not be expected to generate many calls for police services. Improvements to police protection infrastructure would not be required. Impacts to police protection service would be **less than significant.**

a (iii). The proposed project involves the development of a 21,302 square-foot auto dealership. The proposed project would not involve residential development. Therefore, the proposed project would not directly result in the need for new or altered public schools. **No impact** would occur.

a (iv). The proposed project involves the development of a 21,302 square-foot auto dealership. Calabasas Creek Park and Calabasas Tennis and Swim Center are located approximately one mile southeast and east of the project site, respectively. The proposed project would not induce substantial growth in the project area, as discussed above in Section XIII, *Population and Housing*. Therefore, the project would not adversely affect any existing parks or impede performance objectives for any of local parks. **No impact** would occur**.**

a (v). The proposed project is would not have a significant impact on any other public facilities. **No impact** would occur**.**

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a. The proposed project involves the development of a 21,302 square-foot auto dealership. Calabasas Creek Park and Calabasas Tennis and Swim Center are located approximately one mile southeast and east of the project site, respectively. As project is not expected to induce substantial growth in the project area, the proposed project would not directly or indirectly affect existing neighborhood or regional parks/recreation facilities. **No impact** would occur**.**

b. As discussed above, parks are present within one mile of the project site. In addition, the project would not include residential development and would therefore not require the construction or expansion of recreational facilities. The project would not include recreational facilities on the project site. **No impact** would occur**.**

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

The following traffic analysis is based upon a traffic study conducted by Kimley-Horn and Associates, Inc., dated April 2010, which is included in its entirety in Appendix B.

Regional access to the project site is provided primarily by the Ventura Freeway (U.S. 101). The nearest access to the Ventura Freeway is via the southbound on- and off-ramps and northbound on-ramp at Parkway Calabasas. Study area roadways that would be utilized by travelers to and from the proposed project include Calabasas Road to the south and Parkway Calabasas to the east.

a, b. Two intersections were analyzed for evening (PM) peak hour only operations since the dealership would not be open between 7 and 9 AM, which is the morning (AM) peak hour. The two intersections identified in coordination with City staff include:

- *Intersection of Calabasas Road and the Ventura Freeway off/on Ramps (signalized)*
- *Intersection of Calabasas Road and Parkway Calabasas (signalized)*

Current Levels of Service. Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum acceptable level of service in urban areas. The City of Calabasas traffic analysis guidelines require the use of Intersection Capacity Utilization (ICU) methodology to calculate signalized intersection volume to capacity (V/C) ratios using the Circular 212 Planning methodology. Table 17 presents the LOS and corresponding V/C ratio for signalized intersections, and seconds of delay for unsignalized intersections.

Table 17
City of Calabasas Intersection LOS Definitions

Level of Service (LOS)	Signalized Volume to Capacity Ratio (V/C)	Unsignalized Seconds of Delay per Vehicle
A	0.00 to 0.60	Less than 10
B	0.61 to 0.70	10.01-15.0
C	0.71 to 0.80	15.1 to 25.0
D	0.81 to 0.90	25.1 to 35.0
E	0.91 to 1.00	35.1 to 50.0
F	Exceeds 1.00	Exceeds 50

Source: City of Calabasas 2030 General Plan

Analysis of Existing (2010) traffic conditions is based upon traffic counts provided by the City. The traffic counts were collected on November 19, 2009, as part of the Malamut Vintage Automotive Dealership project traffic analysis. The peak-hour intersection traffic counts were conducted between the hours of 7 AM and 9 AM (AM peak), and 4 PM and 6 PM (PM peak) on a typical weekday in November 2009. The delay during the peak hour for the existing traffic conditions at the two study area intersections have been calculated and are shown in Table 18.

As indicated in Table 18, the two study area intersections currently operate at a LOS C or better during the AM and PM peak hours.

Significance Thresholds. The City of Calabasas has adopted a level of service threshold of LOS C (V/C ratio 0.80) or better as the minimum standard for intersection operations, except at freeway interchanges. A significant impact would occur if project generated traffic causes the intersection LOS to degrade to below LOS C. The performance standard at the freeway interchanges has been set at LOS D. Significant transportation impacts are determined based

on the criteria shown in Table 17. Where existing intersection levels of service are below LOS C, a significant impact would occur if the project causes a peak hour V/C ratio increase equal to or greater than those listed in Table 19.

Table 18
Existing Levels of Service

Intersection	LOS Analysis Results			
	AM Peak Hour		PM Peak Hour	
	V/C Ratio	LOS	V/C Ratio	LOS
Calabasas Road/Ventura Freeway On & Off Ramps	0.761	C	0.698	B
Calabasas Road/ Parkway Calabasas	0.674	B	0.670	B

Source: Kimley-Horn and Associates, Inc., 2010. See Appendix B for complete traffic report.

Table 19
Significance Thresholds for Intersections Operating at LOS D, E and F

Existing or Future Link/Intersection LOS	Volume to Capacity (V/C) ratio	Maximum Peak Hour V/C Increase
D	0.81-0.90	0.020
E	0.91-1.00	0.015
F	≥1.01	0.010

Source: City of Calabasas 2030 General Plan

Because the existing levels of service at the two study area intersections are LOS C or better, a significant impact would occur if project generated traffic causes the LOS to degrade below LOS C.

Project Trip Generation. The proposed Malamut Vintage Automotive Dealership will be a unique facility that sells only limited production and specialty vintage vehicles. The dealership will not be open during the morning peak hour (7 to 9 AM) when morning traffic operations analysis are completed for traffic studies in Calabasas. Hours of operation are anticipated and proposed to be from 9 or 10 AM until 7 PM on a typical weekday. For the purposes of this analysis, it is assumed that the dealership would be open from 9 AM until 7 PM each weekday. Therefore, only the weekday pm peak hour intersection operations are evaluated in the traffic impact analysis report.

The Institute of Transportation Engineers (ITE) is typically utilized to define and calculate the expected trip generation from a proposed development. The ITE land use description for an automotive dealership was determined to not accurately reflect the unique nature of this

dealership. Likewise, ITE trip generation rates for retail stores were also determined to not be applicable to the Malamut dealership because of the unique merchandise and because they would be located within the dealership. Therefore, a unique trip generation methodology was developed for this project, in consultation with City staff. The detailed trip generation methodology paper reviewed and accepted by City staff is provided in Appendix C of the traffic report (see Appendix B for the complete traffic report). Some of the more notable elements and rationale to develop unique trip rates are described below.

Approximately 60% of the customer trips to the dealerships for car purchase considerations are expected to be by appointment and would be scheduled outside of the PM peak hour of adjacent street traffic (4 to 6 PM). Approximately 40% of the trips are expected to be walk-in. The dealership is expected to have 15 employees, and not all would be working at the same time. The dealership service bays would be to repair vehicles for sale and for customers that purchase their vehicles at Malamut only, and would be scheduled by appointment to occur outside of the PM peak hour. Similar to the limited production and specialty vintage vehicles, it is expected that there would be minimal walk-in customers that only browse.

The proposed project would generate an estimated 198 daily vehicle trips, including 13 weekday PM peak hour trips. Table 20 presents the trip generation rates and estimates for the proposed project.

Table 20
Trip Generation Rates and Estimates

Land Use	Time Period	Total Trips In		Total Trips Out		Total Trips
		%	Trips	%	Trips	
Vintage Automotive Dealership	Daily	50.0%	99	50%	99	198
	Weekday PM Peak	50.0%	13	50%	13	26

Source: Kimley-Horn and Associates, Inc., 2010. See Appendix B for complete traffic report.

Project Trip Distribution. The distribution of project traffic was developed by Kimley-Horn and Associates, Inc. based upon local knowledge of the study area and input from City of Calabasas staff. The dealership trips were assigned to the site driveways, Calabasas Road and adjacent roadways, freeway ramps and interchanges. The dealership market analysis assumes that 70% of the trips would come to/from the east and south (Los Angeles), 60% via the Ventura Freeway and 10% via Pacific Coast Highway (CA-1). Approximately 30% would come from the west and north (Ventura, Santa Barbara), via the Ventura Freeway.

Project traffic was assigned to the study area roadway network based upon distribution patterns that considered adjacent land uses, freeway access, and arterial capacities. The project trip distribution percentages are illustrated in Figure 5 of the traffic study and the resulting weekday project intersection PM peak-hour traffic volumes are illustrated in Figure 6 of the traffic study (see Appendix B for complete traffic study).

Existing With Project Conditions. PM peak-hour project traffic was added to the existing (2010) without project scenario to determine whether development of the project would result in any significant PM peak-hour project traffic impacts. Table 21 provides a summary of the existing (2010) with project weekday PM peak intersection analysis. Figure 7 of the traffic study illustrates the existing (2010) with project weekday PM peak hour traffic volumes at the study area intersections.

Table 21
Existing (2010) With Project Weekday PM Peak Hour Intersection LOS

Intersection	Existing Conditions		Existing Conditions with Project			Impact
	VC	LOS	V/C	LOS	Change	
Calabasas Road/ Ventura Freeway On & Off Ramps	0.698	B	0.707	C	0.009	No
Calabasas Road/Parkway Calabasas	0.670	B	0.675	B	0.006	No

Source: Kimley-Horn and Associates, Inc., 2010. See Appendix B for complete traffic report.

As shown in Table 21, the level of service at the intersection of Calabasas Road and the Ventura Freeway on- and off-ramps would change from LOS B to LOS C with project generated traffic. The level of service at the intersection of Calabasas Road and Parkway Calabasas would remain LOS B with project generated traffic. Using the City of Calabasas's significance criteria (see Table 17), the results indicate that traffic generated by the proposed project would not have a significant impact to the study area intersections as the levels of service would not degrade to below LOS C. Therefore, impacts would be **less than significant**.

c. The proposed project involves the development of a two-story building. The proposed structure would be similar in height to surrounding structures. The project would not affect air traffic or result in a change of air traffic patterns, or otherwise include a change in air traffic locations that would result in a substantial safety risk. **No impact** would occur.

d. The proposed project involves the construction of a vintage automotive dealership in an urbanized part of Calabasas. The proposed project would be compatible with surrounding land uses, which include automotive dealerships and a plant nursery. The proposed project would not increase circulation hazards. Therefore, impacts relating to circulation hazards would be **less than significant**.

e. The proposed project would not result in inadequate emergency access as the Fire Department would review site plans, site construction, and the actual structures prior to occupancy. As part of the review, the Fire Department would ensure that required fire protection safety features, including adequate emergency access, are implemented. Impacts to emergency access would be **less than significant.**

f. The proposed project would not conflict with any programs, policies or plans supporting alternative transportation. **No impact** to alternative transportation programs, plans or policies would occur.

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

a, b. The proposed project involves the construction of a two-story building on a site that is currently paved and used by the Bob Smith BMW dealership to store vehicles. The proposed building would be used as an automotive dealership and for automotive retail supporting businesses. Wastewater generated in the City of Calabasas is treated at the Tapia Water Reclamation Facility (TRWF), operated by Las Virgenes Municipal Water District (LVMWD).

The TWRF currently has a capacity of 16 million gallons per day (mgd); however, future updates to the facility would reduce the capacity to 12 mgd (LVMWD, 2007 Integrated Water System Master Plan, 2007). The TWRF currently treats approximately 9.4 mgd, resulting in 6.6 mgd of available capacity. Once capacity is reduced, the available capacity would be 2.6 mgd.

According to the Calabasas General Plan FEIR, the wastewater generation factor for retail uses, which is the land use that would apply to the project, is 80 gallons per day (gpd) per 1,000 square feet. Based on this generation factor, the proposed project would generate approximately 1,700 gallons per day or 0.0017 mgd (City of Calabasas 2030 General Plan FEIR). Wastewater generated by the proposed project would account for approximately 0.03% of TWRF's current 6.6 mgd surplus treatment capacity. Upon completion of future updates to TWRF, project-generated wastewater would account for approximately 0.07% of TWRF's 2.6 mgd surplus treatment capacity. Therefore, project-generated wastewater would be accommodated by the TWRF and no expansion of the wastewater treatment facilities would be needed. Impacts to wastewater treatment systems would be **less than significant.**

c. As discussed in Section IX, *Hydrology and Water Quality*, existing drainage on the project site sheetflows over the existing contours. The site slopes down gradually toward the east where surface water is directed to the southeast corner of the site. Upon completion of the proposed project, runoff would continue to flow toward the east of the site. As part of the proposed project, a drainage system consisting of gutters, grass swales and drains would be constructed. Onsite stormwater would be conveyed toward the northeastern portion of the site, where the drainage system would connect to the existing Caltrans stormwater drain. The proposed development would not result in an increase of offsite stormwater flow requiring new or expanded stormwater drainage or treatment facilities. Furthermore, implementation of the requirements of the Los Angeles County Stormwater Ordinance, the NPDES permit, and City of Calabasas Stormwater and Urban Runoff Pollution Prevention Control Ordinance (Chapter 8.28 of the City of Calabasas Municipal Code) would reduce impacts to a **less than significant** level.

d. The City of Calabasas General Plan includes water generation factors for residential, retail and office/business park uses. The water use factor for retail and office/business park uses is 2,000 gallons per day (gpd) per acre (City of Calabasas 2030 General Plan FEIR). The project site measures 37,897 square feet (0.87 acre). Therefore, the proposed project would increase water demand by approximately 1,740 gpd (0.005 acre feet).

The City of Calabasas obtains water service from the Las Virgenes Municipal Water District (LVMWD). According to the LVMWD's 2005 Urban Water Management Plan, LVMWD estimates their water supply in 2015 to be 37,130 acre feet per year (approximately 100 acre feet per day). The proposed project would result in an increase in water demand of approximately 0.005 acre feet per day or about 2 acre feet per year. Thus, the project's water demand would represent approximately 0.005% of LVMWD's estimated 2015 water supply. The project's anticipated water demand would not result in a significant impact to the water supply of the City of Calabasas. However, because the applicant has not specified that the City's water conservation performance objectives have been incorporated into the project, impacts are considered **potentially significant unless mitigation incorporated.**

e. Please see discussion under items a and b.

f, g. The Calabasas Landfill, located adjacent to the Ventura Freeway on Lost Hills Road, would receive the solid waste generated by the proposed project. The Calabasas Landfill currently averages 1,555 tons/day with a maximum daily permitted capacity set at 3,500 tons/day (City of Calabasas 2030 General Plan EIR and California Integrated Waste Resources Board). Therefore, there is a daily surplus capacity of 1,945 tons/day. Based on current intake rates, the Calabasas Landfill is expected to reach capacity in 2028 (City of Calabasas 2030 General Plan EIR). An increase in the generation of solid waste in the City of Calabasas would incrementally reduce the available capacity at the Calabasas Landfill. According to the Calabasas General Plan FEIR, the solid waste generation factor for retail uses and office/business park uses is 0.06 pounds per square foot per day. Based on this generation factor, the proposed 21,302 square foot project would generate approximately 1,280 pounds, or 0.64 tons, of solid waste per day. This would account for approximately 0.03% of the Calabasas Landfill's daily surplus capacity. Furthermore, the proposed project would be required to comply with applicable provisions of the City's Resolution 2008-1111, which requires the City to achieve a 75% diversion rate by 2012. Thus, solid waste generation from the proposed project would have a **less than significant** impact on the permitted remaining capacity of the Calabasas Landfill.

Mitigation Measures

The following mitigation measure would reduce impacts to water conservation to a less than significant level.

U-1 **Water Conservation Measures.** In order to meet the City's water conservation performance objectives, the following techniques shall be implemented as part of the project:

- *Incorporation of drought tolerant and low water using plants; maximize preservation of natural vegetation.*
- *Incorporation of water conservation techniques into the design of the irrigation system through such techniques as mulching, installation of drip irrigation systems, landscape design to group plants of similar water demand, rain sensors and automatic irrigation systems.*
- *Clustering of landscaped areas to maximize the efficiency of the irrigation system; design of irrigation systems to eliminate watering of impervious surfaces.*
- *Installation of water conserving kitchen and bathroom fixtures and appliances, installation of thermostatically controlled mixing valves for baths and showers, and insulation of hot water circulating systems.*

Significance After Mitigation

Implementation of the above mitigation measure would ensure impacts related to water use and conservation would be less than significant.

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

a. The proposed project would not have the potential to significantly degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. The proposed project has the potential to adversely affect as-yet undiscovered archeological and paleontological resources and human remains if they are found to exist on the project site. The proposed project would result in potential impacts to nesting birds due to the proposed removal of onsite trees. These impacts would be reduced to a less than significant level through incorporation of mitigation measures CR-1 through CR-5, and BIO-1. Please refer to Section IV, *Biological Resources*, and Section V, *Cultural Resources,* for additional information that supports this finding.

b. The proposed project involves the construction of a vintage automotive dealership on a previously disturbed site in the City of Calabasas. Impacts related to the development of the proposed project would be mitigated to a less than significant level through the implementation of mitigation measures contained in this document. As such, the project would not result in a

not result in a cumulatively considerable contribution to cumulative impacts.

c. As discussed in Section III, *Air Quality*; Section VIII, *Hazards and Hazardous Materials*; and Section XII, *Noise*, impacts related to air quality, hazards and noise would be less than significant. The proposed project has significant but mitigable environmental effects associated with geology, as discussed in Section VI, *Geology and Soils*. These effects can be mitigated to levels of insignificance through incorporation of Mitigation Measures GEO-1. Refer to the discussions under Section VI, *Geology and Soils,* for additional information that supports this finding. No significant residual effects would occur after implementing the recommended mitigation.

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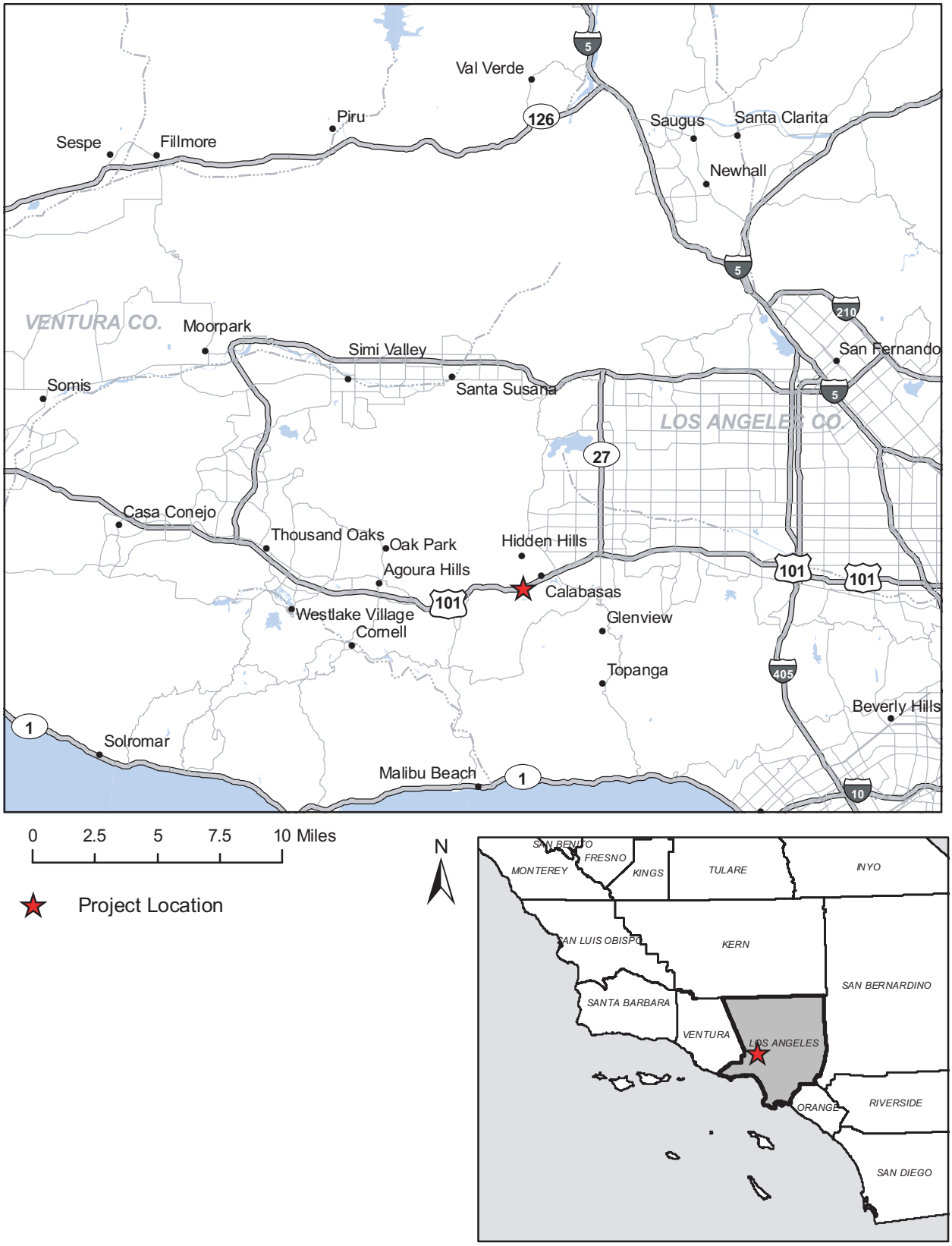
Figures



Source: US Bureau of the Census TIGER 2004 data.

Regional Location

Figure 1

Map images copyright © 2010 ESRI and its licensors. All rights reserved. Used by permission.

0 100 200 Feet

N

Site Location

Figure 2

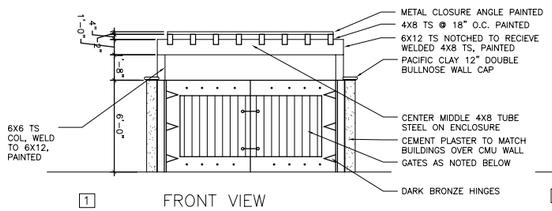
Photo 1 - View of project site looking northwest from Calabasas Road.

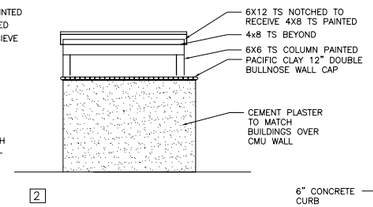
Photo 2 - View of project site looking southwest from northeast corner of project site.

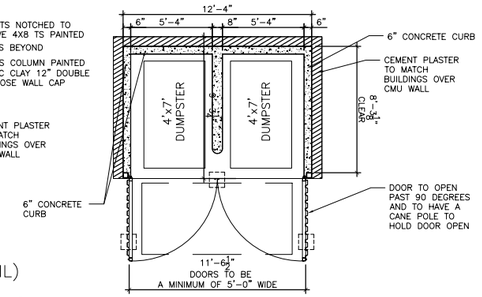
Photo 2 - View of project site looking northeast from Calabasas Road.

Site Photos

Figure 3



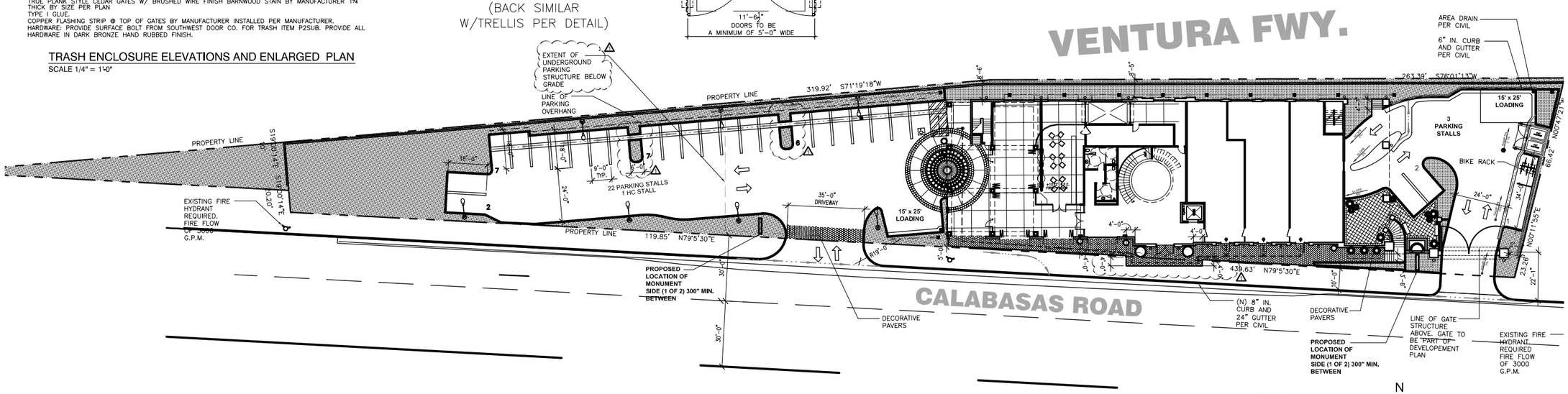




TRUE PLANK STYLE CEDAR GATES W/ BRUSHED WIRE FINISH BARNWOOD STAIN BY MANUFACTURER 1¾" THICK BY SIZE PER PLAN
TYPE I GLUE.
COPPER FLASHING STRIP @ TOP OF GATES BY MANUFACTURER INSTALLED PER MANUFACTURER.
HARDWARE: PROVIDE SURFACE BOLT FROM SOUTHWEST DOOR CO. FOR TRASH ITEM P2SUB. PROVIDE ALL HARDWARE IN DARK BRONZE HAND RUBBED FINISH.

TRASH ENCLOSURE ELEVATIONS AND ENLARGED PLAN
SCALE 1/4" = 1'-0"

NOTE:
PARKING AREAS SHALL HAVE LIGHTING CAPABLE OF PROVIDING ADEQUATE ILLUMINATION FOR SECURITY AND SAFETY. LIGHTING STANDARDS SHALL BE ENERGY EFFICIENT AND IN SCALE WITH THE HEIGHT AND USE OF THE ON-SITE STRUCTURE(S). ANY ILLUMINATION, INCLUDING SECURITY LIGHTING, SHALL BE DIRECTED DOWNWARD, AWAY FROM ADJOINING PROPERTIES AND PUBLIC RIGHT -OF-WAYS.



PARKING ANALYSIS

USE	FIRST FLOOR AREA	SECOND FLOOR AREA	FIRST LEVEL PARKING AREA	SECOND LEVEL PARKING AREA	PARKING RATIO	# OF STALLS
RETAIL	4,232 SF	-	-	-	1/200 SF	21.2
CAFE + PRE-KITCHEN	1,109 SF	-	-	-	1/100 SF	11.0
VEHICLE DISPLAY	2,259 SF	7,100 SF	-	-	1/450 SF	20.8
AUTO OFFICE	-	1,497 SF	-	-	1/450 SF	3.3
COMMON AREA	1,764 SF	280 SF	-	-	-	-
EXIT STAIRS	-	-	-	-	-	-
STORAGE	-	58 SF	-	715 SF	1/5,000 SF	.15
TOTAL BUILDING NET SF	9,862 SF	9,027 SF				
OUTDOOR DISPLAY	1,048 SF	2,165 SF	-	-	1/2,000 SF	1.6
VEHICLE SERVICE	-	-	-	1,003 SF	1/500 SF	2.0
TOTAL GARAGE SF			17,895 SF	19,703 SF		-
TOTAL PARKING REQUIRED:						60
TOTAL PARKING PROVIDED	(25 UNCOVERED, 63 COVERED, 4 HC)					92

SITE SUMMARY

TOTAL GROSS SITE AREA:	40,523 SF (0.93 AC)
TOTAL NET LOT AREA:	39,540 SF (0.90 AC)
TOTAL BUILDING GROSS SF:	20,983 SF
OUTDOOR DISPLAY AREA:	1,048 SF
FAR: 23,749 SF* / 40,523 GROSS SF	(.58)
FAR: 23,749 SF*/ 39,540 NET SF	(.60)

*(Building SF + Outdoor Display SF + Vehicle Service SF + Storage SF)

LOT COVERAGE SF:	29,416 SF (72.59%) GROSS
LOT COVERAGE SF:	29,416 SF (74.39%) NET

(COVERAGE RATIO INCLUDES BLDG AND PAVING)

PERVIOUS SURFACE :	12,771 SF (31.51%) GROSS
PERVIOUS SURFACE :	12,771 SF (32.29%) NET

(PERVIOUS SURFACE RATIO INCLUDES ALL AREA DESIGNATED AS LANDSCAPING AND PERVIOUS PAVING)

FRONT SETBACK/BUFFER LANDSCAPE COVERAGE: 5' SETBACK + 10' OFFSITE LANDSCAPE BUFFER PROVIDED BY DEVELOPER

LEGAL DESCRIPTION
SEE CONCEPTUAL GRADING/DRAINAGE PLAN

PROJECT ADDRESS
24439 Calabasas Road, Calabasas CA 91302

LEGEND (SYMBOLS & ABBREVIATION)

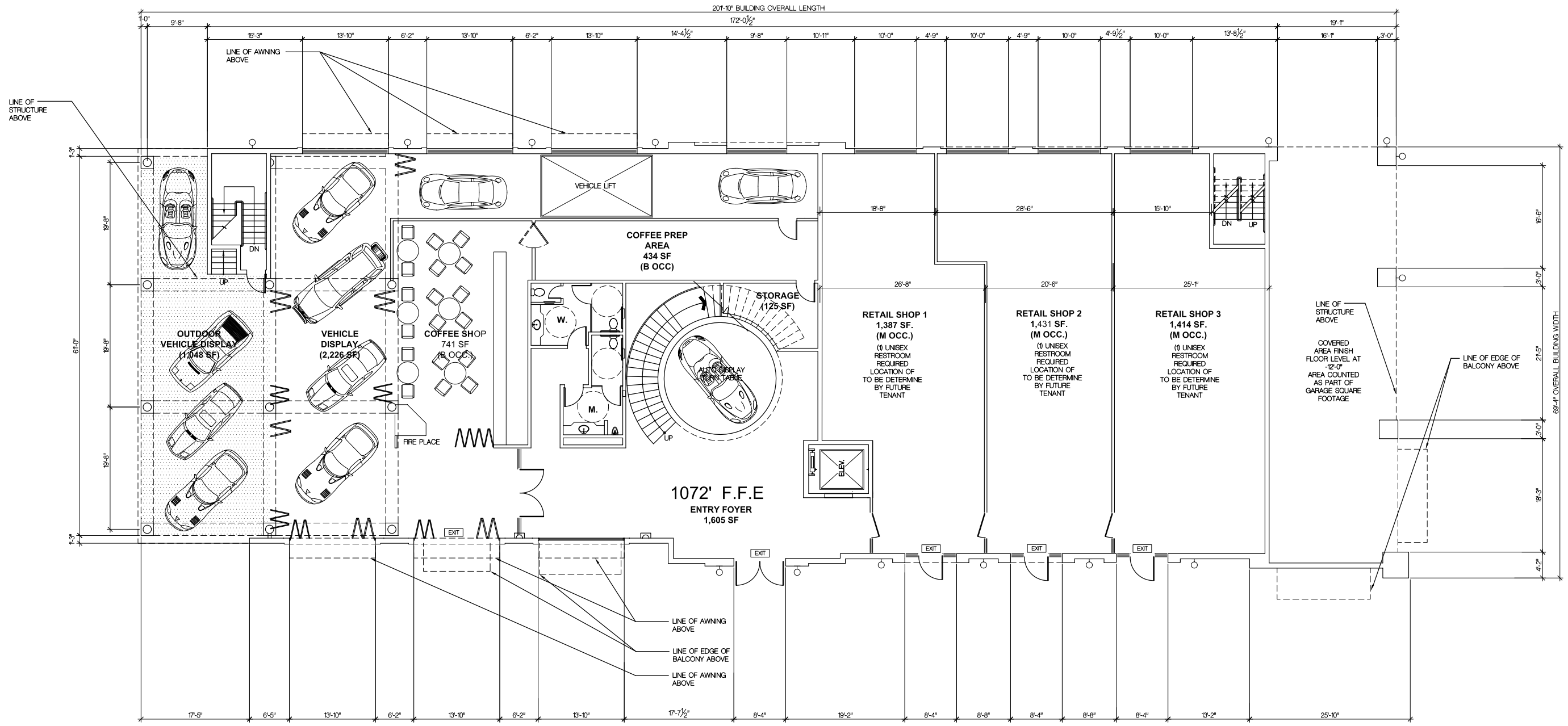
- TRASH ENCLOSURE
- LANDSCAPE/PREVIOUS PAVING AREA. SEE LANDSCAPE DRAWINGS
- COLORED STAMPED CONCRETE
- POLE MOUNTED LIGHT FIXTURE
- STEP LIGHTS
- WALL SCONCE
- AREA DRAIN (PER CIVIL)

NOTE:
FOR TOPOGRAPHY, NATURAL CONTOURS, TREES DRAINAGE COURSES, STREETS, TRAILS, OPEN SPACE, SLOPES ETC., SEE CONCEPTUAL GRADING/DRAINAGE PLANS, SHEETS #3 AND #4. SEE PLANS FOR BUILIDNG LIGHTING

Site Plan

Drawing Source: KTGY, October 2010.

Figure 4



EXTENT OF COVERED OUTDOOR SPACE

WALL SCONCE

POLE MOUNTED LIGHT FIXTURE

0 9 18
Scale in Feet

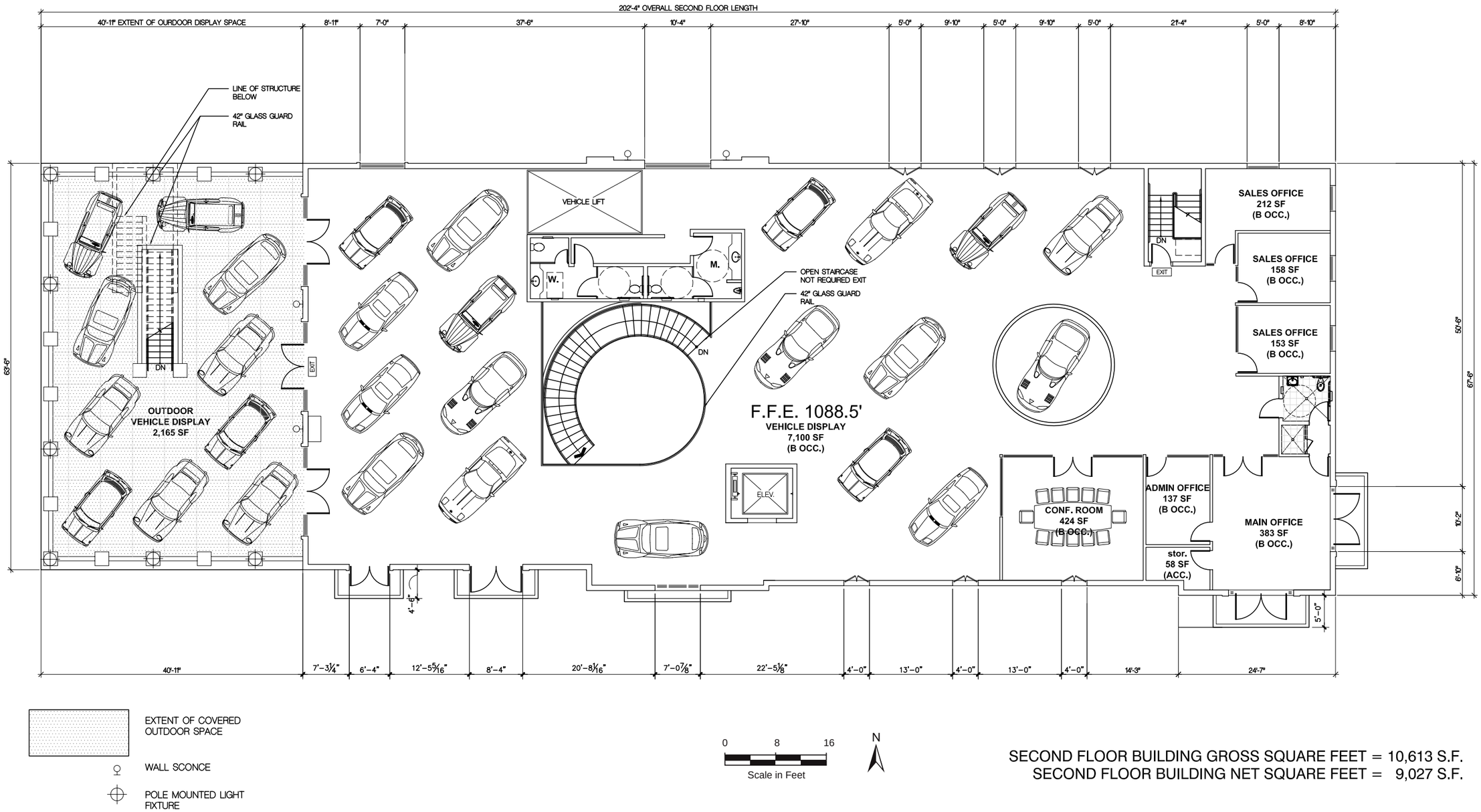
N

FIRST FLOOR BUILDING GROSS SQUARE FEET = 11,745 SF
FIRST FLOOR BUILDING NET SQUARE FEET = 10,769 SF

Level 1 Floor Plan

Drawing Source: KTGY, November 2, 2009.

Figure 5



SECOND FLOOR BUILDING GROSS SQUARE FEET = 10,613 S.F.
SECOND FLOOR BUILDING NET SQUARE FEET = 9,027 S.F.

Level 2 Floor Plan

Drawing Source: KTGY, November 2, 2009.

Figure 6

MATERIALS & FINISHES

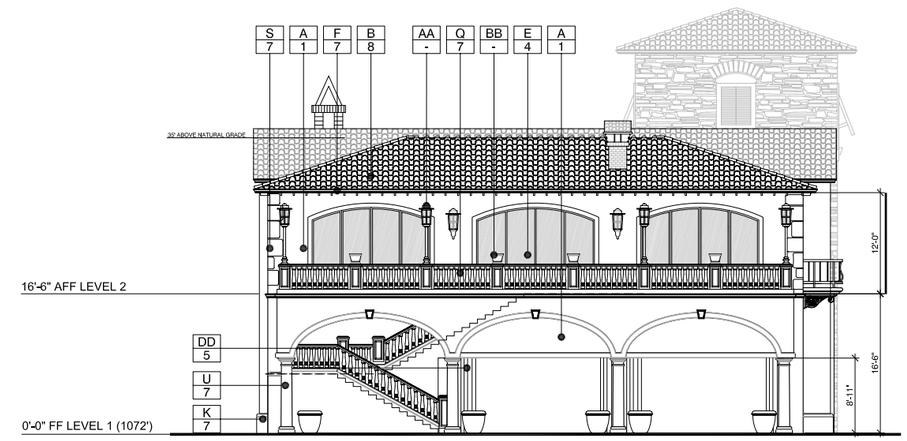
A	CEMENT PLASTER - VENETIAN PLASTER FINISH
B	CLAY ROOF TILE
C	STONE VENEER
D	BRICK VENEER
E	ANODIZED ALUMINUM STOREFRONT WITH ¼" CLEAR GLASS
F	PLASTER COATED FOAM CORNICE
G	PLASTER COATED FOAM TRIM
H	GFRC TRIM
J	GFRC CORNICE
K	GFRC BASE
L	GFRC MOLDING
M	GFRC CORBEL
N	GFRC KEYSTONE
P	GFRC WINDOW SILL
Q	GFRC BALUSTER
R	GFRC PIER AND PIER CAP
S	GFRC QUOIN
T	GFRC SHIELD
U	GFRC COLUMN
V	WROUGHT IRON RAILING
W	ANTIQUE COPPER DRAIN PIPE
X	FABRIC AWNING
Y	OPERABLE VINYLEWINDOW SHUTTER
Z	FIXED WINDOW SHUTTER
AA	ORNAMENTAL LIGHT FIXTURE (SEE SHEETS #11 AND #12 FOR TYPE AND STYLE)
BB	TERRA COTTA POT (NOT IN SCOPE)
CC	RAFTER TAILS WOOD LOOK ALIKE RAFTER TAILS SHALL BE OF NONCOMBUSTIBLE MATERIAL.
DD	BI-FOLD METAL DOORS

KEY

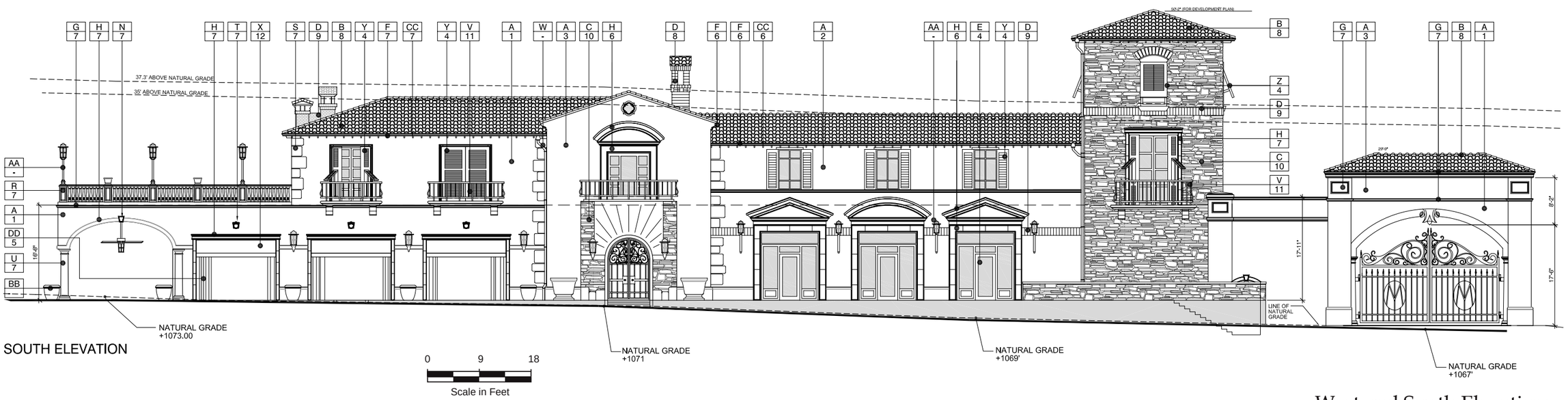
X	MATERIAL & FINISH
0	COLOR

COLORS

1	CHEESECAKE (DUNN EDWARDS DE 5309)
2	TAN TEMPTATION (DUNN EDWARDS DE 5206)
3	BRONZED ORANGE (DUNN EDWARDS DE 5179)
4	DEEP PINE (DUNN EDWARDS DE A180)
5	RUDDY OAK (DUNN EDWARDS DE 5188)
6	GREY (CDI)
7	HORIZON PLUM (CDI)
8	TURINO / PALERMO / MALLORCA BLEND (US TILE)
9	CARMEL MOUNTAIN (CORONADO STONE)
10	MONARCH (CORONADO STONE)
11	BLACK VERDE
12	SPRUCE GREEN (SUNBRELLA 4656)



WEST ELEVATION



SOUTH ELEVATION

West and South Elevations

Drawing Source: KTGY, November 2, 2009.

Figure 7

MATERIALS & FINISHES

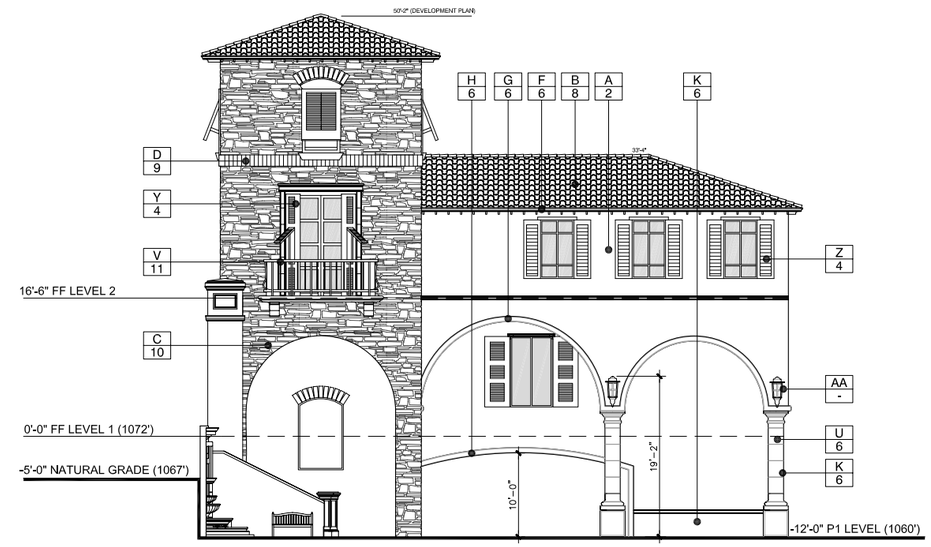
A	CEMENT PLASTER - VENETIAN PLASTER FINISH
B	CLAY ROOF TILE
C	STONE VENEER
D	BRICK VENEER
E	ANODIZED ALUMINUM STOREFRONT WITH ¼" CLEAR GLASS
F	PLASTER COATED FOAM CORNICE
G	PLASTER COATED FOAM TRIM
H	GFRC TRIM
J	GFRC CORNICE
K	GFRC BASE
L	GFRC MOLDING
M	GFRC CORBEL
N	GFRC KEYSTONE
P	GFRC WINDOW SILL
Q	GFRC BALUSTER
R	GFRC PIER AND PIER CAP
S	GFRC QUOIN
T	GFRC SHIELD
U	GFRC COLUMN
V	WROUGHT IRON RAILING
W	ANTIQUE COPPER DRAIN PIPE
X	FABRIC AWNING
Y	OPERABLE VINYLEWINDOW SHUTTER
Z	FIXED WINDOW SHUTTER
AA	ORNAMENTAL LIGHT FIXTURE
BB	TERRA COTTA POT (NOT IN SCOPE)
CC	RAFTER TAILS WOOD LOOK ALIKE RAFTER TAILS SHALL BE OF NONCOMBUSTIBLE MATERIAL.
DD	BI-FOLD METAL DOORS

COLORS

1	CHEESECAKE (DUNN EDWARDS DE 5309)
2	TAN TEMPTATION (DUNN EDWARDS DE 5206)
3	BRONZED ORANGE (DUNN EDWARDS DE 5179)
4	DEEP PINE (DUNN EDWARDS DE A180)
5	RUDDY OAK (DUNN EDWARDS DE 5188)
6	GREY (CDI)
7	HORIZON PLUM (CDI)
8	TURINO / PALERMO / MALLORCA BLEND (US TILE)
9	CARMEL MOUNTAIN (CORONADO STONE)
10	MONARCH (CORONADO STONE)
11	BLACK VERDE
12	SPRUCE GREEN (SUNBRELLA 4656)

KEY

X	MATERIAL & FINISH
0	COLOR



EAST ELEVATION

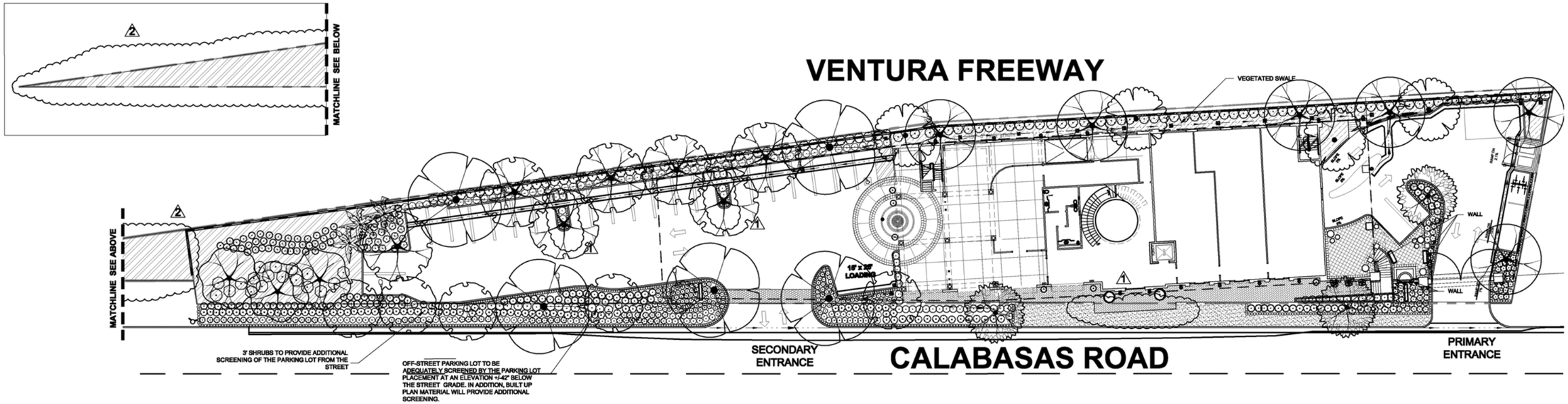
NORTH ELEVATION

0 9 18
Scale in Feet

East and North Elevations

Drawing Source: KTGY, November 2, 2009.

Figure 8



PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	ARB MUL	Arbutus hybrid `Marina` / Multi-Trunk Strawberry Tree	15 gal	4	Accent Tree
	ARB MAR	Arbutus hybrid `Marina` / Strawberry Tree Standard	24"box	7	Screening and Accent Tree
	CUP ANA	Cupaniopsis anacardioides / Carrot Wood	36"box	5	Shade Tree
	CUP SEM	Cupressus sempervirens / Italian Cypress	15 gal	3	Accent Tree
	OLE EUR	Olea Europaea `Fruitless` / Multi-Trunk Fruitless Olive	60"box	3	Speciman Tree
	PHO MED	Phoenix dactylifera `Medjool` / Date Palm	18-22` BTH	3	Skyline Accent
	PYR CLE	Pyrus calleryana `Cleveland Select`	24"box	6	Decidous Ornamental Tree
	TAB IMP	Tabebuia impetiginosa / Pink Trumpet Tree	36"box	3	Ornamental Tree
	TIP TIP	Tipuana tipu / Tipu Tree	36"box	5	Shade Tree
SHRUBS	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	BOU RAS	Bougainvillea hybrid `Raspberry Ice` / Bougainvillea	1 gal	85	Groundcover Accent
	ERI CIN	Erica cinerea `Atropurpurea` / Purple Bell Heath	5 gal	24	Evergreen shrub with flower clusters
	ERI CO4	Eriobotrya X Coppertone / Coppertone Loquat	5 gal	112	Buffer shrub
	ESC NEW	Escallonia `Newport Dwarf` TM / Dwarf Escallonia	1 gal	38	Low Mounding Shrub
	EUO BO2	Euonymus japonicus microphylla / Box-Leaf Euonymus	1 gal	720	Low formal hedge
	FEI SEL	Feijoa sellowiana / Pineapple Guava	15 gal	1	Accent Tree
	ILE GLA	Ilex glabra `Chamzin` / Inkberry Holly	5 gal	14	Evergreen Foundation Shrub
	LAN SEL	Lantana sellowiana `Monswee` / Lavender Swirl Trailing Lantana	5 gal	68	Colorful groundcover
	LAV MUN	Lavandula angustifolia `Munstead` / Munstead Lavender	5 gal	120	Edge Planting
	LIR ROY	Liriope muscari `Royal Purple` / Royal Purple Liriope	1 gal	78	Edging or Border Shrub
	MAN RE3	Mandevilla x amabilis Crimson Jewel / `Magic Dream`	1 gal	100	Colorful groundcover-Semiwoody vine
	PIT KOH	Pittosporum tenuifolium `Golf Ball` / Kohuhu	5 gal	111	Evergreen Foundation Shrub
	ROS DO3	Rosa x "Tanoronez` / Chateau Meriot Shurb Rose	5 gal	53	Colorful Shrub Liner
	SUT COR	Sutera cordata `White` / White Bacopa	1 gal	9	Potted Plants
	XYL COM	Xylosma congestum `Compacta` / Compact Xylosma	5 gal	18	Versatile hedge
VINE/ESPALIER	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	DIS RIV	Distictis `Rivers` / Royal Trumpet Vine	15 gal	15	Flowering Vine
GROUND COVERS	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	CAM POS	Campanula poscharskyana / Siberian Bellflower	flat @ 12" oc	2,210	Shade Ornamental Groundcover
	MYO HOR	Myoporum horizontalis / Myoporum	flat @ 12" oc	3,362	Green groundcover
SOD/SEED	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	TUR SOD	Turf Sod / Drought tolerant fescue blend	flat @ 12" oc	1,443	

PARKING LOT SHADING CALCULATIONS

10,253 sq. ft.	Parking Lot
5,394 sq. ft.	Shade Coverage
52.6%	Area Coverage

PERVIOUS SURFACE:	12,771 SF (31.51%) GROSS
PERVIOUS SURFACE:	12,771 SF (32.29%) NET

(PERVIOUS SURFACE RATIO INCLUDES ALL AREA DESIGNATED AS LANDSCAPING AND PERVIOUS PAVING)

0 25 50
Scale in Feet

Landscape Plan

Drawing Source: James Dean Design, October 2010.

Figure 9

Photo 1 - Existing view of project site looking northeast from Calabasas Road.

Photo 2 - Photosimulation of proposed project looking northeast from Calabasas Road.

Visual Simulation - View from Calabasas Road

Figure 10a

Photo 1 - Existing view of project site looking northwest from Calabasas Road.

Photo 2 - Photosimulation of proposed project looking northwest from Calabasas Road.

Visual Simulation - View from Calabasas Road

Figure 10b

Photo 1 - Existing view of project site looking southwest traveling northbound on the Ventura Freeway.

Photo 2 - Photosimulation of proposed project looking southwest traveling northbound on the Ventura Freeway.

Visual Simulation - View from Ventura Freeway

Figure 10c

Photo 1 - Existing view of project site looking southeast traveling northbound on the Ventura Freeway.

Photo 2 - Photosimulation of proposed project looking southeast traveling northbound on the Ventura Freeway.

Visual Simulation - View from Ventura Freeway

Figure 10d

Appendix A

Air Quality Monitoring Results and Greenhouse Gas Calculations

6/24/2010 9:23:49 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: L:\ESP\LA Co\Calabasas\10-66380 Malamut Vntge Auto Dlrshp MND\Other\Malamut AQ.urb924

Project Name: Malmut

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

6/24/2010 9:23:49 AM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	3.53	31.60	16.24	4.85	1.51	6.36	1.02	1.39	2.41
2012 TOTALS (lbs/day unmitigated)	25.36	8.14	6.02	0.01	0.50	0.51	0.00	0.46	0.46

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	0.25	0.16	1.67	0.01	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	5.35	7.94	71.73	13.05	2.54

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	5.60	8.10	73.40	13.06	2.55

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5

6/24/2010 9:23:49 AM	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 3/3/2011-3/21/2011 Active Days: 13	1.25	9.27	6.40	2.12	0.63	2.75	0.44	0.58	1.03
Demolition 03/03/2011-03/21/2011	1.25	9.27	6.40	2.12	0.63	2.75	0.44	0.58	1.03
Fugitive Dust	0.00	0.00	0.00	2.10	0.00	2.10	0.44	0.00	0.44
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.55	0.55	0.00	0.50	0.50
Demo On Road Diesel	0.16	1.99	0.80	0.01	0.08	0.09	0.00	0.08	0.08
Demo Worker Trips	0.03	0.06	1.01	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 3/24/2011-6/20/2011 Active Days: 63	3.53	**31.60**	**16.24**	**4.85**	**1.51**	**6.36**	**1.02**	**1.39**	**2.41**
Mass Grading 03/24/2011-06/20/2011	3.53	31.60	16.24	4.85	1.51	6.36	1.02	1.39	2.41
Mass Grading Dust	0.00	0.00	0.00	4.80	0.00	4.80	1.00	0.00	1.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	1.17	1.17	0.00	1.08	1.08
Mass Grading On Road Diesel	0.67	8.11	3.27	0.04	0.34	0.38	0.01	0.31	0.32
Mass Grading Worker Trips	0.03	0.06	1.01	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 6/23/2011-8/1/2011 Active Days: 28	2.86	23.50	12.97	4.81	1.18	5.98	1.00	1.08	2.09
Fine Grading 06/23/2011-08/01/2011	2.86	23.50	12.97	4.81	1.18	5.98	1.00	1.08	2.09
Fine Grading Dust	0.00	0.00	0.00	4.80	0.00	4.80	1.00	0.00	1.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	1.17	1.17	0.00	1.08	1.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.06	1.01	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 8/4/2011-8/15/2011 Active Days: 8	1.98	16.48	9.09	0.01	0.82	0.83	0.00	0.76	0.76
Trenching 08/04/2011-08/15/2011	1.98	16.48	9.09	0.01	0.82	0.83	0.00	0.76	0.76
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.82	0.82	0.00	0.76	0.76
Trenching Worker Trips	0.03	0.06	1.01	0.01	0.00	0.01	0.00	0.00	0.00

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	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 8/18/2011-8/29/2011 Active Days: 8	1.99	11.67	8.81	0.01	1.00	1.01	0.00	0.91	0.92
Asphalt 08/18/2011-08/29/2011	1.99	11.67	8.81	0.01	1.00	1.01	0.00	0.91	0.92
Paving Off-Gas	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.98	0.98	0.00	0.90	0.90
Paving On Road Diesel	0.03	0.31	0.12	0.00	0.01	0.01	0.00	0.01	0.01
Paving Worker Trips	0.06	0.10	1.77	0.01	0.01	0.02	0.00	0.00	0.01
Time Slice 9/1/2011-12/30/2011 Active Days: 87	1.18	8.80	6.24	0.01	0.56	0.57	0.00	0.51	0.52
Building 09/01/2011-04/24/2012	1.18	8.80	6.24	0.01	0.56	0.57	0.00	0.51	0.52
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.54	0.54	0.00	0.50	0.50
Building Vendor Trips	0.02	0.21	0.18	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.08	1.38	0.01	0.00	0.01	0.00	0.00	0.01
Time Slice 1/2/2012-4/24/2012 Active Days: 82	1.09	8.14	6.02	0.01	0.50	0.51	0.00	0.46	0.46
Building 09/01/2011-04/24/2012	1.09	8.14	6.02	0.01	0.50	0.51	0.00	0.46	0.46
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.49	0.49	0.00	0.45	0.45
Building Vendor Trips	0.02	0.19	0.17	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.29	0.01	0.00	0.01	0.00	0.00	0.01
Time Slice 4/27/2012-5/22/2012 Active Days: 18	**25.36**	0.02	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Coating 04/27/2012-05/22/2012	25.36	0.02	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	25.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.28	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 3/3/2011 - 3/21/2011 - Default Demolition Description

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Building Volume Total (cubic feet): 50000

Building Volume Daily (cubic feet): 5000

On Road Truck Travel (VMT): 69.44

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 6/23/2011 - 8/1/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.98

Maximum Daily Acreage Disturbed: 0.24

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/24/2011 - 6/20/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.98

Maximum Daily Acreage Disturbed: 0.24

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 282.79

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/4/2011 - 8/15/2011 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 8/18/2011 - 8/29/2011 - Default Paving Description

Acres to be Paved: 0.24

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2011 - 4/24/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/27/2012 - 5/22/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	PM10	PM2.5
Natural Gas	0.01	0.14	0.12	0.00	0.00
Hearth - No Summer Emissions					
Landscape	0.12	0.02	1.55	0.01	0.01
Consumer Products	0.00				
Architectural Coatings	0.12				
TOTALS (lbs/day, unmitigated)	0.25	0.16	1.67	0.01	0.01

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	PM10	PM25
Office park	5.35	7.94	71.73	13.05	2.54
TOTALS (lbs/day, unmitigated)	5.35	7.94	71.73	13.05	2.54

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

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Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		33.30	1000 sq ft	21.30	709.29	7,555.36
					709.29	7,555.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.5	0.7	99.1	0.2
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9
Light Truck 3751-5750 lbs	22.9	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	65.2	34.8	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0

Greenhouse Gas Emission Worksheet

Operational Emissions Malamut Project

Electricity Generation *	**(kWH)**		**Project units**	**Project Usage**
Commercial consumption	16,750	per KSF	21.302	356,809
			Total	**356,809**

* Generation Factor Source: CAPCOA, January 2008. CEQA and Climate Change.

Total Project Annual KWh:	**356,809**	kWH/year
Project Annual MWh:	**357**	MWH/year

Emission Factors:

CO2 *	804.54	lbs/MWh/year
CH4 **	0.0067	lbs/MWh/year
N2O **	0.0037	lbs/MWh/year

Total Annual Operational Emissions (metric tons) =
(Electricity Use (kWh) x EF)/2,204.62 lbs/metric ton

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

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

Annual Operational Emissions:

	Total Emissions		**Total CO2e Units**	
CO2 emissions, electricity:	143.5	tons	**130.2**	metric tons CO2e
CO2 emissions***:	31.6	tons	**28.7**	metric tons CO2e
CH4 emissions:	0.0011	metric tons	**0.0**	metric tons CO2e
N2O emissions:	0.0006	metric tons	**0.2**	metric tons CO2e
		Project Total	***159.1***	***metric tons CO2e***

References

* Table C.1: EPA eGRID CO2 Electricity Emission Factors by Subregion (Year 2000)
** Table C.2: Methane and Nitrous Oxide Electricity Emission Factors by State and Region (Average years 2001-1003)
*** URBEMIS Annual Emissions output for Area Source emissions; includes natural gas combustion for heating.

Sources: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Third Assessment Report, 2001, U.S. Environmental Protection Agency, U.S. Greeenhouse Gas Emissions and Sinks, 1990-2000 (April 2002).

Greenhouse Gas Emission Worksheet

Mobile Emissions Malamut Project

From URBEMIS 2007 Vehicle Fleet Mix Output:

Daily Vehicle Miles Traveled (VMT): (Net: Proposed - Existing)

Annual VMT: 7,555

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)
Light Auto	51.3%	0.04	0.02052	0.04	0.02052
Light Truck < 3750 lbs	7.3%	0.05	0.00365	0.06	0.00438
Light Truck 3751-5750 lbs	23.1%	0.05	0.01155	0.06	0.01386
Med Truck 5751-8500 lbs	10.7%	0.12	0.01284	0.2	0.0214
Lite-Heavy Truck 8501-10,000 lbs	1.6%	0.12	0.00192	0.2	0.0032
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.00045	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	0.9%	0.06	0.00054	0.05	0.00045
Heavy-Heavy Truck 33,001-60,000 lbs	0.6%	0.06	0.00036	0.05	0.0003
Other Bus	0.1%	0.06	0.00006	0.05	0.00005
Urban Bus	0.1%	0.06	0.00006	0.05	0.00005
Motorcycle	2.8%	0.09	0.00252	0.01	0.00028
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.8%	0.09	0.00072	0.125	0.001
Total			**0.05525**		**0.066165**

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

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

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

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

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
CO2 Emissions* :	1,337.7	tons CO2	**1,213.5**	metric tons CO2e
CH4 Emissions:	0.0004	metric tons CH4	**0.0**	metric tons CO2e
N20 Emissions:	0.0005	metric tons N2O	**0.2**	metric tons CO2e
		Project Total:	***1,213.7***	***metric tons CO2e***

* From URBEMIS 2007 results for mobile sources

Appendix B

Traffic Report

Revised Report

Malamut Vintage Automotive Dealership

Traffic Impact Analysis

Kimley-Horn
and Associates, Inc.

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REVISED REPORT
TRAFFIC IMPACT ANALYSIS

Malamut Vintage
Automotive Dealership

Prepared for:

Malamut Automotive Dealership
142 S. Peck Drive, Unit C
Beverly Hills, CA 90212

Prepared by:

Kimley-Horn and Associates, Inc.
5550 Topanga Canyon Blvd., Suite 250
Woodland Hills, California 91367

June 2010
099362000

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EXECUTIVE SUMMARY

This report documents the results of a traffic impact analysis completed for the proposed Malamut Vintage Automotive Dealership project. The site is located along Calabasas Road in the City of Calabasas, California. This study was prepared under the direction of City of Calabasas staff utilizing City traffic study guidelines.

The proposed project is estimated to generate approximately 198 daily trips and 26 trips during the PM peak hour. The dealership is not expected to be open during the AM peak hour, and therefore, will not generate any AM peak hour trips. Two intersections were analyzed for weekday PM peak hour operations. The dealership anticipates occupancy by 2012. Based upon the analysis documented in this report, the addition of project traffic is not expected to result in any significant traffic impacts at either of the study area intersections.

PROJECT DESCRIPTION

The proposed project consists of the construction of a new Vintage Automotive dealership on a site currently used to store inventory vehicles for the Bob Smith BMW Dealership. The dealership would include approximately 14,101 square feet of indoor and outdoor vehicle display and office space, approximately 4,232 internal square feet of supporting retail and a 1,253 square foot cafe. The dealership will be a unique facility that sells only limited production and specialty vintage vehicles. The dealership will not be open during the morning peak commute hours (7-9 AM). The retail space will sell unique automotive apparel and vintage automotive memorabilia. The retail space is primarily intended to serve buyers of the limited production and specialty vintage vehicles. The dealership plans include three private service bays to provide minor service for its inventory of vehicles and any necessary warranty repairs. The dealership is not proposing to provide service for vehicle owners that did not purchase their vehicle from the dealership.

The dealership is expected to have approximately 15 employees; 4 will be for car sales, and not all are expected to be in the dealership at the same time during weekday pm peak hour. Eleven of the employees will be for the supporting retail (described below).

The study area includes the analysis of two signalized intersections for potential peak-hour traffic impact in the vicinity of the proposed project site. **Figure 1** illustrates the project site location and the study area intersections. **Figure 2** illustrates the proposed site plan.

STUDY METHODOLOGY

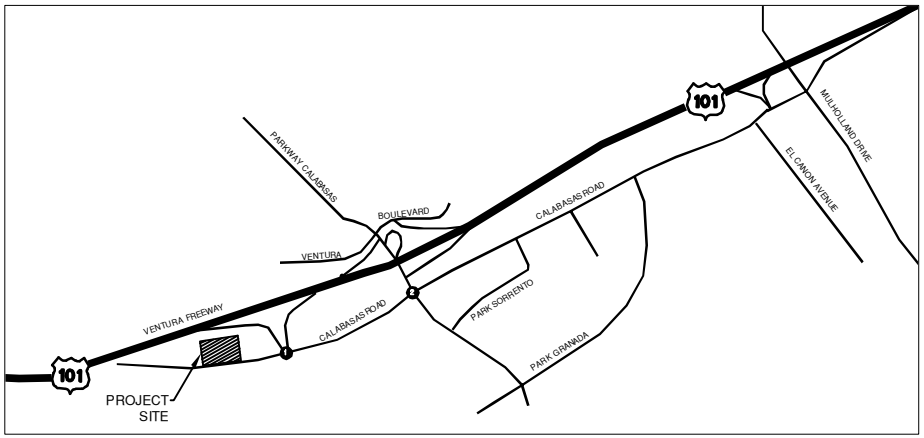
A unique trip generation was developed for the project because of the unique nature of the proposed development. Traditional sources used to calculate trip rates for new developments, such as the Institute of Transportation Engineers (ITE) Trip Generation Manual; was determined not to be reflective of this proposed dealership.

Two intersections were analyzed for pm peak hour only operations since the dealership will not be open between 7 and 9 AM. The two intersections identified in coordination with City staff include:

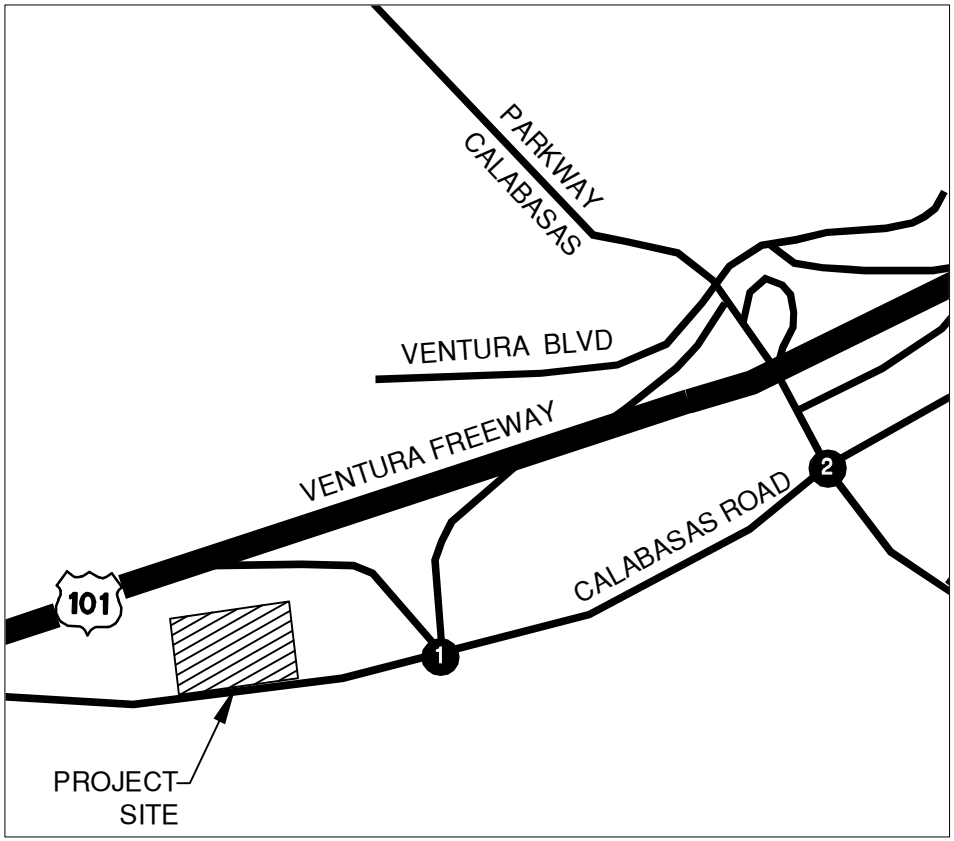
- Calabasas Road / US 101 Freeway off/on Ramp
- Calabasas Road / Parkway Calabasas

The study area traffic conditions were analyzed under the following two scenarios.

- Existing (2010) Conditions
- Existing (2010) + Project



VICINITY



LOCATION

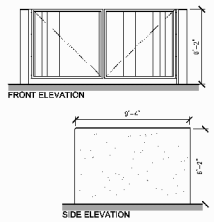
NORTH
NTS

LEGEND

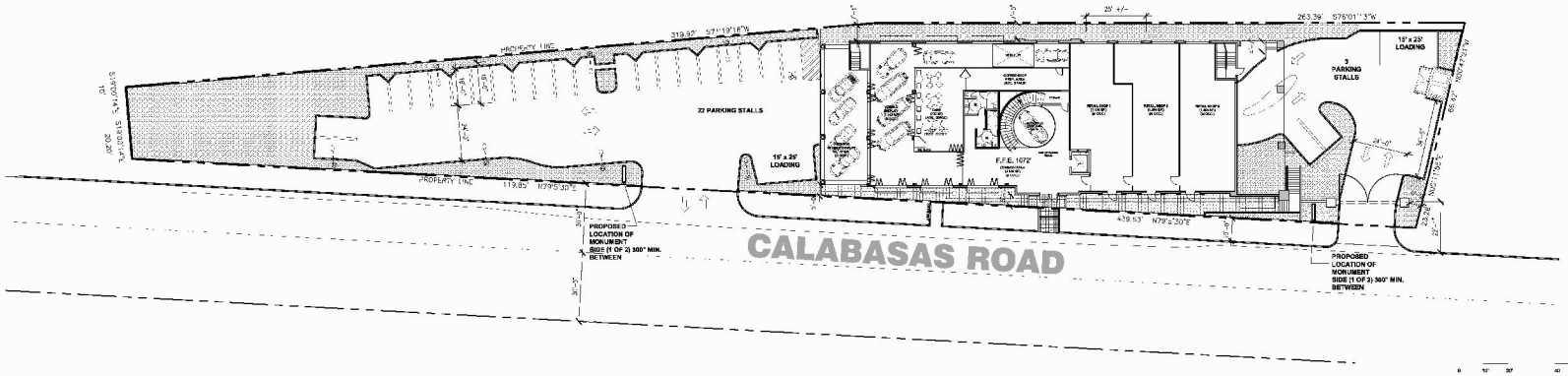
- X Study Area Intersection
- Project Site

FIGURE 1
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
LOCATION AND VICINITY MAP

Kimley-Horn ©2009 and Associates, Inc.



TRASH ENCLOSURE ELEVATIONS
SCALE 1/4" = 1'-0"



PARKING ANALYSIS

USE	FIRST FLOOR AREA	SECOND FLOOR AREA	FIRST LEVEL PARKING AREA	SECOND LEVEL PARKING AREA	PARKING RATIO	# OF STALLS
RETAIL	4,471 SF	-	-	-	1/200 SF	22.3
CAFE	1,253 SF	-	-	-	1/100 SF	12.5
VEHICLE DISPLAY	1,743 SF	7,078 SF	-	-	1/450 SF	19.6
AUTO OFFICE	-	1,928 SF	-	-	1/450 SF	4.2
COMMON AREA	2,848 SF	341 SF	-	-	-	-
EXIT STAIRS	153 SF	-	-	-	-	-
TOTAL BUILDING SF	10,468 SF	9,347 SF				
OUTDOOR DISPLAY	1,034 SF	2,318 SF	-	-	1/2,000 SF	1.6
VEHICLE SERVICE	-	-	-	1,000 SF	1/500 SF	2.0
STORAGE	-	-	-	715 SF	1/5,000 SF	.1
TOTAL GARAGE SF			17,861 SF	19,275 SF		
TOTAL PARKING REQUIRED:						62
TOTAL PARKING PROVIDED		(25 UNCOVERED, 69 COVERED, I HC)				95

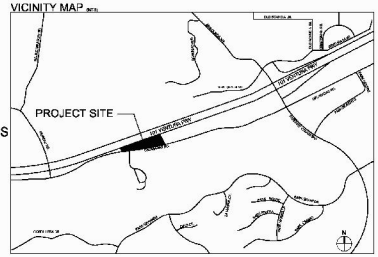
SITE SUMMARY
TOTAL GROSS SITE AREA: 38,060 SF (0.87 AC)
TOTAL BUILDING SQUARE FEET: 19,815 SF
OUTDOOR DISPLAY AREA: 3,352 SF
FAR: 24,882 SF* / 38,060 SF .65
*(Building SF + Outdoor Display SF + Vehicle Service SF + Storage SF)
LOT COVERAGE: 28,858 SF (75.82%)
(COVERAGE RATIO INCLUDES BLDG AND PAVING)

PERVIOUS SURFACE: 8,252 SF (22%)
(PERVIOUS SURFACE RATIO INCLUDES ALL AREA DESIGNATED AS LANDSCAPING AND PERVIOUS PAVING)
FRONT SETBACK/BUFFER LANDSCAPE COVERAGE: 5' SETBACK + 10' OFFSITE LANDSCAPE BUFFER PROVIDED BY DEVELOPER

LEGAL DESCRIPTION
SEE CONCEPTUAL GRADING/DRAINAGE PLAN

PROJECT ADDRESS
24439 Calabasas Road, Calabasas CA 91302

LEGEND (SYMBOLS & ABBREVIATION)
TRASH ENCLOSURE
LANDSCAPE/PREVIOUS PAVING AREA. SEE LANDSCAPE DRAWINGS
COLORED STAMPED CONCRETE

VICINITY MAP


NOTE:
FOR TOPOGRAPHY, NATURAL CONTOURS, TREES DRAINAGE COURSES, STREETS, TRAILS, OPEN SPACE, SLOPES ETC., SEE CONCEPTUAL GRADING/DRAINAGE PLANS, SHEETS #3 AND #4.

KTGY JOB #:	20070436.00
DATE	REVISION/BY
03-27-2009	PRE-APP. REVIEW/ K.BORG
06-10-2009	CITY REVIEW
06-26-2009	FIRST SUBMITTAL

ARCHITECTURAL SITE PLAN | 2

OWNER/DEVELOPER
MIKE MALAMUT
272 W. STAFFORD ROAD
THOUSAND OAKS, CA 91361
APPLICANT: DARREL MALAMUT (805) 300.5033

Malamut Vintage Automotive Dealership
Calabasas, California

Architecture + Planning
1733 Ocean Ave. Ste 250
Santa Monica, CA 90401
310.394.2623
ktgy.com

FIGURE 2
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
SITE PLAN

Kimley-Horn ©2009 and Associates, Inc.

Table 1 presents the study area intersections, their control, and jurisdiction.

TABLE 1
Study Area Intersections

Intersection		Control	Jurisdiction
1	Calabasas Road / US 101 On-Off Ramp	Signalized	City of Calabasas/Caltrans
2	Calabasas Road / Parkway Calabasas	Signalized	City of Calabasas

Source: Kimley-Horn and Associates, Inc. *April-2010*

Intersection Level of Service Analysis Criteria

The City of Calabasas traffic analysis guidelines require the use of Intersection Capacity Utilization (ICU) methodology to calculate signalized intersection volume to capacity (v/c) ratios using the Circular 212 Planning methodology. **Table 2** presents the LOS and corresponding v/c ratio for signalized intersections, and seconds of delay for unsignalized intersections.

TABLE 2
City Of Calabasas Intersection LOS Definitions

Level of Service (LOS)	Signalized - Volume/Capacity Ratio	Unsignalized – Seconds of Delay per Vehicle
A	0.00 to 0.60	Less than 10
B	0.61 to 0.70	10.01 – 15.0
C	0.71 to 0.80	15.1 – 25.0
D	0.81 to 0.90	25.1 – 35.0
E	0.91 to 1.00	35.1 – 50.0
F	Exceeds 1.00	Exceeds 50

Source: City of Calabasas 2030 general Plan Update Issue Paper July 2007

The City of Calabasas guidelines define a significant traffic impact as a decrease in LOS where the intersection would operate at LOS D, E, or F with project traffic.

Analysis of Existing (2010) traffic conditions is based upon traffic counts provided by the City. The traffic counts were collected on November 19, 2009 – as part of the Malamut Vintage Automotive Dealership project traffic analysis. The traffic count worksheets are provided in **Appendix A**. The peak-hour intersection traffic counts were conducted between the hours of 7 a.m. and 9 a.m. (AM peak), and 4 p.m. and 6 p.m. (PM peak) on a typical weekday in November 2009. Future (2030) analysis at the study intersections presented in this study was obtained from the "West Calabasas Road Planning Guidelines" that was provided by the City staff.

EXISTING (2010) CONDITIONS

A description of study area roadways and analysis of existing intersection operating conditions is provided in the following paragraphs.

Study Area Roadway Descriptions

Ventura Freeway (US-101) travels east-west through the City of Calabasas, connecting Calabasas with Los Angeles to the southeast and with the cities of Thousand Oaks, Camarillo, Oxnard, and Ventura to the northwest. Access to U.S. 101 is provided at Lost Hills Road, Las Virgenes Road, Calabasas Road, Ventura Boulevard, Parkway Calabasas, and Valley Circle Boulevard. During periods of heavy congestion on U.S. 101, regional traffic is diverted from the highway to the City street network. Arterials that travel parallel to U.S. 101, including Calabasas Road, Mureau Road, and Agoura Road, carry diverted highway traffic through the City.

Calabasas Road is a primary arterial that travels parallel to U.S. 101 from west of Mureau Road to the City of Woodland Hills on the east, where it becomes Avenue San Luis. Like Mureau Road, Calabasas Road is an alternate route for regional traffic traveling through Calabasas during periods of heavy congestion on U.S. 101.

Parkway Calabasas is a north/south roadway with an interchange at the US 101 freeway and signalized intersections at the freeway ramps, Calabasas Road, Park Sorento and Park Granada. North of the freeway, it is a 2-lane roadway that terminates in a residential cul-de-sac. South of the freeway it is a 4-lane roadway with Class II bicycle lanes in both directions. It terminates in a gated residential community.

Existing (2010) Conditions LOS Analysis

The existing study area intersection approach lane configurations utilized for both analysis scenarios are illustrated in **Figure 3**. **Table 3** presents the existing weekday peak-hour intersection operating conditions.

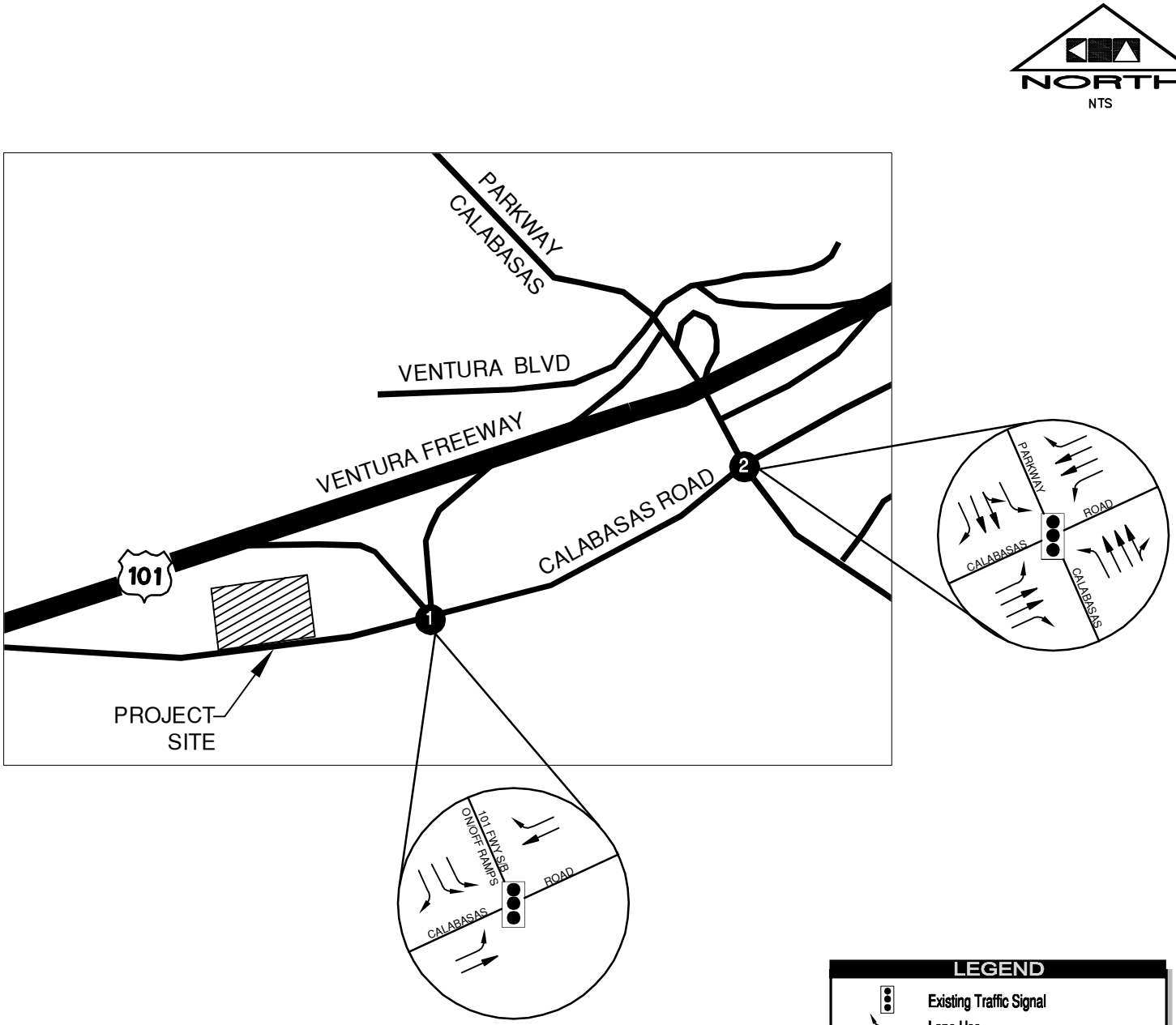
TABLE 3
Existing (2010) Without Project Weekday Intersection LOS

Intersection		LOS Analysis Results			
		AM Peak Hour		PM Peak Hour	
		V/C Ratio	LOS	V/C Ratio	LOS
1	Calabasas Road / US 101 On-Off Ramp	0.761	C	0.698	B
2	Calabasas Road / Parkway Calabasas	0.674	B	0.670	B

Source: Kimley-Horn and Associates, Inc. April 2010

Table 3 indicates that both study area intersections currently operate at acceptable levels-of-service during the AM and PM peak periods. Analysis worksheets for the existing conditions scenario are provided in **Appendix B.**

Existing (2010) Weekday Peak Hour Turn Movement Volumes are presented in **Figure 4.**

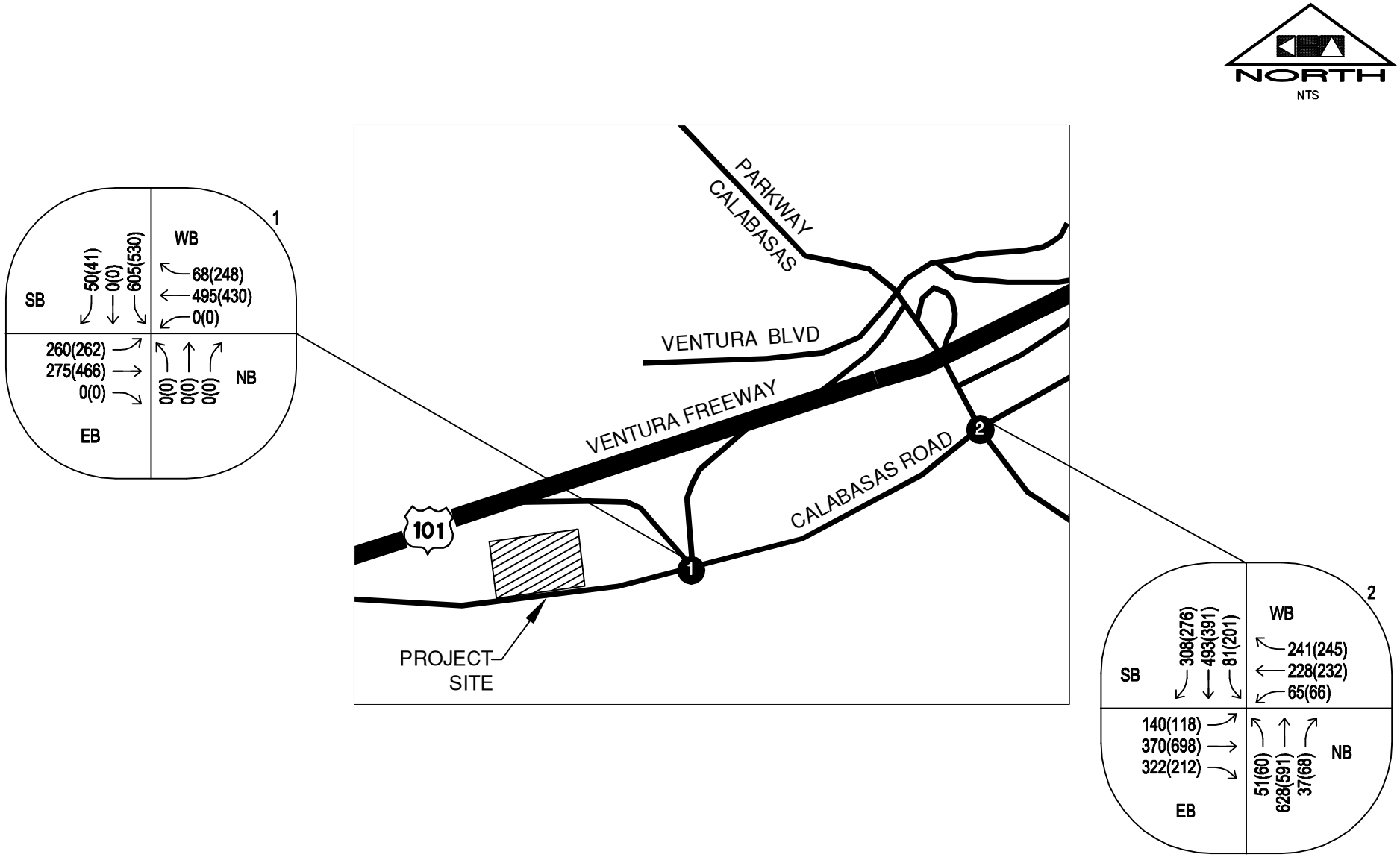


LEGEND

- Existing Traffic Signal
- Lane Use
- Study Area Intersection
- Project Site

FIGURE 3
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
STUDY INTERSECTIONS LANE CONFIGURATION

Kimley-Horn and Associates, Inc. ©2008



LEGEND

←XX(XX)	AM(PM) Peak Hour Traffic Volumes
(X)	Study Area Intersection
▨	Project Site

FIGURE 4
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
EXISTING WEEKDAY PEAK HOUR TURNING MOVEMENT COUNTS

Kimley-Horn ©2008 and Associates, Inc.

Transit

The City's Transportation Department provides a free shuttle service with 4 lines operating throughout the City. The morning and afternoon hours are designed to provide service to students at all City of Calabasas public schools. In addition to the shuttles, the City also runs the Calabasas Trolley, a free service that runs an hour-long loop connecting the east and west sides of the City on Fridays, Saturdays, and Sundays.

The City is also served by Los Angeles County Metro Route 161, and Commuter Express Routes 422 and 423. These routes provide regional service between Calabasas and the San Fernando Valley and Los Angeles.

Calabasas has a well-developed transit system, given the size of the City and its car-dependent nature. There are no major deficiencies in the transit system.

Bikeway System

Bikeways are described by three classifications, depending on the degree of separation provided from motor vehicle traffic. Class I bicycle paths are on rights-of-way completely separated from roadways. Class II bicycle routes are striped one-way lanes set aside for bicycle travel on roadways. Class III bikeways are marked by signs only. Bicycle and motor vehicle or pedestrian traffic share the same roadway.

Class II Bicycle facilities currently exist along segments of Agoura Road, Las Virgenes Road, Calabasas Road, Parkway Calabasas, Park Sorrento, Park Granada, Mulholland Highway, and Old Topanga Canyon Road. According to the Bicycle Master Plan, new or extended bike lanes are proposed or recommended along portions of Lost Hills Road, Las Virgenes Road, Malibu Hills Road, Calabasas Hills Road, Mureau Road, Park Sorrento, Park Sienna, Park Ora, Valmar Road, Old Topanga Canyon Road, and Mulholland Highway.

The City of Calabasas links the regional bicycle facility network between the San Fernando Valley and the City of Agoura Hills. The regional network currently consists of Calabasas Road east of Mureau Road, Las Virgenes Road between Mureau Road and Agoura Road, and Agoura Road to the western City limit. A Class II bicycle lane is scheduled to be constructed along Mureau Road to close the gap in the regional network that spans the City of Calabasas. As the primary arterial serving the western portion of the City of Calabasas, Las Virgenes Road is a critical component of the bicycle facility network for both commuters and recreational cyclists. The City's Bicycle Master Plan identifies the length of Las Virgenes Road as a future Class II facility, with Class I bike paths where space permits.

The planned improvements to Mureau Road and Las Virgenes Road would close gaps in the regional bicycle network. Deficiencies in the bicycle network within the City would be addressed by the proposed and recommended improvements included in the Bicycle Master Plan. Many of the proposed Class II bicycle lanes have not yet been implemented. The Class II lanes will be added as frontage and roadway improvements are completed.

PROJECT TRAFFIC

Project Trip Generation

The proposed Malamut Vintage Automotive Dealership will be a unique facility that sells only limited production and specialty vintage vehicles. The dealership will not be open during the morning peak hour (7-9 am) when morning traffic operations analysis are completed for traffic studies in Calabasas. Hours of operation are anticipated and proposed to be from 9 or 10 am until 7 pm on a typical weekday. For the purposes of this analysis, it is assumed that the dealership will be open from 9 am until 7 pm each weekday. Therefore, only the weekday pm peak hour intersection operations are evaluated in the traffic impact analysis report.

The Institute of Transportation Engineers (ITE) is typically utilized to define and calculate the expected trip generation from a proposed development. The ITE land use description for an automotive dealership was determined to not accurately reflect the unique nature of this dealership. Likewise, ITE trip generation rates for retail stores were also determined to not be applicable to the Malamut dealership because of the unique merchandise and because they will be located within the dealership. Therefore, a unique trip generation methodology was developed for this project, in consultation with City staff. The detailed trip generation methodology paper reviewed and accepted by City staff is provided in **Appendix C.**

Some of the more notable elements and rationale to develop unique trip rates are described below. Approximately 60% of the customer trips to the dealerships for car purchase considerations are expected to be by appointment – and will be scheduled outside of the PM peak hour of adjacent street traffic (4-6 pm). Only 40% of the trips are expected to be walk-in. The dealership is expected to have only 15 employees, and not all will be working at the same time. The dealership service bays will be to repair vehicles for sale and for customers that purchase their vehicles at Malamut only, and will be scheduled by appointment to occur outside of the PM peak hour. Similar to the limited production and specialty vintage vehicles – there would be minimal walk-in customers that only browse.

TABLE 4
Project Trip Generation

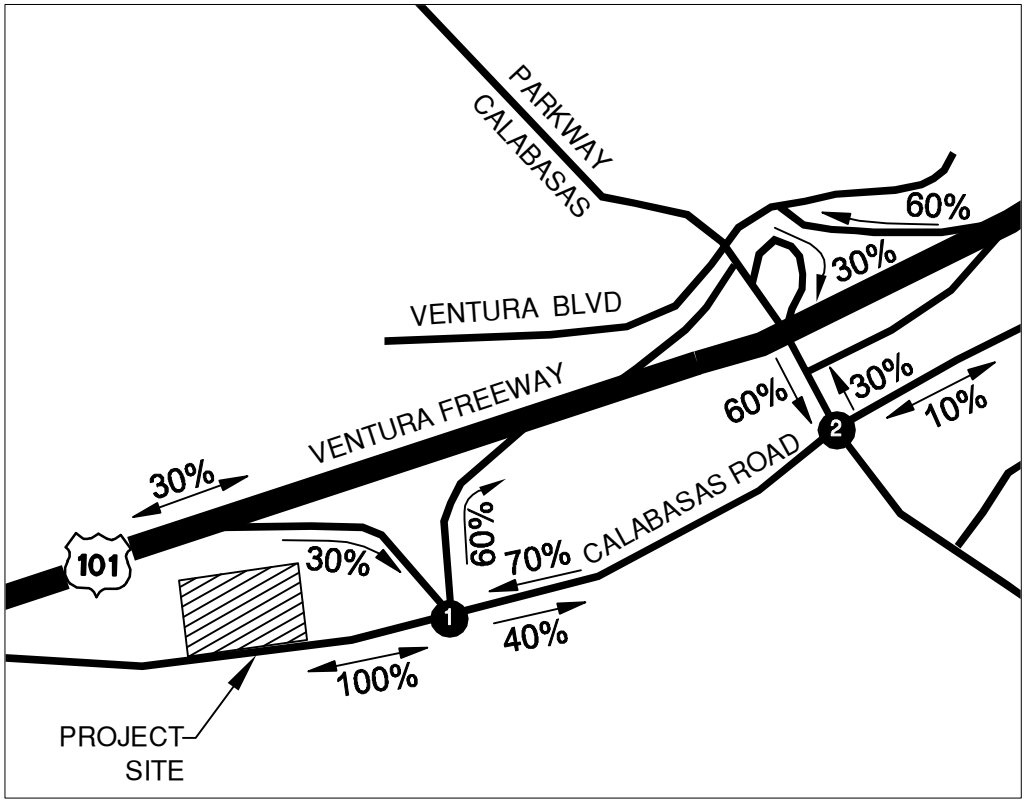
Project Description	Time Period	Total Trips In		Total Trips Out		Total Trips
		%	Trips	%	Trips	
Vintage Automotive Dealership	Daily	50.0%	99	50.0%	99	**198**
	Weekday PM Peak	50.0%	13	50.0%	13	**26**

The table indicates that the proposed project is estimated to generate 198 daily trips, including 26 weekday PM peak hour trips. The development is not expected to generate any trips during the weekday AM peak hour.

Project Trip Distribution

The distribution of project traffic was developed based upon local knowledge of the study area and input from City of Calabasas staff. The dealership trips were assigned to the site driveways, Calabasas Road and adjacent roadways, freeway ramps and interchanges. The dealership market analysis assumes that 70% of the trips will come to/from the east and south (Los Angeles), 60% via US 101 and 10% via Pacific Coast Highway (CA1). Approximately 30% will come from the west and north (Ventura, Santa Barbara), via US 101.

Project traffic was assigned to the study area roadway network based upon distribution patterns that considered adjacent land uses, freeway access, and arterial capacities. The project trip distribution percentages are illustrated in **Figure 5**. The resulting weekday project intersection PM peak-hour traffic volumes are illustrated in **Figure 6**.



NORTH
NTS

LEGEND

XX%	% of Project Traffic
X	Study Area Intersection
	Project Site

FIGURE 5
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
TRIP DISTRIBUTION

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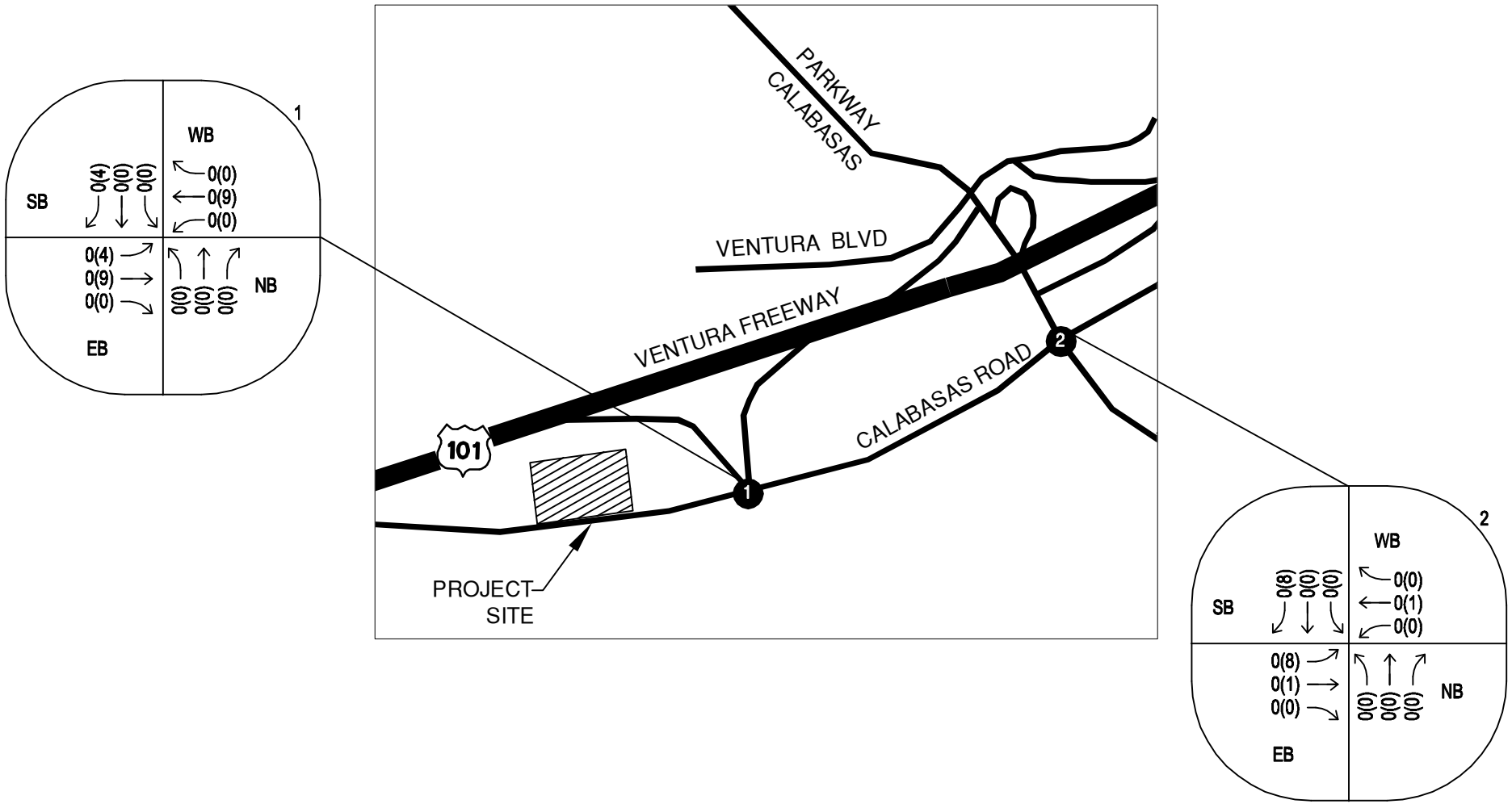
and Associates, Inc.



LEGEND	
←XX(XX)	AM(PM) Peak Hour Traffic Volumes
X	Study Area Intersection
▨	Project Site

FIGURE 6
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
PROJECT PEAK HOUR TURNING MOVEMENT VOLUMES

Kimley-Horn ©2008 and Associates, Inc.

EXISTING (2010) WITH PROJECT CONDITIONS

PM peak-hour project traffic was added to the Existing (2010) without Project scenario to determine whether development of the project would result in any significant PM peak-hour project traffic impacts. **Table 5** provides a summary of the Existing (2010) with Project weekday PM peak intersection analysis. **Figure 7 illustrates** the Existing (2010) with Project weekday PM peak hour traffic volumes at the study area intersections. Analysis worksheets for this scenario are provided in **Appendix D**.

TABLE 5
Existing (2010) With Project Weekday Intersection LOS

Intersection		Existing Conditions		Existing Conditions with Project			Impact
		V/C Ratio	*LOS*	*V/C Ratio*	*LOS*	*Change**	
PM Peak Hour							
1	Calabasas Road / US 101 On-Off Ramp	0.698	B	0.707	C	0.009	No
2	Calabasas Road / Parkway Calabasas	0.670	B	0.675	B	0.006	No

Source: Kimley-Horn and Associates, Inc. April 2010

*Change compared to the Existing condition.

Table 5 indicates that both of the study area intersections would continue to operate at the same LOS under the Existing (2010) with Project scenario without any significant impacts.

FUTURE (2030) CONDITIONS

Future (2030) intersection LOS was obtained from the "West Calabasas Road Planning Guidelines" that was provided by the City staff. **Table 6** provides a summary of the Future (2030) PM peak intersection analysis.

TABLE 6
Future (2030) Intersection LOS

Intersection		LOS Analysis Results			
		AM Peak Hour		PM Peak Hour	
		V/C Ratio	LOS	V/C Ratio	LOS
1	Calabasas Road / US 101 On-Off Ramp	0.83	D	0.59	B
2	Calabasas Road / Parkway Calabasas	0.63	B	0.670	B

Source: West Calabasas Road Planning Guidelines, City of Calabasas. June 2010

The improved LOS could be attributed to improved operations in the vicinity of the project site due to the planned future roadway improvements at the intersection of Calabasas Road/US 101 Southbound Ramps and to Calabasas Road west of Mureau Road.

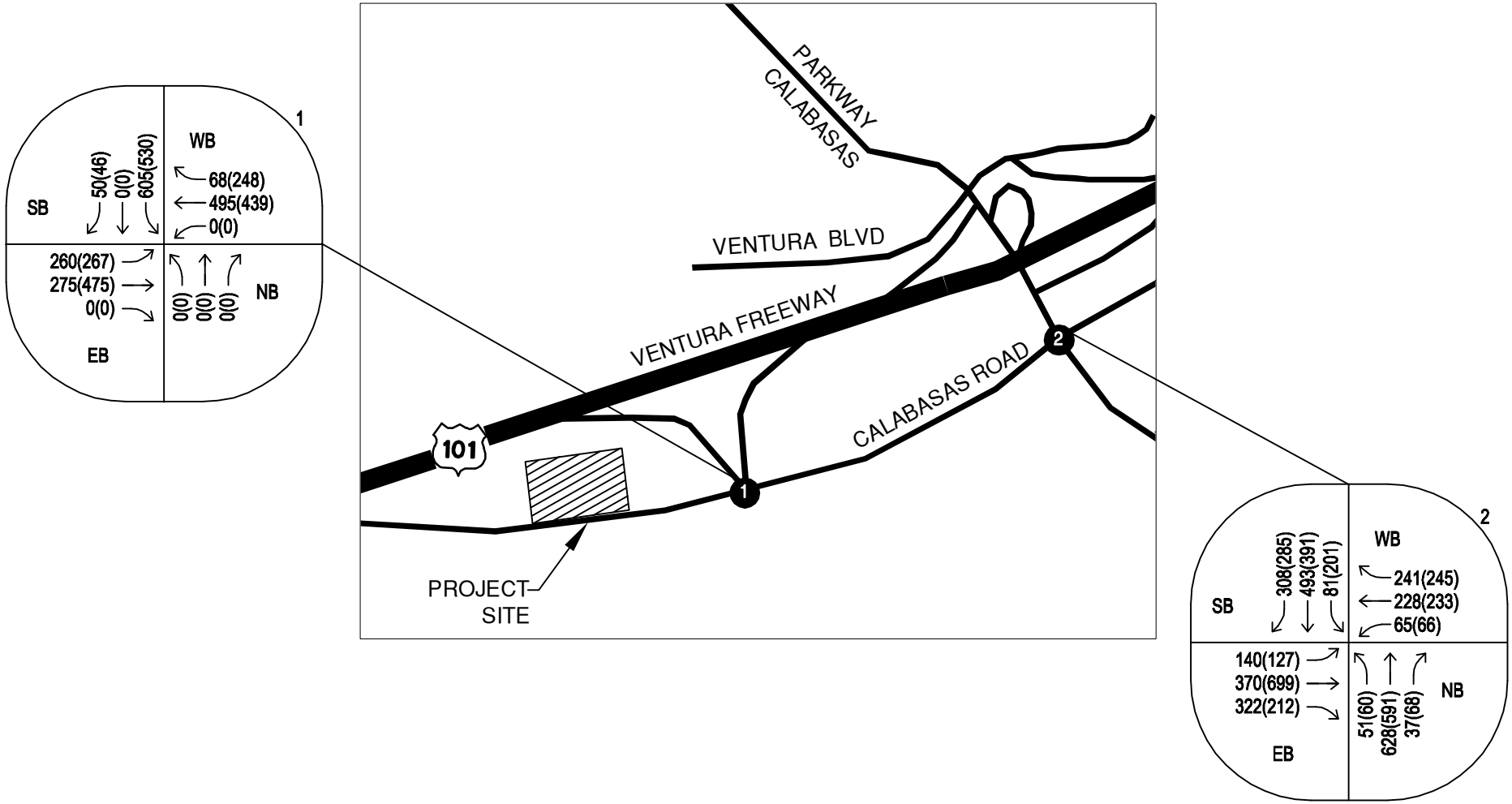


FIGURE 7
MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP
EXISTING WITH PROJECT WEEKDAY
PEAK HOUR TURNING MOVEMENT VOLUMES

LEGEND

←XX(XX)	AM(PM) Peak Hour Traffic Volumes
X	Study Area Intersection
▨	Project Site

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SIGNIFICANT TRAFFIC IMPACTS

The City of Calabasas guidelines define a significant traffic impact as a decrease in LOS where the intersection would operate at LOS D, E, or F with project traffic. Based upon these guidelines and the analysis performed in this study that indicates there was no decrease in the LOS, there would be no significant impacts at the study area intersections due to the addition of project traffic.

MITIGATION

The proposed project is not expected to result in any significant traffic impacts, therefore, no mitigation is necessary. Based upon the information provided by City staff, Citywide Traffic Mitigation fees would be required to be paid by the project based upon City of Calabasas guidelines as calculated below:

14,545 sf of retail space at $3.00 per sf -	$43,635.00
3,643 sf of office space at $2.75 per sf –	$10,018.25
Total Citywide Traffic Mitigation fees	$53,653.25

SITE ACCESS

Access to the site would be provided via two full access driveways. The eastern driveway is proposed to be located at the eastern edge of the project site and would provide access to the subterranean garage and the western driveway is 18' east of an existing driveway and would provide access to the surface parking lot. The western driveway would be utilized as the main customer access driveway for the vintage dealership and is expected to draw majority of the customer trips destined to this dealership. The eastern driveway that leads to the subterranean parking structure would primarily be used by the employees and by limited number of customers that have pre-scheduled car sales appointments.

The location of the eastern driveway in relation to the existing Volvo Dealership driveway has been analyzed and due to the expected very low number of trips that would be utilizing the eastern driveway, it is recommended that this driveway remain as a full access driveway without any restricted movements and no mitigation would be necessary.

CONCLUSIONS

- The proposed project consists of the construction of a new Vintage Automotive dealership on a site currently used to store inventory vehicles for the Bob Smith BMW Dealership. The dealership would include approximately 14,101 square feet of indoor and outdoor vehicle display and office space, approximately 4,232 internal square feet of supporting retail and a 1,253 square foot café and is located along Calabasas Road in the City of Calabasas, California.

- The proposed project is estimated to generate approximately 198 daily trips and 26 trips during the PM peak hour. The dealership is not expected to be open during the AM peak hour, and therefore, will not generate any AM peak hour trips. Two intersections were analyzed for weekday PM peak hour operations. The dealership anticipates occupancy by 2012.

- Based upon the analysis documented in this report, the addition of project traffic is not expected to result in any significant traffic impacts at either of the study area intersections.

APPENDIX A
Traffic Count Worksheets

VEHICLE TURNING MOVEMENT COUNT

#001 Parkway Calabasas & Calabasas Road - AM PEAK

LOCATION#:	001	QTD PROJ#:	090169
NORTH / SOUTH:	Parkway Calabasas	DATE:	Thursday, November 19, 2009
EAST / WEST:	Calabasas Road	VICINITY:	Calabasas, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	1	1.5	1.5	1	1	2	1	1	2	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	3	75	4	7	72	52	9	40	50	3	12	10	337
7:15 AM	9	104	5	16	79	76	15	50	57	4	28	14	457
7:30 AM	21	117	7	11	93	95	16	53	59	3	47	11	533
7:45 AM	11	136	6	8	107	107	38	94	84	12	39	31	673
8:00 AM	15	154	13	21	129	73	29	91	73	10	44	40	692
8:15 AM	7	166	12	15	131	69	29	87	86	15	38	46	701
8:30 AM	16	149	5	34	108	48	39	84	67	6	32	47	635
8:45 AM	10	143	4	33	108	58	43	108	70	13	28	38	656
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	92	1044	56	145	827	578	218	607	546	66	268	237	4684
P.H.V: (1)	49	605	36	78	475	297	135	356	310	43	153	164	2701
P.H.F: (2)		0.932			0.953			0.927			0.909		0.963

(1) Peak Hour Volume (Peak Hour Begins At 745 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#001 Parkway Calabasas & Calabasas Road - PM PEAK

LOCATION#:	001	QTD PROJ#:	090169
NORTH / SOUTH:	Parkway Calabasas	DATE:	Thursday, November 19, 2009
EAST / WEST:	Calabasas Road	VICINITY:	Calabasas, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	1	1.5	1.5	1	1	2	1	1	2	1	
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	16	139	13	44	73	50	17	125	53	15	46	38	629
4:15 PM	14	146	10	43	76	48	23	140	52	17	57	34	660
4:30 PM	14	153	15	44	86	50	32	135	53	19	43	47	691
4:45 PM	12	151	14	39	98	69	30	132	45	16	62	56	724
5:00 PM	19	171	11	60	80	58	27	184	51	12	50	67	790
5:15 PM	14	120	15	48	92	73	29	184	50	16	50	54	745
5:30 PM	12	118	24	44	101	62	26	162	55	19	58	55	736
5:45 PM	7	113	10	35	100	40	17	133	50	18	30	44	597
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	108	1111	112	357	706	450	201	1195	409	132	396	395	5572
P.H.V: (1)	57	560	64	191	371	262	112	662	201	63	220	232	2995
P.H.F: (2)		0.847			0.967			0.927			0.961		0.948

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#002 US 101 SB off & on ramp & Calabasas Road - AM PEAK

LOCATION#:	002	QTD PROJ#:	090169
NORTH / SOUTH:	US 101 SB off & on ramp	DATE:	Thursday, November 19, 2009
EAST / WEST:	Calabasas Road	VICINITY:	Calabasas, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	2	0	1	1	1	0	1	0	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	72	0	8	47	51	0	0	61	7	246
7:15 AM	0	0	0	83	0	13	45	46	0	0	114	7	308
7:30 AM	0	0	0	101	0	10	57	53	0	0	155	15	391
7:45 AM	0	0	0	143	0	10	74	76	0	0	122	13	438
8:00 AM	0	0	0	129	0	10	53	69	0	0	90	16	367
8:15 AM	0	0	0	164	0	14	47	46	0	0	73	16	360
8:30 AM	0	0	0	152	0	13	54	45	0	0	65	10	339
8:45 AM	0	0	0	159	0	18	42	44	0	0	74	12	349
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	1003	0	96	419	430	0	0	754	96	2798
P.H.V: (1)	0	0	0	537	0	44	231	244	0	0	440	60	1556
P.H.F: (2)		0.000			0.816			0.792			0.735		0.888

(1) Peak Hour Volume (Peak Hour Begins At 730 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#002 US 101 SB off & on ramp & Calabasas Road - PM PEAK

LOCATION#:	002	QTD PROJ#:	090169
NORTH / SOUTH:	US 101 SB off & on ramp	DATE:	Thursday, November 19, 2009
EAST / WEST:	Calabasas Road	VICINITY:	Calabasas, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	0	0	0	2	0	1	1	1	0	1	0	1	
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	103	0	12	69	69	0	0	87	38	378
4:15 PM	0	0	0	115	0	12	46	89	0	0	109	36	407
4:30 PM	0	0	0	132	0	16	56	79	0	0	73	40	396
4:45 PM	0	0	0	129	0	19	57	77	0	0	111	41	434
5:00 PM	0	0	0	128	0	7	71	115	0	0	99	74	494
5:15 PM	0	0	0	123	0	9	68	126	0	0	93	59	478
5:30 PM	0	0	0	121	0	4	52	122	0	0	103	60	462
5:45 PM	0	0	0	99	0	9	53	90	0	0	74	34	359
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	0	0	950	0	88	472	767	0	0	749	382	3408
P.H.V: (1)	0	0	0	501	0	39	248	440	0	0	406	234	1868
P.H.F: (2)		0.000			0.912			0.887			0.925		0.945

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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APPENDIX B
Existing Conditions Analysis Worksheets

Scenario Report

Scenario:	Ex AM
Command:	Ex AM
Volume:	Ex AM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Project
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Turning Movement Report
None

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Calabasas Rd/US 101 SB Ramps													
Base	0	0	0	537	0	44	231	244	0	0	440	60	1556
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	537	0	44	231	244	0	0	440	60	1556
#2 Calabasas Rd/Parkway Calabasas													
Base	49	605	36	78	475	297	135	356	310	63	220	232	2856
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	49	605	36	78	475	297	135	356	310	63	220	232	2856

Intersection Volume Report
Base Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	537	0	44	231	244	0	0	440	60
2	Calabasas Rd/	49	605	36	78	475	297	135	356	310	63	220	232

Intersection Volume Report
Future Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	537	0	44	231	244	0	0	440	60
2	Calabasas Rd/	49	605	36	78	475	297	135	356	310	63	220	232

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in V/C
# 1 Calabasas Rd/US 101 SB Ramps	C	xxxxx	0.761	C	xxxxx	0.761	+ 0.000
# 2 Calabasas Rd/Parkway Calabasas	B	xxxxx	0.674	B	xxxxx	0.674	+ 0.000

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.761
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	537	0	44	231	244	0	0	440	60
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	537	0	44	231	244	0	0	440	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	605	0	50	260	275	0	0	495	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	605	0	50	260	275	0	0	495	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	605	0	50	260	275	0	0	495	68
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.16	0.17	0.00	0.00	0.31	0.04
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.761
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	537	0	44	231	244	0	0	440	60
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	537	0	44	231	244	0	0	440	60
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	537	0	44	231	244	0	0	440	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	605	0	50	260	275	0	0	495	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	605	0	50	260	275	0	0	495	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	605	0	50	260	275	0	0	495	68
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.16	0.17	0.00	0.00	0.31	0.04
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.674
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 1 1 0 1			1 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	49	605	36	78	475	297	135	356	310	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	605	36	78	475	297	135	356	310	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	51	628	37	81	493	308	140	370	322	65	228	241
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	628	37	81	493	308	140	370	322	65	228	241
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	628	37	81	493	308	140	370	322	65	228	241
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.83	0.17	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4530	270	1600	3200	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.05	0.15	0.19	0.09	0.12	0.20	0.04	0.07	0.15
Crit Moves:		****				****			****	****		

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.674
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 1 1	0 1		1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	49	605	36	78	475	297	135	356	310	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	605	36	78	475	297	135	356	310	63	220	232
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	49	605	36	78	475	297	135	356	310	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	51	628	37	81	493	308	140	370	322	65	228	241
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	628	37	81	493	308	140	370	322	65	228	241
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	628	37	81	493	308	140	370	322	65	228	241
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.83	0.17	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4530	270	1600	3200	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.05	0.15	0.19	0.09	0.12	0.20	0.04	0.07	0.15
Crit Moves:		****				****			****	****		

Project Trips Report
None

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
Zone #1: Malamut Vintage Dealership													
1	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0
2	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node	Intersection	NB	SB	EB	WB
1	Calabasas Rd/US 101 SB Ramps	000000	200010	101000	001010
2	Calabasas Rd/Parkway Calabasas	102100	111010	102010	102010

Scenario Report

Scenario:	Ex PM
Command:	Ex PM
Volume:	Ex PM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Project
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Turning Movement Report
None

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Calabasas Rd/US 101 SB Ramps													
Base	0	0	0	501	0	39	248	440	0	0	406	234	1868
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	501	0	39	248	440	0	0	406	234	1868
#2 Calabasas Rd/Parkway Calabasas													
Base	57	560	64	191	371	262	112	662	201	63	220	232	2995
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	57	560	64	191	371	262	112	662	201	63	220	232	2995
#5 Ventura/Parkway Calabasas													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#15													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Volume Report
Base Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	501	0	39	248	440	0	0	406	234
2	Calabasas Rd/	57	560	64	191	371	262	112	662	201	63	220	232

Intersection Volume Report
Future Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	501	0	39	248	440	0	0	406	234
2	Calabasas Rd/	57	560	64	191	371	262	112	662	201	63	220	232

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Calabasas Rd/US 101 SB Ramps	B	xxxxx	0.698	B	xxxxx	0.698	+ 0.000 V/C
# 2 Calabasas Rd/Parkway Calabasas	B	xxxxx	0.670	B	xxxxx	0.670	+ 0.000 V/C

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.698
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	B

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	2 0	0 0	1	1 0	1 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	0	0	0	501	0	39	248	440	0	0	406	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	501	0	39	248	440	0	0	406	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	530	0	41	262	466	0	0	430	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	530	0	41	262	466	0	0	430	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	530	0	41	262	466	0	0	430	248
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.17	0.00	0.03	0.16	0.29	0.00	0.00	0.27	0.15
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.698
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	B

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	501	0	39	248	440	0	0	406	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	501	0	39	248	440	0	0	406	234
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	501	0	39	248	440	0	0	406	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	530	0	41	262	466	0	0	430	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	530	0	41	262	466	0	0	430	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	530	0	41	262	466	0	0	430	248
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.17	0.00	0.03	0.16	0.29	0.00	0.00	0.27	0.15
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.670
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	46	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 1 1 0 1			1 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	57	560	64	191	371	262	112	662	201	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	560	64	191	371	262	112	662	201	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	60	591	68	201	391	276	118	698	212	66	232	245
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	591	68	201	391	276	118	698	212	66	232	245
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	591	68	201	391	276	118	698	212	66	232	245
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.69	0.31	1.02	1.98	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4308	492	1631	3169	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.14	0.14	0.12	0.12	0.17	0.07	0.22	0.13	0.04	0.07	0.15
Crit Moves:			****			****		****		****		

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.670
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	46	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 1 1 0 1			1 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	57	560	64	191	371	262	112	662	201	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	560	64	191	371	262	112	662	201	63	220	232
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	560	64	191	371	262	112	662	201	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	60	591	68	201	391	276	118	698	212	66	232	245
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	591	68	201	391	276	118	698	212	66	232	245
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	591	68	201	391	276	118	698	212	66	232	245
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.69	0.31	1.02	1.98	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4308	492	1631	3169	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.14	0.14	0.12	0.12	0.17	0.07	0.22	0.13	0.04	0.07	0.15
Crit Moves:			****			****		****		****		

Project Trips Report
None

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
Zone #1: Malamut Vintage Dealership													
1	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0
2	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node	Intersection	NB	SB	EB	WB
1	Calabasas Rd/US 101 SB Ramps	000000	200010	101000	001010
2	Calabasas Rd/Parkway Calabasas	102100	111010	102010	102010

APPENDIX C
Trip Generation Methodology Paper

Malamut Vintage Automotive Dealership – Trip Generation Methodology

March 8, 2010

Background

Traditional sources that provide trip generation rates for different land uses include the Institute of Transportation Engineers Trip Generation Manual (ITE) and the San Diego Association of Governments (SANDAG). ITE rates are used throughout the United States by traffic engineers to forecast new trips that can be anticipated from new development. SANDAG is the Regional Planning Agency and Council of Governments for San Diego County. SANDAG trip rates are based more on the trip generating characteristics of land uses in southern California, and are sometimes used instead of ITE rates to complete traffic impact analysis reports.

ITE and SANDAG provide different trip rates and trip rate methodologies for car dealerships -classified by ITE as "New Car Sales" or "Used Car Sales", and by SANDAG as "Car Dealer". Neither of these sources provides an appropriate trip generation rate for the proposed Malamut Vintage Automotive Dealership because the description of the land use is inconsistent with how the Malamut dealership will operate. Therefore, unique and specific trip generation is being developed in order to complete the Malamut dealership traffic impact analysis report. This technical memorandum provides the following information:

- A description of the ITE and SANDAG land use definitions and dealership operations, and how the Malamut dealership will operate differently.
- A description of the Malamut dealership and its proposed operational plan.
- A summary of the ITE and SANDAG trip rate methodologies.
- A unique trip generation calculation based upon the Malamut dealership operational plan.
- A comparison of the unique trip generation to ITE trip generation.
- A description of the dealership trip distribution based upon forecast market/customer data from the Malamut dealership.

The trip generation rates provided by ITE and SANDAG are based upon actual surveys of vehicles that enter and exit auto dealerships that sell new and used vehicles, provide service and repairs and are generally much larger and with many more customers than what the proposed Malamut dealership is anticipated to experience.

Malamut Vintage Automotive Dealership - Operations

The proposed Malamut Vintage Automotive Dealership will be a unique facility that sells only limited production and specialty vintage vehicles. The dealership will not be open during the morning peak hour (7-9 am) when morning traffic operations analysis are completed for traffic studies in Calabasas. Hours of operation are anticipated and proposed to be from 9 or 10 am until 7 pm on a typical weekday. For the purposes of this analysis, it is assumed that the dealership will be open from 9 am until 7 pm each weekday. Therefore, only the weekday pm peak hour intersection operations will be evaluated in the traffic impact analysis report.

The dealership plans include three private service bays to provide minor service for its inventory of vehicles and any necessary warranty repairs. The dealership is not proposing to provide service for vehicle owners that did not purchase their vehicle from the dealership.

The dealership is expected to have approximately 15 employees; 4 will be for car sales, and not all are expected to be in the dealership at the same time during weekday pm peak hour. Eleven of the employees will be for the supporting retail (described below).

The limited production and specialty vintage vehicles that will be for sale at the dealership target a smaller market than typical dealerships that sell more common vehicles. "Walk-in" customers, who represent a relatively high portion of customers at typical new car dealerships, will be minimal at the Malamut dealership. Few people are expected to go to the dealership to browse vehicles. Because of the high value of the vehicles that will be for sale, there will be few test drives. In fact, approximately 60% of the customer trips to the dealerships for car purchase considerations are expected to be by appointment – and will be scheduled outside of the PM peak hour of adjacent street traffic (4-6 pm). Only 40% of the trips are expected to be walk-in. The dealership is expected to house approximately 50 for-sale vehicles at one time. If the dealership operational plan changes in the future – for example, by adding a production vehicle line, it will be a very limited production vehicle, such as Fisker. The expected change in trip generation - if such a vehicle line were to be for sale will be minimal, with the expectation of 2-3 vehicles sold each month. Similar to the limited production and specialty vintage vehicles – there would be minimal walk-in customers that only browse.

In addition to the 14,101 square feet of indoor and outdoor vehicle display and office space, the dealership is proposed to include approximately 4,471 square feet of supporting retail and a 1,253 square foot cafe. The retail space will sell unique automotive apparel and vintage automotive memorabilia. The retail space is primarily intended to serve buyers of the limited production and specialty vintage vehicles. A much smaller number of retail customers are anticipated to come to shop only for the merchandise. The café will accommodate approximately 18 seats and is also intended to serve buyers of the limited production and specialty vintage vehicles.

ITE and SANDAG trip generation rates for retail stores are also not applicable to the Malamut dealership because of the unique merchandise and because they will be located within the dealership. The retail space will not be operated similar to more traditional retail shops. The most similar land use definitions for which ITE provides trip generation rates is "Specialty Retail Center" (land use #814) – which is a small specialty shopping center, or ""Arts and Crafts Store" (land use #879) – which is a stand-alone specialty shop, but with much different merchandise and not located within another business (the dealership).

A very small number of the vehicle trips that go into and out of the Malamut dealership are anticipated to be "pass-by" trips - which are trips not specifically destined for the dealership but that pass-by, stop and go into the dealership to browse or shop.

ITE and SANDAG Trip Generation Rates

ITE trip generation rates are for "New Car Sales", and are based upon count surveys at dealerships that include new car sales, vehicle service, parts sales, vehicle leasing and substantial used car sales. The number of service vehicles often dominates the morning peak hour trip generation – the average number of stalls of sites surveyed was 34. Saturday and Sunday trip generation is significantly higher than weekday. ITE allows for a variety of trip generation rate factors – the rates can be based upon the number of employees, the peak hour of the dealership or the peak hour of the adjacent street traffic. None of the trip rate options is applicable to the Malamut Vintage Automotive Dealership. A summary of the ITE rates is provided below. Select pages from the ITE Trip Generation Manual are attached as an appendix to this report.

The ITE Land Use Category is "New Car Sales" (land use #841)

Average vehicle trip ends vs. employees

¶ weekday daily trip rate is 21.14 trips/employee, (50% in, 50% out)

¶ no am or pm peak hour trip rate data available

Average vehicle trip ends vs. 1000 sf – peak of generator (site)

¶ am peak of generator is 0.67 trips/1,000 sf. (44% in, 56% out)

¶ pm peak of generator is 0.96 trips/1,000 sf (48% in, 42% out)

Average vehicle trip ends vs. 1000 sf – peak of adjacent street traffic

¶ weekday daily trip rate is 33.34 trips/1,000 sf (50% in, 50% out)

¶ am peak hour of adjacent street traffic is 2.03 trips/1,000 sf (74% in, 26% out)

¶ pm peak hour of adjacent street traffic is 2.59 trips/1,000 sf (39% in, 61% out)

If ITE rates were used, the calculations indicate that the Malamut dealership (including the supporting retail and café) would generate between 600 and 800 daily trips. The range depends upon using employees or square feet as the variable. The dealership would generate between 50 and 80 pm peak hour trips. The range also depends upon using employees or square feet as the variable. The ITE trip generation calculations will be provided in the appendix of the traffic study report.

SANDAG trip generation rates are sometimes more focused on how land uses operate in California and often have established rate methodologies that are different from ITE. The rates available from SANDAG that could be applied to this project are from the "Car Dealers" land use, and are based upon driveway count surveys for each 1,000 square feet of dealership building area or site acreage. A summary of the SANDAG trip rate methodology is provided below.

The SANDAG Land Use Category is "Car Dealer"

¶ weekday daily trip rate is based upon driveway counts from surveys = 50 trips/1,000 sf or 300 trips/acre

¶ am peak hour = 5% of daily, pm peak hour = 8% of daily

If SANDAG rates were used, the calculations indicate that the Malamut dealership would generate approximately 700 daily trips (based upon 14,000 square feet) and 56 pm peak hour trips (based upon 8% of daily). There would be no am peak hour trips. The SANDAG trip generation calculations will be provided in the appendix of the traffic study report.

Malamut Vintage Automotive Dealership - Trip Generation Methodology

Because of the differences in the dealership when compared with the land use descriptions in ITE and SANDAG guidebooks, a unique trip generation was developed for the Malamut dealership, based upon the anticipated operations of the dealership. The methodology is outlined below:

Customers trips to shop for the vintage vehicles per day:

3 customers each hour x 7 hours (between 9 am and 4 pm) = 21 customers.

4 customers each hour x 3 hours (between 4 pm and 7 pm/close) = 12 customers.

Sub-total = 33 daily car-shopping customers (33 in, 33 out) = **66 daily vehicle customer trips**

Customers trips to for the vintage vehicles during the pm peak hour:

6 customers each hour x 1 hour (any hour between 4 pm and 6 pm) = 18 customers.

Sub-total = 6 pm peak car shopping customers (6 in, 6 out) = **12 pm peak hour vehicle customer trips.**

The pm peak hour trip generation assumes that each customer will arrive and leave within the same 1 hour, or that customers at the dealership arriving before the pm peak will leave while new customers arrive – during the same peak hour. We believe this represents a conservative estimate.

Customers trips to shop at retail and café only per day:

2 retail customers each hour x 7 hours (between 9 am and 4 pm) = 14 customers.

3 retail customers each hour x 3 hours (between 4 pm and 7pm/close) = 9 customers.

2 café customers each hour x 10 hours (between 9 am and 7 pm/close) = 20 customers.

Sub-total = 43 daily café & retail only customers (43 in, 43 out) = **86 daily café & retail only customer trips**

The trip generation methodology assumes that some of the car shopping customers will also shop at the retail spaces and use the cafe. These will not be new trips to the driveways or the network, but trips that are already accounted for in the vintage vehicle customer trips. These types of trips are referred to as "internal capture" trips in shopping centers – that have more than one land use.

Customers trips to shop at retail and café only during the pm peak hour:

5 customers (3 retail, 2 café) each hour x 1 hour (any hour between 4 pm and 6 pm) = 5 customers.

Sub-total = 5 pm peak customers (5 in, 5 out) = **10 pm peak hour retail and café customer trips.**

Employees per day:

15 employees (4 for vehicle sales, 11 for retail and café) = 15 employees

Sub-total = 15 employees (15 in, 15 out) = **30 daily employee trips**

Employees during the pm peak hour:

2 vehicle sales employees and 4 retail/café employees = 6 employees. None arrive or leave between 4 and 6 pm. All will leave at close (7 pm) = **0 employee trips in the pm peak hour**.

Other trips during the pm peak hour:

No vehicle delivery trips are anticipated to occur within the pm peak hour.

2 test drives (of 6 customers) are assumed to occur during the pm peak hour

Sub-total = 2 test drives (2 in, 2 out) – **4 pm peak hour test drive trips**

Test drives will be limited to bona fide customers only. Daily test drives are assumed to be 8 customers = 16 trips.

TOTAL =198 daily trips (66+86+30+16), 26 pm peak hour trips (12+10+4)

Trip Generation Comparison

The resulting number of trips based upon the KHA methodology was compared with ITE and SANDAG rates for reasonableness. The table below indicates that use of the ITE or SANDAG rates results in significantly higher daily and pm peak hour rates; more than three times higher for daily trips and more than double for pm peak hour trips.

	Unique Trip Generation for Malamut	ITE Average	SANDAG
Daily	198	700	700
PM peak	26	65	56

The 26 weekday pm peak hour trips will be distributed to the site driveways and the study area roadways and intersections to complete the intersection operations analysis as part of the traffic impact analysis report.

Trip Distribution

The dealership trips will be assigned to the site driveways, Calabasas Road and adjacent roadways, freeway ramps and interchanges. The dealership market analysis assumes that 60% of the trips will come to/from the east and south (Los Angeles), 50% via US 101 and 10% via Pacific Coast Highway (CA1). Approximately 40% will come from the west and north (Ventura, Santa Barbara), via US 101.

APPENDIX D

Existing Conditions With Project Analysis Worksheets

Scenario Report

Scenario:	Existing with Project AM
Command:	Future with Project AM
Volume:	Future AM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Project AM
Trip Distribution:	Project
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Turning Movement Report
Project AM

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Calabasas Rd/US 101 SB Ramps													
Base	0	0	0	537	0	44	231	244	0	0	440	60	1556
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	537	0	44	231	244	0	0	440	60	1556
#2 Calabasas Rd/Parkway Calabasas													
Base	49	605	36	78	475	297	135	356	310	63	220	232	2856
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	49	605	36	78	475	297	135	356	310	63	220	232	2856
#5 Ventura/Parkway Calabasas													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#15													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Volume Report
Base Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	537	0	44	231	244	0	0	440	60
2	Calabasas Rd/	49	605	36	78	475	297	135	356	310	63	220	232

Intersection Volume Report
Future Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	537	0	44	231	244	0	0	440	60
2	Calabasas Rd/	49	605	36	78	475	297	135	356	310	63	220	232

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in V/C
# 1 Calabasas Rd/US 101 SB Ramps	C	xxxxx	0.761	C	xxxxx	0.761	+ 0.000
# 2 Calabasas Rd/Parkway Calabasas	B	xxxxx	0.674	B	xxxxx	0.674	+ 0.000

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.761
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	537	0	44	231	244	0	0	440	60
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	537	0	44	231	244	0	0	440	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	605	0	50	260	275	0	0	495	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	605	0	50	260	275	0	0	495	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	605	0	50	260	275	0	0	495	68
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.16	0.17	0.00	0.00	0.31	0.04
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.761
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	537	0	44	231	244	0	0	440	60
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	537	0	44	231	244	0	0	440	60
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	537	0	44	231	244	0	0	440	60
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	605	0	50	260	275	0	0	495	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	605	0	50	260	275	0	0	495	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	605	0	50	260	275	0	0	495	68
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.16	0.17	0.00	0.00	0.31	0.04
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.674
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 1 1	0 1		1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	49	605	36	78	475	297	135	356	310	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	605	36	78	475	297	135	356	310	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	51	628	37	81	493	308	140	370	322	65	228	241
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	628	37	81	493	308	140	370	322	65	228	241
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	628	37	81	493	308	140	370	322	65	228	241
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.83	0.17	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4530	270	1600	3200	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.05	0.15	0.19	0.09	0.12	0.20	0.04	0.07	0.15
Crit Moves:		****				****			****	****		

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.674
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 1 1	0 1		1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	49	605	36	78	475	297	135	356	310	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	605	36	78	475	297	135	356	310	63	220	232
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	49	605	36	78	475	297	135	356	310	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	51	628	37	81	493	308	140	370	322	65	228	241
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	628	37	81	493	308	140	370	322	65	228	241
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	628	37	81	493	308	140	370	322	65	228	241
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.83	0.17	1.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4530	270	1600	3200	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.05	0.15	0.19	0.09	0.12	0.20	0.04	0.07	0.15
Crit Moves:		****				****			****	****		

Project Trips Report
Project AM

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
Zone #1: Malamut Vintage Dealership													
1	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0
2	Calabasas Rd/	0	0	0	0	0	0	0	0	0	0	0	0

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node	Intersection	NB	SB	EB	WB
1	Calabasas Rd/US 101 SB Ramps	000000	200010	101000	001010
2	Calabasas Rd/Parkway Calabasas	102100	111010	102010	102010

Scenario Report

Scenario:	Existing with Project PM
Command:	Future with Project PM
Volume:	Future PM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Project PM
Trip Distribution:	Project
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Turning Movement Report
Project PM

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Calabasas Rd/US 101 SB Ramps													
Base	0	0	0	501	0	39	248	440	0	0	406	234	1868
Added	0	0	0	0	0	4	4	9	0	0	9	0	26
Total	0	0	0	501	0	43	252	449	0	0	415	234	1894
#2 Calabasas Rd/Parkway Calabasas													
Base	57	560	64	191	371	262	112	662	201	63	220	232	2995
Added	0	0	0	0	0	8	8	1	0	0	1	0	18
Total	57	560	64	191	371	270	120	663	201	63	221	232	3013
#5 Ventura/Parkway Calabasas													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	8	0	0	8
Total	0	0	0	0	0	0	0	0	0	8	0	0	8
#15													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	8	0	0	0	0	0	0	0	0	0	0	0	8
Total	8	0	0	0	0	0	0	0	0	0	0	0	8

Intersection Volume Report
Base Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	501	0	39	248	440	0	0	406	234
2	Calabasas Rd/	57	560	64	191	371	262	112	662	201	63	220	232

Intersection Volume Report
Future Volume Alternative

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
1	Calabasas Rd/	0	0	0	501	0	43	252	449	0	0	415	234
2	Calabasas Rd/	57	560	64	191	371	270	120	663	201	63	221	232

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Calabasas Rd/US 101 SB Ramps	B	xxxxx	0.698	C	xxxxx	0.707	+ 0.009 V/C
# 2 Calabasas Rd/Parkway Calabasas	B	xxxxx	0.670	B	xxxxx	0.675	+ 0.006 V/C

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.698
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	B

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	501	0	39	248	440	0	0	406	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	501	0	39	248	440	0	0	406	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	530	0	41	262	466	0	0	430	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	530	0	41	262	466	0	0	430	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	530	0	41	262	466	0	0	430	248
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.17	0.00	0.03	0.16	0.29	0.00	0.00	0.27	0.15
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Calabasas Rd/US 101 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.707
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	51	Level Of Service:	C

Street Name:	US 101 SB Ramps						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			2 0 0 0 1			1 0 1 0 0			0 0 1 0 1		
Volume Module:												
Base Vol:	0	0	0	501	0	39	248	440	0	0	406	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	501	0	39	248	440	0	0	406	234
Added Vol:	0	0	0	0	0	4	4	9	0	0	9	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	501	0	43	252	449	0	0	415	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	530	0	46	267	475	0	0	439	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	530	0	46	267	475	0	0	439	248
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	530	0	46	267	475	0	0	439	248
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	2.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	3200	0	1600	1600	1600	0	0	1600	1600
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.17	0.00	0.03	0.17	0.30	0.00	0.00	0.27	0.15
Crit Moves:				****			****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.670
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	46	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 1 0			1 1 1 0 1			1 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	57	560	64	191	371	262	112	662	201	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	560	64	191	371	262	112	662	201	63	220	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	60	591	68	201	391	276	118	698	212	66	232	245
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	591	68	201	391	276	118	698	212	66	232	245
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	591	68	201	391	276	118	698	212	66	232	245
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.69	0.31	1.02	1.98	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4308	492	1631	3169	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.14	0.14	0.12	0.12	0.17	0.07	0.22	0.13	0.04	0.07	0.15
Crit Moves:			****			****		****		****		

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #2 Calabasas Rd/Parkway Calabasas

Cycle (sec):	100	Critical Vol./Cap.(X):	0.675
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	47	Level Of Service:	B

Street Name:	Parkway Calabasas						Calabasas Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	1 0		1 1	1 0	1	1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	57	560	64	191	371	262	112	662	201	63	220	232
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	560	64	191	371	262	112	662	201	63	220	232
Added Vol:	0	0	0	0	0	8	8	1	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	560	64	191	371	270	120	663	201	63	221	232
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	60	591	68	201	391	285	127	699	212	66	233	245
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	591	68	201	391	285	127	699	212	66	233	245
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	591	68	201	391	285	127	699	212	66	233	245
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.69	0.31	1.02	1.98	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	4308	492	1631	3169	1600	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.14	0.14	0.12	0.12	0.18	0.08	0.22	0.13	0.04	0.07	0.15
Crit Moves:			****			****		****		****		

Project Trips Report
Project PM

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
Zone #1: Malamut Vintage Dealership													
1	Calabasas Rd/	0	0	0	0	0	4	4	9	0	0	9	0
2	Calabasas Rd/	0	0	0	0	0	8	8	1	0	0	1	0

Lane Geometry Report

Number of approach lanes: (L) (LT) (T) (RT) (R) (LTR)

Node	Intersection	NB	SB	EB	WB
1	Calabasas Rd/US 101 SB Ramps	000000	200010	101000	001010
2	Calabasas Rd/Parkway Calabasas	102100	111010	102010	102010

Appendix C

Geotechnical Review

Geotechnical Site Evaluation
and response to
City of Calabasas
Engineering Geology and Soils Engineering
Review Letter
Dated August 5, 2009
Proposed
Malamut Vintage Automotive Dealership
24439 Calabasas Road
Calabasas, California

prepared for

Darrel and Mike Malamut
142 S. Peck Dr. Unit C
Beverly Hills, CA 90212

GORIAN
& ASSOCIATES, INC.

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May 10, 2010

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Work Order: 2881-0-0-100

Subject: **Geotechnical Site Evaluation and Response to City of Calabasas Engineering Geology and Soils Engineering Review Letter Dated August 5, 2009, Proposed Malamut Vintage Automotive Dealership, 24439 Calabasas Road (Parcels 1 and 2), Calabasas, California.**

1. INTRODUCTION

In this report, we present the results of our supplemental geotechnical evaluation of the Malamut Vintage Automotive Dealership project proposed at 24439 Calabasas Road within Calabasas, California. This report is intended to serve as an update of a previous evaluation of the property by Grover Hollingsworth and Associates, Inc., (see attached reference list), as well as provide responses to the *Engineering Geology and Soils Engineering Review* letter dated August 5, 2009 prepared by Willdan Geotechnical for the city of Calabasas.

Our scope of services included archival research, supplemental field exploration, and laboratory testing, as well as additional geotechnical analyses as discussed herein. Our understanding of the proposed development is based on discussions with our client and a review of the architectural and civil engineering plans prepared by KTGY Architecture + Planning and Westland Civil, Inc., respectively. These plans and discussions indicate the project will consist of the design and construction of a two story building above a two level subterranean parking garage to house primarily a vintage automotive dealership along with three retail shops.

Conditions of the property as encountered during our supplemental subsurface exploration and that of others are described herein and within the attached logs of excavation presented in Appendix A. During the current evaluation, additional subsurface exploration was performed to evaluate the potential for liquefaction as requested in the city of Calabasas review letter. The site is underlain at depth by bedrock that is capped by a 36 to 47 foot sequence of shallow fill soils over residual and alluvial soils. Groundwater was encountered at 33 feet below the ground surface as later discussed herein. The alluvial soils are well consolidated and based on the scope of services performed; the site is considered suitable for the proposed development as outlined herein.

2. PROPOSED AUTOMOTIVE DEALERSHIP

The project will consist of the design and construction of the Malamut Vintage Automotive Dealership as shown on the architectural plans by KTGY Architecture + Planning provided by the client. Roughly the

western half of the building's first floor will house the dealership with the eastern portion containing three retail shops. The second floor will be dedicated to the dealership with an outdoor display at the western end.

The building will consist of a long rectangular two story above grade structure constructed over two levels of subterranean parking. The subterranean portion will have a longer footprint extending to the west below the surface parking area. The building will cover a majority of the site with the remaining portions occupied by landscaping and drive areas as shown on the civil plans by Westland Civil, Inc.

Shoring will be required to support the excavation for the subterranean levels. The lowest basement level is shown having an elevation of 1042.4± feet, the middle level at 1060± feet, and the first (ground) floor at 1072.0 feet. The existing grade of the asphalt pavement within the existing parking lot that covers the majority of the site ranges roughly from 1070 to 1077± sloping west to east.

A new surface parking lot will be to the west of the building with an entrance off Calabasas Road. The subterranean parking structure will be accessed at the eastern end of the building with a short ramp off Calabasas Road. Improvements will also be made along the northern side of Calabasas Road consisting mainly of new curb and gutter. Landscaped areas will be provided at the perimeter of the site.

3. ACCEPTANCE OF PRIOR CONSULTANTS' REPORT

Provided herewith is our notice of transfer of responsibility for geotechnical consultant of record (both geologist and geotechnical engineer) for the proposed Malamut Vintage Automotive Dealership project at 24439 Calabasas Road within Calabasas, California. Previously, Grover Hollingsworth and Associates, Inc. (GHA) provided the referenced soils engineering exploration report dated February 15, 2008 addressing the site and proposed development. This report is the subject of the City review (Willdan, 2009).

We have reviewed the referenced GHA report from the standpoint to transfer geotechnical consultant of record for design and construction of project described herein. This report by Gorian and Associates, Inc. is intended to be a stand alone report. Therefore, pertinent portions of the GHA report, such as the site description, history, and geologic setting, are included herein for completeness.

Based on our review of the referenced report along with our observations and supplemental evaluation (described herein), and knowledge of the area, this firm accepts and uses the data and recommendations contained in the referenced GHA report as a basis for this geotechnical evaluation report. We also provide the recommendations contained in that report herein or as amended and/or updated by this firm.

4. SCOPE OF SERVICES

This office, under the direction of a State registered geotechnical engineer and certified engineering geologist, performed this supplemental geotechnical evaluation of the site in general accordance with the Scope of Services outlined in our proposal of November 19, 2009 (Proposal Number: 5186-10) with supplemental scope of work by client of April 1, 2010. Our scope of services included the following:

- **Archival Review**

Previous geologic/geotechnical engineering evaluations of the site and vicinity readily available at the city of Calabasas and as provided by the client were reviewed to provide background information regarding the site. In addition, regional geologic references applicable to the site within our office were reviewed for our evaluation. Documents reviewed also included the review letter dated August 5, 2009 by Willdan Geotechnical (the city of Calabasas geotechnical reviewer) regarding the referenced report dated February 15, 2008 prepared for the site by Grover Hollingsworth and Associates, Inc.

- **Field Reconnaissance**

A field reconnaissance of the site and vicinity was performed by the undersigned geotechnical engineer and engineering geologist.

- **Subsurface Exploration**

To supplement the prior subsurface exploration by GHA, two cone penetration tests (CPT) were recently performed at the approximate locations shown on the attached Geotechnical Map, Plate 1, based on the civil plan by Westland Civil, Inc. The CPTs were used to provide additional exploration of the underlying soil conditions and obtain additional data for the evaluation of the potential for liquefaction and seismic settlement. The CPT rig was also be used to collect select soil samples. An engineer from our office was present on-site during the performance of the CPTs.

CPT testing consists of hydraulically pushing an instrumented probe into the ground to record tip resistance and sleeve friction. The CPT provides a detailed stratigraphic profile of the encountered soils with resistance and friction values correlated with known soil values to provide estimates of the geotechnical properties.

The small diameter holes from the CPT probe were filled with bentonite clay pellets and the surface hole patched with asphaltic material. The CPT locations were marked in the field and Underground Service Alert (USA) was contacted per State mandated protocol prior to excavation on the site.

- **Laboratory Testing**

A limited program of geotechnical laboratory testing was performed to evaluate geotechnical properties of the earth material samples obtained during the current subsurface exploration. Testing was performed to determine Atterberg limits and in-situ moisture content. Results of the laboratory testing program are presented in Appendix B.

- **Geologic / Geotechnical Engineering Analyses**

Results of our archival review, field exploration, and laboratory testing programs were used to evaluate the site, develop geotechnical recommendations for site development and construction, and respond to comments presented in the City review letter. As a minimum, the following analyses are presented herewith:

a. A description of soil, bedrock, and groundwater conditions encountered during the subsurface exploration including previous boring logs, pertinent geotechnical cross section(s), and a geotechnical map.

b. A description of the laboratory testing program including tests results.

c. Responses to the geotechnical review comments.

d. An expanded section on shoring including tieback design and installation recommendations.

e. An update of the prior geotechnical evaluations along with current seismic design parameters;

f. Potential for liquefaction and seismically induced settlement within the soil profile were evaluated using current methodologies as outlined in the *California Geological Survey (CGS) Special Publication 117A* using data obtained from the previous boring and CPT data.

g. Potential for lateral spreading was evaluated for the design level earthquake.

- **Report Preparation**

Results of our archival review, field, and laboratory testing programs along with our evaluations and analyses were used prepare this report and to develop geotechnical responses to comments in the City's review letter.

5. SITE LOCATION AND DESCRIPTION

The majority of the site (Parcel 1) is covered by an asphalt covered parking lot used for car storage by the adjacent Bob Smith BMW auto dealership. The triangular shaped property (Parcels 1 and 2) occupies 0.93 acres on the north side of Calabasas Road roughly centered between Mureau Road and the intersection of Calabasas Road and the south bound 101 Freeway off ramp. The surface of the parking lot is relatively flat with drainage to the east. The northern boundary is the US 101 Freeway right of way. To the east is a surface parking lot for Calabasas Volvo.

Access to the parking lot is via two drives off Calabasas Road at roughly at the eastern and western ends of the parking lot. The parking lot is inset from the property lines on the north, east, and south by narrow planter areas supporting a number of trees. At the eastern end of the asphalt parking lot is a concrete block wall that supports the elevation difference between this site and the property to the east. The wall supports a variety of backfill material per the GHA report. A retaining wall is also along the northern property line.

6. CITY RECORDS RESEARCH

The records for this site and adjacent sites were researched by GHA and this office at the city of Calabasas Department of Building and Safety and Public Works. The GHA research indicates that R. T. Frankian and Associates (Frankian) issued a geotechnical report for a proposed commercial building on the project site. The report, dated September 12, 1985, indicates that Frankian excavated four borings to a maximum depth of 36 feet. Frankian indicates the site is underlain by a minor amount of fill, alluvial soils, and bedrock at depth. The fill is described as tan to brown, loose clayey sand. Natural alluvial soils consisting of dark brown to black clayey sand reportedly underlie the fill. Alluvium described as reddish brown silty to clayey sand was encountered beneath the soil. Bedrock was reportedly not encountered. Groundwater was also not encountered by Frankian. Soils testing performed by Frankian indicates the upper 3 feet of natural soils were subject to hydrocollapse and consolidation. Expansion index testing by Frankian yielded EI values ranging from 42 to 59.

Records for the Bob Smith BMW and the Volvo dealerships (see reference list) located southwest and southeast of the project site, respectively, were also reviewed. These reports indicate similar soil conditions as the project site, which are mainly well consolidated native soils, in areas locally capped by fill, overlying relatively shallow bedrock.

7. GEOLOGY

7.1 ON-SITE GEOLOGY

The site is underlain by roughly a 36 to 47 foot thick section of soil overlying bedrock of the Topanga Formation. The following sections contain generalized descriptions of the encountered earth units as documented in the previous report by GHA. Exploratory location specific details of the encountered geologic units are presented on the Logs of Subsurface Data (Appendix A), which contains the GHA boring logs and the logs of the recent CPT probes. General distribution and structural relationships of these earth units are shown on the attached Geotechnical Cross Sections (Plate 2).

7.1.1 Fill/ Compacted Fill

A fill deposit was encountered in all GHA borings to depths ranging from 4 to 8 feet below the ground surface. The thickest fill deposit is at the east portion of the property in Boring 1. The fill encountered generally consists of mottled gray-brown, yellow-brown, and medium brown, tan and orange-brown, slightly moist to moist, firm to stiff, clayey silt and silty clay. The fill exhibits crude horizontal layering, with slight color variations within layers. Portions of the fill contain scattered asphalt and gravel-size bedrock fragments.

7.1.2 Soil
A natural residual soil profile ranging from 4 to 6-1/2 feet in thickness was encountered beneath the fill in all the borings excavated. The soil generally consists of dark brown, slightly moist to moist, very firm to stiff silty clay. This material does not exhibit observable porosity, and contains gravel-size bedrock fragments.

7.1.3 Alluvium
Alluvial soils underlie the residual soil in all the borings excavated. The alluvium encountered consists of layers and lenses of clayey silt, silty clay, clayey sand, silty sand, and silt. The predominant material type comprising the alluvium is clayey silt to silty clay. The alluvium contains only minor thin lenses of clayey and silty sand. The color of the alluvium ranges from medium brown, gray-brown, orange-brown, tan, and brown. This material is generally moist within the upper portion of the boring, and becomes moist to very moist at depth.

7.1.4 **Bedrock**
Sandstone and siltstone bedrock of the Topanga Formation (following the formational nomenclature and geologic mapping of Weber, 1984) were encountered at depths ranging from 36 to 47 feet below the ground surface in all the CPTs and borings excavated. Bedrock encountered in Boring 1 in the eastern portion of the site consists of light gray-green, moist to very moist, slightly hard siltstone, which contains abundant white gypsum stringers and pods. The bedrock at this location becomes significantly harder at a depth of approximately 53 feet. The remaining borings encountered generally massive sandstone bedrock. This material is generally orange-brown, yellow-brown, and tan to gray, very moist and moderately hard to hard. GHA were unable to observe bedding within the bedrock in the borings due to groundwater conditions. Geologic structure within the bedrock was therefore not determined. Near-vertical bedding was encountered in the sample from Boring 1 at depth of 50 feet.

7.2 GROUNDWATER
GHA indicated that groundwater was encountered in their Borings 1 through 3 at depths ranging from 35 to 39 feet below the ground surface. However, groundwater was not encountered to a total depth of 41 feet in Boring 4. GHA indicates that the amount of standing water was measured in the borings approximately one hour after termination of drilling once the water had apparently stabilized. Significant seepage was not encountered in the upper portions of the borings above the measured level of the static water.

A review by GHA of the prior report dated September 12, 1985 by Frankian indicated that groundwater was also not encountered in the four borings excavated to a maximum depth of 36 feet. Groundwater was indicated to be at a depth of 33 feet in the recent CPT-1 performed by this office.

Groundwater was encountered at a depth of 38 feet in Boring B-1 as noted in the referenced report by NorCal Engineering dated April 22, 1999 for the BMW dealership, which is slightly up-gradient and to the southwest of the project site. The Site Plan within of the NorCal report indicates Boring B-1 is within the central to northern portion of the site. Mactec Engineering and Consulting, Inc. found no groundwater during their 2004 evaluation for the Volvo Dealership to the southeast of the project site (their borings were drilled to 39 feet and prior borings were drilled to 45 feet in the area of the Volvo building).

The above noted depths to groundwater would support a relative groundwater depth of 33 to 39 feet below the ground surface with some irregularity such as noted in the GHA Boring 4.

The period of observation from the 1985 Frankian report to the present provides a groundwater elevation study over a period of roughly 25 years. Based on this information groundwater may be assumed at

roughly an elevation of 33 to 39 feet below the ground surface. For design purposes, a groundwater elevation of 33 feet was used in the analysis presented herein.

As in any groundwater situation, groundwater level fluctuations should be anticipated during the life of the structure.

7.3 LANDSLIDES

No evidence of active or historic landslides was observed during our field investigations. No landslides are shown on or directly adjacent the site on the regional geologic maps (Dibblee, 1992 & Weber, 1984) or on the State's Seismic Hazard Zone Map for the Calabasas Quadrangle (CDMG, 1998).

7.4 FAULTING AND SEISMICITY

The site, like any other in the greater Calabasas area, is in 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 35 years. The 1994 Northridge earthquake produced strong ground motion at the Site and a peak horizontal acceleration of approximately 0.40 (g) for the soil site (Chang, et al., 1994). It is likely that significant earthquakes will occur in this area within the life expectancy of the proposed project and that the Site will experience strong ground shaking from these events.

In 1996, the California Division of Mines and Geology (CDMG, now California Geological Survey CGS) and US Geologic Survey (USGS) published a statewide probabilistic seismic hazard assessment (PSHA), Petersen et al., 1996. Subsequently, as a result of the State's ongoing Seismic Hazard Mapping Program, more detailed maps and supporting evaluation reports have been published [e.g., *Seismic Hazard Evaluation of the Calabasas 7.5 Minute Quadrangle, Los Angeles County, California* (CDMG Seismic Hazard Report 006) and *Seismic Shaking Hazard Maps of California* (Petersen et al., 1999, Cao 2003)].

Based on the latest United States Geological Survey (USGS) interactive web application, *2008 Interactive Deaggregations (Beta)* http://eqint.cr.usgs.gov/deaggint/2008/, probabilistic seismic hazard analyses predict that the Design Basis Earthquake will be on the order of 0.43g for the stiff alluvial soil /soft bedrock conditions on site. The mean magnitude from this PSHA is 6.8 (Mw) with a mean distance of 19.1 km from the property and a modal magnitude of 7.0 (Mw) with a modal distance of 14.0 km from the property. These USGS values were utilized in our evaluation as described in a following section.

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. Landsliding is also not considered to be a hazard inherent to the site due to its relatively flat relief and distance to hillside slopes. Earthquake induced liquefaction and seismic settlement affecting the proposed site development is discussed below.

8. LIQUEFACTION / SEISMIC SETTLEMENT ANALYSES

8.1 GENERAL

As a requirement of the city of Calabasas's review letter, the potential for liquefaction and seismic induced settlement was reevaluated in general accordance with the *California Geological Survey Special Publication 117A* based on the previously and recently obtained geotechnical data regarding the soil profile below the site.

Liquefaction can occur when saturated, loose, granular (non-cohesive) soils are subjected to excessive ground vibrations (cyclic stress) during a significant seismic event. During a significant seismic event, excessive pore pressure increases due to cyclic stress in the saturated soils (generally in the upper 50 feet of a site) causing these soils to lose strength. This may result in mobilization of the soil causing total or differential settlements, lateral spreading, and/or surface manifestations such as loss of bearing capacity, artesian water flow, and sand boils. The assumptions and procedures used to evaluation liquefaction and seismic settlement are discussed below along with the results of the analyses.

8.2 GROUNDWATER

As previously discussed, a groundwater level of 33 feet below the site was used in the evaluation of liquefaction and seismic induced settlement.

8.3 EARTHQUAKE PARAMETERS

As discussed in the Faulting and Seismicity section, deaggregation of the potential seismic events was performed using the USGS interactive web application (http://eqint.cr.usgs.gov/deaggint/2008/). The deaggregation resulted in a Peak Horizontal Ground Acceleration of .4317 g for a Mean Magnitude of 6.77 Mw for a class D site representing the building area. These values were used in the evaluation of the potential for liquefaction and other secondary seismic hazards.

8.4 LIQUEFACTION AND SEISMIC SETTLEMENT BASED ON CPT DATA

The cone penetrometer data from the probes performed for this report were evaluated for liquefaction and dry seismic settlement utilizing the CPT Analyst computer program (version 6.2). The CPT Analyst program uses friction and tip resistance obtained from the sounding to classify soil into a material behavior type (Robertson & Campanella, 2002). The program calculates liquefaction following Youd et al. (2001) and a volumetric strain after Zhang et al. (2002) for the midpoint at each designated layer. Liquefaction factor of safety is based on cyclic stress ratio, cyclic resistance ratio, a magnitude scaling factor, and a correction for overburden. Normalization of CPT data is based on the in-situ groundwater levels mentioned above. CPT's have greater reliability and repeatability than SPT's and also provide for a continuous profile (Robinson & Wride, 1997) and is considered to be more representative of the site conditions. Therefore, settlements determined from the CPT data are recommended for design considerations.

8.5 SUMMARY OF SEISMIC SETTLEMENT

The results of liquefaction and seismic settlement potential evaluation indicate a potential for settlement of 0.48 inches in CPT-1 and 0.12 inches in CPT-2.

8.6 DIFFERENTIAL SEISMIC SETTLEMENT

Differential seismic induced settlement is typically anticipated to be ½ of the total seismic settlement (SCEC 1999) when total settlement is relatively minor such as in this case. Therefore, estimated seismic differential settlement could be on the order of 1/4 inch. The total and differential settlements are considered to be minor and do not require ground remediation. In SP 117A from Youd (1989), large scale displacement are defined as greater than 4 inches and it is suggested that structural mitigation may be acceptable where displacements of less than four inches are predicted.

8.7 SURFACE MANIFESTATION

Liquefaction induced surface manifestations were evaluated using the method proposed by Ishihara (1985). This method is based upon several case histories, the results of which have been reduced to a function of the thickness of the surface non-liquefiable layer and the thickness of liquefiable sand layer. Where the thickness of the non-liquefiable layer is more than 20 feet, surface manifestation is unlikely. Based on the thick surface layer of non-liquefiable material, the likelihood of surface manifestation is considered negligible.

9. RESPONSES TO CITY OF CALABASAS REVIEW LETTER

9.1 COMMENT 1

The "Strong Ground Shaking -2007 California Building Code (CBC)" section of the report, beginning on page 9, includes the sentence "Site Class C is thought to be applicable for the subject property." Provide the basis for and justification for the selection of Site Class C for the property.

RESPONSE

A shear wave velocity test was performed within CPT-1 and -2 that resulted in velocities of 972.4 and 998.69 feet per second (ft/sec) within the upper 44 to 51 feet of the site. Considering that the materials may have a slightly higher velocity below the depths evaluated in the CPTs, a shear wave velocity of 1300 ft/sec was used below 50 feet. Averaging these velocities to provide an average velocity for the upper 100 feet (30 meters) yields a velocity of 1100 ft/sec (348 m/sec). This shear wave velocity (V_s^{30}) places the site in Site Class D.

9.2 COMMENT 2

The "Seismic Hazards" section includes the sentence "Liquefaction is not considered a hazard at the subject site because the alluvial soils are comprised predominately of silt and clay." The field investigation program conducted for the project consisted of four bucket auger borings and one hand dug test pit. The boring and test logs indicate ring samplers were advanced by the Kelly bar of the drill rig and a hand sampler in the bucket auger borings and test pit, respectively. Standard Penetration Tests were not performed. The logs of borings B-1 and B-2 indicate silty sand layers on the order of five feet in thickness immediately above bedrock. The log of B-1 indicates the ring sampler in the silty sand layer was "pushed" and the log of 8-2 reports a ring sampler blow count of 3 in the silty sand layer. Groundwater was encountered within the silty sand layer of boring B-1 and above the silty sand layer of boring B-2. The laboratory testing program did not include any gradation, hydrometer, or Atterberg Limits tests which are commonly performed for liquefaction evaluations.

The California Department of Conservation Division of Mines and Geology (CDMG) report titled "Seismic Hazards Zone Report for the Calabasas 7.5 Minute Quadrangle, Los Angeles and Ventura Counties, California" (Seismic Hazards Zone Report 06) shows the site to be in an area underlain by young alluvial fan deposits (Qyf2). Table 1.2 "General Geotechnical Characteristics and Liquefaction Susceptibility of Younger Quaternary Units" of the CDMG report indicates these materials have a high liquefaction susceptibility.

a. Explain how the field and laboratory testing programs conducted for the project indicate the site soils, including the noted silty sand layers, are not susceptible to liquefaction. Provide appropriate laboratory test results to substantiate, the statement that the soils are susceptible to liquefaction.

b. If data is not available or cannot be generated to support the statement the site soils are not to liquefaction, then provide a liquefaction potential evaluation in accordance the "Recommended Procedures for Implementation of CDMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California (Southern California Earthquake Center 1999)". The evaluation should be based on an appropriate field investigation (Standard Penetration Testing and/or Cone Penetration Tests) and laboratory testing.

c. If the analyses prepared in response to comment 1B indicates the potential for liquefaction, provide an evaluation of potential for loss of foundation support, lateral spreading, and surface manifestation of liquefaction.

RESPONSE
An evaluation of the potential for liquefaction and seismic settlement was performed per the *Recommended Procedures for Implementation of CDMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California (Southern California Earthquake Center 1999)* and the *California Geological Survey (CGS) Special Publication 117A*. The reviewer is referred to Section 8 *Liquefaction / Seismic Settlement Analyses*, which contains discussions regarding and the results of our evaluation of the potential for liquefaction and seismic settlement.

9.3 COMMENT 3
The "Seismic Retaining Wall Calculations" section, beginning on page 11, includes the sentence "The estimated soft rock peak at the subject site is 0.40g, as determined from Figure 3.1 of the Seismic Hazards Report for the Canoga Park and Adjacent Quadrangles." Confirm the use of 3.1 of the referenced Seismic Hazards report for soft rock is appropriate for the site.

RESPONSE
Per the *California Geological Survey (CGS) Special Publication 117A* the site acceleration should be determined via a deaggregation of the potential seismic events using the USGS interactive web application (http://eqint.cr.usgs.gov/deaggint/2008/). The deaggregation resulted in a Peak Horizontal Ground Acceleration of .4317 g for a Mean Magnitude of 6.77 Mw for a class D site representing the building area.

9.4 COMMENT 4
The "Seismic Retaining Calculations" section includes the sentence "Cantilevered basement retaining up to 25 feet high may be designed for an active equivalent fluid pressure of 55 pounds per cubic foot." Confirm basement retaining walls be designed using active earth pressures.

RESPONSE
Basement retaining walls for a structure of this type are generally designed as braced walls. Geotechnical parameters for retaining wall design are provided in Section 10.11 *Retaining / Basement Wall Design*, herein.

9.5 COMMENT 5
The fourth paragraph under the heading "General Findings of the "Conclusions and Recommendations" section page 13 of the reports states "The planned building may be supported by conventional foundation bearing in alluvium as long as it is not partially supported by the shoring piles. The building should be entirely supported by piles that extend into bedrock if it is tied to the shoring piles.

a. Confirm the building is to be supported on spread footing foundations if it is not structurally connected to shoring piles and solely on piles if it is connected to the shoring piles.

b. Confirm that for the case of supporting the building on piles, all piles including the shoring piles shall extend into bedrock and all piles shall be designed accordance with the "Deepened Foundations -Friction Piles" section on page 17.

RESPONSE
Generally, shoring piles are not designed to support building loads. Also in this case, it is not anticipated that the building will be supported by the shoring, which is considered to be a temporary structure only to support the excavation during the building design. Should this design concept be changed, additional recommendations will be required from a geotechnical standpoint.

9.6 COMMENT 6

The first paragraph on page 14, under the heading "General Findings" of the "Conclusions and the sentence "On-grade slabs may be supported by the residual soil and dense alluvial soils, and should be reinforced for expansive pressures." Confirm recommendations presented in the "Floor Slabs" section, beginning on page 18 are adequate for the expansive pressures of the site soils.

RESPONSE

The design of slabs on-grade provided herein is consistent with that previously recommended by this firm within the city of Calabasas for expansive soil conditions. Our recommendations for slab construction are based on our experience since 1973 within the eastern Ventura and western Los Angeles Counties in similar and higher expansive soils. Therefore, we consider our recommendations generally acceptable for this area. However, as in any design, the design may be increased to provide further risk reduction.

The design of a slab on-grade is difficult, since, it is not considered possible to provide complete and full mitigation of expansive soil conditions. Nelson and Miller (1992) in *Expansive Soils, Problems and Practice in Foundation and Pavement Engineering* state "in each situation there will continue to be a degree of uncertainty. The current technology is not at a stage where a guarantee of "absolutely no damage" can be assured by design and construction practices. Through good understanding of the problems and phenomena, engineers should be capable of addressing the differences in risk associated with alternative solutions and communicating level of risk to their clients."

The most critical issue with expansive soil is to maintain the soils below the structural elements at relatively consistent moisture contents. Therefore, positive drainage should be provided away from the structure and irrigation should be to only that necessary for plant growth. In addition, joints in the flatwork should be sealed to minimize water entering the subgrade and washing of flatwork should be avoided if possible. The geotechnical engineer has no control in this area.

9.7 COMMENT 7

The first sentence of the "Grading" section, beginning on page 15, states "The following guidelines may be used in preparation of the grading plan and job specifications for the removal and recompaction for the walls and pavement areas on the east portion of the site."

a. Clarify if the recommendations of this portion of the report are applicable to pavement areas in the western portion of the site.

b. Provide a recommended lift thickness to be used during the placement of compacted fill.

RESPONSE

a. Revised grading recommendations are provide in Section 10.5 Site Preparation and Grading, herein.

b. The lift thickness should be appropriate for the type and size of compaction equipment. However, the general recommended lift thickness is 6 to 8 inches.

9.8 COMMENT 8

A table presented within the "Spread Footings" section, beginning on page 16 of the report, provides spread footing design values. Clarify if the "Maximum Earth Pressure" presented in the table is applicable to passive earth pressure, allowable bearing pressure or both.

RESPONSE

The reviewer is referred to the retaining wall design parameters presented in Section 10.11 *Retaining / Basement Wall Design,* herein.

9.9 COMMENT 9
The second paragraph of the "Lateral Design" section, on page 17, includes the sentence "Piles may be assumed fixed at 4 feet into alluvium." Provide calculations supporting a recommended point of fixity at a depth of four feet into the alluvium.

RESPONSE
The depth to fixity is defined for this report as the point of zero deflection within the pile, which is based on the amount of bending caused by the applied loads at the top of the pile as well as anchorage at the top of the piles (fixed or free head condition). Therefore, the depth to fixity can be determined when the lateral loads are known for the piles. However, the soils exposed at the bottom of the basement excavation should provide adequate foundation support. Therefore, at this time, it does not appear the building will be required to be supported on piles and consequently recommendations for the design of piles are not presented in this report. If piles are to be used for support, detailed recommendations for pile design can be provided by this firm.

9.10 COMMENT 10
The "Floor Slabs" section, beginning on page 18, includes recommendations of the minimum reinforcement of concrete slabs-on-grade. Clarify if the minimum recommended slab reinforcement is to be provided in two perpendicular directions.

RESPONSE
Slab reinforcement should be provided in two directions perpendicular to each other.

9.11 COMMENT 11
The "Retaining Walls' section of the report, beginning on page 21, provides recommendations for non-restrained and restrained walk. Clarify if the equivalent fluid pressure or the trapezoidal loadings are recommended for design of the basement walls.

RESPONSE
The reviewer is referred to the retaining wall design parameters presented in Section 10.11 *Retaining / Basement Wall Design,* herein.

9.12 COMMENT 12
The first full paragraph of the "Retaining Walls" section on page 22 of the report includes the sentences "Any remaining void should be filled with gravel if the void is less than 18 inches. If the void is wider than 18 inches, compacted fill should be utilized or the Building official should be consulted regarding the possible use of a wider gravel column. Gravel backfill should be densified by tamping."

a. Provide a recommended lift thickness and recommended methods for densification of the gravel columns.

b. Provide a recommended maximum thickness for the gravel column backfill of retaining walls.

c. Confirm that the gravel column backfill, regardless of width, shall be separated from the back-cut with a filter fabric.

RESPONSE
The reviewer is referred to the retaining wall design parameters presented in Section 10.11 *Retaining / Basement Wall Design,* herein.

9.13 COMMENT 13
The "Temporary Excavation Stability'" section, beginning on page 23, includes a table of shoring design pressures for each side of the proposed building and the sentence "The analyses indicate that the same shoring wall pressure can be used at all locations." The table presents different values of shoring pres-

sure for the east and west walls of the building and the north and south walls of the building. Clarify what is meant by the sentence since the table provides different values for the east and west walls.

RESPONSE
It appears from the review of the retaining wall design pressures provided by GHA, the provided pressures are based on the wall location and possible surcharge such as from street or parking lot loading. Since the soil loading does not appear to vary, our suggestion would be to use one soil loading for the walls and add to that the appropriate loading for the anticipated surcharge such as from street, parking, material, or crane loading, etc.

9.14 COMMENT 14
The "Temporary Excavation Stability section, on page 24, includes the paragraph "The tops of pad footings for raker-braced piles should be a minimum of 12 inches below the ground surface and 2 feet wide and 2 feet long. A bearing value of 4,000 pounds per square foot may be used for raker pad footings inclined at up to 45 degrees from horizontal." Calculations for the raker foundations are provided as an attachment to the report. The bearing capacity calculation sheet appears to have a calculation error. Confirm the calculated allowable bearing capacity and specifically the "Pad Inclination" factors used in the analysis.

RESPONSE
The error is that in the calculation sheet an embedment of 2 feet is used instead of the 12 inches as stated in the text of the GHA report. However, we would recommend the deeper embedment of 2 feet instead of 12 inches, which would maintain the recommended bearing capacity for temporary raker footings.

9.15 COMMENT 15
The last sentence of the third full paragraph of the "Temporary Excavation Stability" section, on page 24, states "Voids between the lagging and the earth that is to be retained shall be tightly filled with slurry under the observation of this firm." Provide a recommended maximum lift thickness or depth interval for which slurry placement is to be performed.

RESPONSE
Generally the cuts to install the lagging are made in 5 foot increments. Therefore, the cuts should be limited to 5 feet prior to the placement of lagging and the grouting of any voids behind the lagging.

9.16 COMMENT 16
For the "Temporary Excavation Stability" section;

a. Provide a maximum allowable deflection for which the shoring system should be designed to prevent settlement of adjacent features and utilities.

b. Provide recommendations for the frequency of shoring deflection measurements and monitoring before, during and after the excavation process to facilitate the subterranean construction.

RESPONSE
The reviewer is referred to the retaining wall design parameters presented in Section 10.4 Basement Excavation, herein.

9.17 COMMENT 17
The first paragraph of the "Excavation Characteristics" section on page 24 of the report includes the sentences "Hard, cemented bedrock was encountered in the test pits and is expected to be encountered during foundation excavation. Coring or the use of jackhammers may be necessary and should be expected." Clarify if these sentences are applicable to the proposed project.

RESPONSE
Excavation of the basement which is anticipated to be entirely within the soil profile should be feasible with normal excavation equipment such as track mounted excavators without the use of jackhammers. Excavation of the bedrock for foundation piles or soldier beams are anticipated to extend into the bedrock, which has been described as a sandstone and in the borings logs GHA indicated that the drilling was slow and crowds were used in the sandstone. Therefore, hard drilling should be anticipated for foundation piles or soldier beams within the cemented sandstones.

9.18 COMMENT 18
The first sentence of the second paragraph of the "Excavation Characteristics" section on page 24 of the report states "Groundwater will likely be encountered during foundation excavation." Confirm groundwater is only expected to impact the construction of shoring and foundation piles.

RESPONSE
Groundwater was previously discussed in detail in Section 7.2 on page 5 herein. During the current evaluation, groundwater was encountered at a depth of 33 feet below the ground surface at roughly an elevation of 1035 feet. The top of the lowest basement floor is proposed at 1042± feet. Therefore, the basement excavation should not encounter groundwater.

9.19 COMMENT 19
The "Waterproofing" section of the report, on page 25, includes the sentence "A subdrain pipe attached to a gravel pocket should be provided at the base of the wall between each pair of piles." Confirm the gravel pocket should be encapsulated in a filter fabric.

RESPONSE
The reviewer is referred to the retaining wall design parameters presented in Section 10.11 *Retaining / Basement Wall Design,* herein.

9.20 COMMENT 20
The "Decking" section, beginning on page 25, includes the sentences "Decking should be a minimum of 4 inches thick and reinforced with a minimum of #3 steel bars spaced 18 inches on center." and "The decking should be underlain by a minimum of 2 inches of sand to aid in concrete cure."

a. Clarify if the minimum recommended slab reinforcement is to be provided in two perpendicular directions.

b. Provide a maximum recommended thickness of sand to be placed beneath slabs-on-grade.

RESPONSE

a. Slab reinforcement should be provided in two directions that are perpendicular to each other.

b. Exterior slabs should be underlain by a minimum of 4 inches of clean sand.

9.21 COMMENT 21
The "Paving" section of the report, beginning on page 26, includes a sentence "Base course should be crusher run base (CRB) or processed miscellaneous base (PMB). Provide a reference specification for the recommended base materials.

RESPONSE
The base course may consist of *Untreated Base Materials* as defined in the current "*Greenbook*" *Standard Specification for Public Works Construction.*

9.22 COMMENT 22

The "Notice" section, beginning on page 30, includes the sentence "EXPLORATION WAS PERFORMED ONLY ON A PORTION OF THE SITE, IT CANNOT BE CONSIDERED AS INDICATIVE OF THE PORTIONS OF THE SITE NOT EXPLORED." Clarify what is meant by this sentence and if it is applicable to the report.

RESPONSE

GHA appears to be making a statement regarding subsurface risks such as in the ASFE *Contract Reference Guide* where under subsurface risks "Even a comprehensive sampling and testing program, implemented with the appropriate equipment and experienced personnel under the direction of a trained profession who functions in accordance with a professional standard of care may fail to detect certain conditions, because they are hidden and therefore, cannot be considered in development of a subsurface exploration program. For similar reasons, actual environmental, geologic, and geotechnical conditions that engineer properly infers to exist between sampling points may differ significantly from those that actually exist."

9.23 COMMENT 23

The "Expansive Soils Notice", on page 32, includes the sentence 'Walkways and decking placed adjacent to the structure should be underlain by a vapor barrier to prevent moisture loss through the concrete." Confirm this sentence is applicable to the project. If applicable, provide a recommended distance from the structure that the vapor barriers should extend.

RESPONSE

It appears the intent of the recommendation was to provide a vapor retarder cover over the soils wherever the slabs were constructed abutting the building to minimize moisture changes adjacent the foundations or walls. However, the use of vapor retarders below exterior slabs is not considered to be common practice. In this structure, the foundations will be below the proposed two level basement. Along more common practice, the site should be provided with good drainage and maintenance as recommended herein. Provided the recommended practices are followed, vapor retarders should not be necessary below exterior slabs on grade.

9.24 COMMENT 24

For the "Laboratory Testing" Appendix;

a. For the "Sample Retrieval-Drill Rig" paragraph, provide the variation of Kelly bar weight with depth and the drop height of the Kelly bar during the driving of the ring samplers.

b. Indicate the standardized test methods followed during the performance of the moisture/density, direct shear, and consolidation tests.

RESPONSE

a. This firm does not have information regarding the subcontracted bucket auger drill rig used by GHA to excavate the borings presented in their report. However, generally Kelly bars consist of rectangular steel tubing telescoped together to extend and rotate the bucket down the boring. The collapsed length of the Kelly bar is normally slightly shorter than the mast height and is raised and lowered using a winched line. The weight of the Kelly bar on the sampler will depend upon how much the bar is extended to reach the sampler. For a large rig, the weight of the collapsed Kelly bar is on the order of several thousand± pounds. Normally the drop of a Kelly bar on a sampler is 12 to 18 inches.

b. This firm does not have information regarding the test methods used by GHA during the performance of the moisture/density, direct shear, and consolidation tests. However, the website http://www.geomaticinc.com/index.html does contain information on the shear and consolidation equipment that GHA stated was used in the determination of direct shear, and consolidation.

Based on a review of the equipment and data provided by GHA and our knowledge of GHA we feel that GHA most likely performed the tests in general accordance with the applicable ASTM test methods. The ASTM test methods for moisture, density, direct shear, and consolidation tests are D2216, D2937, D3080, and D2435, respectively.

9.25 COMMENT 25

For the Logs of Borings 8-1 through B-4;

a. Provide the diameter of the bucket auger borings.

b. Provide the weight and drop height of the Kelly bar used to drive the ring samples.

c. For the "Blows/Foot (Equiv. SPT)" column on the logs, clarify if the blow counts shown are the Kelly bar field blow counts or Kelly bar blow counts corrected to an equivalent SPT blow count. If the blow counts are converted blow counts provide the mathematical relationship used to convert the field blow counts.

d. Clarify if the "Sand Cone Tests" title of the last column of the logs is appropriate.

RESPONSE

a. We are assuming the borings were two foot diameter, which is the common size where the borings are down hole logged as indicated in the GHA report.

b. The reviewer is referred to our response to Comment 24 a.

c. Based on the SPT N1(60%) determined in the CPTs, it appears the blow counts presented in the boring logs are Kelly bar field blow counts. In addition, it is difficult to convert the energy of a Kelly bar on a large diameter sampler into equivalent SPT blow counts.

d. It appears the "Sand Cone Tests" column on the logs in this case is a generic column for notes. It appears the column is used to identify where ring and bulk samples were obtained.

9.26 COMMENT 26

The "Shear Test Diagram" presented on plates B-2 and B-2A, are stated to be performed on remolded fill. The dry density of 109 pounds per cubic foot is more than the laboratory determined maximum dry density of 96 pounds per cubic foot. Confirm the dry density values presented on the plates.

RESPONSE

Plates B-2 and B-2A are indicated as being the peak and ultimate strengths for the ring sample obtained from boring B-4 at 30 feet. The shear plot appears appropriate for the tested material indicated as alluvium and not bedrock from which the recorded field density and moisture. Therefore, it appears the field density and moisture from the bedrock sample directly below the alluvial sample at 37 feet was entered on the shear summary plates. A shear was performed from boring B-4 at 40 feet that appears appropriate for the bedrock and it does not appear warranted to perform shear tests on both the samples from 37 and 40 feet.

9.27 COMMENT 27

The "Shear Test Diagram" presented on plates B-5A and B-6A, indicate the test was performed on a sample from boring B-4 at a depth of 30 feet. The test sheet indicates a dry density of 117.7 pound per cubic foot for the tested sample, Boring log B-4 indicates an in-situ dry density of 93.8 pounds per square foot at 30 feet and 117.7 pounds per square foot at 35 feet. Confirm the depth of the sample tested.

RESPONSE

The reviewer is referred to our response to Comment 26.

9.28 COMMENT 28
The grading plan should reference the approved soils report (once the acceptable response to the comments presented herein are received) and indicate that all grading shall be performed as recommended by the approved report.

RESPONSE
This requirement is acknowledged by this office. The requested information should be added to the grading plans by the project civil engineer.

9.29 COMMENT 29
The geotechnical Consultant should review the grading and foundation plans and verify compliance of these documents with their recommendations by signing and stamping.

RESPONSE
This requirement is acknowledged by this office and the plans will be signed by the project geotechnical engineer prior to final submittal of the plans.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 GENERAL
The site of the proposed Malamut Vintage Automotive Dealership as addressed herein has been evaluated by this firm and others from a geotechnical standpoint. The proposed project is considered feasible from a geotechnical standpoint providing construction is performed in accordance with the recommendations contained herein. Recommendations are presented in the following sections regarding design and construction of the project.

10.2 PROJECT DESIGN CONSIDERATIONS
The project will consist primarily of the construction of a subterranean parking garage having two levels that will support two levels of above grade structure. The subterranean portion of the project will extend to within a short distance from the property lines. Therefore, surface grading will be minimal. However, excavation and shoring to support the excavation will be necessary. A design depth to groundwater was previously discussed herein at 33 feet below the ground surface or at an elevation of roughly 1035 feet. This groundwater elevation is roughly 7 feet below the top of the lowest basement floor within the building. Considering a maximum conventional footing embedment of 5 feet below the top of slab should place the bottom of the conventional footings above the groundwater.

Fluctuations in the groundwater elevation should always be anticipated in below grade excavations and a higher groundwater elevation may be encountered during construction. Saturated soils will be encountered above the free groundwater elevation. Soils and bedrock exposed at the bottom of the excavation should be maintained in an undisturbed condition free of standing water. The foundation and shoring contractors should be prepared to provide localize dewatering if necessary.

The basement excavation will be close to the observed groundwater. Therefore, a basement slab under drain should be constructed below the slab along with perimeter wall drains. With a slab under drain system and perimeter drains, it should not be necessary to design the basement walls or floor for hydrostatic pressure. In addition, the basement slab should be provided with a vapor retarder layer as discussed later herein.

The site varies in elevation adjacent the proposed basement from roughly 1070 feet at the eastern end to 1077 feet at the western end. Considering a floor elevation of 1042± feet at the bottom basement floor, the basement excavation will be roughly 28 to 35 feet. The combined slab and foundation thickness could range from 3 to 5 feet, which should be added as additional depth to the estimated excava-

tion depth. Due to the size of the basement, all sides of the basement excavation will be shored. Shoring may be supported by rakers or tiebacks. In addition, soil nails could also be uses. We do not anticipate the basement will be overcut. Therefore, the basement wall will most likely be shotcrete against the lagging with appropriate waterproofing and drain board being placed between the lagging and shotcrete.

The building may be supported on conventional isolated and continuous footings or a mat slab. Footings and a mat slab may be combined into a composite foundation system. Placement of a moisture retarder layer should be considered in the selection of a foundation design.

The soils exposed at the bottom of the basement excavation should provide adequate foundation support. Therefore, at this time, it does not appear the building will be required to be supported on piles and consequently recommendations for the design of piles are not presented in this report. If piles are to be used for support, detailed recommendations for pile design can be provided by this firm.

10.3 SEISMIC DESIGN PARAMETERS

Seismic ground motion values were evaluated using a simplified code based approach and ground motion procedures for seismic design. The simplified code based approach followed the procedures in ASCE/SEI 7-05 Section 11.4 in accordance with the 2006 IBC and 2007 CBC. Based on our site evaluation, the site class is D in accordance with Table 1613.5.2 of the 2007 CBC.

Parameters presented herein should be used with the understanding site acceleration could be higher than addressed by these 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.

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 D (considering a V_s^{30} of 348 m/sec). For a site class D and site coordinates (latitude 34.1507 and longitude –118.6595), the following parameters were obtained from the USGS web based spectral acceleration response maps and calculator (http://earthquake.usgs.gov/research/hazmaps/).

2007CBC (2006 IBC) – CHAPTER 16 TABLE/FIGURE NO.	SEISMIC PARAMETER	VALUE PER 2007 CALIFORNIA BUILDING CODE
Figure 1613.5 (3)	Short Period Mapped Acceleration (S_s)	1.500
Figure 1613.5 (4)	Long Period Mapped Acceleration (S_1)	0.600
Table 1613.5.2	Site Class Definition	D
Table 1613.5.3 (1)	Site Coefficient (F_a)	1.0
Table 1613.5.3 (2)	Site Coefficient (F_v)	1.5
Equation 16-37	$S_{MS} = F_a S_s$	1.500
Equation 16-38	$S_{M1} = F_v S_1$	0.900
Equation 16-39	$S_{DS} = 2/3 S_{MS}$	1.000
Equation 16-40	$S_{D1} = 2/3 S_{M1}$	0.600

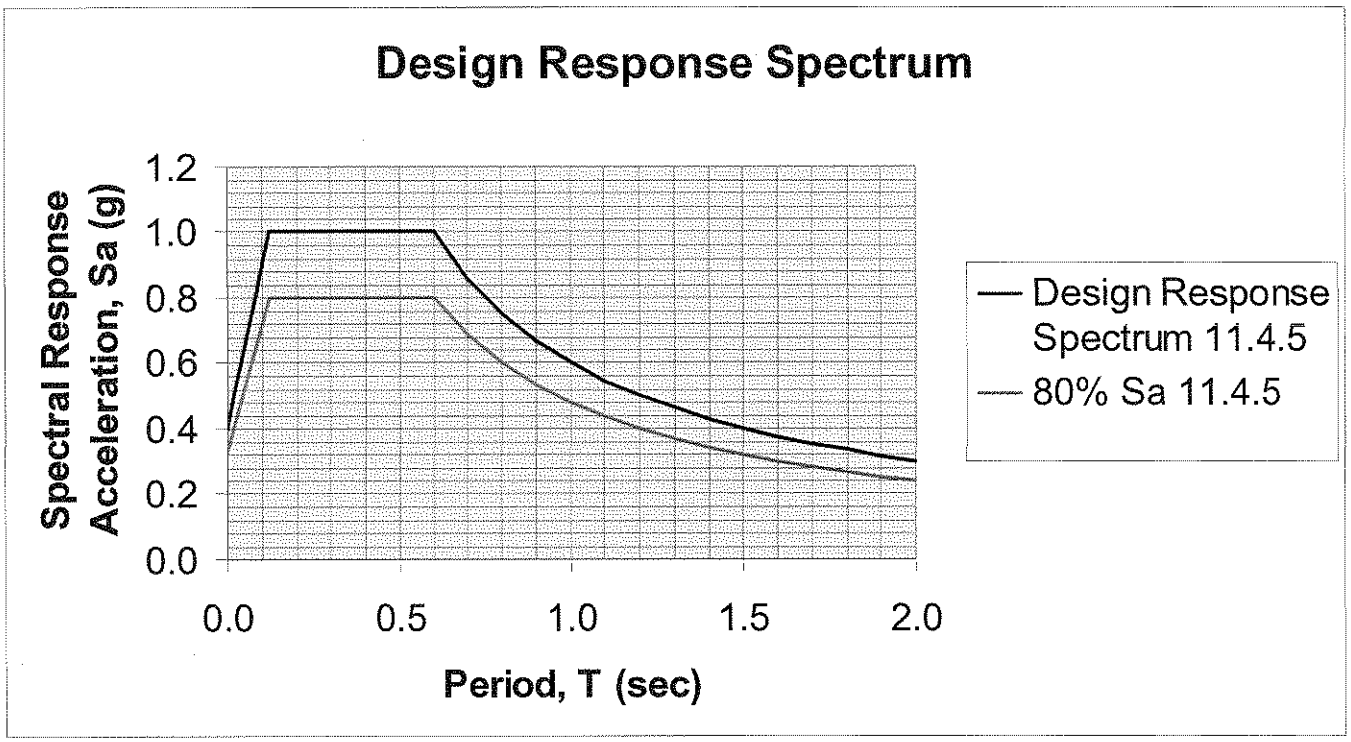

FIGURE 1: Code Based Design Response Spectrum developed from these parameters in accordance with ASCE/SEI 7-05 Section 11.4.5 for a Class D site.

A deaggregation of the potential seismic events was performed using the USGS interactive web application (http://eqint.cr.usgs.gov/deaggint/2008/). The deaggregation resulted in a Peak Horizontal Ground Acceleration of .4317 g for a Mean Magnitude of 6.77 Mw for a class D site representing the building area.

10.4 BASEMENT EXCAVATION

10.4.1 General

The lowest basement floor is shown at an elevation of 1042.4 feet on the civil plans. The ground surface varies from about 1067 feet at the eastern end of the proposed building and 1075 feet near the western end. Due to the approximate size of the basement (302 by 69 feet) it is anticipated that shoring will be required on all four sides of the excavation.

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. Temporary slopes and shoring should conform to the requirements of CAL/OSHA. Excavation of the building subterranean levels will encounter fill residual soils and alluvium units described previously herein. Soldier beam excavation is anticipated to extend into the bedrock, which is also described previously herein. Groundwater was encountered below this site and may be encountered in the excavation depending upon depth of excavation and seasonal fluctuations in the groundwater elevation.

The project civil engineer should prepare an excavation plan detailing the excavation and relationship to existing utilities / construction. This office should review the excavation plan prior to construction. In addition, this office can evaluate possible surcharge of the excavation from cranes, concrete trucks, etc.

10.4.2 General Considerations

Excavation of the basement which is anticipated to be entirely within the soil profile should be feasible with normal excavation equipment such as track mounted excavators without the use of jackhammers. Sandstone bedrock will be encountered below the basement excavation at roughly 36 to 47 feet below the ground surface. GHA indicated that the drilling was slow and crowds were used in the sandstone. Therefore, hard drilling should be anticipated for foundation piles or soldier beams within the cemented sandstones. In addition, the shoring contractor should be prepared to use drilling mud in all excavations adjacent to existing structures to minimize the affects of the proposed construction on the existing structures.

Caving of the tieback excavations may occur where sandy soils (sandy silt and silty to clayey sands) are encountered within the alluvial soils. The shoring contractor should be prepared to provide methods to prevent caving such as the use of hollow stem augers or casing.

A construction dewatering system consisting of French drains, sumps, and pumps may be used should perched water seep into the basement excavation. The contractor should supply details for any needed construction dewatering. In addition, groundwater should be anticipated below the basement excavation as previously discussed herein.

The shoring is intended to be temporary and not a permanent structure. Therefore, construction within the basement should proceed timely and continuously without delays. Any significant delays in construction once the excavation is initiated should be reviewed by the shoring and geotechnical engineers.

10.4.3 Temporary Slopes

Shallow temporary slopes less than 5 feet high, if required, should be at a gradient of 1(h):1(v) or flatter. Slope stability analyses should be conducted on any proposed slope configurations. Surcharge loading, such as construction equipment or vehicle traffic, should be kept back sufficient distances from the excavations.

10.4.4 Shored Excavation

Excavation shoring may consist of soldier beams that are cantilevered or with tieback anchors, or other recognized methods. Where tiebacks cannot be constructed, a raker system may be used as an alternative for support of the piles. Lagging should be used to support the cut between the beams. Grouting is the preferred method to fill the voids between the cut and lagging. The shoring should be designed to include the lowest construction elevation plus at least two feet of additional depth below the bottom of the proposed footing elevations. The excavation should be above the anticipated groundwater. However, seepage should be anticipated in the lower portions of the excavation and a drainage system may be necessary between the cut and lagging. Care will be required to avoid damaging buried utilities or foundations of adjacent structures.

10.4.5 Shored Depth

As stated above the shoring should be designed to include the lowest construction elevation plus at least two feet of additional depth below the bottom of the proposed footing elevations.

10.4.6 Surcharge Loading

An areal surcharge of 300 psf should be included in the shoring design where the shoring is near street traffic (Calabasas Road). The lateral pressure on the shoring due to a uniform areal surcharge of intensity q (force/area) is equal to a uniform pressure of 0.4q over the entire height of the wall. Shoring adjacent the CalTrans right of way should be designed also per any requirement of CalTrans regarding surface loading. Surcharge on the shoring from construction equipment (e.g. crane or concrete pump) or adjacent structures directly adjacent the top of a shored cut should be evaluated on an individual basis.

10.4.7 Soil Pressure

Shoring should be designed for lateral earth pressure plus lateral pressure imposed by existing adjacent foundations or surcharges. For supported / braced temporary shoring systems (i.e. systems supported with tiebacks or rakers) the lateral earth pressure will be initiated below the ground surface, therefore, at the ground surface the pressure (or where the braced condition is initiated) may be taken as zero. The pressure will increase with depth to 25H at a depth of 0.2H below the ground surface. The shoring pressure would then extend uniformly at 25H to a depth of 0.8H and then decrease uniformly to zero at the base of the excavation. H is the supported total height of the cut and the resultant of 30H is in units of pounds per square foot (psf).

It appears from the review of the retaining wall design pressures provided by GHA, the provided pressures are based on the wall location and possible surcharge such as from street or parking lot loading. Since the soil loading does not appear to vary, our suggestion would be to use one soil loading for the entire shored basement wall and add to that the appropriate loading for street, parking, material, or crane surcharge, etc.

Cantilevered shoring systems should be designed for an active earth pressure distribution of 40 pound per cubic foot (pcf) with level ground behind the shoring. It is acceptable to cantilever generally the upper 10 feet of a tieback or raker supported wall. The shoring pressures do not include lateral loads from surcharges (such as crane loading) near the top of the excavation.

The width of active pressure acting on the pile below the bottom of the excavation may be taken as the pile diameter. The width should be increased to two pile diameters for a cantilevered soldier pile.

Shoring pressures do not include lateral loads from surcharges such as traffic, cranes, pump or concrete trucks, or material storage near the top of the excavation. Construction surcharging should be maintained at least the depth of excavation from the shoring unless the shoring is specifically designed for the surcharge loading. The above active pressures should be reviewed when the depth and location of the subterranean excavation is provided to this office.

Passive Pressure with Soldier Piles

The lower ends of the soldier piles will be seated in alluvium and bedrock. For isolated piles (spaced at least 3 diameters center to center) the passive earth pressure should start at zero at the excavated grade. This value may be increased at a rate of 350 or 650 psf for each foot of depth below the proposed base of excavation to a maximum of 4000 or 10,000 psf, respectively for soil and bedrock. The surface area (pile diameter) that the allowable passive pressure may induce passive resistance may be doubled for soldier beams that are a minimum of 3 diameters apart center to center. For vertical support, a unit friction value of 250 or 600 psf, respectively for soil and bedrock, may be used for that portion of the soldier pile encased in structural concrete extending below the lowest depth of excavation.

10.4.8 Friction Values for Anchors

The tiebacks are anticipated to extend into the alluvial soils and should consist of small diameter grouted anchors. Tieback anchors are commonly inclined into the embankment at 20 to 30 degrees below horizontal however may be flatter to avoid underground structures. The bond or anchor length of the tieback where the tieback obtains resistance capacity is that portion behind the active wedge, a 60° plane from horizontal generated upwards from the toe of the proposed excavation. The portion of the tieback that extends from the soldier pile to the 60° plane is the free anchor length. Capacity should not be assumed within the free anchor length, nor should the free anchor length be post grouted.

Grouted anchors may be designed using a design capacity of 3,000 pounds per linear foot (plf) within the bond length minimum of 15 feet below the ground surface. The design capacity is based on mini-

mum spacing between tiebacks of three diameters center to center where the diameter is the largest diameter of the tiebacks.

10.4.9 Rakers

Rakers may be used to where tiebacks cannot be used to support the shoring. A bearing value of 4000 psf may be used in the design of the rakers providing the raker footings are embedded a minimum of 2 feet below any adjacent grade during and after completion of excavation adjacent the footing. The raker footings should be a minimum of 2 feet wide and long. The rakers should not be installed at a gradient of less than 1(horizontal):1(vertical).

The excavation, prior to installing the rakers may be cut at a maximum 1(horizontal):1(vertical) gradient. If possible, the grade should be kept as high as possible prior to the installation of the rakes possibly by slotting a trench into the temporary slope in which to install the raker. The temporary slope should be observed by this office during excavation.

10.4.10 Lagging

Lagging consisting of treated timber will be required the entire depth of the shored excavation. Wood lagging should be new rough timber (full dimension) Douglas fir, straight, free of bends, and free from defects that might impair structural strength. Lagging to be left in-place shall be pressure treated for contact with soil. The upper two feet of the shoring and lagging measured from the adjacent grade may be removed when the shoring is no longer needed for support of the excavation.

Lagging should be designed to resist an equivalent fluid pressure equal to 30 pcf measured below the ground surface. A maximum lagging pressure of 400 psf may be assumed where the maximum soldier beam spacing does not exceed 8 feet center to center. An alternate to installing lagging would be to construct the shoring as a continuous gunite/shotcrete wall descending as the excavation proceeds. Cavities behind the lagging and retained soils should be filled preferably with sand/cement slurry.

10.4.11 Performance Testing of Tiebacks

At the appropriate stage of construction, each tieback should be field tested prior to continuing excavation. A minimum of 10 percent of the total anchors should be performance tested of which the initial three anchors should be performance tested prior to installing the remaining production anchors. Soldier beams and tiebacks should be designed to permit performance testing (i.e., increased tieback reinforcement may be required). If soil properties change or significant variations in tieback construction occur, performance testing should be performed for each variety of tiebacks. This office should review the testing program outlined on the shoring plans prior to construction.

Performance tests should be conducted by cyclically and incrementally loading and unloading the anchor following the testing procedures outlined in the Recommendations for Prestressed Rock and Soil Anchors published by Post-Tensioning Institute (PTI). The loading and unloading schedule is presented below. Each tieback should be locked off at the design load after satisfactory testing each tieback. The locked-off load should be verified and if it varies by more than 10% of the design load, the load should be reset until the anchor is locked off to within 10% of the design load.

Performance Test Loading

AL (Cycle 1)	AL (Cycle 3)	25%	25%	AL (Cycle 6)	120%
25%	35%	50%	50%	25%	133%
AL (Cycle 2)	50%	75%	75%	50%	
25%	75%	100%	100%	75%	
50%	AL (Cycle 4)	AL (Cycle 5)	120%	100%	

The load shall be decreased to the alignment load (AL) after each cycle maximum. It is important to record accurately the movement of each successive Alignment Load step.

At each load increment, the total movement of the pulling head shall be recorded to the nearest .001 inch with respect to the independent fixed referenced point. The load shall be held at each increment just long enough to obtain the movement reading but no longer than 1 minute. Movement readings at Test Load shall be taken at 1, 2, 3, 4, 5, 6, and 10 minutes. If the total creep movement between the 1 and 10 minutes exceeds .040 inch, the Test Load should be maintained for an additional 50 minutes. Total movements shall then be recorded at 20, 30, 40, 50, and 60 minutes. Movement within the additional 50 minute period should not exceed .040 inch.

10.4.12 Proof Tests

Proof Tests should be carried out on production anchors not performance tested. Proof testing should be conducted by incrementally loading the anchor in accordance with the schedule below. Test loads shall be maintained constant for 10 minutes and the total movement readings shall then be recorded at 1, 2, 3, 4, 5, 6, and 10 minutes. If the total creep movement between 1 and 10 minutes exceeds .04 inch, the test load then shall be maintained for an additional 50 minutes and the movement reading shall be recorded at 20, 30, 40, 50, and 60 minutes. Movement within the additional 50 minute period should not exceed .040 inch.

Proof Test Loading

AL
25%
50%
75%
100%
120%
133%

10.4.13 Shoring System Monitoring

The shoring system should be monitored by a licensed surveyor for vertical and horizontal movements at the top of each soldier pile. Reference points for horizontal movement should also be selectively placed at various tieback levels as the excavation progresses.

Reference points and pile tops should be read prior to commencing the excavation. Soldier beams should be surveyed preferably twice before beginning excavation. Additional readings should be performed roughly weekly throughout construction until shoring and excavation are complete. Readings that are more frequent may be required at critical times of construction or if significant movement is indicated. After completion of the shoring construction and excavation, readings may be taken biweekly until the shoring is no longer needed for support of the excavation.

Survey data should be submitted to this office for review. Tolerable movement for any location within the excavation will be evaluated with the data and is dependent on the soil conditions at that location, the stage of construction, and adjacent structures or loading. Some movement of the shoring can be expected and is considered tolerable provided movement of the tiebacks is within tolerable limits. Movement up to 1 inch is generally considered tolerable. Movement in excess of 2 inches horizontally or vertically will require additional evaluation and possibly supplemental shoring before excavation continues.

10.4.14 Shoring Plan Review and Construction Inspection

A structural engineer with shoring experience should prepare the shoring plans. Our office should be provided the proposed shoring plans and calculations for review. Variations in subgrade conditions or construction techniques exercised by the Shoring Contractor should be reviewed by this office. This office should also perform geotechnical observations during the shoring construction.

10.4.15 Barricades

Appropriate barricades should be placed at the top of the temporary excavations approached by pedestrians or vehicle traffic (such as in streets or parking areas).

10.5 SITE PREPARATION AND GRADING

10.5.1 General

The site will require remedial grading to remove the upper alluvial soils and existing fill soils within the developed portion of the site (all graded areas). Recommendations herein are for the preparation of the site for the proposed construction. Groundwater is anticipated at least 33 feet below the site and therefore should not be encountered during the anticipated soil removals addressed in this section. Grading including site preparation, excavation, and fill placement should be per the city of Calabasas grading ordinance. This firm should observe all grading preformed for the site development.

10.5.2 Stripping

All areas to be graded should be stripped of asphalt, significant vegetation, debris, and other deleterious materials. All roots over ½ inch in diameter should be removed along with any trees or brush encountered. Minor roots may be blended with the soils during processing until it is indiscernible.

10.5.3 Soil Removals

Soil removals within graded areas (including street and parking areas) should include all upper loose and/or desiccated soil and artificial/non-engineered fills. Removal should be to firm native soils. The removal should be limited to a 1(horizontal):1(vertical gradient at the property lines and should be evaluated by this office prior to additional removals. Since, this is an export site; the sandier soils should be retained if possible for general fills.

The removal adjacent to Calabasas Road should be a minimum of 3 feet as specified by GHA. However, this should be evaluated during the removal to determine if a lesser removal may be applicable.

Removal of the exposed soil at the bottom of the basement excavation is not anticipated provided the soils remain in an undisturbed condition. The shoring will not be design for extensive removal and recompaction within the basement excavation. Therefore, any excess water within the basement is to be controlled by the contractor. Construction within the basement should proceed continuously without delays.

After the removals are completed, the exposed soils should be observed by a representative from this office to evaluate if additional removals are necessary. Fill soils should not be placed until the geotech-

nical observation of the removal areas is complete. The removed soils may be used as fill soils providing the soils are prepared and placed as recommended herein.

10.5.4 Relative Compaction

Relative Compaction is the ratio of the in-place dry soil density to the maximum dry soil density determined in general conformance with ASTM test method D 1557-91.

10.5.5 Processing

After completing removals, suitable in-place soils should be processed before placing fill. Processing should consist of scarification of the exposed soil to a minimum depth of 6 to 8 inches. The scarified surface should be relatively free of uneven features that would prevent uniform compaction. Soils should be moisture conditioned to slightly above the optimum moisture content and compacted to a minimum of 90% relative compaction.

10.5.6 Fill Placement

On-site soils are considered suitable for use as engineered fill. Excavated on-site soils and fill should be cleaned of major vegetation, trash, and debris prior to placement as fill. Fill soils should be placed in relatively thin (6-8 inch) uniform lifts, mixed and blended, brought to slightly above the optimum moisture content, and compacted to a minimum of 90% relative compaction. Retaining wall backfill may be compacted to at least 90 percent relative compaction. Import fill soils, if necessary, should be similar to the on-site soils.

10.5.7 Utility Trenches

The backfill of utility trenches should be compacted to at least 90 percent relative compaction.

10.6 SLOPE CONSTRUCTION AND MAINTENANCE

10.6.1 General

The site is relatively flat and not significant slopes are planned except adjacent the entry structure to the subterranean parking garage. Currently this slope is only several feet high and is shown as a cut slope. General construction recommendations are provided below for both cut and fill slopes.

10.6.2 Fill Slopes

Fill slopes should be constructed at a maximum gradient of 2(horizontal):1(vertical), and keyed and benched into competent native soils. Where possible, the outer slope faces should be overfilled and trimmed back to provide firm, well-compacted surfaces. In addition, slope faces should be tested and reworked as necessary to achieve the required compaction.

10.6.3 Cut Slopes

Cut slopes may be constructed at a maximum gradient of 2(horizontal):1(vertical). Cut slopes or backcuts for retaining walls should be observed by a representative from this office.

10.6.4 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 burrowing animals and maintenance of the brow ditches, drainage structures, and slope vegetation. All existing and proposed drainage structures (including those at the surface and buried) should be kept in good condition and clean the entire length to the outlet in an approved drainage course. Final site grading should provide positive drainage away from slopes, and water should not be allowed to pond or gather above a slope area.

10.7 SOIL EXPANSIVENESS

Previously GHA performed an expansion tests and reported expansion of 52 to 80, which are considered to be moderately expansive. However, additional expansion tests should be performed at the conclusion of grading to determine the final expansion of each building area.

Expansive soils contain clay minerals that change in volume (shrink or swell) due to changes in the soil moisture content. Volume change is caused by the attraction of water molecules to the clay minerals. The amount of volume change depends upon the soil swell potential, availability of water, and soil restraining pressure. Swelling occurs when soils containing clay become wet due to excessive water from poor surface drainage, over-irrigation of lawns and planters, and sprinkler or plumbing leaks. Swelling clay soils can cause distress to lightly loaded structures, walks, drains, and patio slabs.

Swelling clay soils can cause distress to construction (generally as uplift). Construction on expansive soil has an inherent risk that should be acknowledged and understood by the developer/property owner. The geotechnical recommendations presented herein 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.

Positive drainage should be consistently provided and maintained away from the structure and drainage should not be changed creating an adverse drainage condition. Also, landscape watering should be held to a minimum and irrigation systems should be maintained. Sprinkler or plumbing leaks should be immediately repaired so the subgrade soils underlying or adjacent the structures do not become saturated.

10.8 FOUNDATION DESIGN

10.8.1 General

The building may be supported on conventional isolated and continuous footings or a mat slab. The footings and mat slab may be combined. Placement of a moisture retarder layer should be considered in the selection of a foundation design. One advantage of a mat foundation is that the uniform bottom aids in the placement of under drain systems and moisture retarders.

The soils exposed at the bottom of the basement excavation should provide adequate foundation support. Therefore, at this time, it does not appear piles are necessary for support of the building; consequently recommendations for the design of piles are not presented in this report. If piles are to be used for support, detailed recommendations for pile design can be provided by this firm.

Soils exposed at the bottom of the basement excavation should be maintained in an undisturbed condition free of standing water.

10.8.2 Design Data

Foundations may be designed as a minimum for the moderate expansive soil range. Footings may be designed using an allowable bearing pressure of 2,000 pounds per square foot (psf) within the upper 10 feet of the site. A bearing pressure of 4,000 psf may be used at the basement level as described herein. The bearing pressure is for dead plus live loads and may be increased by one-third when considering wind or seismic loads. The pressures have a factor of safety of at least 3.

Conventional and isolated footings should have minimum widths of 12 and 24 inches, respectively, and a minimum embedment depth of 24 inches below the lowest adjacent grade within the upper 10 feet of the site and 18 inches within the basement. These dimensions apply for either continuous or individual spread (isolated) footings. The lowest adjacent grade is the lowest soil grade adjacent the footings, interior or exterior. Steel reinforcement should be per the structural engineer's recommendations. How-

ever, minimum reinforcement for continuous footings should consist of two number 5 bars in the top and bottom (minimum total of four bars).

10.8.3 Mat Slab
Allowable bearing pressure of 3000 psf may be used for the design of a mat slab for the support of the subterranean garage and above grade structure. The bearing pressure is based on the mat confining the soils under a uniformly distributed load roughly equivalent to the previous soil overburden pressure prior the start of excavation. In addition, a modulus of subgrade reaction "K" of 100 pounds per cubic inch may be used in the mat design.

10.8.4 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 2000 psf. Passive pressure may be increased by one third for short term loading. Base friction may be computed at 0.3 times the normal load. Base friction and passive earth pressure may be combined providing the passive friction is reduced by one third.

10.8.5 Estimated Settlements
The footings within the basement will be supported on a shallow layer of alluvium over the bedrock or directly into the bedrock. Therefore, settlement of the footings should be on the order of one inch or less. However, additional evaluation of the settlement potential should be performed when the foundation loads and sizes are available. Similarly loaded spread foundations are not expected to experience differential settlements greater than 0.5 inches. 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.

Liquefaction and dry seismic settlement, based on the CPT data was previously discussed herein. The static and seismic settlements should be added when completing the foundation design.

Settlements due to static loading are expected to occur rapidly as the loads are applied. All structures settle during construction and minor structure settlement can occur after construction during the life of the project. Minor wall or slab cracking may also be associated with settlement or soil movement such as due to seismic shaking. Settlement or soil movement could occur if the soils become saturated due to excessive water infiltration generally caused by excessive irrigation, poor drainage, etc.

10.8.6 Footing Excavations
All 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 any 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.

10.8.7 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.

10.9 SLABS-ON-GRADE

10.9.1 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.

10.9.2 Slab-on-Grade Design Data

Concrete slabs on-grade within the basement area for auto loading and within the building interior in general should be a minimum 5 inches thick. The slab should be underlain by 6 inches of aggregate base (compacted to 95% relative compaction) in areas of auto (or truck) traffic. In non auto areas, the slabs may be underlain by 6 inches of clean sand. Slabs should be reinforced with a minimum of No. 4 bars on 18 inch centers in each direction placed at mid-depth of the slab. Also, interior slabs should be tied to the footings using No. 4 bars at 18 inch centers extending to within 3 inches of the base of the footing. These recommendations are for geotechnical concerns and the project should evaluate the slab from a structural standpoint. In addition, the project structural engineer should determine the concrete compressive strength. Recommendations for basement slab under drains are provided below.

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). The slabs should be constructed with a 6 inch deep deepened edge where adjacent landscaped areas.

10.9.3 Slab Under Drain System

A drain system should be designed and constructed below the basement slab on-grade. Options regarding construction of the drain are outlined below:

- The drain may consist of 4 inch perforated (filter cloth wrapped) pipes placed in 6 inch deep (6 inch wide) trenches cut flat into the prepared subgrade. A pipe spacing of 15 to 25 feet should be considered. The perforated pipes should be placed in the bottom of the trenches with the holes down. The space around the pipe may be filled to the subgrade level using dry fill sand. The subbase may then be placed over the subgrade and constructed drains.

- The drain may consist of constructing the interior basement slab on 12 inches of 3/4± rock. A series of perforated pipes should be placed at the base of the rock layer. A layer of filter cloth should separate the rock layer from the subgrade. A pipe spacing of 15 to 25 feet should be considered.

- The drain may consist of a composite drain board designed for the intended floor loading. The drain board should be installed per the manufactures recommendation below the entire basement slab.

The drains should be hydraulically connected to a sump and pump system. The design of the slab under drain system should be reviewed by this office as part of the foundation review. Generally, the slab under drain and pipe is shown on the plumbing plans, which should be provided to this office as part of the foundation review.

10.9.4 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.

10.9.5 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.

10.9.6 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 that 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.

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.

10.9.7 Moisture Vapor Retarder Layer
An appropriate moisture vapor retarder layer should be installed and maintained below concrete slabs-on-grade. Ten-mil plastic sheeting is commonly used as a minimum moisture vapor retarder layer placed mid-height in the sand below the slab. However, due to the greater possibly to vapor migration possible coarse gravel subgrade, a heavier moisture vapor retarder layer is suggested. Therefore, a retarder layer specifically manufactured per ASTM E 1745-97 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs may be necessary below the interior concrete slabs on-grade. The class of moisture vapor retarder layer should be strong enough to withstand abrasion during construction. The retarder should be installed per ASTM E1643-98(2005) *Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*.

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 or ASTM E1643-98(2005) *Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*. 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 required 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 the concrete directly on top of the moisture vapor retarder layer allows the layer to be observed for damage directly prior to concrete placement.

Drainage should be maintained away from the structure. Washing of the sidewalks adjacent the structure should be minimized and water should not be allowed to pond adjacent the structure. 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 adjacent the structure.

Where cuts are made into the slab for future construction, the moisture vapor retarder layer should be repaired per the manufacture's recommendation. Information regarding the need to repair the moisture vapor retarder layer and information on the selection of acceptable floor coverings should be conveyed to the building tenants.

10.10 SOIL CORROSIVITY

GHA provided soil corrosion testing results in their referenced report from Schiff Associates and states the soil is not corrosive to concrete. The report by Schiff Associates is attached in Appendix B. No additional corrosion testing was performed for this current evaluation. Therefore, additional corrosion testing should be performed at the conclusion of grading.

10.11 RETAINING / BASEMENT WALL DESIGN

10.11.1 Foundations

Retaining wall footings should be design in accordance with the foundation design recommendations previously provided herein for bearing capacity, lateral resistance, embedment, etc.

10.11.2 Active Pressures

It appears from the review of the retaining wall design pressures provided by GHA, the provided pressures are based on the wall height and location, and possible surcharge such as from street or parking lot loading. Since the soil loading does not appear to vary and the assumed wall heights have changed, our suggestion would be to use one soil loading for the walls and add to that the appropriate loading for the anticipated surcharge such as from street, parking, material, or crane loading, etc.

Retaining walls restrained at the top should be designed for a lateral earth pressure of 30H where H is the supported height of the wall. The lateral earth pressures should be applied with a trapezoidal distribution. The lateral earth pressure at the ground surface may be taken as zero. The pressure will then increase with depth to the design pressure at a depth of 0.2H below the ground surface. The shoring pressure would then extend uniformly to a depth of 0.8H and then decrease uniformly to zero at the base of the excavation. The resultant of the wall pressure is in units of psf. The wall loads are for static loading on the walls.

Retaining walls that may yield at the top may be designed for an equivalent fluid pressure equal to 45 and 55 psf for a level or 2(h):1(v) sloped backfill, respectively. This pressure may be used for walls supporting either cut or certified compacted fill consisting of on-site soils.

Areal surcharge may be treated as additional height of backfill where one foot of additional height is assumed for each 125 psf of areal surcharge. An areal surcharge of 300 psf should be included in the shoring design where the shoring is near street traffic.

10.11.3 Seismic Pressure

Currently within the city of Calabasas Department of Pubic Works, Manual for the Preparation of Geological and Geotechnical Reports (March 2010), a seismic pressure is required for standard retaining walls over 12 feet high. In this case, seismic pressure may be taken as an inverted triangular pressure of 15 pcf. The resultant of the seismic pressure should be applied at 0.67H from the base of the wall, where H is the height of the wall measured from the base of footing to the top of backfill. Unless required by the City, basement walls less than 40 feet high completely below a relatively common grade surrounding the basement do not need to be designed for an additional seismic pressure.

10.11.4 Retaining Wall Drainage and Backfill

A drainage system should be constructed behind the retaining / basement walls. In addition, the back of the walls should be waterproofed. The drainage system should extend to within 2 feet of finish grade with the upper 2 feet backfilled with native material.

The drainage system may consist of a prefabricated drainage composite consisting of a filter fabric bonded to a corrugated panel. For the basement walls the composite drain may be tied to the interior piping system using connectors as provided by the drain manufacturer.

An alternate drain for walls outside of the building would be a granular drain consisting of a minimum 12 inch wide zone of clean sand and #4 rock at a 1:1 ratio. A layer of filter cloth should be placed over and behind the granular drainage material to prevent clogging with fines from the native backfill.

The drainage system should be hydraulically connected to a perimeter pipe drain consisting of a minimum 4 inch diameter perforated PVC (Schedule 40) pipe or equivalent. Drainpipe may be laid horizontally on the footing however, the pipe invert should be at least 6 inches below the top of an adjacent slab-on-grade. The outlet pipe from the perimeter drain should be a non-perforated 4 inch diameter PVC (Schedule 40) pipe that is sloped to and connected to a storm drain system. An as-built plan should be prepared detailing the location of the wall drainage system.

10.11.5 Backfilling

Retaining walls should be backfilled with soils having a soil expansion of less than 50, therefore, select grading or import may be needed for the desired backfill. The backfill should be placed in 6-inch lifts at slightly over optimum moisture content and compacted to at least 90 percent relative compaction. If the backcut is flatter than ½(h):1(v), the backfill should be benched into the backcut slope. Light equipment should be used immediately behind the walls to prevent possible over-stressing. Any bracing needed to resist wall movement should be in-place prior to placing the backfill.

10.11.6 Elevator Pits

Elevator pits should be constructed with drains around the perimeter of the pit. As an alternative, the pits should be constructed watertight.

10.12 SITE DRAINAGE

Positive drainage should be continuously provided and maintained away from the structure during and after construction in accordance with applicable building codes and/or the approved grading plan. Drainage should not be changed creating an adverse condition. Irrigation and Planters should be constructed so that irrigation water will not saturate the soils underlying the building footings and slabs. Landscape planting should be located to avoid roots extending beneath foundations and slabs.

10.13 GUTTERS AND DOWNSPOUTS
Gutters and downspouts should be maintained to direct water away from the structure.

10.14 PRELIMINARY PAVEMENT DESIGN
Preliminary asphaltic pavement design recommendations are presented in the table below. The design is based on an estimated "R" Value of 23 for existing upper soils at the site and the Traffic Index for the auto and truck traffic areas. The minimum section on-site should be 3 inches of asphalt pavement over 6 inches of aggregate base. If widening of Calabasas Road is necessary the structural section should meet the existing or as evaluated based on the necessary Traffic Index, whichever is the thicker. The final structural sections should be confirmed at the conclusion of grading.

Planter areas should be graded so excess water drains onto and not beneath the adjacent pavement and curbs. Also, adjacent the planters, consideration should be given to deepening the curbs so that water is not allowed to saturate the pavement subgrade.

10.15 PLAN REVIEW(S)
Grading/foundation plans and specifications should be reviewed by Gorian and Associates, Inc at the appropriate stage of design. Additional geotechnical recommendations may be warranted at that time.

10.16 SECTION 111 STATEMENT
The opinion of this office is that if the project is constructed in accordance with our recommendations and properly maintained, the proposed structure will be safe against hazard from landslide, settlement, or slippage, and the proposed building or site grading 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.

11. CLOSURE
This report was prepared under the direction of a State 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 the recommendations presented in this report are not followed.

This report was prepared for Darrel and Mike Malamut and their design consultants solely for design and construction of the project as 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.

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.

Recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface exploration and a surficial reconnaissance. Interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the property. Due to possible subsurface variations, this office should observe all aspects of field construction addressed in this report. Persons using this report for bidding or construction purposes should perform such independent investigations, as they deem necessary.

oOo

Please call if you have any questions regarding this report or require additional information.

Respectfully,

Gorian and Associates, Inc.

By: Jerome J. Blunck, GE151
Principal Geotechnical Engineer

William F. Cavan, Jr., CEG1161
Principal Engineering Geologist

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August 5, 2009
Willdan Geotechnical Project No. 17096-4000

CITY OF CALABASAS-DEPARTMENT OF COMMUNITTY DEVELOPMENT
ENGINEERING GEOLOGY AND GEOTECHNICAL ENGINEERING REVIEW

Submitted to: Ms. Anita Davidoo

Project Location: 24439 Calabasas Road (APN 2069-009-029)
Calabasas, California

City Permit No.:

Geotechnical Report: Soils Engineering Exploration, Proposed Vintage Auto Center, APN 2069-009-029, Portion of Southeast Corner of Section 21 T1N, R17W, 24439 Calabasas Road, Calabasas, California, Prepared by Grover Hollingsworth and Associates, Inc., Dated February 15, 2008. Project Number GH13806-S.

Grading Plan:

Received by Willdan: July 24, 2009

COMMENTS

The approval of the above report from a Geotechnical Viewpoint is subject to the resolution of the following review comments.

1) The "Strong Ground Shaking – 2007 California Building Code (CBC)" section of the report, beginning on page 9, includes the sentence "Site Class C is thought to be applicable for the subject property." Provide the basis for and justification for the selection of Site Class C for the property.

2) The "Seismic Hazards" section includes the sentence "Liquefaction is not considered a hazard at the subject site because the alluvial soils are comprised predominately of silt and clay." The field investigation program conducted for the project consisted of four bucket auger borings and one hand dug test pit. The boring and test logs indicate ring samplers were advanced by the Kelly bar of the drill rig and a hand sampler in the bucket auger borings and test pit, respectively. Standard Penetration Tests were not performed. The logs of borings B-1 and B-2 indicate silty sand layers on the order of five feet in thickness immediately above bedrock. The log of B-1 indicates the ring sampler in the silty sand layer was "pushed" and the log of B-2 reports a ring sampler blow count of 3 in the silty sand layer. Groundwater was encountered within the silty sand layer of boring B-1 and above the silty sand layer of boring B-2. The laboratory testing program did not include any gradation, hydrometer or Atterberg Limits tests which are commonly performed for liquefaction evaluations.

   The California Department of Conservation Division of Mines and Geology (CDMG) report titled "Seismic Hazards Zone Report for the Calabasas 7.5 Minute Quadrangle, Los Angeles and Ventura Counties, California" (Seismic Hazards Zone Report 06), shows the site to be in an area underlain by young alluvial fan deposits (Qyf2). Table 1.2 "General Geotechnical Characteristics and Liquefaction Susceptibility of Younger Quaternary Units" of the CDMG report indicates these materials have a high liquefaction susceptibility.

a. Explain how the field and laboratory testing programs conducted for the project indicate the site soils, including the noted silty sand layers, are not susceptible to liquefaction. Provide appropriate laboratory test results to substantiate the statement that the soils are not susceptible to liquefaction.

b. If sufficient data is not available or cannot be generated to support the statement that the site soils are not susceptible to liquefaction, then provide a liquefaction potential evaluation in accordance with the "Recommended Procedures for Implementation of CDMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California" (Southern California Earthquake Center 1999)". The evaluation should be based on an appropriate field investigation (Standard Penetration Testing and/or Cone Penetration Tests) and laboratory testing.

c. If the analyses prepared in response to comment 1b indicates the potential for liquefaction, provide an evaluation of the potential for loss of foundation support, lateral spreading and surface manifestation of liquefaction.

3) The "Seismic Retaining Wall Calculations" section, beginning on page 11, includes the sentence "The estimated soft rock peak ground acceleration at the subject site is 0.40g, as determined from Figure 3.1 of the Seismic Hazards Report for the Canoga Park and Adjacent Quadrangles." Confirm the use of Figure 3.2 of the referenced Seismic Hazards report for soft rock conditions is appropriate for the site.

4) The "Seismic Retaining Wall Calculations" section also includes the sentence "Cantilevered basement retaining walls up to 25 feet high may be designed for an active equivalent fluid pressure of 55 pounds per cubic foot." Confirm basement retaining walls should be designed using active earth pressures.

5) The fourth paragraph under the heading "General Findings" of the "Conclusions and Recommendations" section on page 13 of the report states "The planned building may be supported by conventional foundations bearing in alluvium as long as it is not partially supported by the shoring piles. The building should be entirely supported by piles that extend into bedrock if it is tied to the shoring piles."

a. Confirm the building is recommended to be supported solely on spread footing foundations if it is not structurally connected to shoring piles and solely on piles if it is connected to the shoring piles.

b. Confirm that for the case of supporting the building on piles, all piles including the shoring piles shall extend into bedrock and all piles shall be designed in accordance with the "Deepened Foundations –Friction Piles" section on page 17.

6) The first paragraph on page 14, under the heading "General Findings" of the "Conclusions and Recommendations" section, includes the sentence "On-grade slabs may be supported by the residual soil and dense alluvial soils, and should be reinforced for expansive soil pressures." Confirm the recommendations presented in the "Floor Slabs" section, beginning on page 18, are adequate for the expansive soil pressures of the site soils.

7) The first sentence of the "Grading" section, beginning on page 15, states "The following guidelines may be used in preparation of the grading plan and job specifications for the removal and recompaction for the walls and pavement areas on the east portion of the site."

a. Clarify if the recommendations of this portion of the report are applicable to pavement areas in the western portion of the site.

b. Provide a recommended lift thickness to be used during the placement of compacted fill.

8) A table presented within the "Spread Footings" section, beginning on page 16 of the report, provides spread footing design values. Clarify if the "Maximum Earth Pressure" presented in the table is applicable to passive earth pressure, allowable bearing pressure or both.

9) The second paragraph of the "Lateral Design" section, on page 17, includes the sentence "Piles may be assumed fixed at 4 feet into alluvium." Provide calculations supporting a recommended point of fixity at a depth of four feet into the alluvium.

10) The "Floor Slabs" section, beginning on page 18, includes recommendations of the minimum reinforcement of concrete slabs-on-grade. Clarify if the minimum recommended slab reinforcement is to be provided in two perpendicular directions.

11) The "Retaining Walls" section of the report, beginning on page 21, provides recommendations for non-restrained and restrained walls. Clarify if the equivalent fluid pressure or the trapezoidal loadings are recommended for design of the basement walls.

12) The first full paragraph of the "Retaining Walls" section on page 22 of the report includes the sentences "Any remaining void should be filled with gravel if the void is less than 18 inches. If the void is wider than 18 inches, compacted fill should be utilized or the Building official should be consulted regarding the possible use of a wider gravel column. Gravel backfill should be densified by tamping."

    a. Provide a recommended lift thickness and recommended methods for densification of the gravel columns.

    b. Provide a recommended maximum thickness for the gravel column backfill of retaining walls.

    c. Confirm that the gravel column backfill, regardless of width, shall be separated from the back-cut with a filter fabric.

13) The "Temporary Excavation Stability" section, beginning on page 23, includes a table of shoring design pressures for each side of the proposed building and the sentence "The analyses indicate that the same shoring wall pressure can be used at all locations." The table presents different values of shoring pressure for the east and west walls of the building and the north and south walls of the building. Clarify what is meant by the sentence since the table provides different values for the east and west walls.

14) The "Temporary Excavation Stability" section, on page 24, includes the paragraph "The tops of pad footings for raker-braced piles should be a minimum of 12 inches below the ground surface and 2 feet wide and 2 feet long. A bearing value of 4,000 pounds per square foot may be used for raker pad footings inclined at up to 45 degrees from horizontal." Calculations for the raker foundations are provided as an attachment to the report. The bearing capacity calculation sheet appears to have a calculation error. Confirm the calculated allowable bearing capacity and specifically the "Pad Inclination" factors used in the analysis.

15) The last sentence of the third full paragraph of the "Temporary Excavation Stability" section, on page 24, states "Voids between the lagging and the earth that is to be retained shall be tightly filled with slurry under the observation of this firm." Provide a recommended maximum lift thickness or depth interval for which slurry placement is to be performed.

16) For the "Temporary Excavation Stability" section;

a. Provide a maximum allowable deflection for which the shoring system should be designed to prevent settlement of adjacent features and utilities.

b. Provide recommendations for the frequency of shoring deflection measurements and monitoring before, during and after the excavation process to facilitate the subterranean construction.

17) The first paragraph of the "Excavation Characteristics" section on page 24 of the report includes the sentences "Hard, cemented bedrock was encountered in the test pits and is expected to be encountered during foundation excavation. Coring or the use of jackhammers may be necessary and should be expected." Clarify if these sentences are applicable to the proposed project.

18) The first sentence of the second paragraph of the "Excavation Characteristics" section on page 24 of the report states "Groundwater will likely be encountered during foundation excavation." Confirm groundwater is only expected to impact the construction of shoring and foundation piles.

19) The "Waterproofing" section of the report, on page 25, includes the sentence "A subdrain pipe attached to a gravel pocket should be provided at the base of the wall between each pair of piles." Confirm the gravel pocket should be encapsulated in a filter fabric.

20) The "Decking" section, beginning on page 25, includes the sentences "Decking should be a minimum of 4 inches thick and reinforced with a minimum of #3 steel bars spaced 18 inches on center." and "The decking should be underlain by a minimum of 2 inches of sand to aid in concrete cure."

a. Clarify if the minimum recommended slab reinforcement is to be provided in two perpendicular directions.

b. Provide a maximum recommended thickness of sand to be placed beneath slabs-on-grade.

21) The "Paving" section of the report, beginning on page 26, includes a sentence "Base course should be crusher run base (CRB) or processed miscellaneous base (PMB). Provide a reference specification for the recommended base materials.

22) The "Notice" section, beginning on page 30, includes the sentence "EXPLORATION WAS PERFORMED ONLY ON A PORTION OF THE SITE, IT CANNOT BE CONSIDERED AS INDICATIVE OF THE PORTIONS OF THE SITE NOT EXPLORED." Clarify what is meant by this sentence and if it is applicable to the report.

23) The "Expansive Soils Notice", on page 32, includes the sentence "Walkways and decking placed adjacent to the structure should be underlain by a vapor barrier to prevent moisture loss through the concrete." Confirm this sentence is applicable to the project. IF applicable, provide a recommended distance from the structure that the vapor barriers should extend.

24) For the "Laboratory Testing" Appendix;

a. For the "Sample Retrieval-Drill Rig" paragraph, provide the variation of Kelly bar weight with depth and the drop height of the Kelly bar during the driving of the ring samplers.

b. Indicate the standardized test methods followed during the performance of the moisture/density, direct shear and consolidation tests.

25) For the Logs of Borings B-1 through B-4;

a. Provide the diameter of the bucket auger borings.

b. Provide the weight and drop height of the Kelly bar used to drive the ring samples.

c. For the "Blows/Foot (Equiv. SPT)" column on the logs, clarify if the blow counts shown are the Kelly bar field blow counts or Kelly bar blow counts corrected to an equivalent SPT blow count. If the blow counts are converted blow counts provide the mathematical relationship used to convert the field blow counts.

d. Clarify if the "Sand Cone Tests" title of the last column of the logs is appropriate.

26) The "Shear Test Diagram", presented on plates B-2 and B-2A, are stated to be performed on remolded fill. The dry density of 109 pounds per cubic foot is more than the laboratory determined maximum dry density of 96 pounds per cubic foot. Confirm the dry density values presented on the plates.

27) The "Shear Test Diagram", presented on plates B-5A and B-6A,indicate the test was performed on a sample from boring B-4 at a depth of 30 feet. The test sheet indicates a dry density of 117.7 pound per cubic foot for the tested sample. Boring log B-4 indicates an in-situ dry density of 93.8 pounds per square foot at 30 feet and 117.7 pounds per square foot at 35 feet. Confirm the depth of the sample tested.

28) The grading plan should reference the approved soils report (once the acceptable response to the comments presented herein are received) and indicate that all grading shall be performed as recommended by the approved report.

29) The Geotechnical Consultant should review the grading and foundation plans and verify compliance of these documents with their recommendations by signing and stamping.

This review was performed in accordance with generally accepted professional geotechnical engineering principles and practice in Southern California at this time. We make no other warranty, either express or implied. Conclusions presented herein are based on review of work by others. No field exploration or laboratory testing was performed. Please contact us if you have questions or need additional services.

Respectfully Submitted
WILLDAN GEOTECHNICAL

Ross Khiabani, GE 2202
Principal Engineer

APPENDIX A

BORING LOGS OF SUBSURFACE EXPLORATION

LOG OF BORING B-1

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Asphalt pavement.						
		FILL: Clayey Silt and Silty Clay, mottled gray-brown, yellow-brown and medium brown, slightly moist to moist, firm to very firm, contains scattered gravel to small cobble-size bedrock fragments, scattered brick and concrete debris.						
5			■	▨	2	9.1	109.0	R B
		1-2" thick layer of Silty Sand with concrete fragments, gray and brown, dry, medium dense.						
		Clayey Silt/Silty Clay, medium brown and dark brown with yellow and orange-brown mottling, slightly moist to locally moist, very firm to stiff, scattered asphalt debris and gravel-size bedrock fragments.						
		Fill/Soil contact: horizontal and irregular.						
		SOIL: Silty Clay, dark brown with tan mottling, slightly moist to moist, very firm to stiff, contains sand to fine gravel-size bedrock fragments.						
10			■	▨	1	22.2	94.9	R B
		Soil/Alluvium contact: gradational.						
		ALLUVIUM: Clayey Silt to Silty Clay, medium brown with abundant white and red-brown stringers, moist, very firm, contains scattered sand and fine gravel-size bedrock fragments, no observable porosity.						
15		Silty Clay, medium brown, moist, very firm to stiff, decreased stringers, scattered sand/fine gravel.	■		3	23.5	98.9	R
		Clayey Silt/Silty Clay, medium brown and gray-brown, moist, very firm to stiff, massive.						

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-1a

LOG OF BORING B-1

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): _____ Depth to Water(ft): _____

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Increasing sand and decreasing clay component.	■		1	24.2	95.1	R
		Clayey Sand/Silty Clayey Sand, mottled gray-brown, orange-brown and tan, moist, medium dense, no observable porosity.						
25		Clayey to Silty Sand, mottled gray-brown and medium brown, moist, medium dense, contains scattered root hairs.	■		2	31.9	86.6	R
		Silt/Clayey Silt, medium brown with gray-brown mottling, moist, firm to very firm, massive, contains scattered discontinuous sand lenses.						
30		Very moist, no seepage.	■		1	28.2	94.4	R
		Silty Sand, medium brown, moist to very moist, medium dense, contains scattered fine gravel-size bedrock fragments, massive.						
35			■		push	25.2	98.9	R
		Bucket wet at 38'. Alluvium/Bedrock contact: orientation not observable, abundant seepage along top of bedrock, upper 2' of bedrock is caving. Groundwater at 38'.		▨				B
		Downhole logging terminated at 39'.						
		BEDROCK: Monterey Formation Siltstone, light gray-green, moist						

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-1b

LOG OF BORING B-1

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		to very moist, slightly hard, massive, abundant white stringers and pods.	■		2	22.8	103.1	R
45			■		2	21.6	104.9	R
50			■		4	26.3	104.4	R
		Bedrock significantly harder, drilling slower.						
55			■		6	24.1	102.8	R
		Bedrock predominately light gray.						

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-1c

LOG OF BORING B-1

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Nearly vertical bedding in sample at 60'.	■		20	17.7	111.9	R
		End at 61' Groundwater encountered at 38', standing water at 39' one hour after terminating drilling; Caving in upper 2' of bedrock; Fill to 8'						
65								
70								
75								

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-1d

LOG OF BORING B-2

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Asphalt surface.						
		FILL: Silty Clay with Clayey Silt zones, mottled brown, tan, orange-brown and light yellow-brown, moist, firm to very firm, contains scattered to locally abundant gravel-size bedrock fragments.						
		Fill/Soil contact: dips gently to the north.						
5		SOIL: Silty Clay, dark brown, slightly moist to moist, very firm to stiff, contains scattered sand, no observable porosity, scattered gravel present.	■		push	19.5	101.6	R
		ALLUVIUM: Silty Clay, medium brown to brown with white stringers, moist, very firm to stiff, contains scattered subangular to subround bedrock fragments, few gravel fragments.						
10			■	▨	1	23.7	97.9	R B
15			■		2	21.3	101.9	R

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-2a

LOG OF BORING B-2

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
			■		2	32.0	87.7	R
		Silty Clay with Gravel, brown to medium brown with yellow-brown and red-brown mottling, moist, very firm to stiff, contains abundant subangular fine to medium gravel.						
25		Clayey Silt with Gravel, brown to medium brown, moist, very firm to stiff.	■		3	26.7	93.9	R
		Silty Clay with Gravel, medium brown and tan, moist, very firm to stiff.						
30		Interlayered Silty Clay and Silty Sand, mottled medium brown, light orange-brown and gray-brown, moist to very moist, medium dense and firm.	■		4	26.4	93.4	R
		Sandy Silt to Clayey Silt, medium brown with abundant white pods and stringers, moist to very moist, firm, massive.						
35		Sampler and spoils very moist to wet.	■		2	32.2	87.2	R
		Bucket and spoils wet, groundwater encountered.						

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-2b

LOG OF BORING B-2

Date Drilled: 12/20/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Silty Sand, medium brown to brown, very moist to wet, very firm.	■		3	24.0	101.6	R
45			■		8	22.5	109.9	R
		BEDROCK (exposed in tip of sampler): Monterey Formation Sandstone, orange-brown, yellow-brown and tan, moist, moderately hard, thinly bedded, bedding inclined approximately 45 degrees (unoriented). Caving below 45', unable to advance boring due to caving.	■		20	15.4	120.5	R
		End at 48' Groundwater at 38', static water at 38' half hour after drilling; Caving below 45'; Fill to 4' Note: No downhole logging below 35' due to groundwater.						
50								
55								

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-2c

LOG OF BORING B-3

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Asphalt Pavement.						
		FILL/COMPACTED FILL: Clayey Silt to Silty Clay, mottled medium brown, orange-brown and tan to brown, slightly moist to moist, very firm to stiff, contains scattered gravel, scattered asphalt debris.						
		Silty Clay, dark brown to dark gray-brown, moist, stiff, scattered gravel.						
5		Fill/Soil contact horizontal.	■		2	20.7	99.4	R
		SOIL: Silty Clay, dark brown, moist, stiff, contains scattered sand and fine gravel.						
10		ALLUVIUM: Silty Clay, mottled medium brown to brown, moist, very firm to stiff, contains scattered sand and gravel, no observable porosity.	■	▨	2	21.2	97.2	R B
15			■		2	22.0	102.1	R
		Silty Clay with Gravel, medium brown with dark brown zones, moist, very firm to stiff, contains fine to coarse sand and abundant fine gravel.						
		Clayey Sand/Sandy Clay, medium brown with dark brown mottling,						

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Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-3a

LOG OF BORING B-3

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		moist, very firm to stiff.	■		1	27.9	90.9	R
		Silt/Clayey Silt, medium brown with yellow-brown mottling, moist, very firm scattered sand.						
		Becomes yellow-brown to light gray-brown, moist, very firm.						
25			■		2	21.9	99.8	R
		Silty Sand, medium brown to light orange-brown, moist, medium dense.						
		Clayey Sand with scattered Gravel, medium brown to light orange-brown, moist to, very moist, medium dense.						
30		Clayey Silt to Silty Clay, light gray-brown to medium brown, moist to very moist, very firm to stiff.	■		2	21.0	101.8	R
35		Groundwater encountered at 35'. Downhole logging terminated at 35' due to groundwater.	■		push	30.1	91.6	R

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Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-3b

LOG OF BORING B-3

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Sandy Clay and Clayey Sand, brown to gray-brown, very moist, very firm to stiff.	■		1	26.5	95.2	R
45			■		3	24.0	98.6	R
		BEDROCK on teeth of bucket: Monterey Formation Sandstone, yellow-brown orange-brown and gray, very moist. Crowds used below 48', drilling slow.						
50			■		40/8"	13.4	107.1	R
55			■		40/6"	No Recovery		R
		End at 56' due to hard bedrock Groundwater at 35'; No Caving Fill to 5-1/2'						

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Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-3c

LOG OF BORING B-4

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Asphalt Pavement.						
		FILL/COMPACTED FILL: Silty Clay and Clayey Silt with Gravel, mottled medium brown and dark brown to tan, slightly moist to moist.						
5								
		SOIL: Silty Clay, dark brown, moist, stiff.						
10			■		2	22.2	98.7	R
		ALLUVIUM: Silty Clay, mottled medium brown to dark brown, moist, very firm to stiff, scattered sand and gravel.						
15								

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-4a

LOG OF BORING B-4

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
		Clayey Silt/Silty Clay, medium brown, moist, very firm, scattered sand.	■		2	24.0	96.9	R
25								
30		Silty Clay with Gravel, brown to medium brown, moist, stiff.	■		2	25.9	93.8	R
35								
		BEDROCK (on bucket teeth): Monterey Formation Sandstone, orange-brown, tan and gray, moist, moderately hard.						
		Sandstone, yellow-brown and tan, moist, moderately hard to hard, massive, sand generally medium to fine-grained, scattered fine gravel.	■		15	11.0	117.7	R

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Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-4b

LOG OF BORING B-4

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Truck-Mounted Bucket Auger Driving Weight and Drop: Kelly Bar Drop

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAND CONE TESTS
			■		16	9.1	121.5	R
		End at 41' No Water; No Caving Fill to approximatley 7-1/2' Note: Boring not downhole logged.						
45								
50								
55								

GEO 13806LOG.GPJ 2/14/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-4c

LOG OF TEST PIT TP-1

Date Drilled: 12/21/07 Logged by: Greg Byrne Project Manager: Greg Byrne

Equipment: Driving Weight and Drop:

Surface Elevation(ft): Depth to Water(ft):

DEPTH (ft)	GRAPHIC LOG	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	MOISTURE (%)	DRY UNIT WT. (pcf)	SAMPLE TYPE
		FILL: Clayey Silt to Silty Clay, mottled medium brown, brown and orange-brown, moist, firm.		■				B
		End at 3' No Water; No Caving Fill to depth						
5								

GEOS 13806LOG.GPJ 2/15/08

Grover Hollingsworth and Associates, Inc.

Project Name: Malamut
24439 Calabasas Road, Calabasas, California

Project No. 13806-G

Plate A-5

APPENDIX B
LABORATORY TESTING

General
The following laboratory tests are from the GHA report of February 15, 2008.

Moisture Density
The field moisture content and dry density were determined for each of the undisturbed soil samples. The dry density was determined in pounds per cubic foot. The moisture content was determined as a percentage of the dry soils weight. The results are shown on the logs presented in Appendix A.

Compaction Character
Compaction test were performed on bulk samples of the existing fill in general accordance with ASTM D1557-02. The results of the tests are provided on the table below. Remolded samples were prepared at 90 percent of the maximum density for shear tests.

Boring No.	Sample Depth (ft.)	Soil Type	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-1	5.0	Fill	95.0	26.0

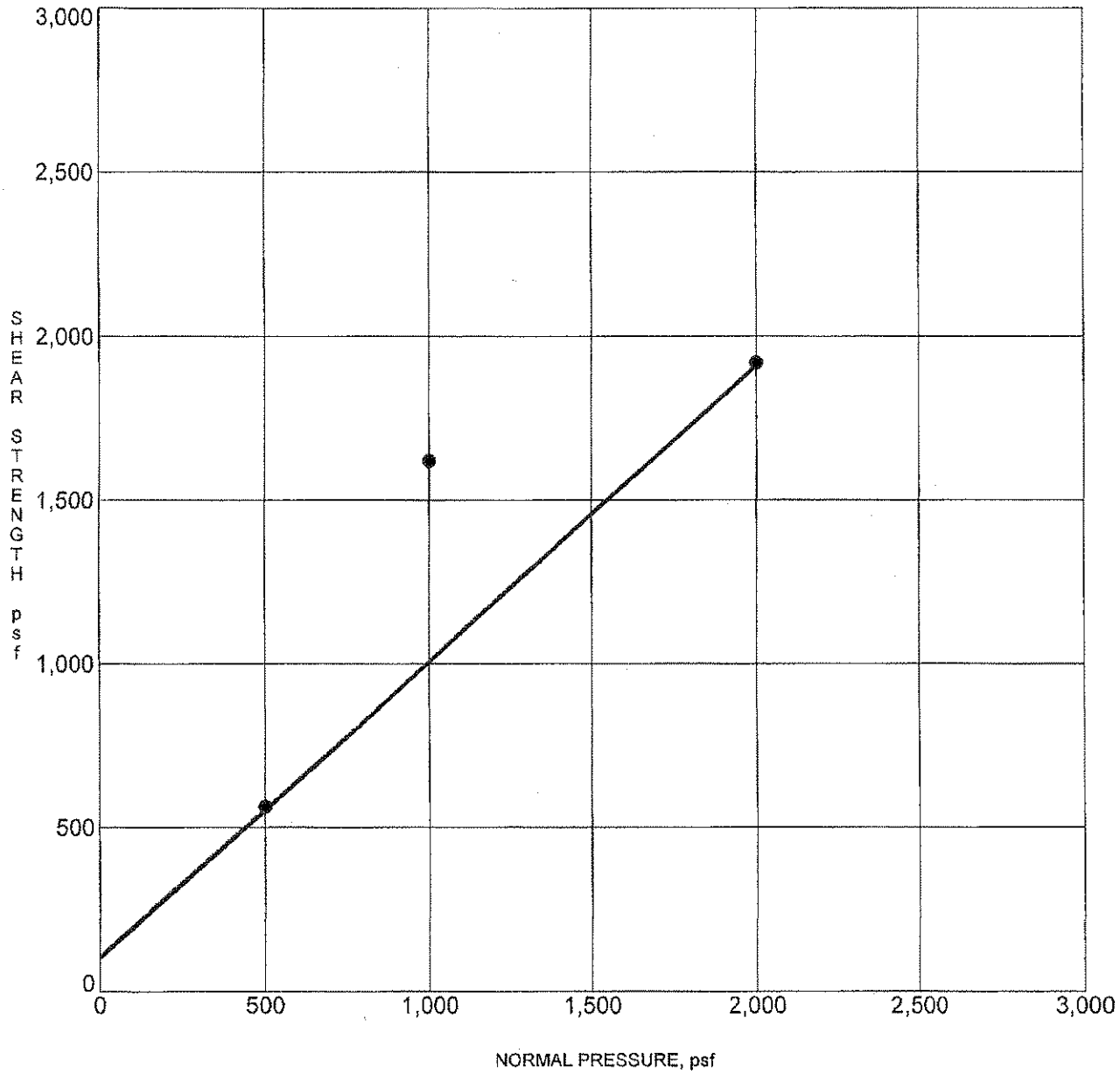
Shear Strength
The peak and ultimate shear strengths of the sol, alluvium and bedrock and ultimate shear strength of the fill was determined by performing direct shear tests. The tests were performed in a strain-controlled machine manufactured by GeoMatic. The rate of deformation was 0.01 inches per minute. Samples were sheared under varying confining pressures, as shown on the "Shear Test Diagrams," B-plates. The moisture conditions during the testing are sown on the B-plates. The samples indicated as saturated were artificially saturated in the laboratory and were sheared under submerged conditions.

Consolidation
One-dimensional consolidation tests were performed on samples of the soil and alluvium in a consolidometer manufacture by GeoMatic. The tests were performed on 1-inch-high samples retained in brass rings. The samples were initially loaded to approximately one half the field over-burden pressure and then unloaded to compensate for the effects of possible disturbance during sampling. Loads were then applied in a geometric progression and resulting deformation recorded. Water was added at a specific load to determine the effect of saturation. The results are plotted on the "Consolidation Pressure Curves," C-plates.

Expansion Index
The expansion character of the fill, residual soil, and alluvium was determined by performing Expansion Index Tests in accordance with UBC 18-2. A bulk sample of earth material was compacted at a specific moisture content using one fifth the compaction energy for the modified proctor test. The sample was then saturated and the expansion measured. The results of the tests are provided in the following table.

Boring No.	Sample Depth (ft.)	Soil Type	Expansion Index
B-1	5	Fill	52
B-1	10	Soil	80
B-2	10	Alluvium	62

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
● B-3	5.0	FILL	100	42	99.4	26.1

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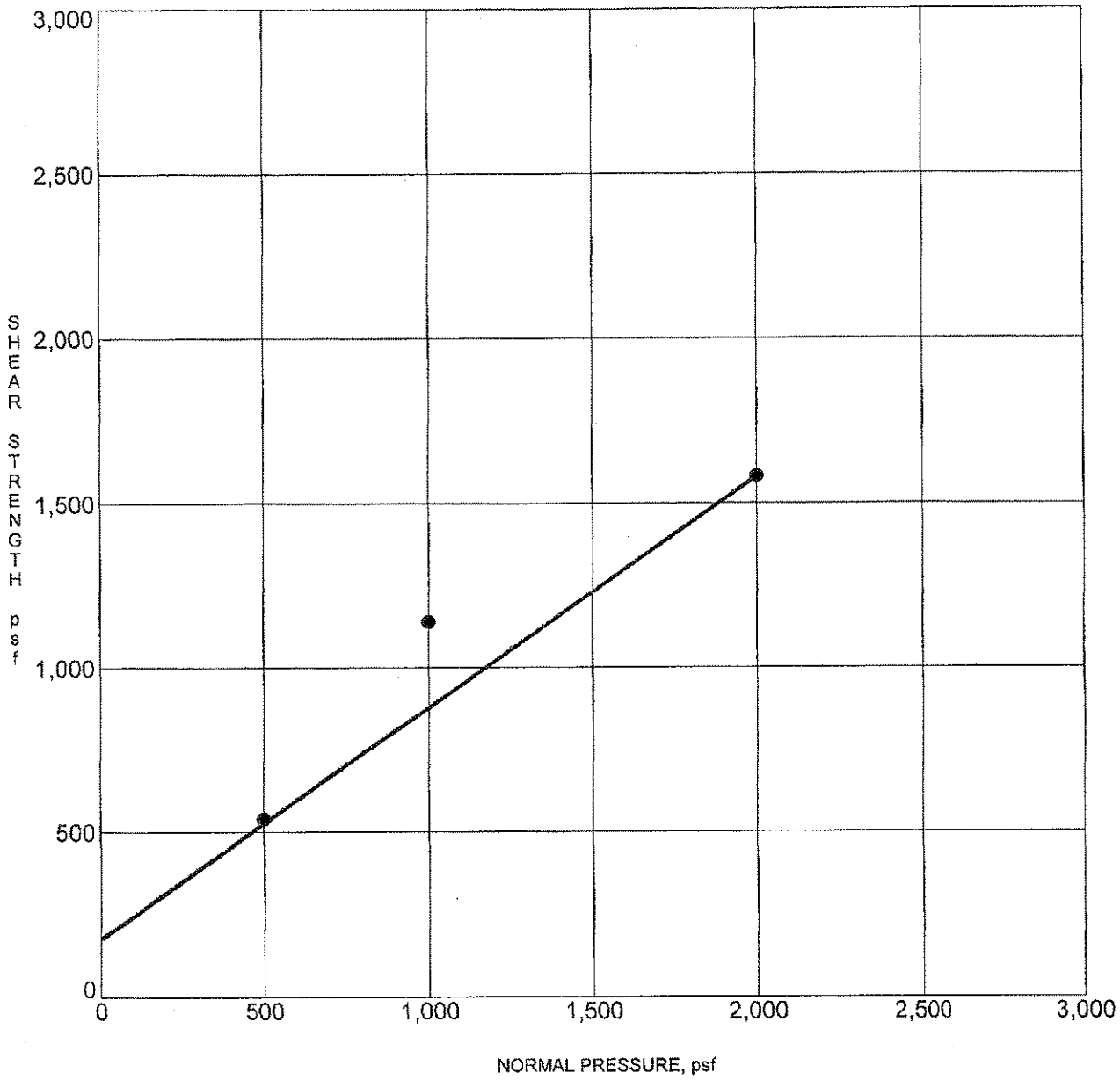
PLATE B-1

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-3	5.0	FILL	180	35	99.4	26.1

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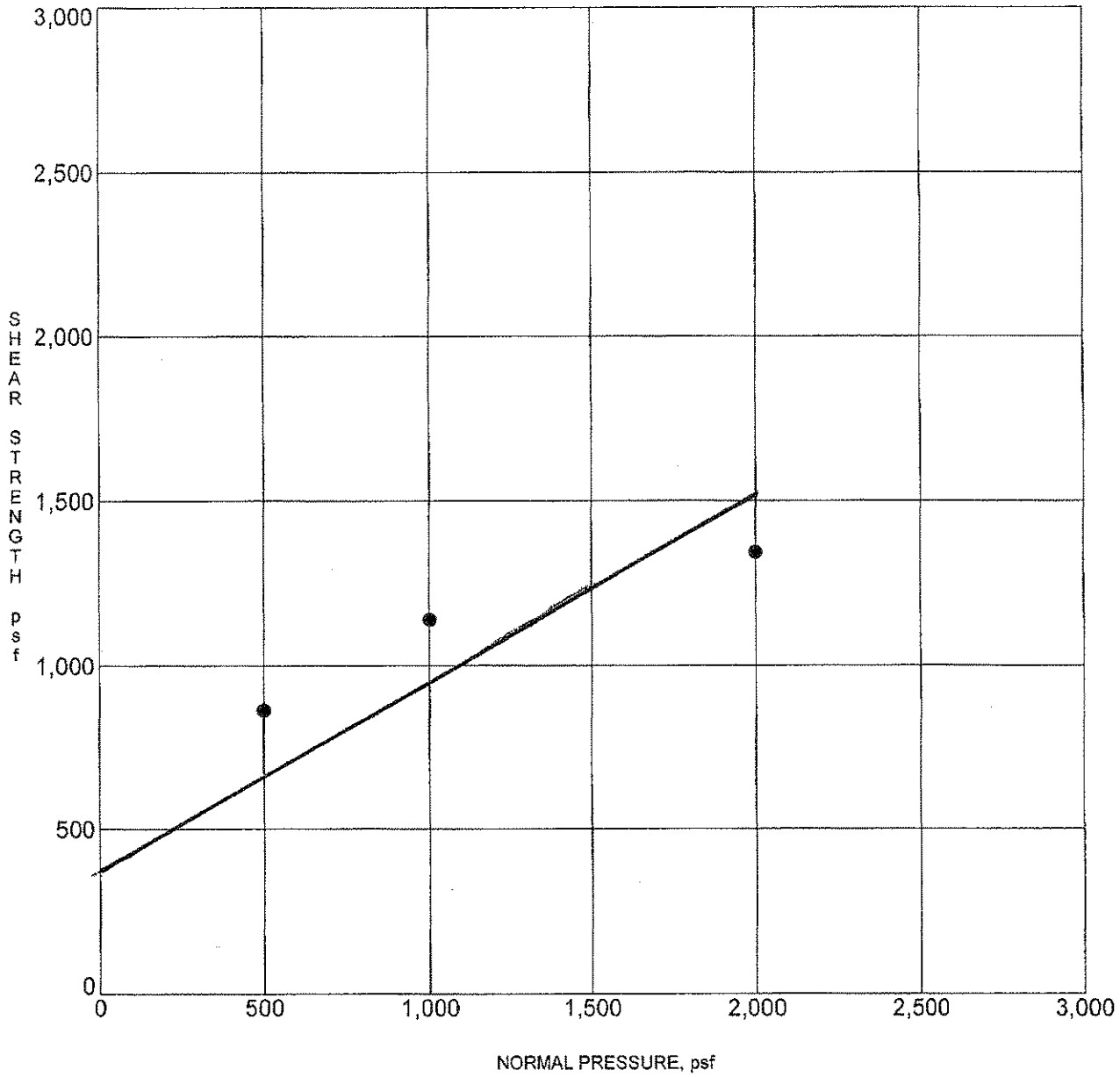
PLATE B-1A

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	5.0	REMOLDED FILL	370	30	109.0	36.6

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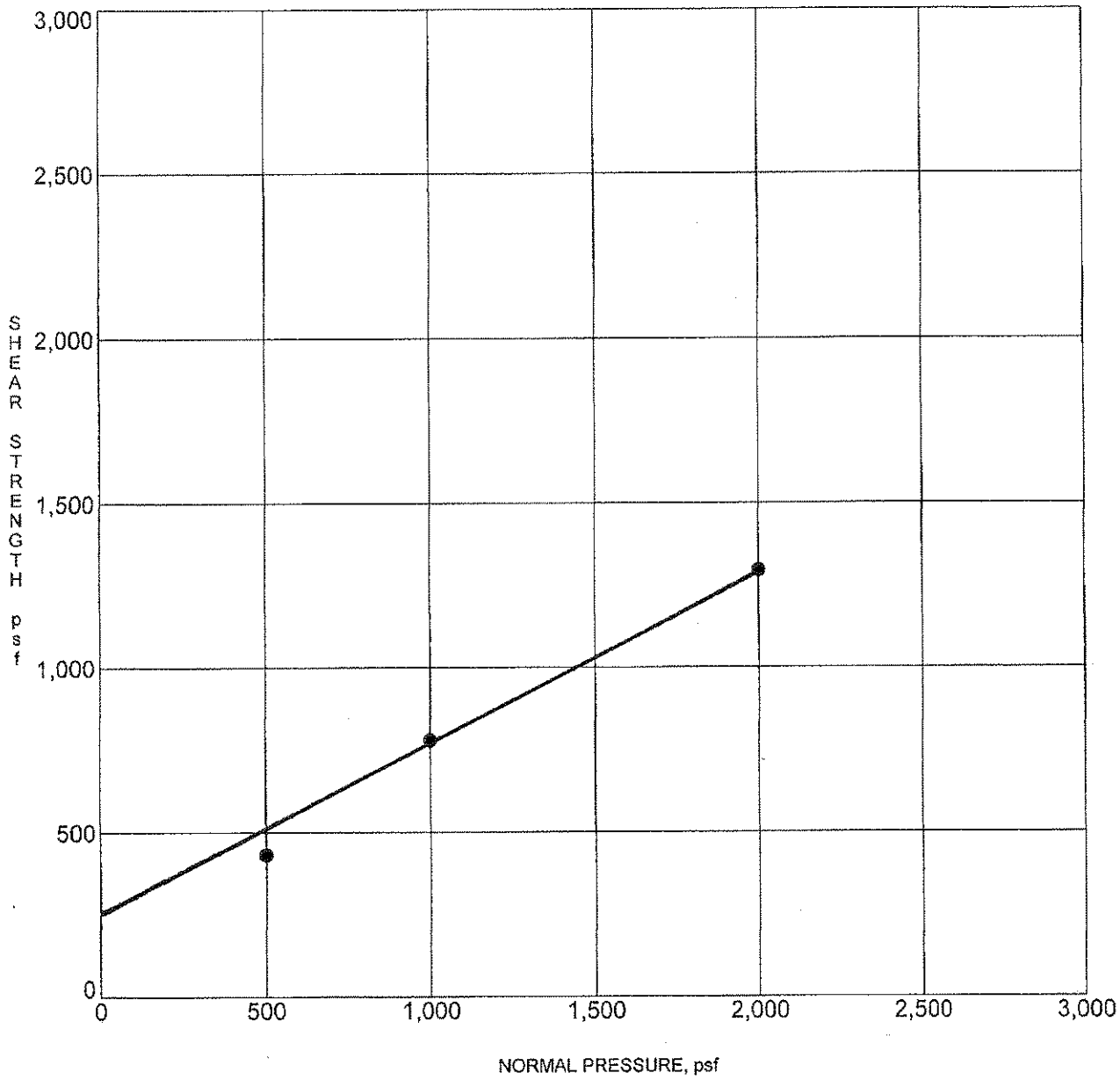
PLATE B-2

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	5.0	REMOLDED FILL	260	27	109.0	36.6

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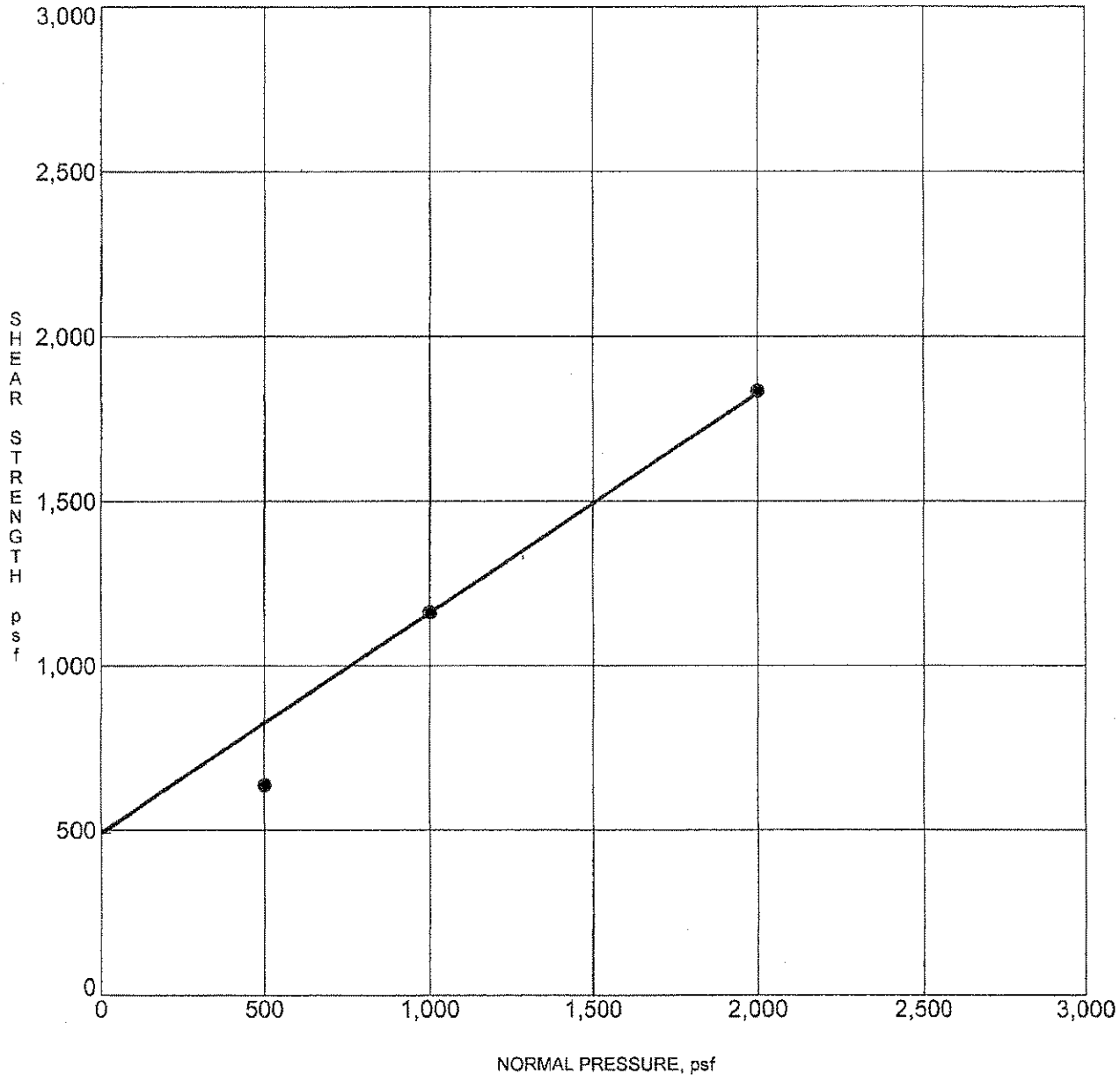
PLATE B-2A

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	**B-1**	**10.0**	**SOIL**	**490**	**33**	**94.9**	**28.4**

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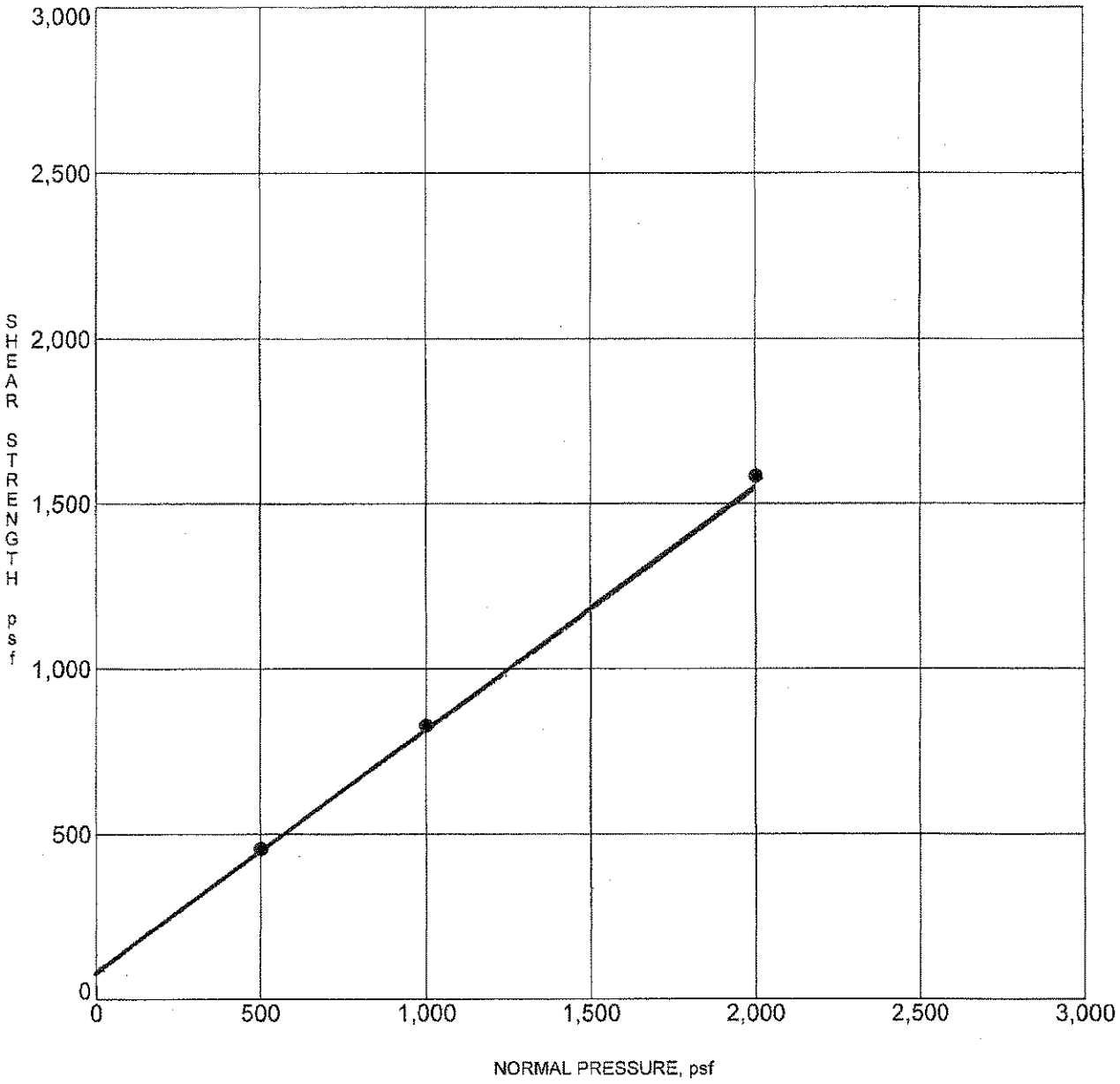
PLATE B-3

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	**B-1**	**10.0**	**SOIL**	**80**	**36**	**94.9**	**28.4**

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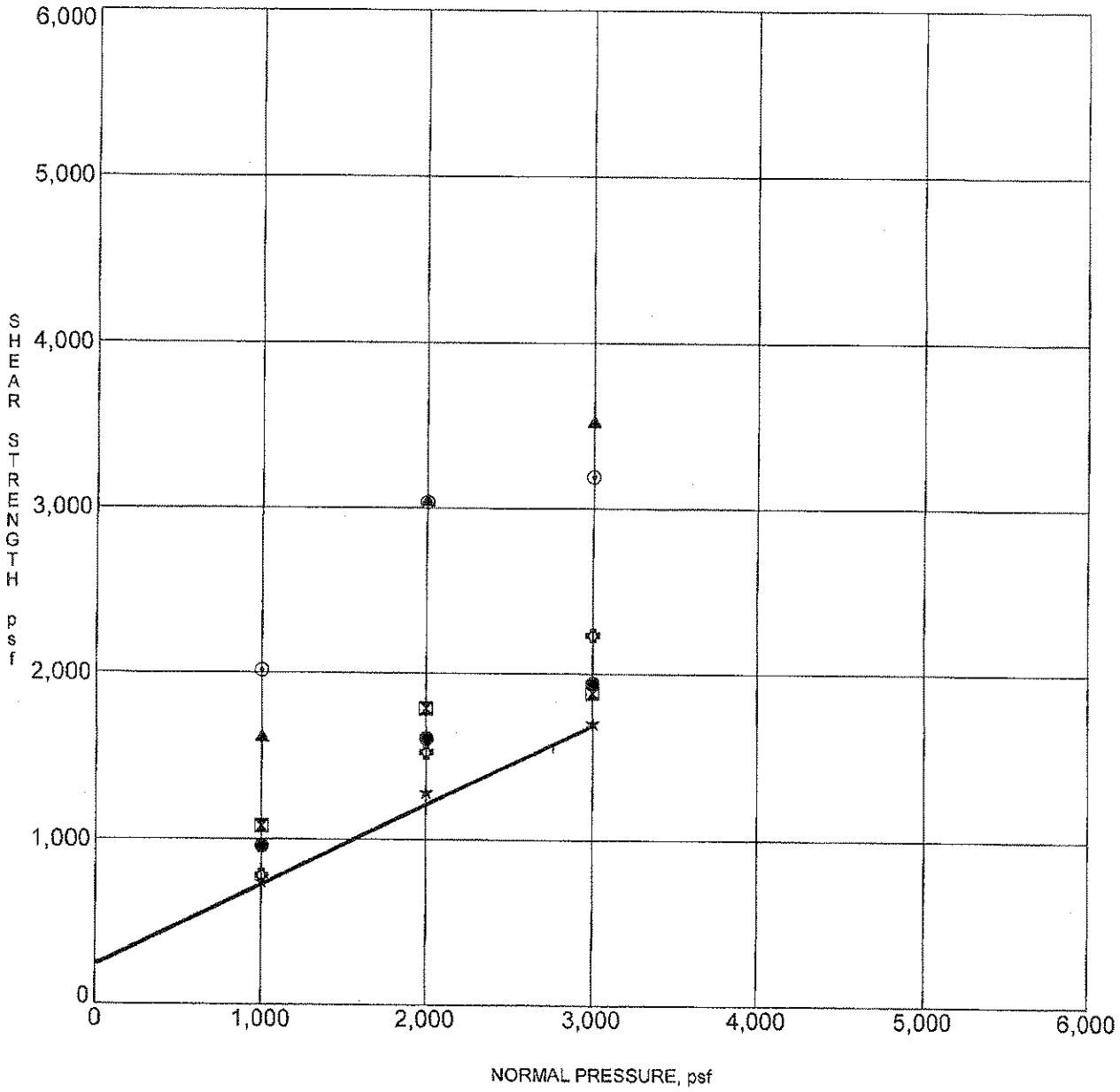
PLATE B-4

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

Specimen Identification			Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	30.0	ALLUVIUM			94.4	26.1
⊠	B-2	20.0	ALLUVIUM			87.7	35.5
▲	B-2	30.0	ALLUVIUM			93.4	
★	B-2	35.0	ALLUVIUM	270	25	87.2	33.9
⊙	B-3	20.0	ALLUVIUM			90.9	
✿	B-3	35.0	ALLUVIUM			91.6	32.3

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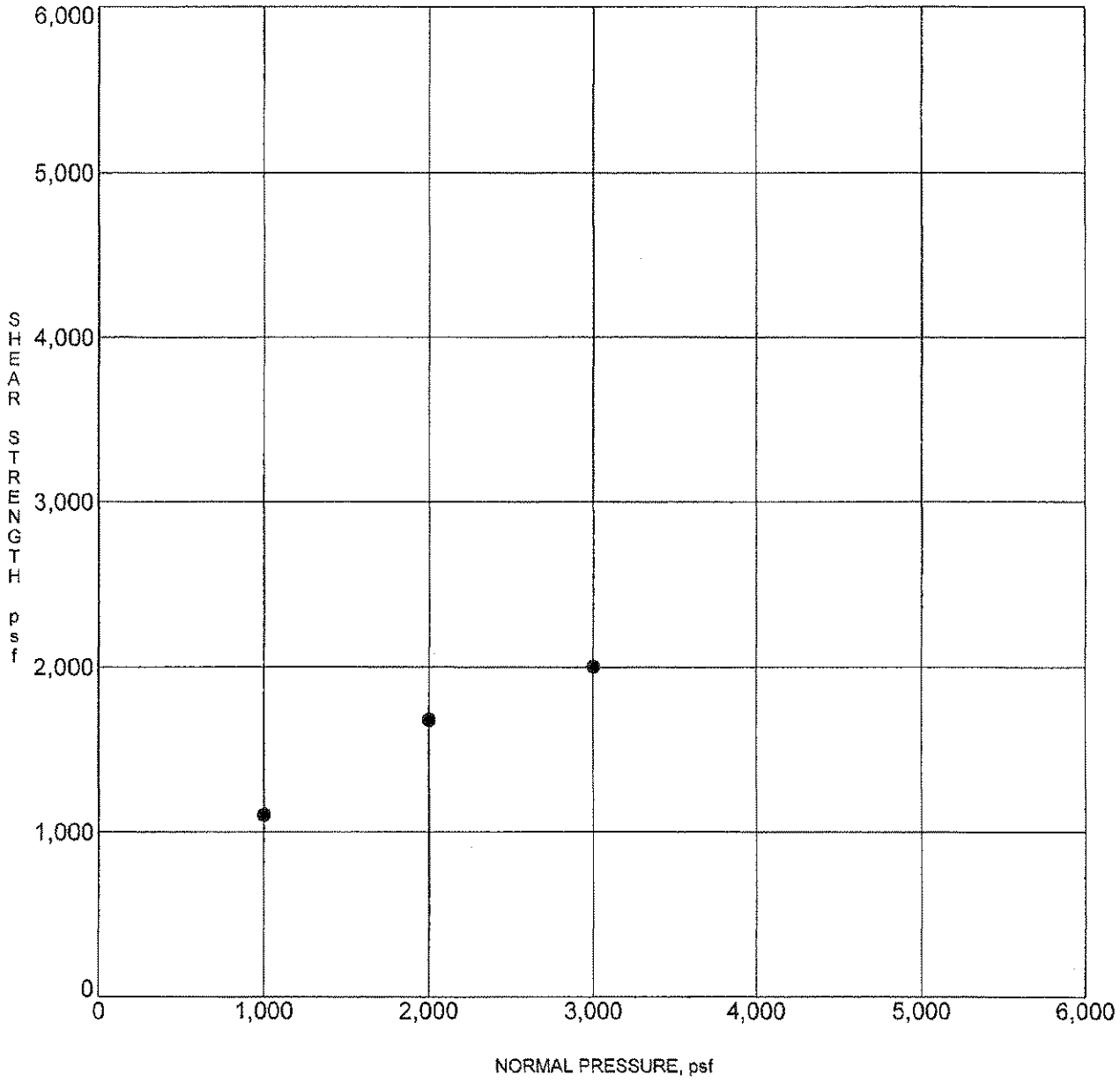
PLATE B-5

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	**B-4**	**30.0**	**ALLUVIUM**			**117.7**	**31.5**

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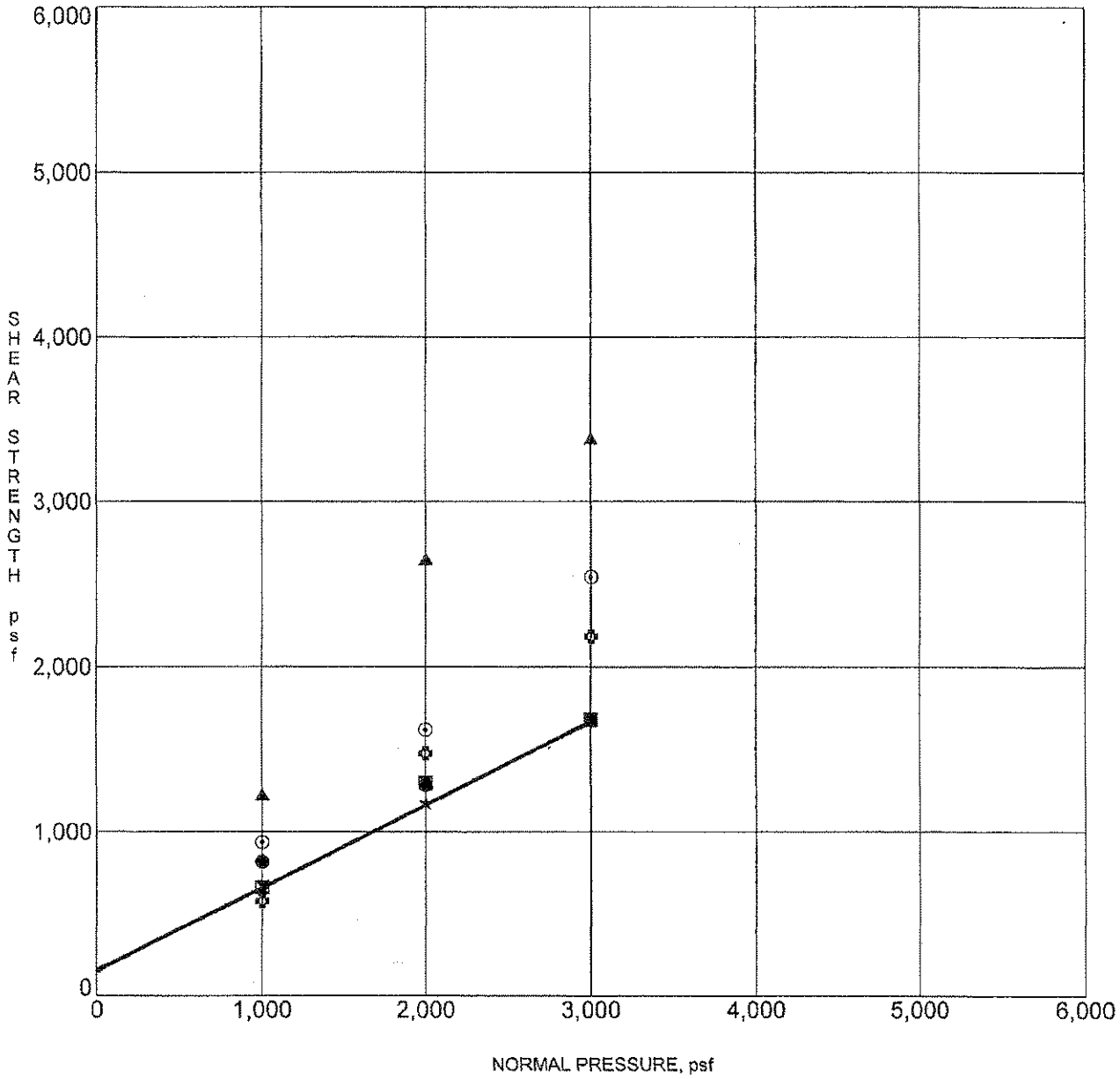
PLATE B-5A

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

Specimen Identification			Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	30.0	ALLUVIUM			94.4	26.1
⊠	B-2	20.0	ALLUVIUM			87.7	35.5
▲	B-2	30.0	ALLUVIUM			93.4	
★	B-2	35.0	ALLUVIUM	150	26	87.2	33.9
⊙	B-3	20.0	ALLUVIUM			90.9	
✿	B-3	35.0	ALLUVIUM			91.6	32.3

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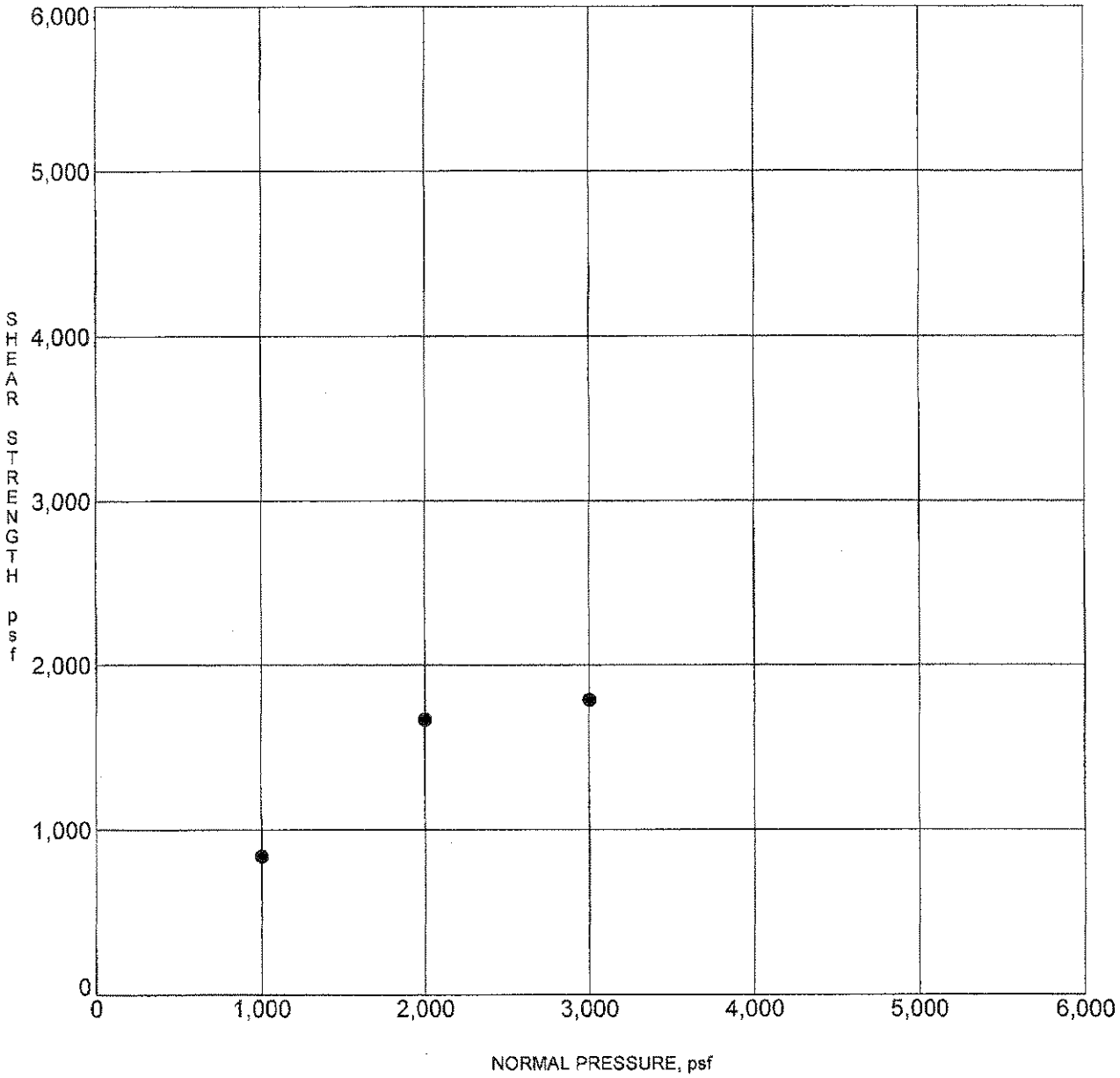
PLATE B-6

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-4	30.0	ALLUVIUM			117.7	31.5

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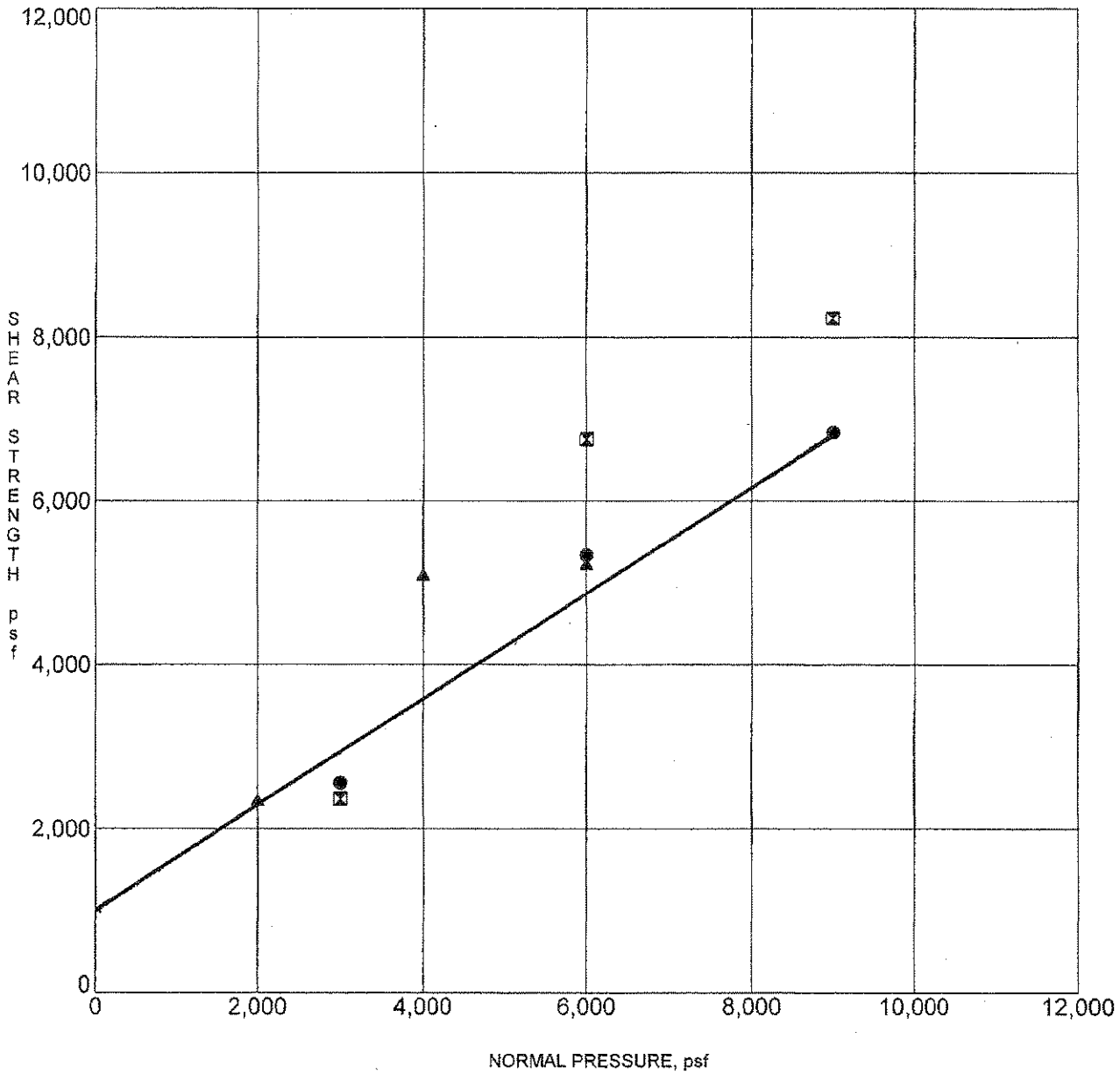
PLATE B-6A

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

Specimen Identification			Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-2	45.0	SANDSTONE BEDROCK	990	33	109.9	19.3
⊠	B-3	50.0	SANDSTONE BEDROCK			107.1	16.1
▲	B-4	40.0	SANDSTONE BEDROCK			121.5	16.5

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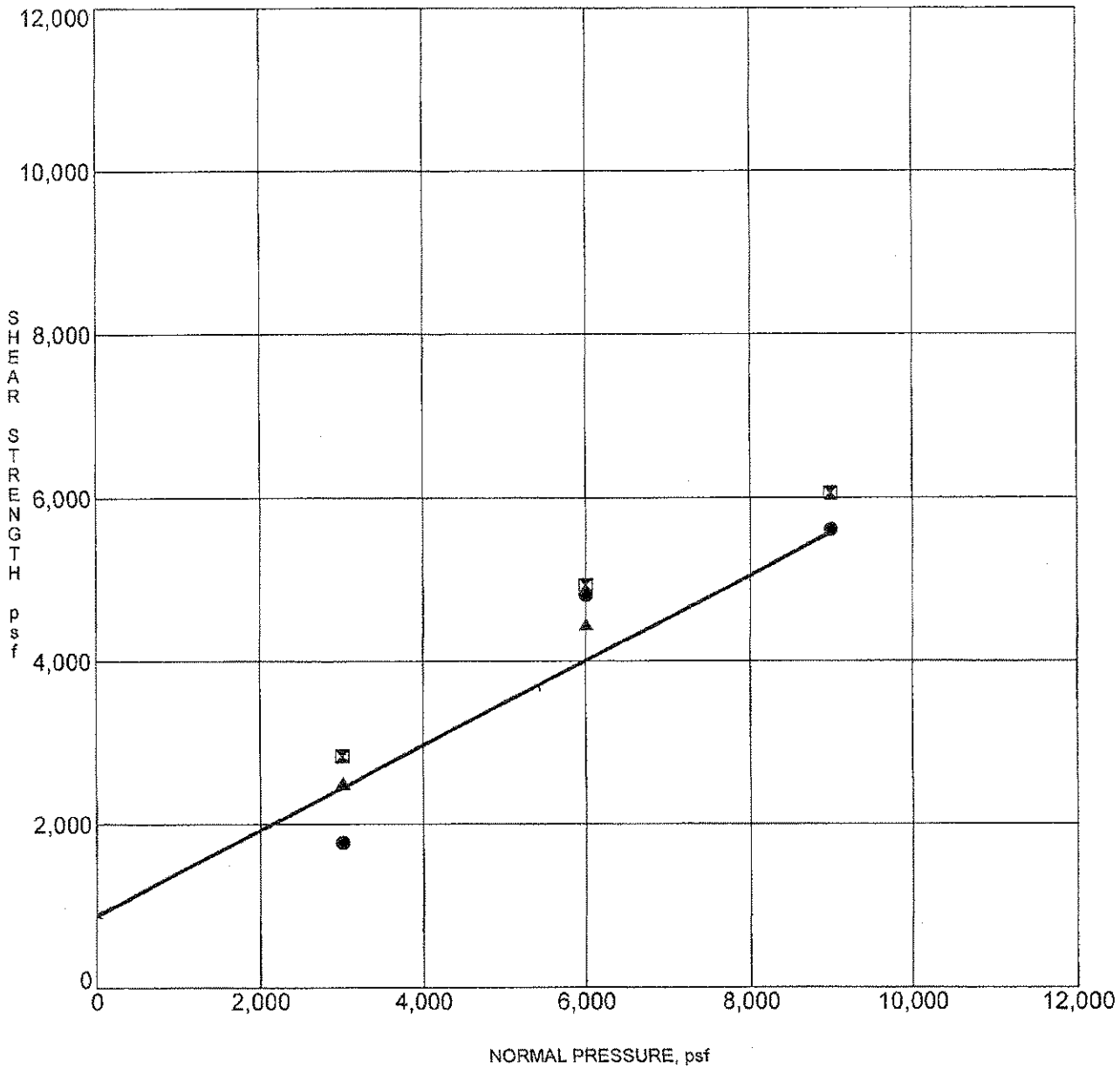
PLATE B-7

SHEAR TEST DIAGRAM



***NOTE-PEAK STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	50.0	SILTSTONE BEDROCK	850	27	104.4	27.1
⊠	B-1	55.0	SILTSTONE BEDROCK			102.8	23.4
▲	B-1	60.0	SILTSTONE BEDROCK			111.9	27.2

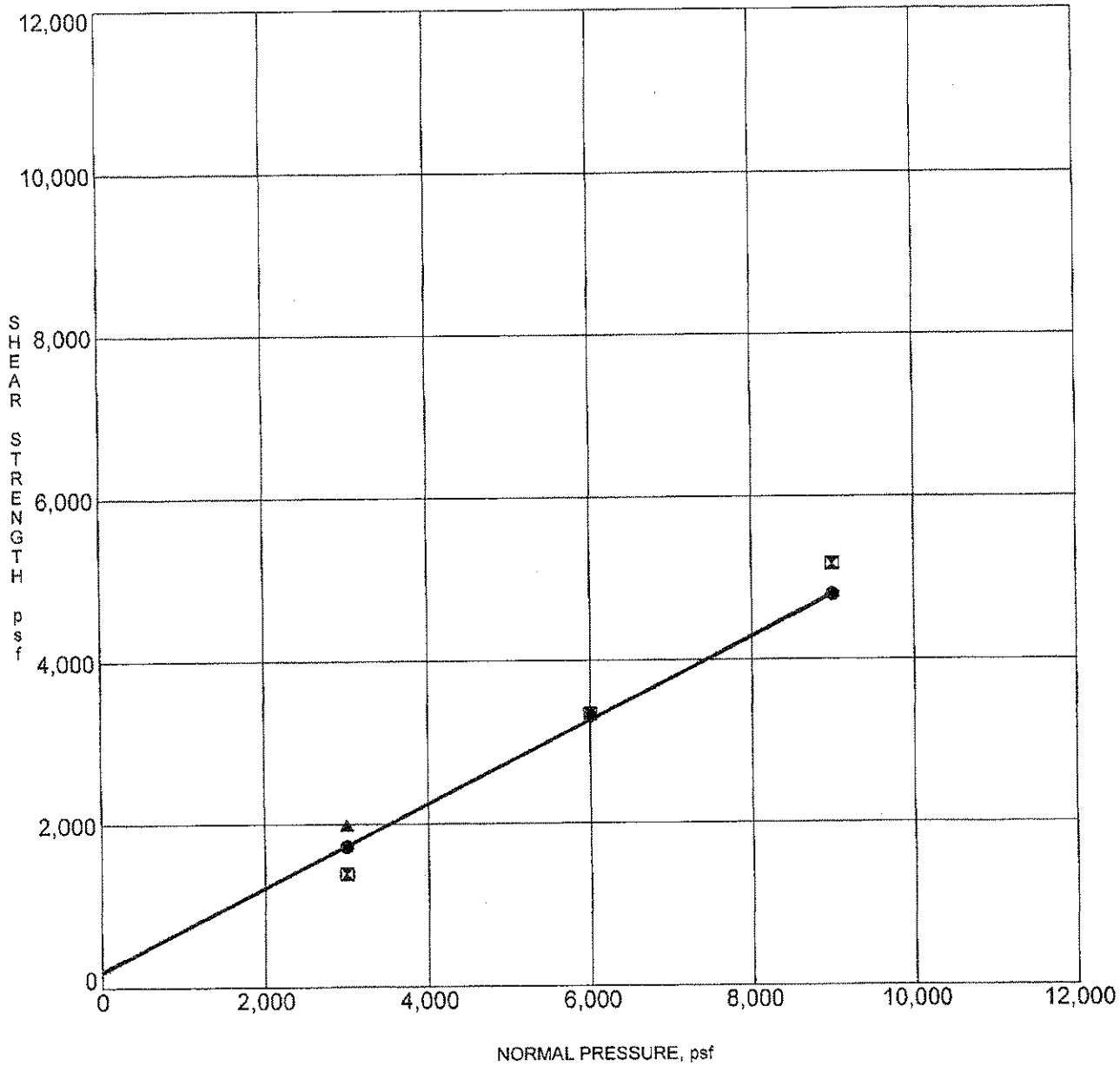
PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

JOB NO. GH13806-G
DATE 1/08

Grover-Hollingsworth & Associates
Westlake Village, CA 91362

PLATE B-8

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

Specimen Identification			Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	50.0	SILTSTONE BEDROCK	190	27	104.4	27.1
⊠	B-1	55.0	SILTSTONE BEDROCK			102.8	23.4
▲	B-1	60.0	SILTSTONE BEDROCK			111.9	27.2

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

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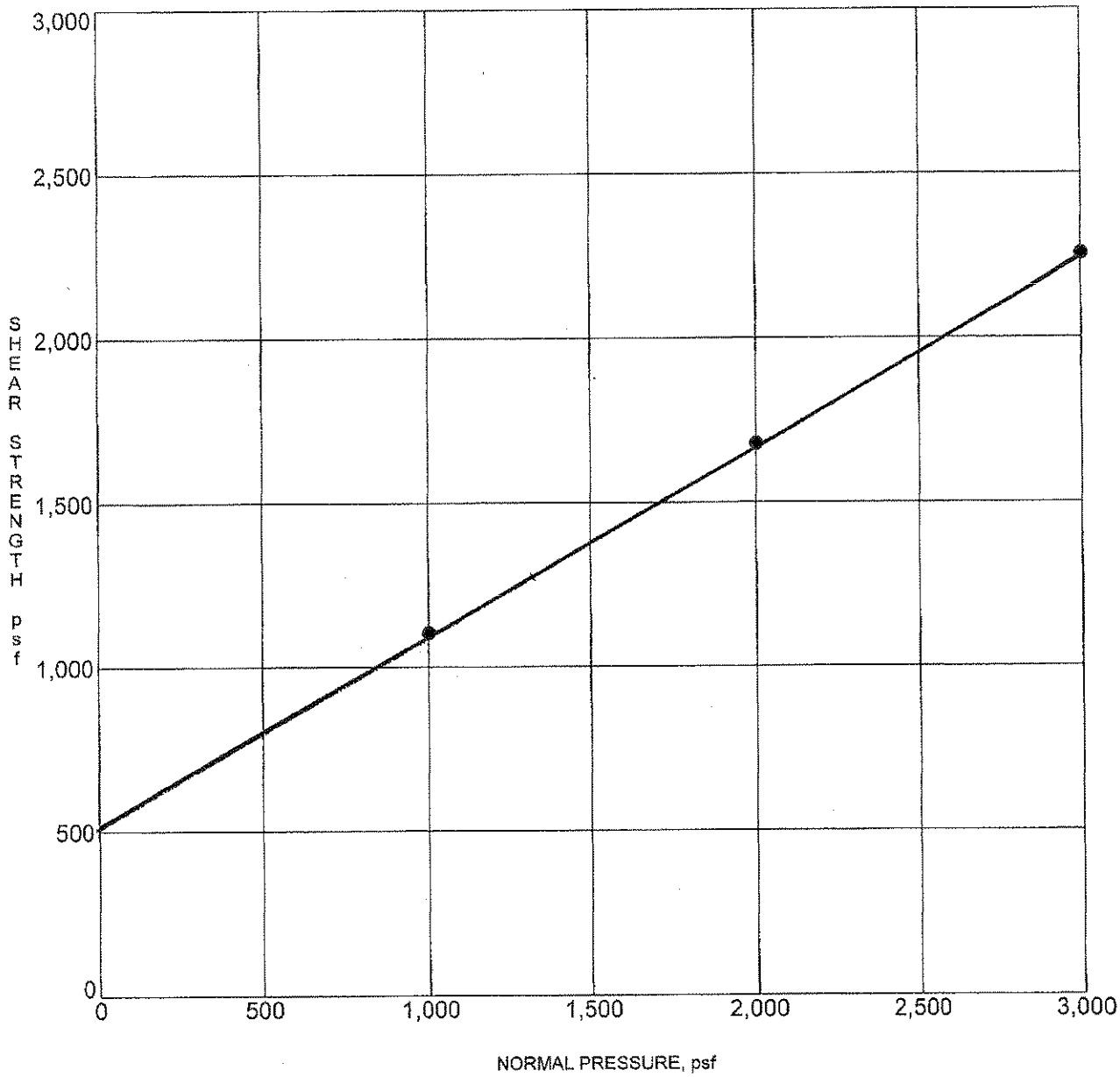
PLATE B-8A

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

Specimen Identification			Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
● B-1	20.0		ALLUVIUM FIELD MOISTURE	510	30	95.1	24.2

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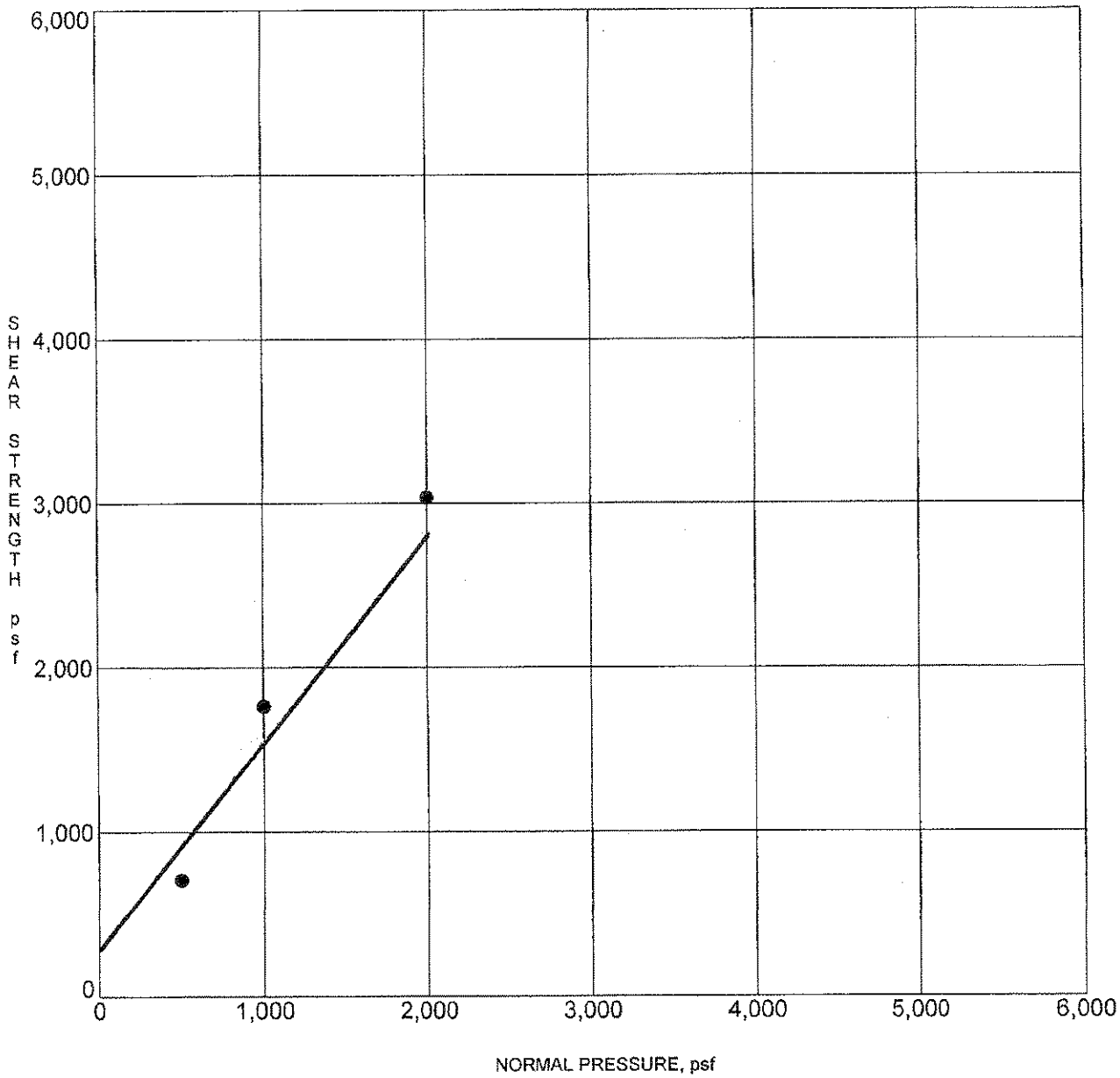
PLATE B-9

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	B-1	5.0	FILL FIELD MOISTURE	300	51	109.0	9.1

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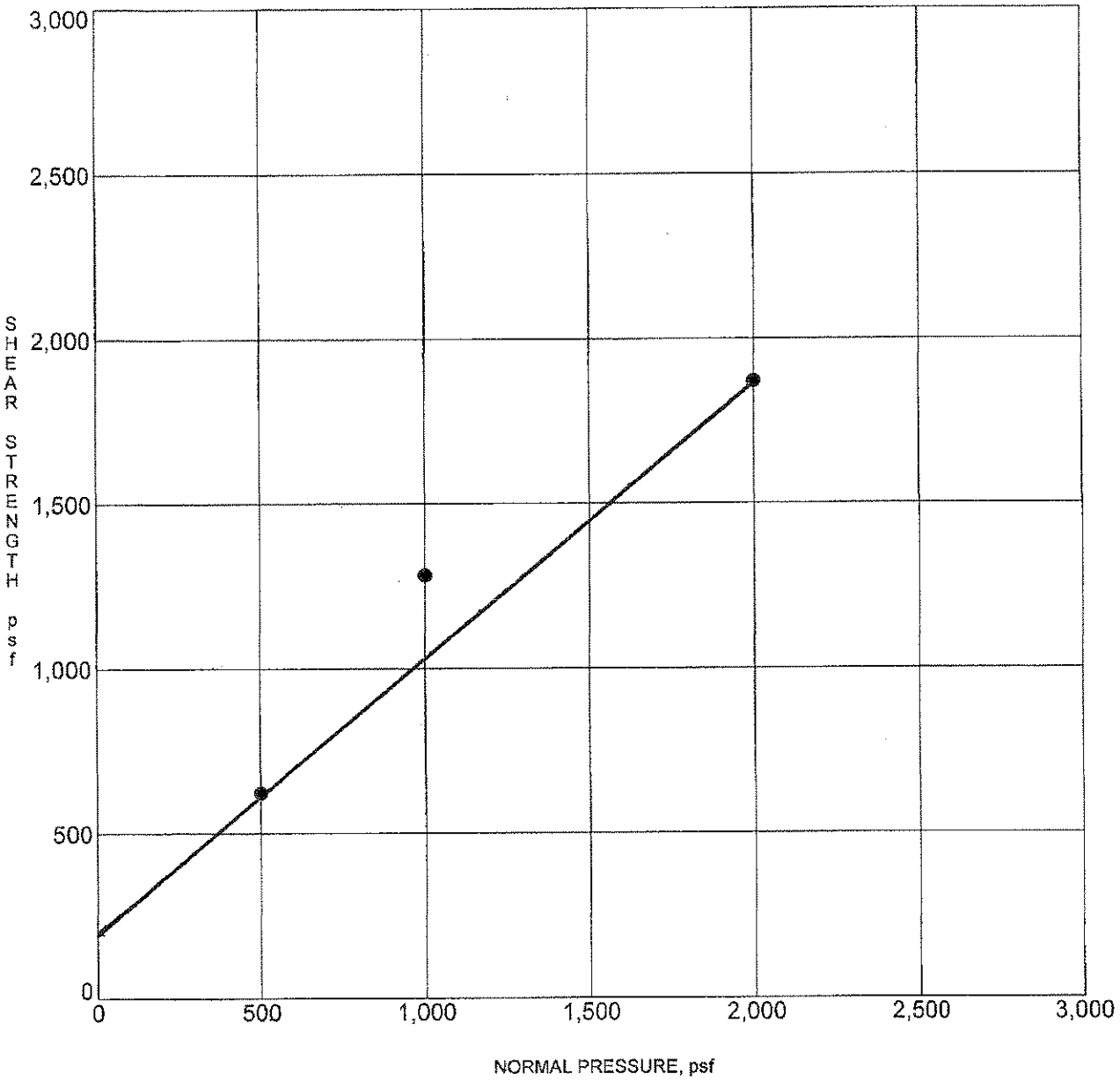
PLATE B-10

SHEAR TEST DIAGRAM



***NOTE-ULTIMATE STRENGTH VALUES**

	Specimen Identification		Soil Type/Classification	Cohesion	Friction Angle	DD	MC%
●	**B-4**	**10.0**	**SOIL-FIELD MOISTURE**	**190**	**40**	**98.7**	**22.2**

PROJECT **MALAMUT - 24439 CALABASAS RD, CALABASAS, CA**

JOB NO. **GH13806-G**
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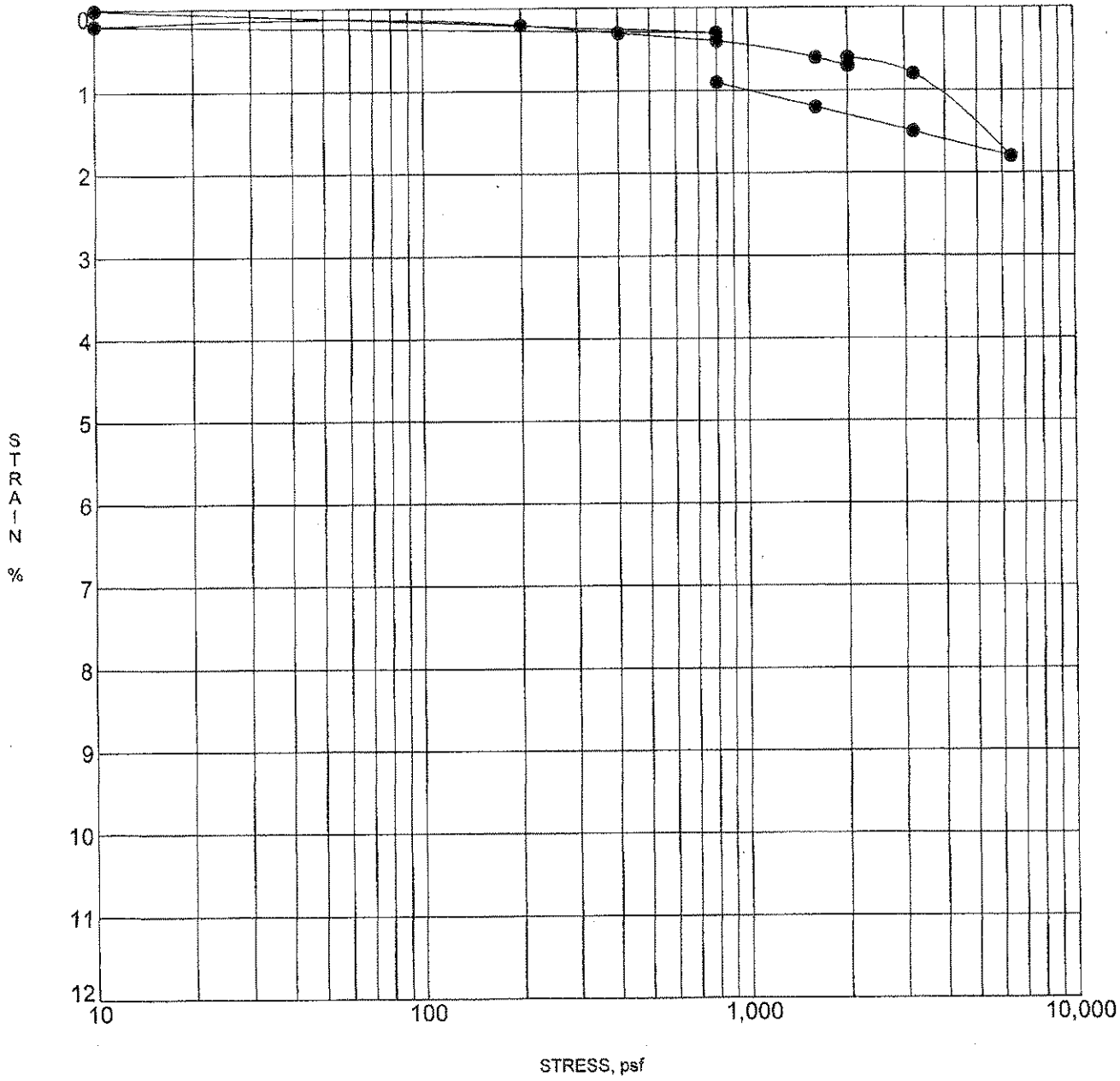
PLATE B-11

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 2000 PSF**

Specimen Identification			Soil Type/Classification	DD	MC%
●	B-1	15.0	ALLUVIUM	98.9	23.5
⊠					
▲					
★					
⊙					
✡					

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

JOB NO. GH13806-G
DATE 1/08

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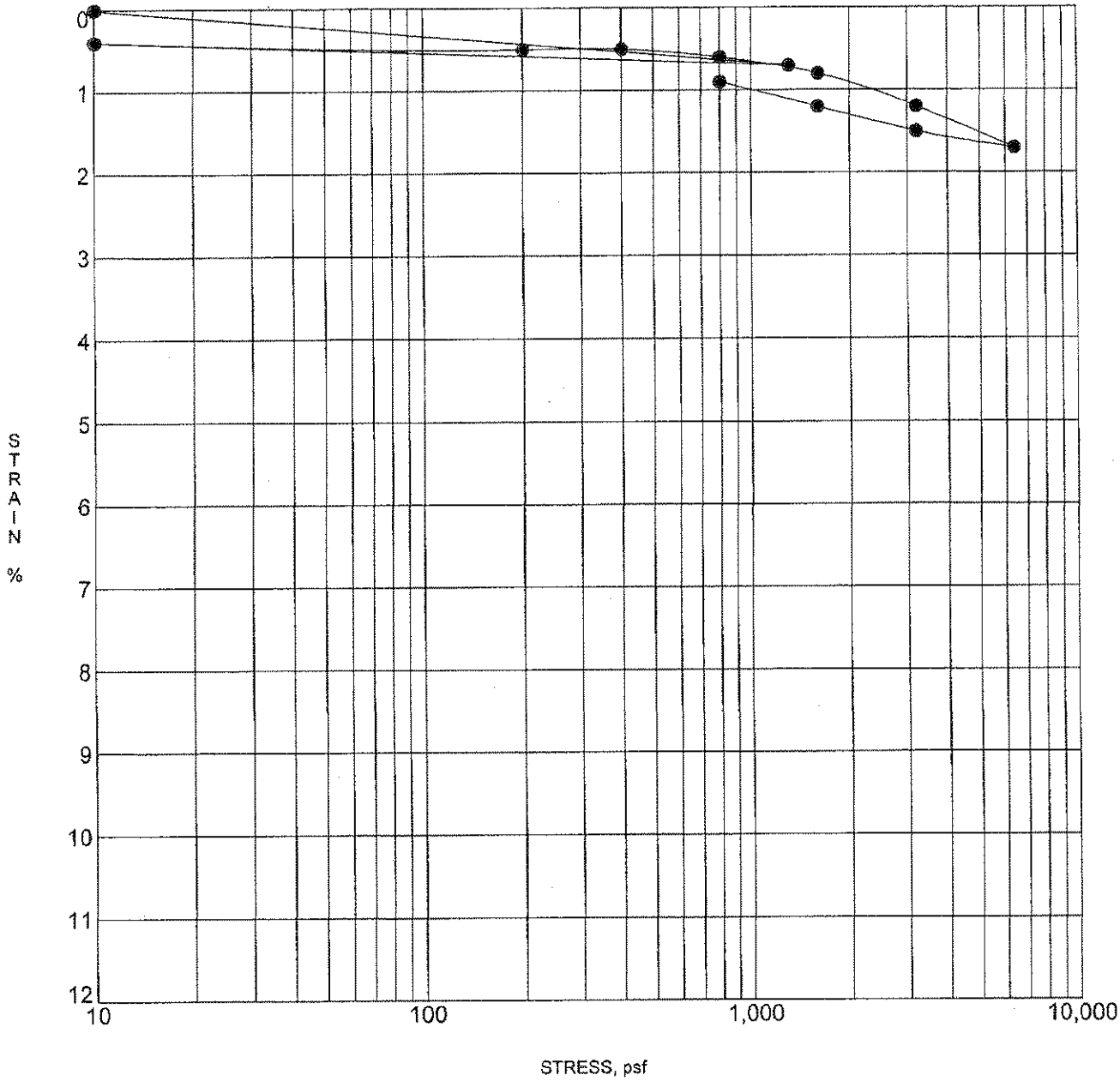
PLATE C-1

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 3200 PSF**

Specimen Identification			Soil Type/Classification	DD	MC%
●	B-1	25.0	ALLUVIUM	86.6	31.9
⊠					
▲					
★					
⊙					
✿					

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

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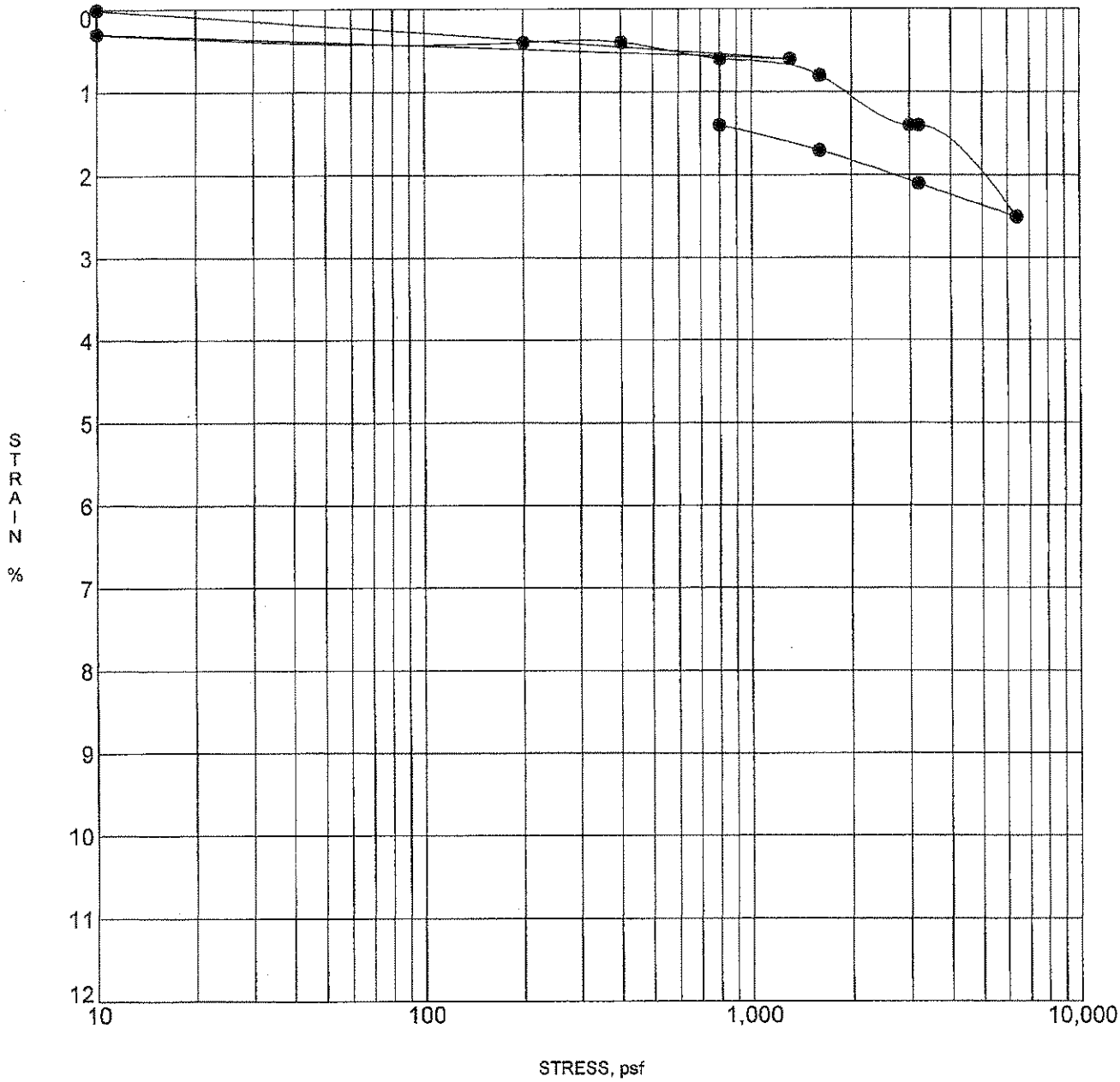
PLATE C-2

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 3000 PSF**

Specimen Identification			Soil Type/Classification	DD	MC%
●	B-2	25.0	ALLUVIUM	93.9	26.7
⊠					
▲					
★					
⊙					
✿					

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

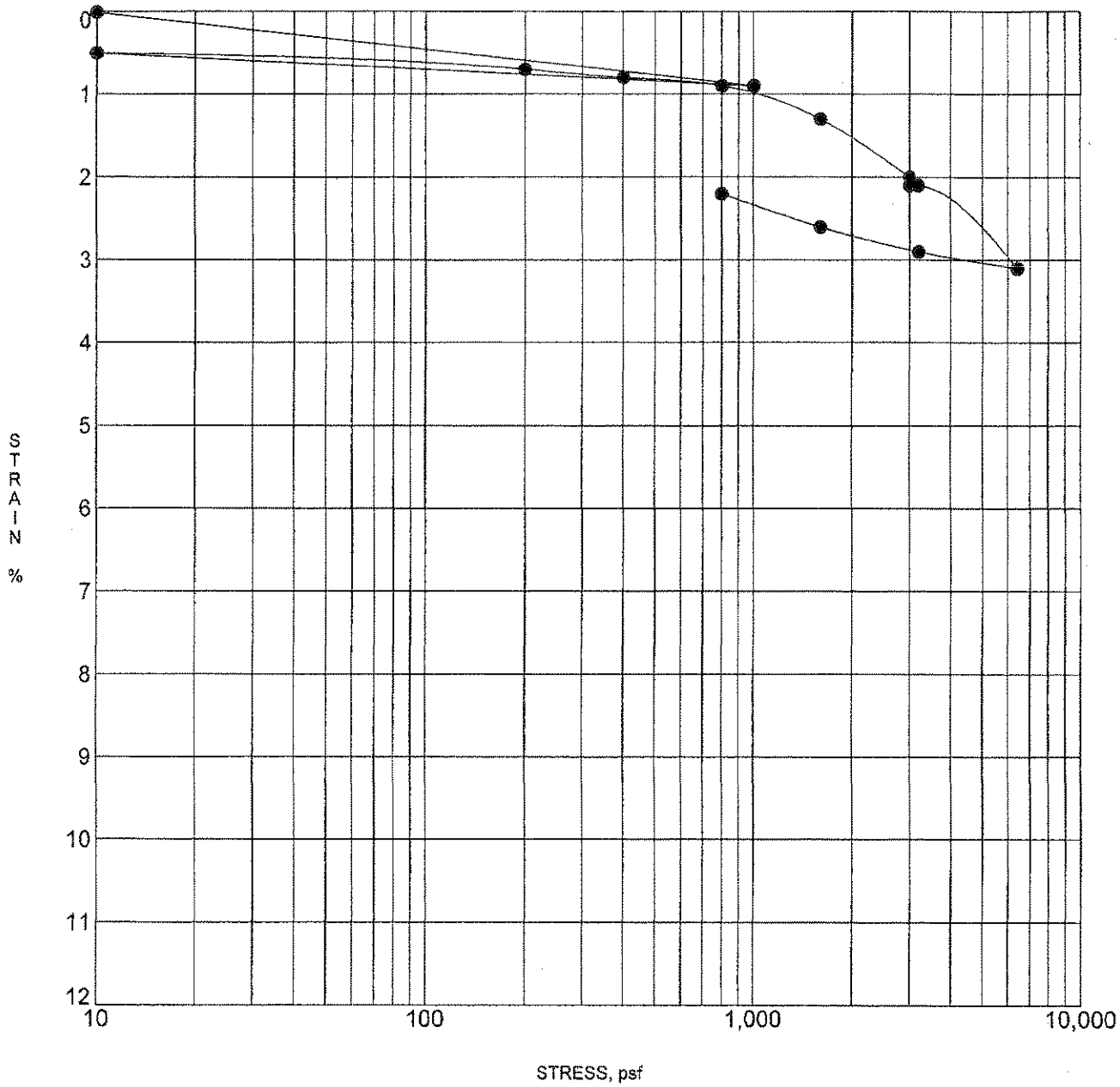
JOB NO. GH13806-G

DATE 1/08

Grover-Hollingsworth & Associates
Westlake Village, CA 91362

PLATE C-3

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 3000 PSF**

Specimen Identification			Soil Type/Classification	DD	MC%
●	B-4	20.0	ALLUVIUM	96.9	24.0
⊠					
▲					
★					
⊙					
✡					

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

JOB NO. GH13806-G

DATE 1/08

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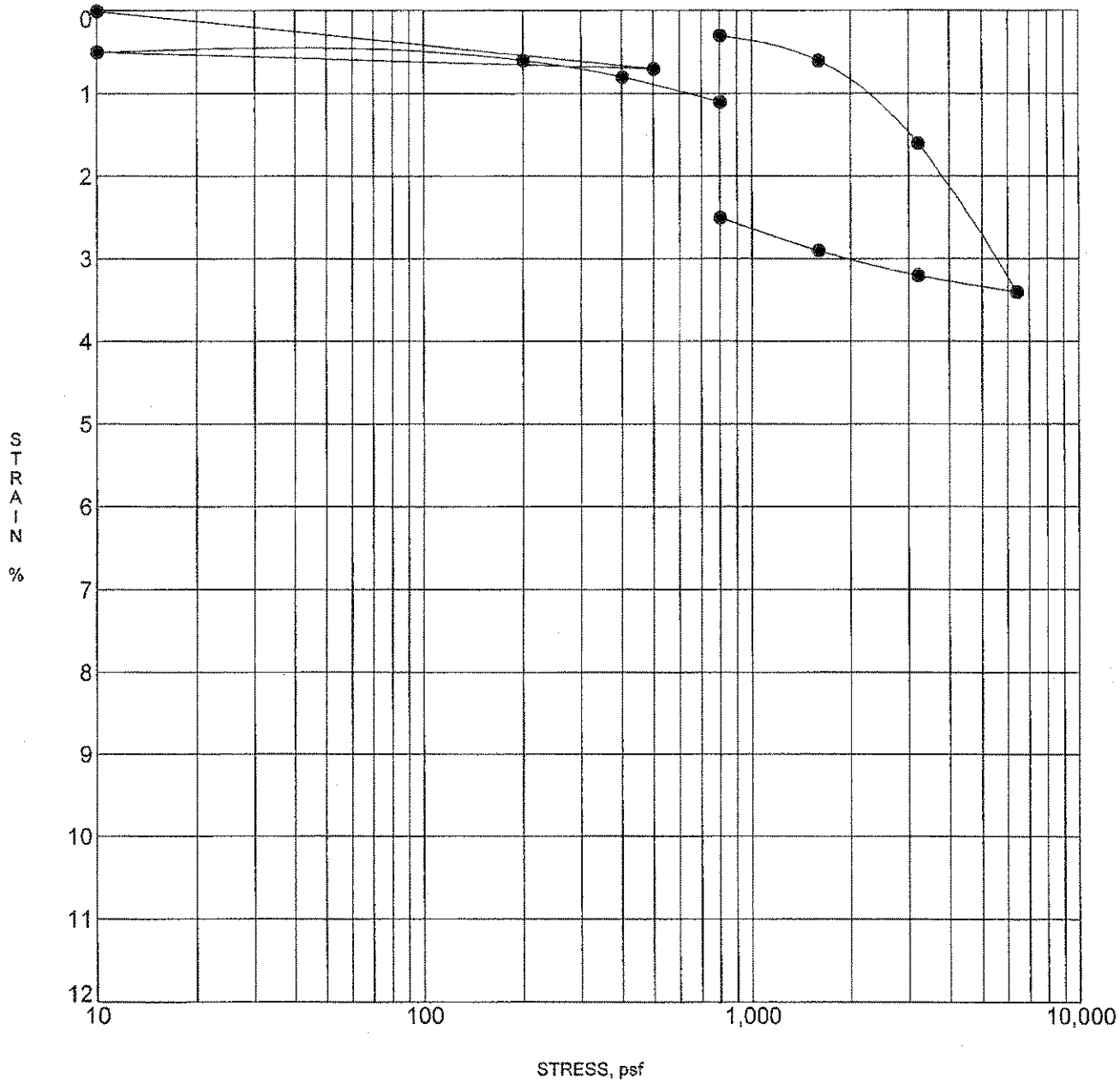
PLATE C-4

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 800 PSF**

	Specimen Identification		Soil Type/Classification	DD	MC%
●	**B-1**	**10.0**	**SOIL**	**94.9**	**22.2**
⊠					
▲					
★					
⊙					
✿					

PROJECT **MALAMUT - 24439 CALABASAS RD, CALABASAS, CA**

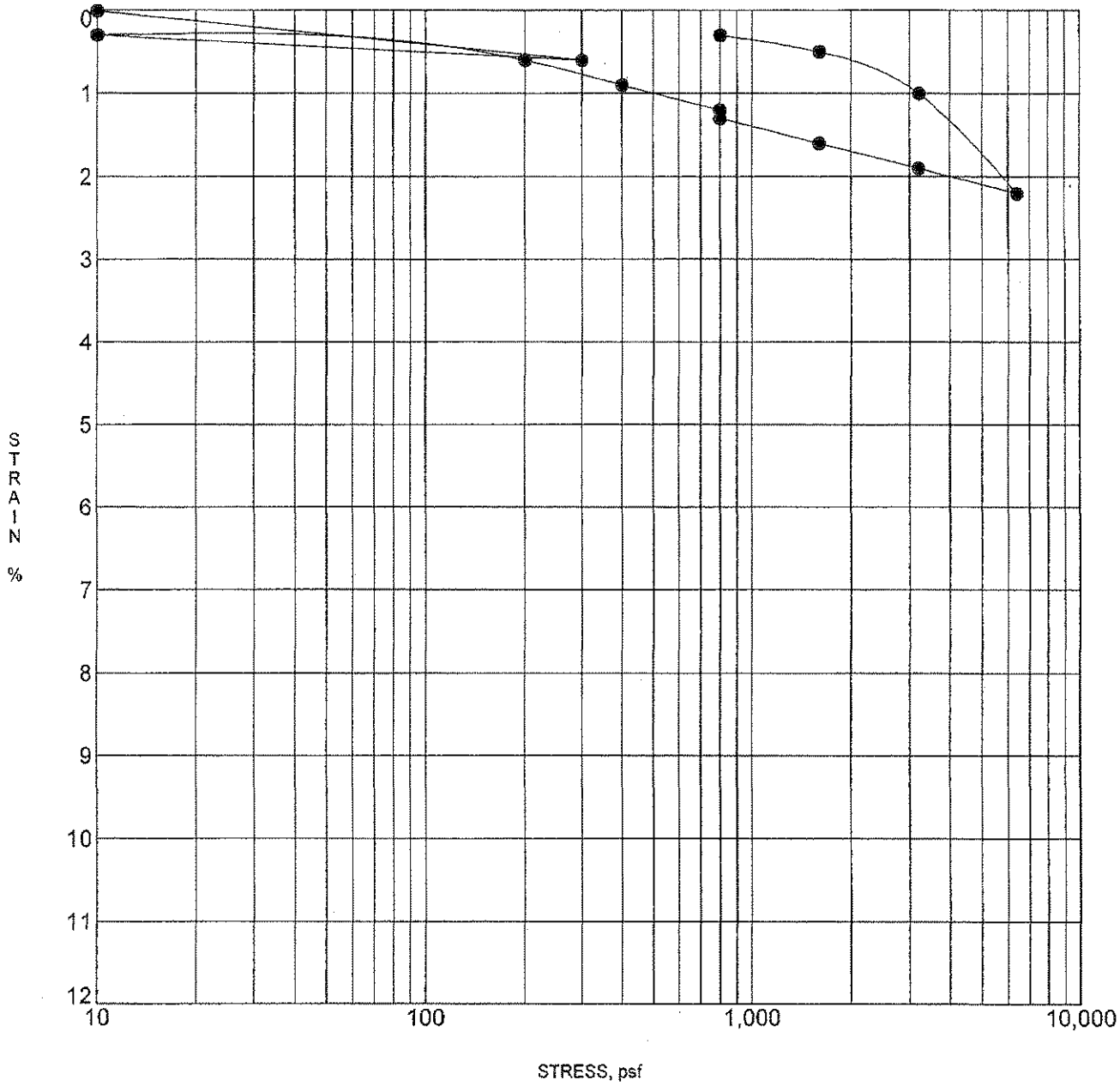
JOB NO. **GH13806-G**

DATE **1/08**

Grover-Hollingsworth & Associates
Westlake Village, CA 91362

PLATE C-5

CONSOLIDATION TEST



***NOTE-WATER ADDED AT 800 PSF**

Specimen Identification			Soil Type/Classification	DD	MC%
●	B-2	5.0	SOIL	101.6	19.5
⊠					
▲					
★					
⊙					
✿					

PROJECT MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

JOB NO. GH13806-G

DATE 1/08

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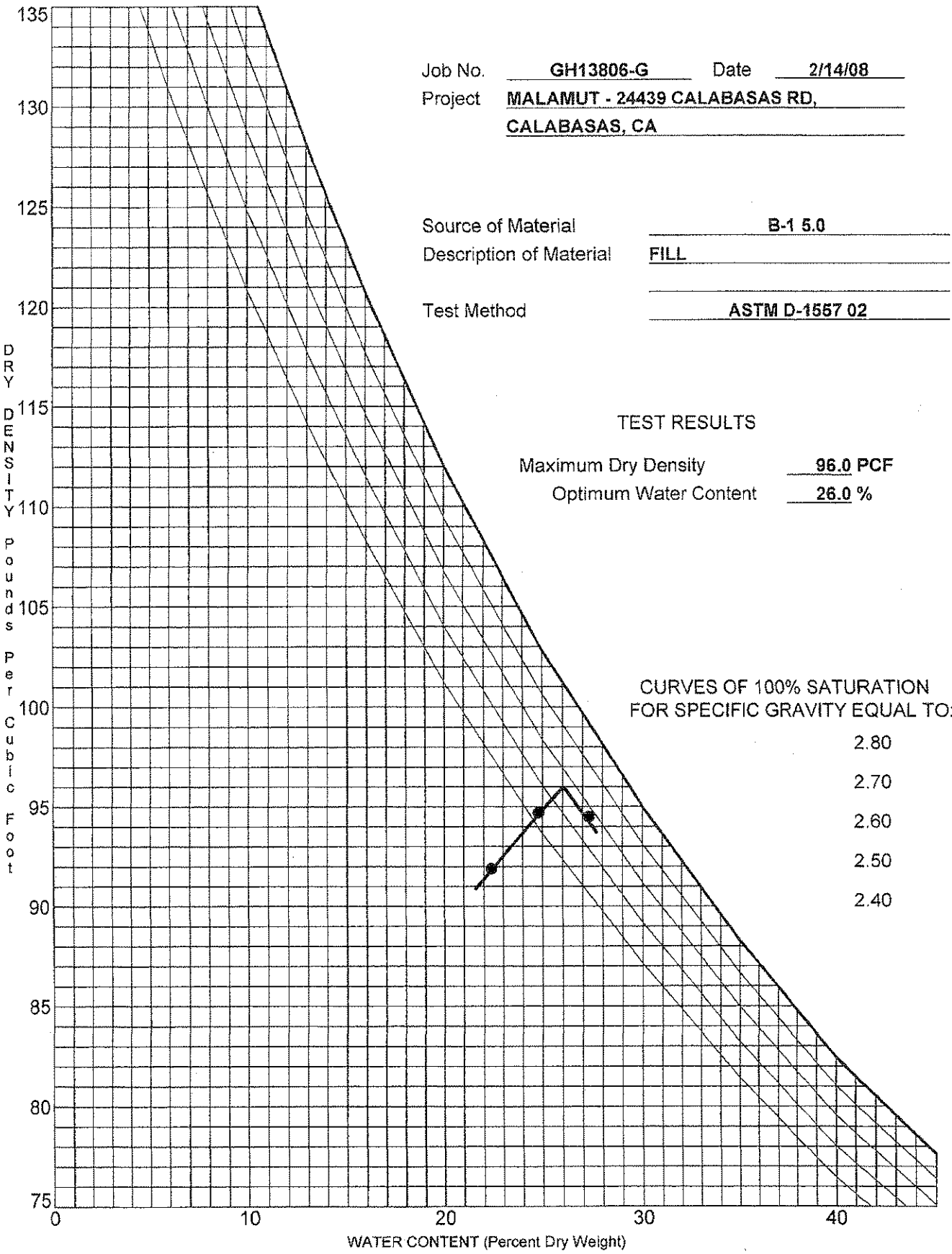
PLATE C-6



Job No. GH13806-G Date 2/14/08

Project MALAMUT - 24439 CALABASAS RD, CALABASAS, CA

Source of Material B-1 5.0

Description of Material FILL

Test Method ASTM D-1557 02

TEST RESULTS

Maximum Dry Density 96.0 PCF

Optimum Water Content 26.0 %

MOISTURE-DENSITY RELATIONSHIP

Grover-Hollingsworth & Associates

Westlake Village, CA 91362

PLATE D

SCHIFF ASSOCIATES

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Table 1 - Laboratory Tests on Soil Samples

Grover-Hollingsworth
Malamut, Calabasas, CA
Your #13806-G, SA #08-0069LAB
15-Jan-08

Sample ID			B-1 @ 39' Siltstone	B-3 @ 10' Alluvium
Resistivity		**Units**		
as-received		ohm-cm	1,440	5,200
minimum		ohm-cm	1,240	960
pH			7.5	7.3
Electrical Conductivity		mS/cm	0.22	0.19
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	106	111
magnesium	Mg^{2+}	mg/kg	12	8.0
sodium	Na^{1+}	mg/kg	64	59
potassium	K^{1+}	mg/kg	17	9.0
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	360	189
flouride	F^{1-}	mg/kg	12	3.0
chloride	Cl^{1-}	mg/kg	25	18
sulfate	SO_4^{2-}	mg/kg	68	198
phosphate	PO_4^{3-}	mg/kg	ND	1.0
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	4.0
nitrate	NO_3^{1-}	mg/kg	22	26
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Minimum resistivity per CTM 643

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

GEOLABS-WESTLAKE VILLAGE
Foundation and Soils Engineering, Geology
31119 Via Colinas, Suite 502 • Westlake Village, CA 91362
Voice: (818) 889-2562 (805) 495-2197
Fax: (818) 889-2995 (805) 379-2603
a dba of
R & R Services
Corporation

January 24, 2008
W.O. 9076.002

Grover Hollingsworth
31119 Via Colinas Suite 707
Westlake Village, California 91362

SUBJECT: Results of R-Value Testing

Gentlemen;

As requested, an R-Value test was performed for the soil sample that was provided by your office. The location and job number provided by your office is Malamut, Job # 13806 from TP1 @ 1.5 feet. The material is described as Gray tan sandy silty CLAY with gravel (diatomaceous). The testing of the material indicates an R-value of 23 was obtained. R-Value testing was performed in accordance with California Test Method 301.

CLOSURE

This geotechnical report has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

Thank you for this opportunity to be of service. Please do not hesitate to call if you have any questions regarding this report.

Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE

Lawain Ross
Field Supervisor

Ronald Z. Shmerling
C.E.G. 1047
R.C.E. 35444

REGISTERED PROFESSIONAL ENGINEER
RONALD Z. SHMERLING
No. 35444
Exp. 09/30/09
CIVIL
STATE OF CALIFORNIA

XC: (3) Addressee

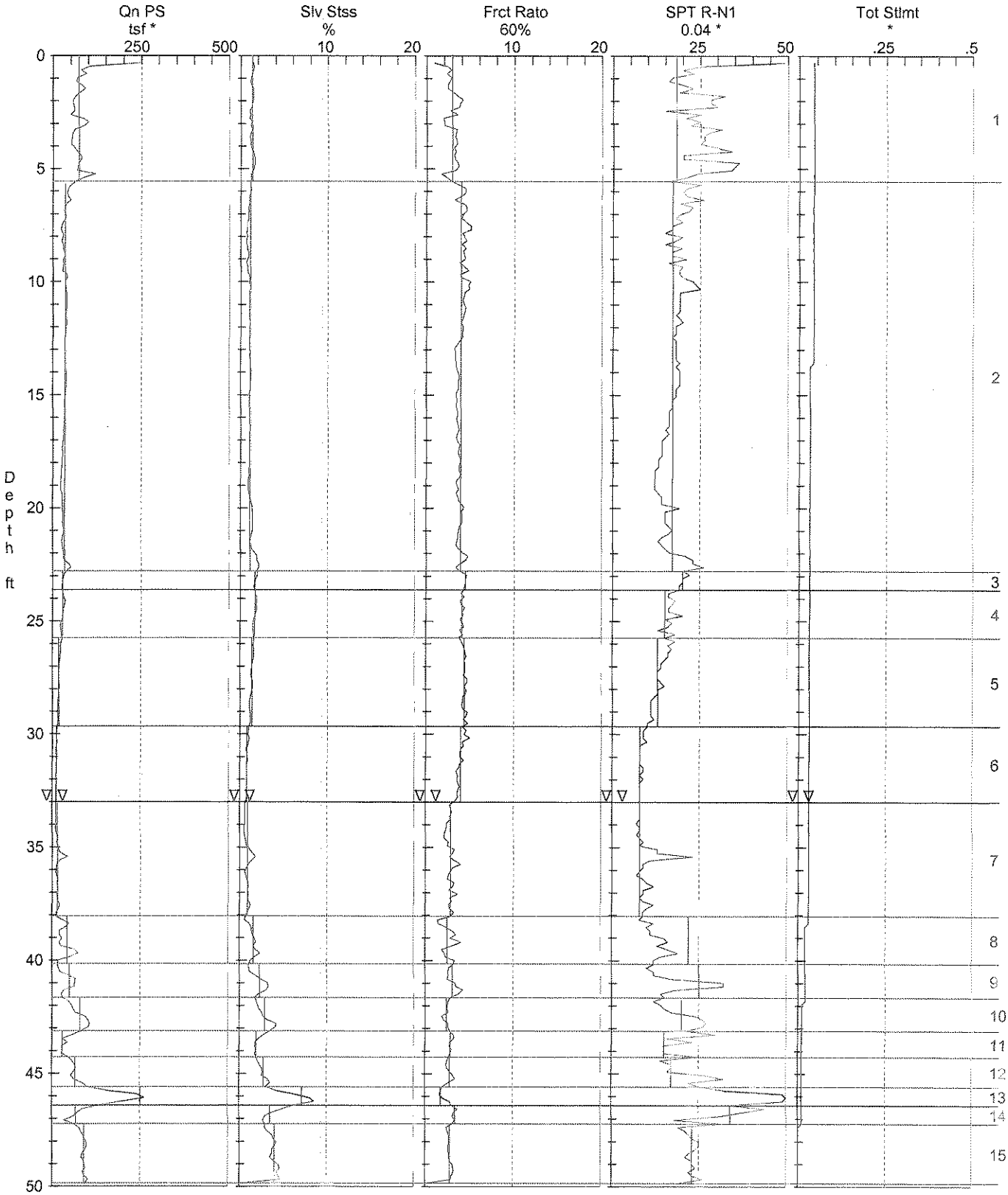
APPENDIX C
CPT
SEISMIC SETTLEMENT CALCULATIONS

Calculations based on SPT data from auger borings
Calculations based on CPT data

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
CPT File: CPT-1 ft.csv

Sounding: See Map
Page No: 1



Mat. Behavior Zone & Desc: 1. sensitive fine SOIL 2. Organic SOILS - Peats 3. silty CLAY to CLAY 4. clayy SILT to silty CLAY
5. silty SAND to sandy SILT 6. clean SAND to silty SAND 7. grvly SAND to dense SAND 8. stiff SAND to clayy SAND 9. very stiff fine SOIL

Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-1 ft.csv
CPT Date: 04/16/10
GW During Test: 33 ft
GW Liquefaction: 33ft
Max Depth Correction: 1.7
EQ Mag & Scaling Factor: 6.8 1.28

Sounding ID: CPT-1
Project No: 2881-0-0-100
Cone/Rig: N/A
Pts. ignored at layers: 1
Min Depth Correction: .4
Earthquake Acceleration: .43

Lyr No. -	Depth ft	* Qn PS	Slv Stss tsf	Pore Prss psi	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	* SPT R-N1 60%	* Rel Den %	* Ic SBT Indx	* Liq FS -	* Tot Stlmt 0.04	* Lat Disp 1.1
1	5.58	71.7	1.3	-1.1	2.9	5	silty SAND to sandy SILT	18	56	2.33	N/A	0.00	N/A
2	22.80	33.4	1.1	-0.6	3.9	4	clayy SILT to silty CLAY	17	-	2.65	N/A	-	N/A
3	23.62	28.6	1.7	2.9	4.5	3	silty CLAY to CLAY	20	-	2.75	N/A	-	N/A
4	25.75	29.1	1.7	3.9	4.1	4	clayy SILT to silty CLAY	15	-	2.72	N/A	-	N/A
5	29.67	19.1	1.4	5.1	4.4	3	silty CLAY to CLAY	13	-	2.88	N/A	-	N/A
6	33.00	11.7	0.8	5.6	4.0	3	silty CLAY to CLAY	8	-	3.01	N/A	-	N/A
7	38.06	15.5	0.9	15.5	2.9	4	clayy SILT to silty CLAY	8	-	2.83	-	-	-
8	40.17	43.0	1.6	19.5	2.5	4	clayy SILT to silty CLAY	22	-	2.44	0.89	0.03	1.1
9	41.67	49.2	2.3	60.6	3.1	4	clayy SILT to silty CLAY	25	-	2.47	1.25	0.00	0.0
10	43.14	78.9	2.9	84.5	2.4	5	silty SAND to sandy SILT	20	60	2.25	1.41	0.00	0.0
11	44.29	29.5	1.9	79.5	2.9	4	clayy SILT to silty CLAY	15	-	2.62	-	-	-
12	45.61	65.6	2.8	97.3	2.8	5	silty SAND to sandy SILT	17	54	2.35	1.39	0.00	0.0
13	46.42	252.6	7.2	30.7	1.8	6	clean SAND to silty SAND	51	95	1.83	9.99	0.00	0.0
14	47.24	67.0	3.5	63.3	3.4	4	clayy SILT to silty CLAY	34	-	2.40	1.81	0.00	0.0
15	49.87	90.2	4.0	230.4	2.8	5	silty SAND to sandy SILT	23	64	2.26	9.99	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-1 ft.csv
CPT Date: 04/16/10
GW During Test: 33 ft

Sounding ID: CPT-1
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.04	* qt PS tsf
0.33	152.9	245.3	1.4	0.9	6	SW-SP	49	-	9.99	0.28	N/A	0.04	153.0
0.66	49.2	78.9	1.4	2.8	5	SM-SP	20	-	9.99	0.28	N/A	0.04	49.3
0.98	42.6	68.2	1.2	2.8	5	SM-SP	17	-	9.99	0.28	N/A	0.04	42.5
1.31	50.0	80.1	1.2	2.4	5	SM-SP	20	-	9.99	0.28	N/A	0.04	50.0
1.64	47.5	76.0	1.4	3.0	5	SM-SP	19	-	9.99	0.28	N/A	0.04	47.5
1.97	35.1	56.1	1.4	4.1	4	MH-CL	28	9.9	9.99	0.28	N/A	0.04	35.1
2.30	36.9	59.0	1.3	3.7	4	MH-CL	30	9.9	9.99	0.28	N/A	0.04	36.9
2.62	30.9	49.3	1.1	3.5	4	MH-CL	25	9.9	9.99	0.28	N/A	0.04	30.8
2.95	63.5	101.5	1.3	2.0	5	SM-SP	25	-	9.99	0.28	N/A	0.04	63.5
3.28	38.0	60.7	1.3	3.4	4	MH-CL	31	9.9	9.99	0.28	N/A	0.04	38.1
3.61	32.7	52.1	1.0	3.2	4	MH-CL	26	9.9	9.99	0.28	N/A	0.04	32.7
3.94	31.7	50.5	1.1	3.4	4	MH-CL	25	9.9	9.99	0.28	N/A	0.04	31.7
4.27	42.2	67.3	1.4	3.3	4	MH-CL	34	9.9	9.99	0.28	N/A	0.04	42.2
4.59	49.5	79.0	1.6	3.2	5	SM-SP	20	-	9.99	0.28	N/A	0.04	49.5
4.92	43.6	69.5	1.5	3.6	4	MH-CL	35	9.9	9.99	0.28	N/A	0.04	43.6
5.25	74.7	119.3	1.2	1.7	6	SW-SP	24	-	9.99	0.28	N/A	0.04	74.7
5.58	39.7	63.1	1.1	2.8	5	SM-SP	16	-	9.99	0.28	N/A	0.04	39.7
5.91	26.5	41.9	1.2	4.4	4	MH-CL	21	9.9	-	0.28	N/A	0.04	26.5
6.23	26.2	41.5	1.0	4.0	4	MH-CL	21	9.9	9.99	0.28	N/A	0.04	26.2
6.56	23.5	37.1	1.0	4.2	4	MH-CL	19	9.9	-	0.28	N/A	0.04	23.5
6.89	21.0	33.1	1.0	4.6	3	CL-CH	22	9.9	-	0.28	N/A	0.04	21.0
7.22	22.0	34.6	0.9	4.0	4	MH-CL	18	9.9	-	0.27	N/A	0.04	21.9
7.55	16.3	25.4	0.8	5.1	3	CL-CH	17	9.9	-	0.27	N/A	0.04	16.2
7.87	18.3	28.6	0.7	4.1	4	MH-CL	15	9.9	-	0.27	N/A	0.04	18.2
8.20	16.9	26.3	0.7	4.6	3	CL-CH	18	9.9	-	0.27	N/A	0.04	16.8
8.53	19.1	29.8	0.8	4.5	3	CL-CH	20	9.9	-	0.27	N/A	0.04	19.1
8.86	21.3	33.4	0.9	4.3	4	MH-CL	17	9.9	-	0.27	N/A	0.04	21.3
9.19	19.6	30.6	0.7	3.8	4	MH-CL	16	9.9	-	0.27	N/A	0.04	19.5
9.51	17.8	27.6	0.8	4.8	3	CL-CH	19	9.9	-	0.27	N/A	0.04	17.7
9.84	24.5	38.4	1.0	4.0	4	MH-CL	20	9.9	-	0.27	N/A	0.04	24.5
10.17	22.9	35.7	1.1	4.8	3	CL-CH	24	9.9	-	0.27	N/A	0.04	22.8
10.50	23.6	36.8	1.0	4.3	4	MH-CL	19	9.9	-	0.27	N/A	0.04	23.5
10.83	24.0	37.0	1.0	4.1	4	MH-CL	19	9.9	-	0.27	N/A	0.04	24.0
11.15	24.5	36.7	1.0	4.4	4	MH-CL	19	9.9	-	0.27	N/A	0.04	24.5
11.48	24.5	35.5	1.0	4.2	4	MH-CL	18	9.9	-	0.27	N/A	0.04	24.4
11.81	27.7	39.2	1.1	3.9	4	MH-CL	20	9.9	-	0.27	N/A	0.04	27.6
12.14	25.3	34.8	1.0	4.1	4	MH-CL	18	9.9	-	0.27	N/A	0.04	25.3
12.47	24.8	33.1	1.0	4.1	4	MH-CL	17	9.9	-	0.27	N/A	0.04	24.8
12.80	29.1	34.3	1.0	3.5	4	MH-CL	18	9.9	-	0.27	N/A	0.04	29.1
13.12	32.9	35.7	1.1	3.3	4	MH-CL	18	9.9	9.99	0.27	N/A	0.04	32.9
13.45	32.7	35.1	1.1	3.3	4	MH-CL	18	9.9	9.99	0.27	N/A	0.04	32.7
13.78	33.3	35.3	1.1	3.4	4	MH-CL	18	9.9	9.99	0.27	N/A	0.03	33.3
14.11	33.7	37.1	1.2	3.7	4	MH-CL	19	9.9	-	0.27	N/A	0.03	33.7
14.44	31.3	36.3	1.1	3.6	4	MH-CL	19	9.9	-	0.27	N/A	0.03	31.3
14.76	30.8	34.9	1.1	3.6	4	MH-CL	18	9.9	-	0.27	N/A	0.03	30.8
15.09	31.0	34.4	1.0	3.4	4	MH-CL	18	9.9	-	0.27	N/A	0.03	31.0

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-1 ft.csv
CPT Date: 04/16/10
GW During Test: 33 ft

Sounding ID: CPT-1
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.04	* qt PS tsf
15.42	30.2	32.7	1.0	3.4	4	MH-CL	17	9.9	-	0.27	N/A	0.03	30.2
15.75	30.2	32.0	1.0	3.5	4	MH-CL	16	9.9	-	0.27	N/A	0.03	30.2
16.08	30.5	31.6	1.0	3.4	4	MH-CL	16	9.9	-	0.27	N/A	0.03	30.5
16.40	30.1	30.7	1.1	3.6	4	MH-CL	16	9.9	-	0.27	N/A	0.03	30.1
16.73	30.6	30.5	1.0	3.5	4	MH-CL	16	9.9	-	0.27	N/A	0.03	30.6
17.06	28.7	28.0	1.0	3.5	4	MH-CL	14	9.2	-	0.27	N/A	0.03	28.7
17.39	27.5	26.3	1.0	3.7	4	MH-CL	14	8.7	-	0.27	N/A	0.03	27.5
17.72	28.4	26.6	1.0	3.7	4	MH-CL	14	8.8	-	0.27	N/A	0.03	28.4
18.04	27.8	25.6	1.0	3.8	4	MH-CL	13	8.4	-	0.27	N/A	0.03	27.8
18.37	26.5	23.9	0.9	3.7	4	MH-CL	12	7.9	-	0.27	N/A	0.03	26.5
18.70	25.7	22.7	0.9	3.7	4	MH-CL	12	7.5	-	0.27	N/A	0.03	25.7
19.03	26.0	22.6	0.9	3.5	4	MH-CL	12	7.5	-	0.27	N/A	0.03	26.1
19.36	30.1	25.9	1.0	3.4	4	MH-CL	13	8.5	-	0.27	N/A	0.03	30.2
19.68	32.9	27.8	1.2	3.7	4	MH-CL	14	9.2	-	0.27	N/A	0.03	32.9
20.01	33.6	28.0	1.4	4.3	3	CL-CH	19	9.2	-	0.27	N/A	0.03	33.6
20.34	35.0	28.7	1.4	4.1	4	MH-CL	15	9.5	-	0.27	N/A	0.03	35.0
20.67	35.0	28.3	1.4	4.1	4	MH-CL	15	9.3	-	0.27	N/A	0.03	35.1
21.00	40.3	32.1	1.4	3.7	4	MH-CL	17	9.9	-	0.27	N/A	0.03	40.3
21.33	34.9	27.3	1.2	3.6	4	MH-CL	14	9.0	-	0.27	N/A	0.03	34.9
21.65	35.7	27.4	1.2	3.4	4	MH-CL	14	9.1	-	0.27	N/A	0.03	35.7
21.98	39.9	30.3	1.6	4.1	4	MH-CL	16	9.9	-	0.27	N/A	0.03	39.9
22.31	43.8	32.9	1.9	4.5	3	CL-CH	23	9.9	-	0.26	N/A	0.03	43.9
22.64	61.7	51.2	2.1	3.4	4	MH-CL	26	9.9	9.99	0.26	N/A	0.03	61.7
22.97	44.3	32.3	2.0	4.6	3	CL-CH	22	9.9	-	0.26	N/A	0.03	44.3
23.29	39.5	28.3	1.7	4.5	3	CL-CH	20	9.3	-	0.26	N/A	0.03	39.5
23.62	40.0	28.2	1.7	4.3	3	CL-CH	19	9.3	-	0.26	N/A	0.03	40.1
23.95	44.7	31.3	1.9	4.3	4	MH-CL	16	9.9	-	0.26	N/A	0.03	44.8
24.28	48.0	33.2	1.8	4.0	4	MH-CL	17	9.9	-	0.26	N/A	0.03	48.1
24.61	45.0	30.6	1.8	4.1	4	MH-CL	16	9.9	-	0.26	N/A	0.03	45.0
24.93	42.2	28.3	1.6	3.9	4	MH-CL	15	9.3	-	0.26	N/A	0.03	42.3
25.26	36.1	23.7	1.5	4.3	3	CL-CH	16	7.8	-	0.26	N/A	0.03	36.2
25.59	39.9	26.0	1.6	4.2	3	CL-CH	18	8.6	-	0.26	N/A	0.03	40.0
25.92	39.6	25.4	1.6	4.1	3	CL-CH	18	8.4	-	0.26	N/A	0.03	39.7
26.25	38.0	24.0	1.6	4.4	3	CL-CH	17	7.9	-	0.26	N/A	0.03	38.1
26.57	36.0	22.4	1.6	4.6	3	CL-CH	16	7.4	-	0.26	N/A	0.03	36.1
26.90	33.0	20.2	1.4	4.5	3	CL-CH	14	6.7	-	0.26	N/A	0.03	33.1
27.23	30.8	18.6	1.3	4.5	3	CL-CH	13	6.1	-	0.26	N/A	0.03	30.9
27.56	31.3	18.6	1.4	4.7	3	CL-CH	13	6.1	-	0.26	N/A	0.03	31.4
27.89	35.7	21.1	1.5	4.4	3	CL-CH	15	7.0	-	0.26	N/A	0.03	35.8
28.21	30.9	17.9	1.3	4.5	3	CL-CH	13	5.9	-	0.26	N/A	0.03	30.9
28.54	28.0	16.0	1.1	4.2	3	CL-CH	11	5.3	-	0.26	N/A	0.03	28.2
28.87	27.7	15.6	1.1	4.2	3	CL-CH	11	5.1	-	0.26	N/A	0.03	27.8
29.20	28.3	15.8	1.2	4.6	3	CL-CH	11	5.2	-	0.26	N/A	0.03	28.4
29.53	26.5	14.5	1.2	4.8	3	CL-CH	10	4.8	-	0.26	N/A	0.03	26.6
29.86	24.0	12.9	1.0	4.6	3	CL-CH	9	4.2	-	0.26	N/A	0.03	24.1
30.18	22.9	12.1	1.1	5.0	3	CL-CH	9	4.0	-	0.26	N/A	0.03	23.0
30.51	21.5	11.2	0.9	4.3	3	CL-CH	8	3.7	-	0.26	N/A	0.03	21.6

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-1 ft.csv
CPT Date: 04/16/10
GW During Test: 33 ft

Sounding ID: CPT-1
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.04	* qt PS tsf
30.84	21.4	11.0	0.8	3.9	3	CL-CH	8	3.6	-	0.26	N/A	0.03	21.5
31.17	22.6	11.5	0.9	4.3	3	CL-CH	8	3.8	-	0.26	N/A	0.03	22.7
31.50	23.4	11.9	0.8	3.8	3	CL-CH	9	3.9	-	0.26	N/A	0.03	23.5
31.82	23.1	11.6	0.8	3.7	3	CL-CH	8	3.8	-	0.26	N/A	0.03	23.3
32.15	23.6	11.7	0.8	3.7	3	CL-CH	8	3.9	-	0.25	N/A	0.03	23.7
32.48	23.6	11.6	0.8	3.7	3	CL-CH	8	3.8	-	0.25	N/A	0.03	23.7
32.81	23.1	11.2	0.8	3.7	3	CL-CH	8	3.7	-	0.25	N/A	0.03	23.2
33.14	24.0	11.6	0.6	2.8	3	CL-CH	8	3.8	-	0.25	-	0.03	24.2
33.46	22.5	10.7	0.6	3.0	3	CL-CH	8	3.5	-	0.25	-	0.03	22.6
33.79	23.9	11.4	0.6	2.9	3	CL-CH	8	3.8	-	0.25	-	0.03	24.0
34.12	22.1	10.4	0.5	2.4	3	CL-CH	8	3.4	-	0.26	-	0.03	22.3
34.45	27.5	13.1	0.5	2.1	4	MH-CL	7	4.3	-	0.26	-	0.03	27.7
34.78	27.5	13.0	0.7	2.6	3	CL-CH	9	4.3	-	0.26	-	0.03	27.7
35.10	37.9	18.3	1.2	3.3	3	CL-CH	13	6.0	-	0.26	-	0.03	38.4
35.43	65.5	43.9	1.8	2.8	4	MH-CL	23	9.9	0.24	0.26	1.05	0.03	65.9
35.76	28.1	13.2	1.0	4.0	3	CL-CH	9	4.3	-	0.26	-	0.03	28.4
36.09	24.1	11.1	0.6	2.9	3	CL-CH	8	3.7	-	0.26	-	0.03	24.5
36.42	35.4	16.7	0.8	2.5	4	MH-CL	9	5.5	-	0.26	-	0.03	35.7
36.74	34.9	16.4	1.0	3.1	3	CL-CH	12	5.4	-	0.26	-	0.03	35.3
37.07	28.5	13.1	1.0	3.7	3	CL-CH	9	4.3	-	0.26	-	0.03	28.8
37.40	36.8	17.2	1.0	3.0	4	MH-CL	9	5.7	-	0.26	-	0.03	37.3
37.73	40.8	19.0	1.1	2.8	4	MH-CL	10	6.3	-	0.26	-	0.03	41.0
38.06	28.1	12.7	0.7	2.9	3	CL-CH	9	4.2	-	0.26	-	0.03	28.8
38.39	73.6	48.4	1.1	1.5	5	SM-SP	12	-	0.15	0.26	0.65	0.03	74.0
38.71	45.5	21.0	1.4	3.1	4	MH-CL	11	6.9	-	0.26	-	0.02	45.7
39.04	61.0	28.4	1.7	2.9	4	MH-CL	15	9.4	-	0.26	-	0.02	61.3
39.37	53.9	24.9	1.6	3.1	4	MH-CL	13	8.2	-	0.26	-	0.02	54.5
39.70	112.2	74.0	2.4	2.2	5	SM-SP	19	-	0.30	0.26	1.22	0.02	112.4
40.03	39.2	17.6	1.3	3.4	3	CL-CH	12	5.8	-	0.26	-	0.02	40.1
40.35	41.9	18.8	1.1	2.7	4	MH-CL	10	6.2	-	0.26	-	0.02	44.0
40.68	71.5	46.3	1.8	2.6	5	SM-SP	12	-	0.24	0.26	0.99	0.02	73.5
41.01	96.8	63.0	3.2	3.4	4	MH-CL	32	9.9	0.42	0.26	1.71	0.02	97.5
41.34	74.8	34.0	3.1	4.3	4	MH-CL	18	9.9	-	0.26	-	0.02	75.1
41.67	63.9	28.8	1.8	2.9	4	MH-CL	15	9.5	-	0.26	-	0.02	65.4
41.99	85.7	55.2	2.1	2.5	5	SM-SP	14	-	0.26	0.26	1.08	0.01	87.4
42.32	101.6	65.6	2.6	2.6	5	SM-SP	17	-	0.32	0.26	1.27	0.01	104.1
42.65	156.4	101.7	3.2	2.1	5	SM-SP	26	-	0.42	0.26	1.60	0.01	157.5
42.98	158.5	102.7	4.1	2.6	5	SM-SP	26	-	9.99	0.26	9.99	0.01	158.8
43.31	90.6	57.9	2.8	3.2	4	MH-CL	30	9.9	0.36	0.26	1.45	0.01	91.3
43.63	68.8	43.5	1.8	2.8	4	MH-CL	23	9.9	0.24	0.26	1.00	0.01	70.6
43.96	68.2	29.8	1.9	3.0	4	MH-CL	15	9.8	-	0.26	-	0.01	69.9
44.29	72.0	45.4	1.9	2.7	4	MH-CL	24	9.9	0.24	0.26	1.01	0.01	73.6
44.62	101.7	64.7	2.3	2.4	5	SM-SP	17	-	0.28	0.26	1.13	0.01	103.0
44.95	96.2	60.9	2.7	2.9	5	SM-SP	16	-	0.33	0.26	1.33	0.01	97.2
45.28	98.8	62.4	3.3	3.4	4	MH-CL	32	9.9	0.43	0.26	1.72	0.01	102.6
45.60	155.2	98.9	3.1	2.0	5	SM-SP	25	-	0.40	0.26	1.51	0.01	162.1
45.93	377.6	242.4	6.3	1.7	6	SW-SP	49	-	9.99	0.26	9.99	0.01	378.4

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-1 ft.csv
CPT Date: 04/16/10
GW During Test: 33 ft

Sounding ID: CPT-1
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.04	* qt PS tsf
46.26	306.7	196.2	8.6	2.8	5	SM-SP	49	-	9.99	0.26	9.99	0.01	307.0
46.59	136.0	85.9	4.9	3.7	4	MH-CL	44	9.9	9.99	0.26	9.99	0.01	136.1
46.92	96.6	60.3	2.9	3.1	4	MH-CL	31	9.9	0.36	0.26	1.44	0.01	98.5
47.24	96.0	59.8	2.9	3.1	4	MH-CL	31	9.9	0.36	0.26	1.42	0.01	100.3
47.57	129.0	80.8	3.2	2.5	5	SM-SP	21	-	0.38	0.26	1.48	0.00	134.4
47.90	146.2	91.6	3.9	2.7	5	SM-SP	23	-	9.99	0.26	9.99	0.00	151.2
48.23	154.9	97.0	4.0	2.6	5	SM-SP	25	-	9.99	0.26	9.99	0.00	159.6
48.56	136.5	85.1	3.7	2.7	5	SM-SP	22	-	0.46	0.26	1.74	0.00	141.6
48.88	143.4	89.3	3.9	2.8	5	SM-SP	23	-	9.99	0.26	9.99	0.00	147.5
49.21	148.5	92.3	4.6	3.2	5	SM-SP	24	-	9.99	0.26	9.99	0.00	152.5
49.54	146.5	90.8	4.4	3.0	5	SM-SP	23	-	9.99	0.26	9.99	0.00	151.8
49.87	148.9	92.2	0.0	0.1	6	SW-SP	19	-	0.16	0.26	0.59	0.00	152.1

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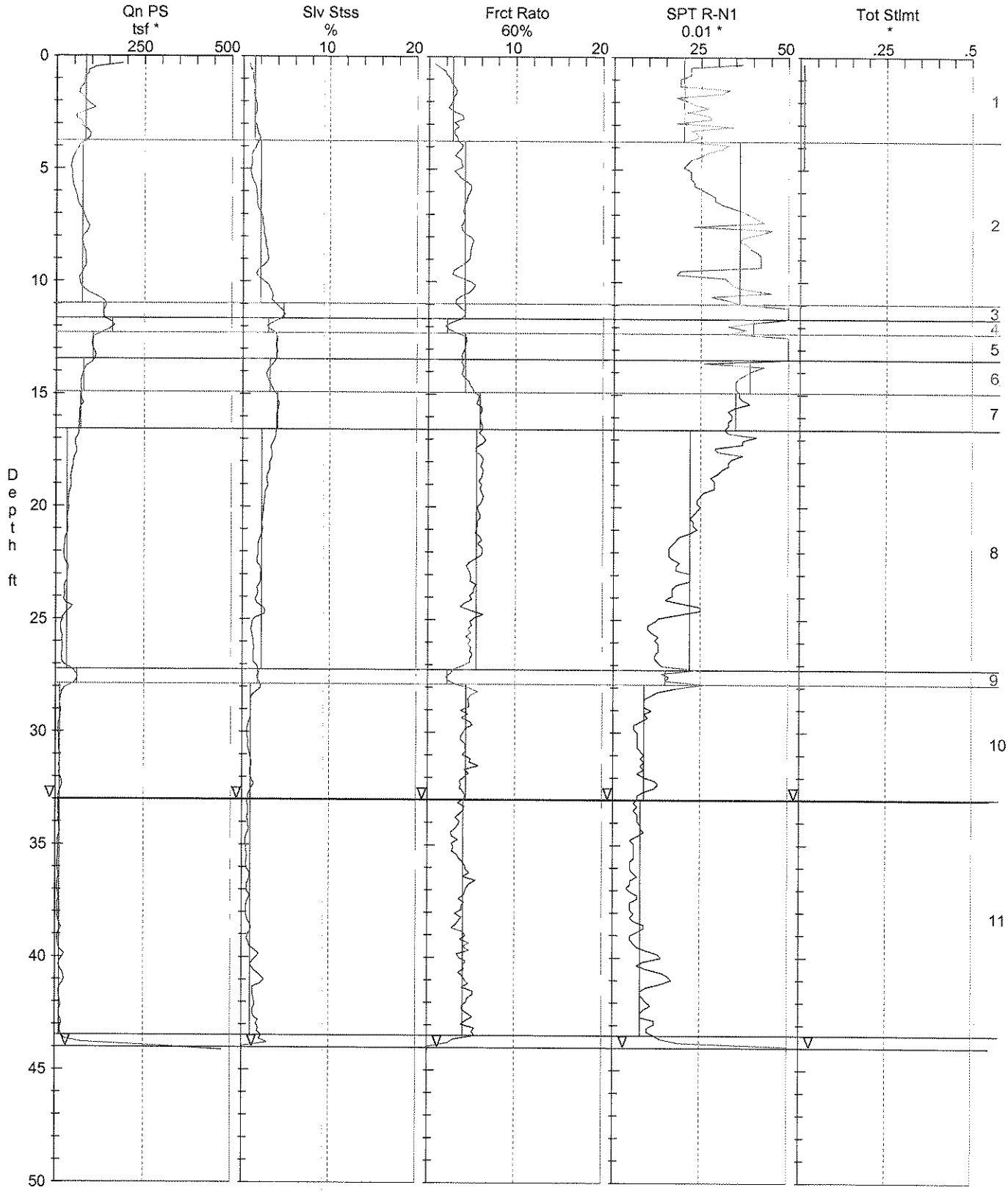
Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
CPT File: CPT-2 ft.csv

Sounding: See Map
Page No: 1



Mat. Behavior Zone & Desc: 1. sensitive fine SOIL 2. Organic SOILS - Peats 3. silty CLAY to CLAY 4. clayy SILT to silty CLAY
5. silty SAND to sandy SILT 6. clean SAND to silty SAND 7. grvly SAND to dense SAND 8. stiff SAND to clayy SAND 9. very stiff fine SOIL

Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft
GW Liquefaction: 33ft
Max Depth Correction: 1.7
EQ Mag & Scaling Factor: 6.8 1.28

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A
Pts. ignored at layers: 1
Min Depth Correction: .4
Earthquake Acceleration: .43

Lyr No. -	Depth ft	* Qn PS	Slv Stss tsf	Pore Prss psi	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	* SPT R-N1 60%	* Rel Den %	* Ic SBT Indx	* Liq FS -	* Tot Stlmt 0.01	* Lat Disp 0.0
1	3.77	80.5	1.3	-0.1	2.7	5	silty SAND to sandy SILT	20	60	2.27	N/A	0.00	N/A
2	10.99	72.2	2.0	-1.6	4.1	4	clayy SILT to silty CLAY	36	-	2.44	N/A	0.00	N/A
3	11.65	134.8	4.7	-0.2	4.2	9	very stiff fine SOIL	68	-	2.28	N/A	0.00	N/A
4	12.30	158.6	2.9	0.2	2.1	5	silty SAND to sandy SILT	40	82	2.00	N/A	0.00	N/A
5	13.45	104.7	3.9	0.2	4.2	9	very stiff fine SOIL	53	-	2.35	N/A	0.00	N/A
6	14.93	77.6	3.1	-1.6	4.2	4	clayy SILT to silty CLAY	39	-	2.43	N/A	0.00	N/A
7	16.57	68.9	4.0	0.7	5.9	9	very stiff fine SOIL	35	-	2.57	N/A	0.00	N/A
8	27.23	31.3	2.2	2.2	5.5	3	silty CLAY to CLAY	22	-	2.78	N/A	-	N/A
9	27.89	60.3	1.8	2.3	2.2	5	silty SAND to sandy SILT	15	51	2.31	N/A	0.00	N/A
10	32.98	12.2	1.0	14.5	4.4	3	silty CLAY to CLAY	9	-	3.02	N/A	-	N/A
11	43.47	11.3	1.0	34.0	4.1	3	silty CLAY to CLAY	8	-	3.03	-	-	-

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Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
0.33	115.7	185.6	0.7	0.6	6	SW-SP	37	-	9.99	0.28	N/A	0.01	115.7
0.49	69.4	111.3	0.8	1.2	6	SW-SP	22	-	9.99	0.28	N/A	0.01	69.4
0.66	55.9	89.5	1.0	1.8	5	SM-SP	22	-	9.99	0.28	N/A	0.01	55.9
0.82	55.0	88.2	1.1	2.0	5	SM-SP	22	-	9.99	0.28	N/A	0.01	55.1
0.98	46.7	74.8	1.1	2.4	5	SM-SP	19	-	9.99	0.28	N/A	0.01	46.7
1.15	48.1	77.1	1.2	2.5	5	SM-SP	19	-	9.99	0.28	N/A	0.01	48.1
1.31	46.3	74.2	1.3	2.8	5	SM-SP	19	-	9.99	0.28	N/A	0.01	46.3
1.48	40.8	65.3	1.3	3.1	4	MH-CL	33	9.9	9.99	0.28	N/A	0.01	40.8
1.64	39.2	62.7	1.2	3.1	4	MH-CL	31	9.9	9.99	0.28	N/A	0.01	39.2
1.80	45.1	72.2	1.3	2.8	5	SM-SP	18	-	9.99	0.28	N/A	0.01	45.1
1.97	51.7	82.7	1.4	2.7	5	SM-SP	21	-	9.99	0.28	N/A	0.01	51.7
2.13	58.4	93.4	1.5	2.5	5	SM-SP	23	-	9.99	0.28	N/A	0.01	58.4
2.30	68.2	109.1	1.5	2.2	5	SM-SP	27	-	9.99	0.28	N/A	0.01	68.1
2.46	51.2	82.0	1.5	2.9	5	SM-SP	21	-	9.99	0.28	N/A	0.01	51.3
2.62	34.2	54.7	1.3	3.8	4	MH-CL	27	9.9	9.99	0.28	N/A	0.01	34.3
2.79	34.8	55.5	1.3	3.9	4	MH-CL	28	9.9	9.99	0.28	N/A	0.01	34.8
2.95	45.4	72.5	1.3	2.9	5	SM-SP	18	-	9.99	0.28	N/A	0.01	45.4
3.12	43.0	68.7	1.5	3.4	4	MH-CL	34	9.9	9.99	0.28	N/A	0.01	43.0
3.28	54.1	86.5	1.6	2.9	5	SM-SP	22	-	9.99	0.28	N/A	0.01	54.1
3.44	59.7	95.4	1.7	2.9	5	SM-SP	24	-	9.99	0.28	N/A	0.01	59.7
3.61	59.0	94.3	1.9	3.2	5	SM-SP	24	-	9.99	0.28	N/A	0.01	59.0
3.77	52.7	84.2	1.8	3.3	5	SM-SP	21	-	9.99	0.28	N/A	0.01	52.6
3.94	40.6	64.8	1.5	3.8	4	MH-CL	33	9.9	9.99	0.28	N/A	0.01	40.6
4.10	38.0	60.6	1.4	3.7	4	MH-CL	31	9.9	9.99	0.28	N/A	0.01	38.0
4.27	34.0	54.0	1.1	3.3	4	MH-CL	27	9.9	9.99	0.28	N/A	0.01	33.9
4.43	30.9	49.1	0.9	3.0	4	MH-CL	25	9.9	9.99	0.28	N/A	0.01	30.8
4.59	27.7	43.9	1.0	3.6	4	MH-CL	22	9.9	9.99	0.28	N/A	0.01	27.6
4.76	26.3	41.7	1.0	3.7	4	MH-CL	21	9.9	9.99	0.28	N/A	0.01	26.2
4.92	25.0	39.6	0.9	3.8	4	MH-CL	20	9.9	9.99	0.28	N/A	0.01	24.9
5.09	27.5	43.6	0.8	2.9	4	MH-CL	22	9.9	9.99	0.28	N/A	0.00	27.4
5.25	27.5	43.5	0.9	3.3	4	MH-CL	22	9.9	9.99	0.28	N/A	0.00	27.4
5.41	27.7	43.9	1.0	3.6	4	MH-CL	22	9.9	9.99	0.28	N/A	0.00	27.7
5.58	28.6	45.3	1.2	4.3	4	MH-CL	23	9.9	9.99	0.28	N/A	0.00	28.7
5.74	29.2	46.4	1.4	4.8	4	MH-CL	23	9.9	-	0.28	N/A	0.00	29.3
5.91	31.5	50.0	1.5	4.8	4	MH-CL	25	9.9	9.99	0.28	N/A	0.00	31.6
6.07	33.7	53.5	1.5	4.6	4	MH-CL	27	9.9	9.99	0.28	N/A	0.00	33.7
6.23	36.2	57.4	1.6	4.4	4	MH-CL	29	9.9	9.99	0.28	N/A	0.00	36.2
6.40	37.1	58.2	1.6	4.3	4	MH-CL	29	9.9	9.99	0.28	N/A	0.00	37.1
6.56	40.0	61.9	1.6	4.1	4	MH-CL	31	9.9	9.99	0.28	N/A	0.00	40.0
6.73	44.2	67.7	1.7	4.0	4	MH-CL	34	9.9	9.99	0.28	N/A	0.00	44.2
6.89	48.4	73.3	1.9	3.9	4	MH-CL	37	9.9	9.99	0.28	N/A	0.00	48.4
7.05	52.1	78.0	2.1	4.1	4	MH-CL	39	9.9	9.99	0.27	N/A	0.00	52.0
7.22	54.9	81.4	2.2	4.1	4	MH-CL	41	9.9	9.99	0.27	N/A	0.00	54.9
7.38	58.1	85.2	2.2	3.9	4	MH-CL	43	9.9	9.99	0.27	N/A	0.00	58.1
7.55	64.1	92.9	2.3	3.7	5	SM-SP	23	-	9.99	0.27	N/A	0.00	64.0
7.71	62.3	89.3	2.4	3.8	4	MH-CL	45	9.9	9.99	0.27	N/A	0.00	62.3

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
7.87	59.5	84.3	2.4	4.1	4	MH-CL	42	9.9	9.99	0.27	N/A	0.00	59.4
8.04	51.6	72.4	2.5	4.8	4	MH-CL	37	9.9	9.99	0.27	N/A	0.00	51.6
8.20	51.5	71.5	2.6	5.1	4	MH-CL	36	9.9	9.99	0.27	N/A	0.00	51.5
8.37	54.3	74.7	2.6	4.9	4	MH-CL	38	9.9	9.99	0.27	N/A	0.00	54.3
8.53	56.4	76.8	2.7	4.8	4	MH-CL	39	9.9	9.99	0.27	N/A	0.00	56.3
8.69	60.2	81.3	2.8	4.7	4	MH-CL	41	9.9	9.99	0.27	N/A	0.00	60.1
8.86	61.6	82.4	2.8	4.7	4	MH-CL	42	9.9	9.99	0.27	N/A	0.00	61.5
9.02	62.5	82.9	2.9	4.6	4	MH-CL	42	9.9	9.99	0.27	N/A	0.00	62.5
9.19	63.2	83.1	2.7	4.2	4	MH-CL	42	9.9	9.99	0.27	N/A	0.00	63.2
9.35	63.4	82.6	2.2	3.5	4	MH-CL	42	9.9	9.99	0.27	N/A	0.00	63.4
9.51	57.9	74.7	1.7	2.9	5	SM-SP	19	-	9.99	0.27	N/A	0.00	57.9
9.68	55.7	71.2	1.5	2.7	5	SM-SP	18	-	9.99	0.27	N/A	0.00	55.8
9.84	50.7	64.1	1.8	3.6	4	MH-CL	32	9.9	9.99	0.27	N/A	0.00	50.7
10.01	52.4	65.8	2.4	4.7	4	MH-CL	33	9.9	9.99	0.27	N/A	0.00	52.4
10.17	54.6	68.0	2.9	5.3	4	MH-CL	34	9.9	9.99	0.27	N/A	0.00	54.6
10.33	61.6	76.2	3.1	5.0	4	MH-CL	38	9.9	9.99	0.27	N/A	0.00	61.6
10.50	72.4	89.1	3.3	4.6	4	MH-CL	45	9.9	9.99	0.27	N/A	0.00	72.4
10.66	91.3	111.6	3.4	3.7	5	SM-SP	28	-	9.99	0.27	N/A	0.00	91.3
10.83	108.4	131.6	3.3	3.1	5	SM-SP	33	-	9.99	0.27	N/A	0.00	108.4
10.99	118.1	142.4	3.7	3.1	5	SM-SP	36	-	9.99	0.27	N/A	0.00	118.2
11.15	117.8	140.8	4.2	3.6	8	SC-SM	100	-	9.99	0.27	N/A	0.00	117.8
11.32	113.2	134.4	4.7	4.2	9	CL-CH	68	9.9	9.99	0.27	N/A	0.00	113.2
11.48	113.8	134.1	4.8	4.2	9	CL-CH	67	9.9	9.99	0.27	N/A	0.00	113.8
11.65	118.1	138.1	4.5	3.8	8	SC-SM	100	-	9.99	0.27	N/A	0.00	118.0
11.81	135.9	158.0	3.6	2.7	5	SM-SP	40	-	9.99	0.27	N/A	0.00	135.9
11.97	143.1	165.2	2.8	2.0	6	SW-SP	33	-	9.99	0.27	N/A	0.00	143.1
12.14	131.6	150.8	3.0	2.3	5	SM-SP	38	-	9.99	0.27	N/A	0.00	131.6
12.30	113.7	129.3	3.7	3.3	5	SM-SP	33	-	9.99	0.27	N/A	0.00	113.7
12.47	94.4	106.4	4.0	4.3	9	CL-CH	54	9.9	9.99	0.27	N/A	0.00	94.4
12.63	91.4	102.3	4.0	4.4	9	CL-CH	52	9.9	9.99	0.27	N/A	0.00	91.4
12.80	91.8	102.1	3.8	4.2	9	CL-CH	51	9.9	9.99	0.27	N/A	0.00	91.8
12.96	94.5	104.4	3.9	4.2	9	CL-CH	53	9.9	9.99	0.27	N/A	0.00	94.5
13.12	99.9	109.7	4.0	4.0	9	CL-CH	55	9.9	9.99	0.27	N/A	0.00	99.9
13.29	103.3	112.7	3.9	3.8	8	SC-SM	100	-	9.99	0.27	N/A	0.00	103.3
13.45	101.0	109.6	3.9	3.9	8	SC-SM	100	-	9.99	0.27	N/A	0.00	101.0
13.62	94.7	102.1	3.6	3.8	5	SM-SP	26	-	9.99	0.27	N/A	0.00	94.7
13.78	79.8	85.3	3.2	4.0	4	MH-CL	43	9.9	9.99	0.27	N/A	0.00	79.7
13.94	74.6	79.2	2.9	3.9	4	MH-CL	40	9.9	9.99	0.27	N/A	0.00	74.5
14.11	70.6	74.5	2.7	3.8	4	MH-CL	38	9.9	9.99	0.27	N/A	0.00	70.6
14.27	68.4	71.7	2.8	4.1	4	MH-CL	36	9.9	9.99	0.27	N/A	0.00	68.3
14.44	66.2	69.0	3.0	4.6	4	MH-CL	35	9.9	9.99	0.27	N/A	0.00	66.2
14.60	67.5	69.9	3.2	4.7	4	MH-CL	35	9.9	9.99	0.27	N/A	0.00	67.5
14.76	67.9	70.0	3.4	5.0	4	MH-CL	35	9.9	9.99	0.27	N/A	0.00	67.9
14.93	69.3	71.0	3.6	5.2	4	MH-CL	36	9.9	9.99	0.27	N/A	0.00	69.2
15.09	69.4	70.8	4.0	5.8	9	CL-CH	36	9.9	9.99	0.27	N/A	0.00	69.4
15.26	71.5	72.6	4.0	5.7	9	CL-CH	37	9.9	9.99	0.27	N/A	0.00	71.5
15.42	76.2	76.9	4.2	5.5	9	CL-CH	39	9.9	9.99	0.27	N/A	0.00	76.2

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

Depth ft	qc PS tsf	* Qn PS	Slv Stss tsf	Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	SPT R-N1 60%	OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
15.58	69.2	69.3	4.1	6.1	9	CL-CH	35	9.9	9.99	0.27	N/A	0.00	69.1
15.75	66.3	66.1	4.0	6.1	9	CL-CH	33	9.9	9.99	0.27	N/A	0.00	66.3
15.91	67.0	66.4	3.9	5.9	9	CL-CH	34	9.9	9.99	0.27	N/A	0.00	67.0
16.08	67.3	66.3	3.9	5.9	9	CL-CH	34	9.9	9.99	0.27	N/A	0.00	67.3
16.24	66.1	64.8	3.9	6.0	9	CL-CH	33	9.9	9.99	0.27	N/A	0.00	66.1
16.40	64.2	65.7	3.9	6.2	9	CL-CH	33	9.9	-	0.27	N/A	0.00	64.2
16.57	62.9	63.7	3.9	6.2	9	CL-CH	32	9.9	-	0.27	N/A	0.00	62.9
16.73	66.5	64.2	3.8	5.8	4	MH-CL	33	9.9	9.99	0.27	N/A	0.00	66.5
16.90	61.7	61.2	3.8	6.3	3	CL-CH	41	9.9	-	0.27	N/A	0.00	61.7
17.06	56.2	55.1	3.6	6.6	3	CL-CH	37	9.9	-	0.27	N/A	0.00	56.2
17.22	56.6	55.0	3.4	6.1	3	CL-CH	37	9.9	-	0.27	N/A	0.00	56.6
17.39	60.0	56.7	3.2	5.4	4	MH-CL	29	9.9	9.99	0.27	N/A	0.00	60.0
17.55	61.9	58.3	3.3	5.4	4	MH-CL	30	9.9	9.99	0.27	N/A	0.00	62.0
17.72	58.1	54.9	3.4	6.0	3	CL-CH	37	9.9	-	0.27	N/A	0.00	58.1
17.88	53.5	50.0	3.3	6.3	3	CL-CH	34	9.9	-	0.27	N/A	0.00	53.4
18.04	52.0	48.2	3.1	6.2	3	CL-CH	33	9.9	-	0.27	N/A	0.00	52.1
18.21	52.4	48.1	3.1	6.0	3	CL-CH	33	9.9	-	0.27	N/A	0.00	52.4
18.37	50.4	45.8	3.1	6.3	3	CL-CH	31	9.9	-	0.27	N/A	0.00	50.4
18.54	48.5	43.7	2.9	6.2	3	CL-CH	30	9.9	-	0.27	N/A	0.00	48.6
18.70	46.8	41.7	2.8	6.1	3	CL-CH	28	9.9	-	0.27	N/A	0.00	46.8
18.86	48.3	42.7	2.8	5.8	3	CL-CH	29	9.9	-	0.27	N/A	0.00	48.3
19.03	48.7	42.7	2.9	6.1	3	CL-CH	29	9.9	-	0.27	N/A	0.00	48.7
19.19	48.3	42.0	2.8	5.9	3	CL-CH	29	9.9	-	0.27	N/A	0.00	48.3
19.36	44.4	38.2	2.6	6.1	3	CL-CH	26	9.9	-	0.27	N/A	0.00	44.4
19.52	42.2	35.9	2.6	6.3	3	CL-CH	25	9.9	-	0.27	N/A	0.00	42.2
19.68	41.8	35.3	2.5	6.2	3	CL-CH	24	9.9	-	0.27	N/A	0.00	41.8
19.85	41.8	34.9	2.5	6.0	3	CL-CH	24	9.9	-	0.27	N/A	0.00	41.7
20.01	43.5	36.1	2.4	5.6	3	CL-CH	25	9.9	-	0.27	N/A	0.00	43.4
20.18	42.9	35.4	2.4	5.7	3	CL-CH	24	9.9	-	0.27	N/A	0.00	42.9
20.34	40.2	32.8	2.3	5.9	3	CL-CH	23	9.9	-	0.27	N/A	0.00	40.1
20.50	40.1	32.4	2.3	5.9	3	CL-CH	22	9.9	-	0.27	N/A	0.00	40.1
20.67	41.2	33.1	2.2	5.6	3	CL-CH	23	9.9	-	0.27	N/A	0.00	41.2
20.83	41.2	32.8	2.2	5.6	3	CL-CH	23	9.9	-	0.27	N/A	0.00	41.1
21.00	43.5	34.4	2.3	5.5	3	CL-CH	24	9.9	-	0.27	N/A	0.00	43.5
21.16	41.7	32.7	2.2	5.4	3	CL-CH	22	9.9	-	0.27	N/A	0.00	41.6
21.33	36.3	28.1	2.1	5.9	3	CL-CH	19	9.3	-	0.27	N/A	0.00	36.3
21.49	33.3	25.5	1.9	6.1	3	CL-CH	18	8.4	-	0.27	N/A	0.00	33.3
21.65	33.0	25.1	1.8	5.7	3	CL-CH	17	8.3	-	0.27	N/A	0.00	33.0
21.82	31.1	23.4	1.8	6.2	3	CL-CH	16	7.7	-	0.27	N/A	0.00	31.1
21.98	30.7	22.9	1.8	6.2	3	CL-CH	16	7.6	-	0.27	N/A	0.00	30.7
22.15	31.0	23.0	1.8	6.1	3	CL-CH	16	7.6	-	0.27	N/A	0.00	31.0
22.31	33.0	24.3	1.7	5.4	3	CL-CH	17	8.0	-	0.26	N/A	0.00	33.0
22.47	38.1	28.0	1.7	4.7	3	CL-CH	19	9.2	-	0.26	N/A	0.00	38.1
22.64	48.1	35.4	2.0	4.4	4	MH-CL	18	9.9	-	0.26	N/A	0.00	48.1
22.80	47.5	34.6	2.1	4.6	4	MH-CL	18	9.9	-	0.26	N/A	0.00	47.5
22.97	44.3	32.0	2.1	4.8	3	CL-CH	22	9.9	-	0.26	N/A	0.00	44.3
23.13	44.5	32.0	2.1	4.9	3	CL-CH	22	9.9	-	0.26	N/A	0.00	44.6

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Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

Depth ft	qc PS tsf	* Qn PS	Slv Stss tsf	Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
23.29	43.9	31.3	2.1	4.8	3	CL-CH	22	9.9	-	0.26	N/A	0.00	43.9
23.46	36.8	25.8	1.9	5.5	3	CL-CH	18	8.5	-	0.26	N/A	0.00	36.8
23.62	34.3	23.9	1.7	5.2	3	CL-CH	17	7.9	-	0.26	N/A	0.00	34.4
23.79	35.4	24.5	1.8	5.2	3	CL-CH	17	8.1	-	0.26	N/A	0.00	35.4
23.95	36.6	25.2	1.7	4.8	3	CL-CH	17	8.3	-	0.26	N/A	0.00	36.7
24.11	31.9	21.7	1.5	5.0	3	CL-CH	15	7.1	-	0.26	N/A	0.00	31.9
24.28	41.6	28.4	1.7	4.2	3	CL-CH	20	9.4	-	0.26	N/A	0.00	41.7
24.44	60.6	48.1	2.2	3.7	4	MH-CL	25	9.9	9.99	0.26	N/A	0.00	60.6
24.61	54.7	37.1	2.6	4.9	3	CL-CH	25	9.9	-	0.26	N/A	0.00	54.7
24.77	41.6	27.8	2.5	6.3	3	CL-CH	19	9.2	-	0.26	N/A	0.00	41.6
24.93	29.0	18.9	1.5	5.3	3	CL-CH	13	6.2	-	0.26	N/A	0.00	29.0
25.10	25.5	16.4	1.2	4.8	3	CL-CH	12	5.4	-	0.26	N/A	0.00	25.6
25.26	22.8	14.4	1.1	5.0	3	CL-CH	10	4.8	-	0.26	N/A	0.00	22.9
25.43	22.4	14.1	1.0	4.6	3	CL-CH	10	4.7	-	0.26	N/A	0.00	22.6
25.59	24.9	15.7	1.1	4.9	3	CL-CH	11	5.2	-	0.26	N/A	0.00	25.1
25.75	29.3	18.5	1.2	4.4	3	CL-CH	13	6.1	-	0.26	N/A	0.00	29.4
25.92	28.3	17.7	1.3	4.9	3	CL-CH	12	5.9	-	0.26	N/A	0.00	28.6
26.08	30.1	18.8	1.3	4.6	3	CL-CH	13	6.2	-	0.26	N/A	0.00	30.3
26.25	30.1	18.7	1.4	4.9	3	CL-CH	13	6.2	-	0.26	N/A	0.00	30.4
26.41	29.2	18.0	1.3	4.8	3	CL-CH	13	5.9	-	0.26	N/A	0.00	29.4
26.57	26.8	16.3	1.3	5.1	3	CL-CH	12	5.4	-	0.26	N/A	0.00	27.0
26.74	27.8	16.9	1.3	4.8	3	CL-CH	12	5.6	-	0.26	N/A	0.00	28.0
26.90	29.5	17.8	1.3	4.8	3	CL-CH	13	5.9	-	0.26	N/A	0.00	29.7
27.07	44.9	27.5	1.7	4.0	4	MH-CL	14	9.1	-	0.26	N/A	0.00	45.1
27.23	63.4	47.7	1.8	2.9	4	MH-CL	24	9.9	9.99	0.26	N/A	0.00	63.5
27.39	73.7	55.5	1.9	2.6	5	SM-SP	14	-	9.99	0.26	N/A	0.00	73.8
27.56	82.5	62.0	1.7	2.1	5	SM-SP	16	-	9.99	0.26	N/A	0.00	82.5
27.72	78.1	58.4	1.8	2.3	5	SM-SP	15	-	9.99	0.26	N/A	0.00	78.1
27.89	68.0	50.6	2.1	3.2	4	MH-CL	26	9.9	9.99	0.26	N/A	0.00	68.0
28.05	45.1	26.6	2.1	4.8	3	CL-CH	18	8.8	-	0.26	N/A	0.00	45.1
28.21	31.8	18.3	1.7	5.7	3	CL-CH	13	6.0	-	0.26	N/A	0.00	31.9
28.38	26.9	15.3	1.2	4.9	3	CL-CH	11	5.0	-	0.26	N/A	0.00	27.1
28.54	23.5	13.1	1.0	4.6	3	CL-CH	9	4.3	-	0.26	N/A	0.00	23.7
28.71	22.2	12.3	1.0	4.7	3	CL-CH	9	4.0	-	0.26	N/A	0.00	22.4
28.87	23.4	12.9	1.0	4.7	3	CL-CH	9	4.3	-	0.26	N/A	0.00	23.7
29.04	27.3	15.2	1.0	3.8	3	CL-CH	11	5.0	-	0.26	N/A	0.00	27.5
29.20	24.0	13.1	1.0	4.6	3	CL-CH	9	4.3	-	0.26	N/A	0.00	24.3
29.36	26.3	14.4	1.0	3.9	3	CL-CH	10	4.8	-	0.26	N/A	0.00	26.6
29.53	19.4	10.3	0.8	4.8	3	CL-CH	8	3.4	-	0.26	N/A	0.00	19.5
29.69	15.7	8.1	0.7	5.1	3	CL-CH	6	2.7	-	0.26	N/A	0.00	15.9
29.86	15.9	8.1	0.6	4.3	3	CL-CH	6	2.7	-	0.26	N/A	0.00	16.1
30.02	17.3	8.9	0.6	4.1	3	CL-CH	7	2.9	-	0.26	N/A	0.00	17.5
30.18	18.5	9.5	0.6	3.8	3	CL-CH	7	3.1	-	0.26	N/A	0.00	18.8
30.35	19.1	9.8	0.7	3.8	3	CL-CH	7	3.2	-	0.26	N/A	0.00	19.4
30.51	18.2	9.3	0.7	4.3	3	CL-CH	7	3.1	-	0.26	N/A	0.00	18.5
30.68	18.6	9.4	0.7	4.3	3	CL-CH	7	3.1	-	0.26	N/A	0.00	18.9
30.84	20.8	10.6	0.8	4.4	3	CL-CH	8	3.5	-	0.26	N/A	0.00	21.2

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
31.00	24.2	12.4	0.9	4.0	3	CL-CH	9	4.1	-	0.26	N/A	0.00	24.4
31.17	23.1	11.7	1.0	4.9	3	CL-CH	8	3.9	-	0.26	N/A	0.00	23.5
31.33	23.8	12.0	1.1	4.8	3	CL-CH	9	4.0	-	0.26	N/A	0.00	24.1
31.50	20.9	10.4	1.1	5.8	3	CL-CH	8	3.4	-	0.26	N/A	0.00	21.2
31.66	24.1	12.1	0.9	4.2	3	CL-CH	9	4.0	-	0.26	N/A	0.00	24.4
31.82	20.7	10.2	0.9	4.7	3	CL-CH	7	3.4	-	0.26	N/A	0.00	21.2
31.99	25.6	12.7	1.0	4.2	3	CL-CH	9	4.2	-	0.26	N/A	0.00	26.0
32.15	34.7	17.6	1.2	3.7	3	CL-CH	12	5.8	-	0.25	N/A	0.00	35.1
32.32	37.7	19.1	1.4	3.8	3	CL-CH	13	6.3	-	0.25	N/A	0.00	38.1
32.48	32.7	16.3	1.1	3.7	3	CL-CH	12	5.4	-	0.25	N/A	0.00	33.0
32.64	24.3	11.8	0.9	4.1	3	CL-CH	9	3.9	-	0.25	N/A	0.00	24.7
32.81	18.8	8.9	0.7	4.3	3	CL-CH	7	2.9	-	0.25	N/A	0.00	19.2
32.97	19.1	8.9	0.7	4.2	3	CL-CH	7	2.9	-	0.25	N/A	0.00	19.6
33.14	18.7	8.7	0.6	3.5	3	CL-CH	6	2.9	-	0.25	-	0.00	19.2
33.30	19.4	9.0	0.7	4.2	3	CL-CH	7	3.0	-	0.25	-	0.00	19.9
33.46	18.6	8.6	0.7	4.1	3	CL-CH	6	2.9	-	0.25	-	0.00	19.2
33.63	20.4	9.4	0.7	3.7	3	CL-CH	7	3.1	-	0.25	-	0.00	20.9
33.79	21.8	10.1	0.6	3.2	3	CL-CH	7	3.4	-	0.25	-	0.00	22.4
33.96	19.8	9.0	0.7	3.7	3	CL-CH	7	3.0	-	0.25	-	0.00	20.3
34.12	23.2	10.7	0.7	3.5	3	CL-CH	8	3.6	-	0.26	-	0.00	23.8
34.28	25.1	11.6	0.8	3.2	3	CL-CH	8	3.9	-	0.26	-	0.00	25.7
34.45	27.5	12.7	0.7	2.7	3	CL-CH	9	4.3	-	0.26	-	0.00	27.9
34.61	20.6	9.2	0.5	2.8	3	CL-CH	7	3.1	-	0.26	-	0.00	20.9
34.78	14.7	6.3	0.4	3.5	3	CL-CH	5	2.1	-	0.26	-	0.00	15.2
34.94	17.0	7.3	0.4	2.8	3	CL-CH	6	2.5	-	0.26	-	0.00	17.5
35.10	18.4	8.0	0.5	3.0	3	CL-CH	6	2.7	-	0.26	-	0.00	19.0
35.27	18.4	8.0	0.5	2.8	3	CL-CH	6	2.7	-	0.26	-	0.00	18.9
35.43	18.2	7.9	0.6	3.4	3	CL-CH	6	2.7	-	0.26	-	0.00	18.9
35.60	17.6	7.5	0.6	3.6	3	CL-CH	6	2.6	-	0.26	-	0.00	18.1
35.76	14.4	6.0	0.5	4.0	3	CL-CH	5	2.1	-	0.26	-	0.00	15.0
35.92	14.7	6.1	0.5	4.3	3	CL-CH	5	2.1	-	0.26	-	0.00	15.4
36.09	16.4	6.8	0.6	4.4	3	CL-CH	5	2.4	-	0.26	-	0.00	17.0
36.25	20.2	8.6	0.9	4.8	3	CL-CH	6	3.0	-	0.26	-	0.00	20.9
36.42	23.5	10.1	0.9	4.1	3	CL-CH	7	3.5	-	0.26	-	0.00	23.9
36.58	16.7	6.9	0.8	5.5	3	CL-CH	5	2.4	-	0.26	-	0.00	17.1
36.74	15.4	6.2	0.6	4.8	3	CL-CH	5	2.2	-	0.26	-	0.00	15.9
36.91	14.4	5.7	0.6	4.5	3	CL-CH	4	2.0	-	0.26	-	0.00	15.0
37.07	17.2	7.0	0.6	4.3	3	CL-CH	5	2.5	-	0.26	-	0.00	17.9
37.24	22.5	9.4	0.9	4.2	3	CL-CH	7	3.3	-	0.26	-	0.00	23.2
37.40	23.4	9.8	0.8	3.6	3	CL-CH	7	3.4	-	0.26	-	0.00	23.8
37.57	16.9	6.7	0.6	4.2	3	CL-CH	5	2.4	-	0.26	-	0.00	17.4
37.73	15.3	6.0	0.5	3.9	3	CL-CH	5	2.1	-	0.26	-	0.00	16.0
37.89	15.6	6.1	0.5	3.9	3	CL-CH	5	2.2	-	0.26	-	0.00	16.3
38.06	18.8	7.5	0.5	3.2	3	CL-CH	6	2.7	-	0.26	-	0.00	19.6
38.22	17.7	7.0	0.6	3.9	3	CL-CH	5	2.5	-	0.26	-	0.00	18.6
38.39	21.0	8.4	0.7	3.6	3	CL-CH	6	3.0	-	0.26	-	0.00	22.0
38.55	30.8	12.8	1.0	3.3	3	CL-CH	9	4.6	-	0.26	-	0.00	31.9

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Gorian and Associates

Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf
38.71	40.6	17.0	1.1	2.8	4	MH-CL	9	6.1	-	0.26	-	0.00	41.5
38.88	24.8	10.0	0.9	4.1	3	CL-CH	7	3.6	-	0.26	-	0.00	25.3
39.04	18.1	7.0	0.7	4.4	3	CL-CH	5	2.5	-	0.26	-	0.00	19.1
39.21	18.0	6.9	0.6	3.8	3	CL-CH	5	2.5	-	0.26	-	0.00	18.9
39.37	19.0	7.3	0.8	4.8	3	CL-CH	6	2.6	-	0.26	-	0.00	20.0
39.53	23.3	9.2	0.9	4.1	3	CL-CH	7	3.3	-	0.26	-	0.00	24.3
39.70	33.1	13.4	1.5	4.8	3	CL-CH	10	4.9	-	0.26	-	0.00	34.4
39.86	60.7	25.2	2.0	3.4	4	MH-CL	13	9.2	-	0.26	-	0.00	61.1
40.03	49.2	20.2	1.7	3.7	3	CL-CH	14	7.4	-	0.26	-	0.00	49.4
40.19	32.0	12.7	1.3	4.5	3	CL-CH	9	4.6	-	0.26	-	0.00	32.4
40.35	26.0	10.1	1.0	4.1	3	CL-CH	7	3.7	-	0.26	-	0.00	27.3
40.52	33.5	13.3	1.3	4.2	3	CL-CH	10	4.9	-	0.26	-	0.00	35.0
40.68	49.8	20.1	1.7	3.6	3	CL-CH	14	7.4	-	0.26	-	0.00	50.5
40.85	57.8	23.4	2.2	4.1	3	CL-CH	16	8.6	-	0.26	-	0.00	58.2
41.01	61.6	24.9	2.6	4.3	3	CL-CH	17	9.2	-	0.26	-	0.00	62.1
41.17	50.1	20.0	2.2	4.7	3	CL-CH	14	7.4	-	0.26	-	0.00	50.3
41.34	35.0	13.6	1.3	4.0	3	CL-CH	10	5.0	-	0.26	-	0.00	35.4
41.50	27.3	10.3	1.3	5.2	3	CL-CH	8	3.8	-	0.26	-	0.00	28.3
41.67	28.1	10.6	1.3	5.2	3	CL-CH	8	3.9	-	0.26	-	0.00	29.1
41.83	32.0	12.2	1.4	4.6	3	CL-CH	9	4.5	-	0.26	-	0.00	33.0
41.99	36.2	13.9	1.5	4.5	3	CL-CH	10	5.2	-	0.26	-	0.00	37.2
42.16	40.3	15.5	1.5	4.0	3	CL-CH	11	5.8	-	0.26	-	0.00	41.1
42.32	34.2	12.9	1.3	4.0	3	CL-CH	9	4.8	-	0.26	-	0.00	35.1
42.49	31.1	11.6	1.3	4.6	3	CL-CH	8	4.4	-	0.26	-	0.00	32.0
42.65	29.9	11.1	1.4	5.2	3	CL-CH	8	4.2	-	0.26	-	0.00	30.7
42.81	44.8	17.0	1.9	4.5	3	CL-CH	12	6.4	-	0.26	-	0.00	45.7
42.98	45.6	17.3	1.7	3.9	3	CL-CH	12	6.5	-	0.26	-	0.00	45.7
43.14	36.9	13.7	1.9	5.4	3	CL-CH	10	5.2	-	0.26	-	0.00	37.4
43.31	38.2	14.2	1.8	5.1	3	CL-CH	10	5.4	-	0.26	-	0.00	38.3
43.47	45.9	17.2	2.3	5.4	3	CL-CH	12	6.5	-	0.26	-	0.00	46.0
43.63	69.4	26.4	2.0	3.0	4	MH-CL	14	9.9	-	0.26	-	0.00	69.8
43.80	125.8	75.1	2.9	2.4	5	SM-SP	19	-	0.33	0.26	1.26	0.00	126.2
43.96	489.9	296.4	0.0	0.1	7	SW-GW	50	-	9.99	0.26	9.99	0.00	490.0
44.13	785.8	475.9	0.0	0.1	7	SW-GW	80	-	9.99	0.26	9.99	0.00	786.1

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Kehoe CPT Results and Analysis / 24439 Calabasas Road, Calabasas, CA

Project ID:
Data File: CPT-2 ft.csv
CPT Date: 04/16/10
GW During Test: 44 ft

Sounding ID: See Map
Project No: 2881-0-0-100
Cone/Rig: N/A

. Depth ft	. qc PS tsf	* Qn PS	. Slv Stss tsf	. Frct Rato %	* Mat Typ Zon	* USCS Mtrl Type	* SPT R-N1 60%	. OCR - -	* CRR - -	* CSR - -	* Liq FS -	* Tot Stlmt 0.01	* qt PS tsf

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Gorian and Associates

LEGEND:

- EXIST. WATER LINE.
- EXIST SEWER LINE
- PROP. DRAIN LINE, MIN 1% SLOPE
- 810 — PROP. FINISH CONTOURS
- 810 — EXIST. CONTOURF
- R — RIDGELINE
- GB — GRADE BREAK
- PROPERTY LINE
- EXIST. OVER HEAD WIRE
- EXIST. OVER HEAD ELECT. LINE
- PROP RETAINING OR SLOUGH WALL
- 00.00 TC — PROPOSED ELEVATION
- 00.00 EL — EXIST ELEVATION
- SMH — EXIST. SEWER MANHOLE
- C/L — CENTERLINE
- PROP. CONC.
- PROP. DECORATIVE PAVING
- PROP. A.C. PAVEMENT
- DIRECTION OF TRAVEL
- PROP. PARKING LIGHT (TYP)

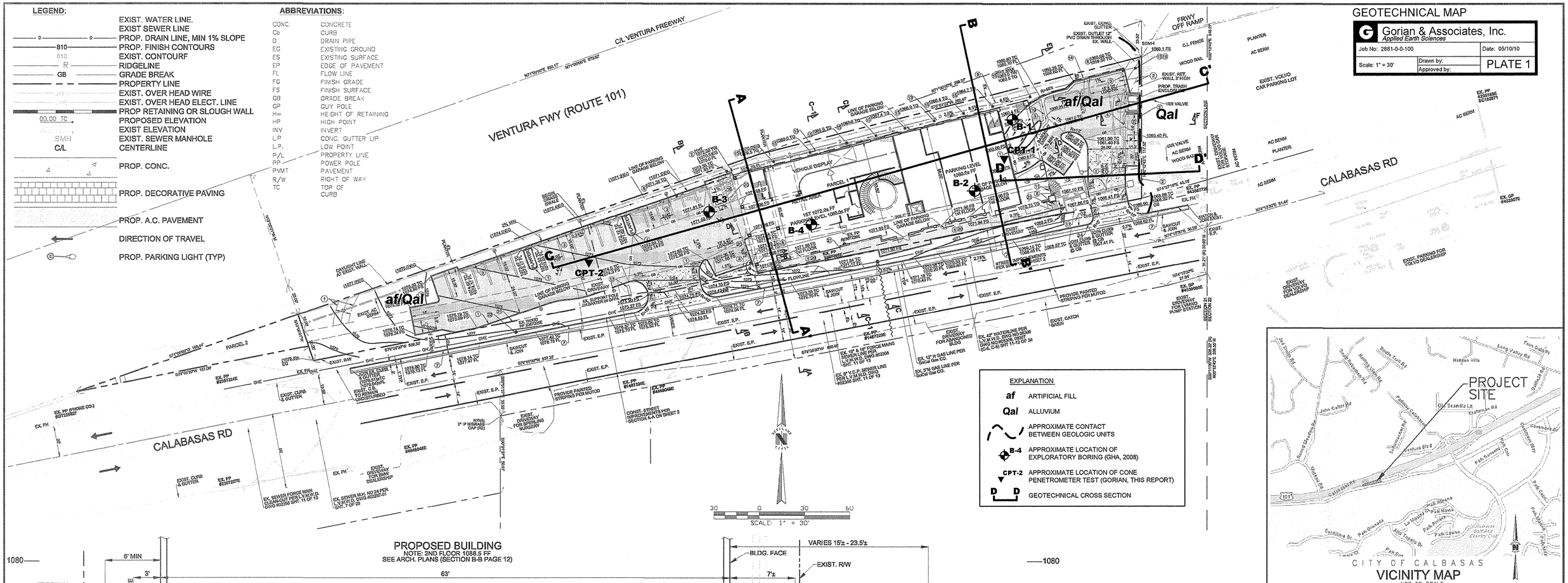
ABBREVIATIONS:

CONC.	CONCRETE
Cb	CURB
D	DRAIN PIPE
EG	EXISTING GROUND
ES	EXISTING SURFACE
EP	EDGE OF PAVEMENT
FL	FLOW LINE
FG	FINISH GRADE
FS	FINISH SURFACE
GB	GRADE BREAK
GP	GUY POLE
H=	HEIGHT OF RETAINING
HP	HIGH POINT
INV	INVERT
L.P	CONC. GUTTER LIP
L.P.	LOW POINT
P/L	PROPERTY LINE
PP	POWER POLE
PVMT	PAVEMENT
R/W	RIGHT OF WAY
TC	TOP OF CURB

GEOTECHNICAL MAP

Gorian & Associates, Inc.
Applied Earth Sciences

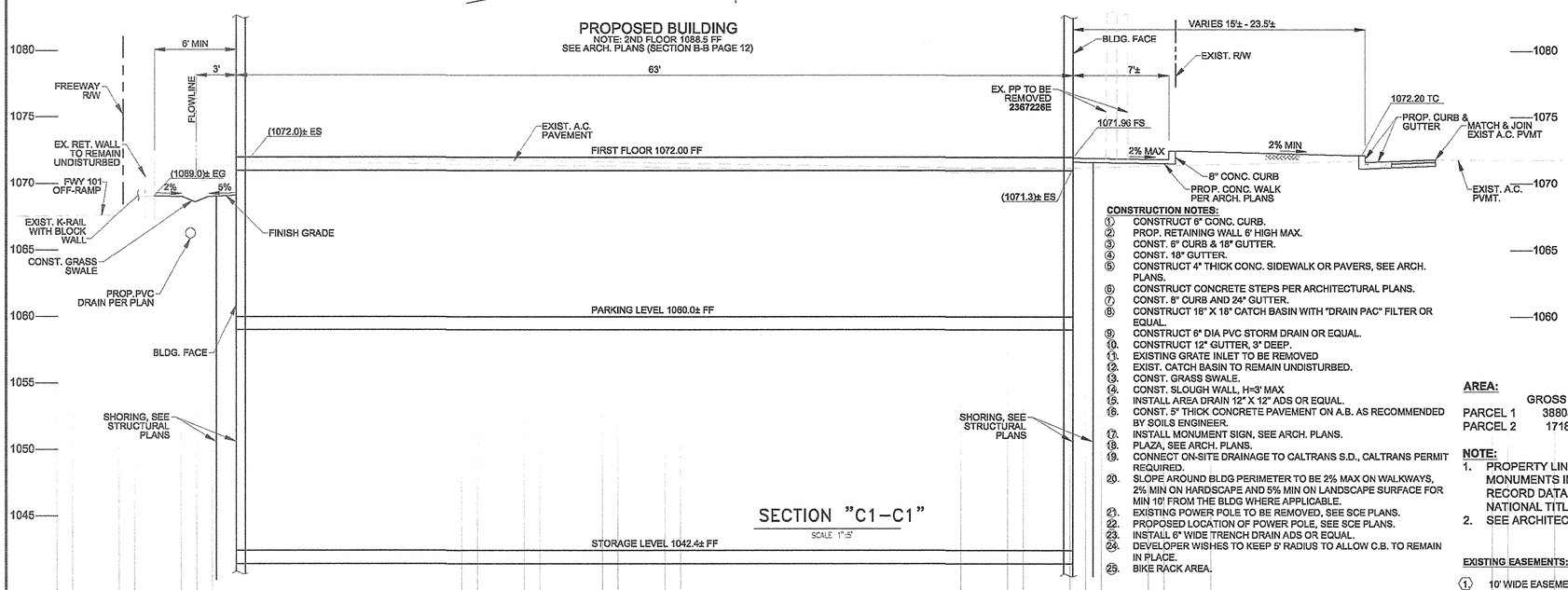
Job No: 2881-0-0-100		Date: 05/10/10
Scale: 1" = 30'	Drawn by: / Approved by:	PLATE 1



EXPLANATION

- af — ARTIFICIAL FILL
- Qal — ALLUVIUM
- APPROXIMATE CONTACT BETWEEN GEOLOGIC UNITS
- B-4 — APPROXIMATE LOCATION OF EXPLORATORY BORING (GHA, 2008)
- CPT-2 — APPROXIMATE LOCATION OF CONE PENETROMETER TEST (GORIAN, THIS REPORT)
- D D — GEOTECHNICAL CROSS SECTION

VICINITY MAP
NOT TO SCALE



SECTION "C1–C1"
SCALE 1":5'

CONSTRUCTION NOTES:

1. CONSTRUCT 6" CONC. CURB.
2. PROP. RETAINING WALL 6' HIGH MAX.
3. CONST. 8" CURB & 18" GUTTER.
4. CONST. 18" GUTTER.
5. CONSTRUCT 4" THICK CONC. SIDEWALK OR PAVERS, SEE ARCH. PLANS.
6. CONSTRUCT CONCRETE STEPS PER ARCHITECTURAL PLANS.
7. CONST. 8" CURB AND 24" GUTTER.
8. CONSTRUCT 18" X 18" CATCH BASIN WITH "DRAIN PAC" FILTER OR EQUAL.
9. CONSTRUCT 6" DIA PVC STORM DRAIN OR EQUAL.
10. CONSTRUCT 12" GUTTER, 9" DEEP.
11. EXISTING GRATE INLET TO BE REMOVED
12. EXIST. CATCH BASIN TO REMAIN UNDISTURBED.
13. CONST. GRASS SWALE.
14. CONST. SLOUGH WALL, H=3' MAX
15. INSTALL AREA DRAIN 12" X 12" ADS OR EQUAL.
16. CONST. 5" THICK CONCRETE PAVEMENT ON A.B. AS RECOMMENDED BY SOILS ENGINEER.
17. INSTALL MONUMENT SIGN, SEE ARCH. PLANS.
18. PLAZA, SEE ARCH. PLANS.
19. CONNECT ON-SITE DRAINAGE TO CALTRANS S.D., CALTRANS PERMIT REQUIRED.
20. SLOPE AROUND BLDG PERIMETER TO BE 2% MAX ON WALKWAYS, 2% MIN ON HARDSCAPE AND 5% MIN ON LANDSCAPE SURFACE FOR MIN 10' FROM THE BLDG WHERE APPLICABLE.
21. EXISTING POWER POLE TO BE REMOVED, SEE SCE PLANS.
22. PROPOSED LOCATION OF POWER POLE. SEE SCE PLANS.
23. INSTALL 6" WIDE TRENCH DRAIN ADS OR EQUAL.
24. DEVELOPER WISHES TO KEEP 5' RADIUS TO ALLOW C.B. TO REMAIN IN PLACE.
25. BIKE RACK AREA.

AREA:

	GROSS [sq.ft]	NET [sq.ft] (less storm drain easements)
PARCEL 1	38805±	37848±
PARCEL 2	1718±	1692±

NOTE:

1. PROPERTY LINE WAS ESTABLISHED PER FOUND MONUMENTS IN CALABASAS ROAD AND BEST AVAILABLE RECORD DATA AND PER TITLE REPORT BY FIDELITY NATIONAL TITLE COMPANY DATED AUGUST 30, 2006.
2. SEE ARCHITECT SITE PLAN FOR TABULAR SUMMARY.

EXISTING EASEMENTS:

1. 10' WIDE EASEMENT FOR STORM DRAIN PURPOSES.
2. 10' WIDE EASEMENT FOR STORM DRAIN PURPOSES.

LEGAL DESCRIPTION:

PARCEL 1:

That portion of the Southeast Quarter of Section 21, Township 1 North Range 17 West, San Bernardino Base and Meridian, in the City of Calabasas, County of Los Angeles, State of California, according to the Official Plat of said land on file in the District Land Office, described as follows:

Beginning at the Southwesterly corner of the land conveyed to Anton Weber by deed recorded on July 14, 1917, In Book 5823 Page 207 of Deeds, in the office of the County Recorder of said County, said corner being a point in the Northerly line of the 60 foot wide strip of land described in the deed to the State of California, recorded January 6, 1915 in Book 5826 Page 320 of Deeds, and distant South 79 ° 05' 30" West 46 feet, more or less, along said Northerly line from the East line of said Southeast Quarter; thence along said Northerly line, South 79° 05' 30" West 559.53 feet to the Southerly prolongation of the Easterly line of the land described as Parcel 3 in the deed to the State of California recorded November 22, 1946 as Instrument No. 1706, In Book 23891 Page 415, Official Records, said Easterly line being a line drawn at right angles to the center line of the 160 foot wide strip of land described in Parcel 1 of the last mentioned deed to the State of California, which passes through Engineer's Station 75 plus 00; thence along said prolongation and said Easterly line North 19 ° 00' 41" West 52.20 feet to the Southerly line of said 160 foot wide strip of land; thence Northeasterly along said Southerly line to the Westerly line of said land of Weber; thence along said Westerly line (being parallel with the East line of said Southeast Quarter) South 0° 11' 55" West 136.44 feet more or less, to the point of beginning

Except therefrom, any portion thereof owned or claimed by the Calabasas School District of Los Angeles County.
Also except from that portion lYing Northerly of the Northerly line of the Southerly 20 feet of said land, 2/5th Interest in and to all all, gas and other hydrocarbon substances and minerals in, on or under said land, as reserved by Viola E. Middagh in the deed recorded In Book 22560 Page 440, Official Records.

Also except therefrom that portion thereof described In the Final Decree of Condemnation entered in Case No. 827637, Superior Court, County of Los Angeles, a certified copy being recorded December 16, 1965 as Instrument No. 2172, Official Records.

Also except that portion described as Parcel 4-3 in the deed to the County of Los Angeles, recorded December 30, 1992 as Instrument No. 92-2449963, Official Records.

PARCEL 2:

That portion of the Southeast Quarter of Section 21 Township 1 North Range 17 West, San Bernardino Base and Meridian, in the City of Calabasas, County of Los Angeles, State of California, within In the following described boundaries:

Beginning at the intersection of that certain course of North 190 00' 41 " West 20.20 feet in the Easterly boundary of Parcel 4 as shown Map filed In Book 7 Pages 1 to 8 inclusive of State Highway Maps, in the office of the County Recorder of said County, with a line Parallel with and 10 feet Northerly, measured at right angles from the Westerly prolongation of that certain course of South 79 ° 14' 54" West 119.85 feet In the Northerly boundary of said Parcel; thence Westerly along said parallel line to said Northerly boundary; thence Easterly and Southerly along said Northerly and Easterly boundaries to the pOint of beginning.

Also except from that portion lying Northerly of the Northerly line of the Southerly 20 feet of said land, 2/5th interest in and to all oil, gas and other hydrocarbon substances and minerals in, on or under said land, as reserved by Viola E. Middagh in the deed recorded In Book 22560 Page 440, Official Records.

PARCEL AREA 0.87 Acres
APN: #2069-009-029

UNDERGROUND SERVICE ALERT
DIG ALERT
CALL TOLL FREE
1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

REV. SYMBOL	DESCRIPTION OF CHANGE	RCE	DATE	PDF	DATE

DATE
DESIGNED
DATE
DELINEATED
DATE
CHECKED

ARCHITECT:
KTGY GROUP, Inc.
1733 OCEAN AVE. STE #250
SANTA MONICA, CA 90401
ATTN:
STEVEN STODDARD
PH: (310) 394-2623

OWNER:
MR MICHAEL MALAMUT
272 W. STAFFORD ROAD
THOUSAND OAKS, CA 91361
APPLICANT:
MR DARREL MALAMUT
PH: (805) 300-5033

REGISTERED PROFESSIONAL ENGINEER
DONALD G. WATTS
No. 27364
Exp. 31 MAR 2011
CIVIL
STATE OF CALIFORNIA

PREPARED BY
ID #: Malamut.Calabasas
WESTLAND CIVIL, INC.
CIVIL ENGINEERS PLANNING / DESIGN LAND SURVEYORS
550 ST. CHARLES DR. SUITE 208, THOUSAND OAKS, CA. 91360
(805) 495-1330 FAX: (805) 446-9125
DONALD G. WATTS NO. 27364 DATE

MALAMUT VINTAGE AUTOMOTIVE DEALERSHIP

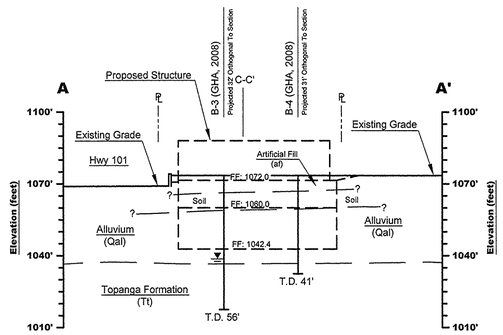
CONCEPT SITE GRADING/DRAINAGE PLAN

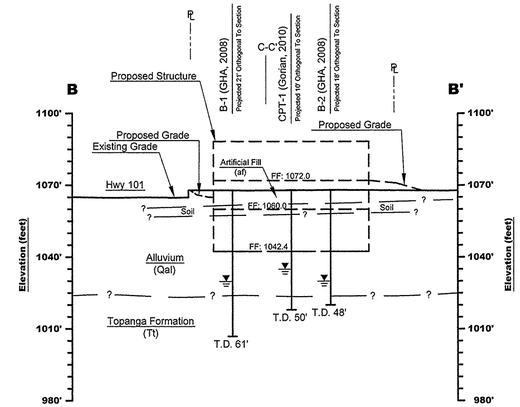
24439 CALABASAS ROAD
CALABASAS, CA 91302

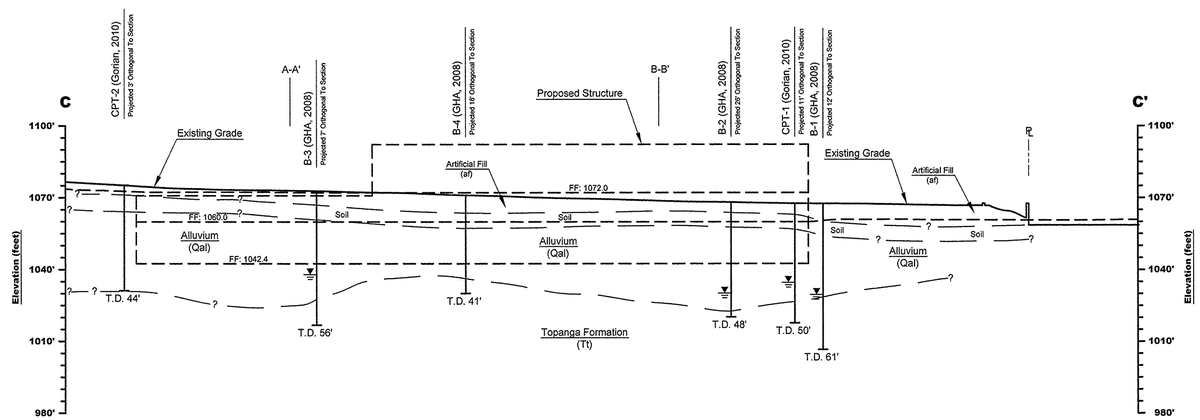
03 OF

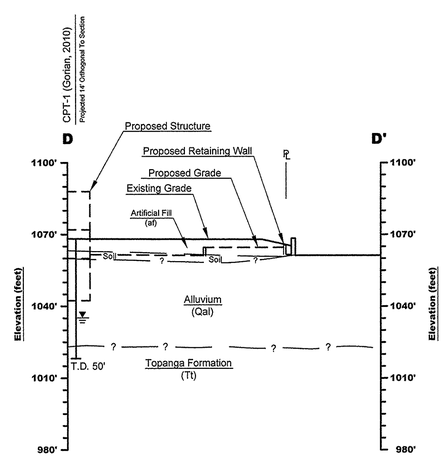
05/12/2010

GP-6-1138









GEOTECHNICAL CROSS SECTIONS AFTER GROVER HOLLINGSWORTH AND ASSOCIATES, INC. (2008)

GEOTECHNICAL CROSS SECTIONS

Gorian & Associates, Inc. *Applied Earth Sciences*		
Job No: 2881-0-0-100		Date: 05/10/10
Scale: 1" = 30'	Drawn by: / Approved by:	PLATE 2

Appendix D

Soils Engineering Report

Grover Hollingsworth and Associates, Inc.

SOILS ENGINEERING EXPLORATION

Proposed Vintage Auto Center
APN 2069-009-029
Portion of Southeast Corner of Section 21 T1N, R17W
24439 Calabasas Road
Calabasas, California
For
MR. MICHAEL MALAMUT

February 15, 2008 **GH13806-S**

Engineering Geology **Geotechnical Engineering**
31129 Via Colinas, Suite 707, Westlake Village, California 91362 • (818) 889-0844 • (FAX) 889-4170

February 15, 2008
GH13806-S

SOILS ENGINEERING EXPLORATION
PROPOSED VINTAGE AUTO CENTER
APN 2069-009-029
PORTION OF SOUTHEAST CORNER OF SECTION 21 T1N, R17W
24439 CALABASAS ROAD
CALABASAS, CALIFORNIA
FOR
MR. MICHAEL MALAMUT

INTRODUCTION

The following report summarizes findings of our soils engineering exploration performed on the subject property. The purpose of the exploration was to evaluate the nature, distribution and engineering properties of the earth materials underlying the property with respect to future construction of vintage auto center, which will include two levels of below grade space.

It is the intent of this report to aid in the design and completion of the proposed project and to reduce certain risks associated with construction projects. This report is prepared for the use of the client and authorized agents and should not be considered transferable. Prior to use by others, the site and this report should be reviewed by Grover-Hollingsworth and Associates, Inc. Following review, additional work may be required to update this report.

EXPLORATION

The scope of our exploration was based on the preliminary plan and preliminary development information provided by the client. In addition, the preliminary site/grading plan prepared by Westland Civil Inc., was also reviewed. The exploration was limited to the areas of the proposed project, as shown on the enclosed Site Plan and cross sections.

Field exploration was conducted on December 20 and 21, 2008, with the aid of a truck-mounted bucket auger drill rig and hand labor. Exploration included drilling four borings to depths of 41 to 61 feet, and excavating one shallow hand-dug test pit to a total depth of 3 feet and obtaining samples. Downhole observation of the earth materials encountered in the

borings and test pit was performed by the undersigned project engineering geologist (where groundwater conditions permitted). Excavations were backfilled and tamped but should not be considered compacted.

Office tasks included laboratory testing, engineering analysis, review of the 1952 series air photos, review of City records, and the preparation of this report. Borings and test pits are logged on plates A-1a through A-5. Laboratory test methodology and results are discussed in the Appendix and are presented on plates A, B, C and D. Surface conditions, existing site improvements, and the locations of the test pit and borings are shown on the enclosed Site Plan. Subsurface distribution of the earth materials, projected geologic contacts, inferred geologic structure, existing structures, and the proposed project are shown on sections A through D, which form the basis for the enclosed shoring pressure, temporary stability, and retaining wall calculations.

PROPOSED DEVELOPMENT

The current plan details construction of a vintage automobile showroom on the central to east central portion of the existing site. The building will have two below-grade floors and two above-grade levels. Access to the building will be provided via a driveway at the southeast site corner. Retaining walls will be utilized to support excavations in the entrance driveway. The height of these walls will range up to 9 feet. The driveway will provide access to the first subterranean level of the structure which will be located at an approximate elevation of 1,060 feet. The lower level of the building is currently planned at an elevation of 1,048 feet. This will necessitate the construction of 25-foot-high retaining walls. Significant grading of the existing pad is not planned. Shoring piles will be used to support the tall temporary excavations. Formal plans have not been prepared and await the conclusions and recommendations of this exploration.

SITE DESCRIPTION

The subject property consists of a generally level to slightly east-sloping commercial parcel located in the City of Calabasas, California. The property is situated on the north side of Calabasas Road approximately 1,500 feet east of its intersection with Mureau Road. The property is currently occupied by an asphalt parking area that is being used for automobile storage by Bob Smith BMW.

Access to the slightly east sloping parking area is via two asphalt entrance drives that extend northerly to the parking lot. The parking lot is currently located approximately 27 to 28 feet north of the curb along the north side of Calabasas Road. The area between the parking lot and Calabasas Road is occupied by an unplanted grade with several trees. Three power poles with overhead lines exist in this area. The asphalt parking area is bounded by a relatively low asphalt curb, and exists roughly at the same elevation as Calabasas Road to the south.

The east portion of the subject property is bounded by a partially freestanding/partially retaining concrete block wall. The south end of this wall is located approximately 21 feet from the curb on the north side of Calabasas Road. Fill materials have been dumped behind portions of the wall. Fill has been placed to near the top of the wall in an area approximately 12 feet north of the southeast wall corner. The wall at this location is approximately 6½ to 7 feet high. The wall continues in a northerly direction along the east portion of the property where it retains approximately 3½ feet of material (where fill has not been dumped adjacent to the wall). The adjoining property to the east consists of a generally level unimproved lot being utilized as a storage area for Livestock Feed. A trailer being used as an office exists approximately 10 feet east of the east retaining wall. This property is lower relative to the subject property by approximately 7 to 8 feet.

The extreme north portion of the east end of the wall retains approximately 1½ feet of material. Concrete rubble, rock and loose fill have also been dumped behind a portion of this wall. This wall is located within approximately 10 feet of the emergency lane for the eastbound 101 Freeway. The wall is adjoined by a secondary lower wall comprised of K-rail. This wall is approximately 2 feet high. The upper wall, located on the property line, is separated from this lower wall by an approximately 6 inch level asphalt-covered area. The total retained height of these two wall systems is approximately 5 feet (at a location approximately 25 feet west of the northwest wall corner). The upper wall at this location therefore retains 3 feet of material. At this location the asphalt parking lot is located approximately 9 feet south of the back of the wall. The area between the wall and parking area is generally level except for an approximately 3-foot-high 1:1 fill slope at the north margin of the parking area.

The level area between the slope up to the parking lot and back of the retaining wall gradually narrows in a northerly direction. The north retaining wall is located within 5½

feet of the edge of the parking lot (at a distance of 200 feet from the east end of the parking lot). The asphalt surface is approximately 1 foot above the grade behind the wall, and the two wall system at this location retains approximately 2½ feet of material.

The northern block wall has a slight angle point located approximately 270 feet along the wall alignment. The distance between the asphalt surface and this wall widens to approximately 9 feet and the grade of the parking lot is roughly similar to that behind the retaining wall. The height of the wall system at this location is approximately 2½ feet. The lower (k-rail) wall terminates approximately 340 feet from the northeast wall corner. At this location a single wall which retains approximately 1 foot of material extends westerly for the remainder of the property. The extreme west portion of the north wall does not retain a significant amount of material. This wall returns in a southerly direction where it is adjoined on the west by a bark chip covered, unplanted grade.

The curb along the north portion of Calabasas Road is located approximately 21 feet south of the terminus of the westerly return wall. A secondary asphalt driveway also provides access to the parking lot along the central portion of the property.

Drainage on the site is by sheetflow over the existing contours. The parking lot slopes down gradually toward the east where surface water will be directed to the extreme southeast lot corner. A drain grate exists within the south portion of the parking lot just east of the easterly parking entrance. Improvements in the area of Calabasas Road consist of a storm drain catch basin located just east of the southeast entrance drive.

RESEARCH FINDINGS

As part of our work, records at City of Calabasas Department of Building and Safety and Public Works were reviewed. The research indicates that R. T. Frankian and Associates (Frankian) issued a geotechnical report for a proposed commercial building on the subject property. The report, dated September 12, 1985, indicates that Frankian excavated four borings to a maximum depth of 36 feet. Frankian indicates that the site is underlain by a minor amount of fill, alluvial soils and bedrock at depth. The fill is described as tan to brown, loose clayey sand. Natural alluvial soils consisting of dark brown to black clayey sand reportedly underlie the fill. Alluvium described as reddish brown silty to clayey sand was encountered beneath the soil. Bedrock was reportedly not encountered. Groundwater

was also not encountered by Frankian. Soils testing performed by Frankian indicates that the upper 3 feet of natural soils were subject to hydrocollapse and consolidation. Expansion index testing by Frankian yielded EI values ranging from 42 to 59. Frankian recommended removing and recompacting the upper soils to support the proposed structures.

Records for the Bob Smith BMW dealership located southwest of the subject property were also reviewed. NorCal Engineering (NorCal) issued numerous reports for the proposed automobile dealership. Significant pertinent information relative to the subject site is not contained in the NorCal reports.

EARTH MATERIALS

Fill/Compacted Fill

A fill deposit was encountered in all the borings to depths ranging from 4 to 8 feet below the ground surface. The thickest fill deposit is located at the east portion of the property in Boring 1. The fill encountered generally consists of mottled gray-brown, yellow-brown and medium brown, tan and orange-brown, slightly moist to moist, firm to stiff, clayey silt and silty clay. The fill exhibits crude horizontal layering, with slight color variations within layers. Portions of the fill contain scattered asphalt and gravel-size bedrock fragments.

Soil

A natural residual soil profile ranging from 4 to 6½ feet in thickness was encountered beneath the fill in all the borings excavated. The soil generally consists of dark brown, slightly moist to moist, very firm to stiff silty clay. This material does not exhibit observable porosity, and contains gravel-size bedrock fragments.

Alluvium

Alluvial soils underlie the residual soil in all the borings excavated. The alluvium encountered consists of layers and lenses of clayey silt, silty clay, clayey sand, silty sand and silt. The predominant material type comprising the alluvium is clayey silt to silty clay. The alluvium contains only minor thin lenses of clayey and silty sand. The color of the alluvium ranges from medium brown, gray-brown, orange-brown, tan and brown. This material is generally moist within the upper portion of the boring, and becomes moist to very moist at depth.

Bedrock

Sandstone and siltstone bedrock of the Topanga Formation were encountered at depths ranging from 36 to 47 feet below the ground surface in all the borings excavated. Bedrock encountered in Boring 1 on the eastern portion of the site consists of light gray-green, moist to very moist, slightly hard siltstone which contains abundant white gypsum stringers and pods. The bedrock at this location becomes significantly harder at a depth of approximately 53 feet. The remaining borings encountered generally massive sandstone bedrock. This material is generally orange-brown, yellow-brown and tan to gray, very moist and moderately hard to hard. We were unable to observe bedding within the bedrock in the borings due to groundwater conditions. Geologic structure within the bedrock was therefore not determined. Near-vertical bedding was however encountered in the sample from Boring 1 at depth of 50 feet.

GROUNDWATER

Groundwater was encountered in borings 1 through 3 at depths ranging from 35 to 39 feet below the ground surface. Groundwater was however not encountered to a total depth of 41 feet in Boring 4. The amount of standing water was measured in the borings approximately one hour after termination of drilling once the water had apparently stabilized. Significant seepage was not encountered in the upper portions of the borings above the measured level of the static water.

REGIONAL GEOLOGIC SETTING

The Santa Monica Mountains and environs are located along the southern margin of the Transverse Ranges geomorphic province. The Transverse Ranges are characterized by broadly east-west trending mountain ranges, valleys, folds, and active faults. The east-west trending features are anomalous to California and are thought to be related to crustal compression due to a large bend in the San Andreas Fault as it passes around the southern end of the Sierra Nevada. The south margin of the Santa Monica Mountains, and that of the Transverse Ranges, is marked by east-trending reverse, oblique slip, and left-strike-slip faults extending for over 125 miles (Dolan et al. 1997). The transverse ranges extend from the Cajon Pass to Anacapa Island, and farther off shore.

Local faults of interest forming the southern boundary of the Transverse Ranges consist of (east to west) the Raymond, Hollywood, Santa Monica, Anacapa-Dume, Malibu Coast, and others, collectively referred to as the Transverse Ranges Southern Boundary Fault System (Dolan et al. 1997). These faults accommodate left-reverse motion. Many of these faults are considered active, and are capable of producing strong ground shaking and ground surface rupture.

The San Fernando Valley, an alluvium-filled basin, bounds the northern side of the Santa Monica Mountains and is located east of the subject site. This basin is not separated from the Santa Monica Mountains by a significant fault system. North-dipping thrust faults, including the Sierra Madre, San Fernando, and Santa Susanna, bound the northern side of the basin. In addition, blind or buried thrust faults underlie the San Fernando Valley and project southeast toward downtown Los Angeles and the Whittier Fault to the east.

LOCAL GEOLOGIC STRUCTURE

Although the bedrock was not directly observable in the borings, the enclosed Dibblee geologic map indicates that bedding in this area generally strikes roughly east/west and dips moderately to the north. Steep bedding was observed in the sample at 60 feet obtained from Boring 1. Moderate to steep west-dipping structure is mapped along the south side of Calabasas Road by Dibblee, and was observed by the undersigned.

Groundwater in the borings precluded detailed observations of the bedrock structure. Based on the depth to bedrock and the planned depth of excavation, bedrock will not be encountered in the excavation. A determination of the geologic structure is therefore not considered to be necessary for evaluation of the planned project.

Significant faults, folds, or other geologic hazards were not encountered during exploration.

SEISMIC CONSIDERATIONS

Earthquake Fault Zones

The State of California enacted the Alquist-Priolo Special Studies Act of 1972, which went into effect in early 1973. The Alquist-Priolo Act is intended to prohibit the location of most structures for human occupancy across a known active fault that intersects the ground

surface, thereby mitigating fault-rupture hazard. The Alquist-Priolo Act requires that the State Geologist delineate "special studies zones" along active surficial faults. Development within these Special Studies Zones must include geologic investigation demonstrating the absence of a surface displacement threat. Special Studies Zones have been renamed Earthquake Fault Zones.

The maps depicting the Earthquake Fault Zones are issued by the California Department of Conservation, California Geological Survey (CGS). An earthquake fault which is well defined, active, or sufficiently active (active within the last 11,000 years) and breaks or nearly breaks the ground surface is subject to zoning. An Earthquake Fault Zone is ordinarily established from 200 feet to 500 feet from an identifiable recent break. Recent breaks are determined by surface and subsurface exploration by the CGS, and their review of previous work by others.

The site is not located within an Earthquake Fault Zone, and no zoned faults cross the site or are in close proximity. The nearest zoned fault is the western portion of the Malibu Coast Fault zone located approximately 11 miles to the south.

The main trace of the Malibu Coast Fault is considered the oldest trace. There is no evidence of Holocene displacement on the main trace of the Malibu Coast Fault. According to Treiman (1994) the youngest documented displacement involves an approximately 124,000 ybb (years before present) marine terrace. Generally, the fault is gently north-dipping. However, some workers have exposed steeply dipping or south-dipping faults.

The Malibu Coast Fault is designated active in the Los Angeles County Seismic Safety Element. Possible active breaks of the fault have been described by other investigators south of the Pacific Coast Highway and west of the Malibu Civic Center, and north of Pacific Coast Highway near Latigo Canyon. These areas have been designated Alquist Priolo Earthquake Fault Zones. A portion of the Malibu Coast Fault has been included in an Earthquake Fault Zone (Point Dume Quadrangle, June 1, 1995) north of Escondido Beach.

Treiman (1994) concludes that the Malibu Coast Fault Zone is a less active part of the tectonic boundary between the Transverse Ranges and the Peninsula Ranges, with the more active part being the offshore Anacapa and Santa Monica faults. Greater activity along the

faults to the south is expected. Treiman (1994) suggests that future surface rupture along the Malibu Coast Fault Zone should be expected to occur in a more or less random pattern as the broad zone of pre-existing planes of weakness adjusts to stress and strong ground shaking.

Strong Ground Shaking – 2007 California Building Code (CBC)

The majority of Southern California, including all of Los Angeles and Ventura counties, falls within a zone requiring structural design to resist earthquake loads. Section 1613A of the 2007 California Building Code (CBC) which is based on the 2006 International Building Code (IBC) requires mapped spectral response acceleration parameters. These parameters include 5-percent critical damping at 0.2 seconds (S_s) and 1.0 seconds (S_1). In addition, a Site Class and site coefficients F_a and F_v must be assigned for use in structural design relative to strong ground shaking.

The mapped spectral acceleration parameters (S_s and S_1) are determined utilizing Figure 1613.5(3) and 1613.5(4) of the CBC 2007 or the geographic location (latitude and longitude) of the site using the program "Earthquake Ground Motion Parameter Java Application" obtained from the United States Geological Survey (USGS) website: http://earthquake.usgs.gov/research/hazmaps/design/index.php. Site coefficients F_a and F_v can also be obtained from the USGS program or from tables 1613A.5.3(1) and 1613A.5.3(2) included in CBC 2007.

The 2006 edition of the CBC assigns a site class based on the average soil properties within the upper 100 feet of the soil profile. Site Class C is thought to be applicable for the subject property.

Site Class, spectral accelerations and seismic design coefficients have been determined for the site based on Table 1613A.5.2 of CBC 2007 and the USGS program "Earthquake Ground Motion Parameter Java Application" utilizing the 2006 International Building Code analysis option. The required design parameters and coefficients are provided in the following table.

Site Class	Spectral Response Acceleration (0.2s) S_s (g)	Spectral Response Acceleration S_1 (g)	Site Coefficient F_a	Site Coefficient F_v
C	1.50	0.60	1.00	1.30

The proposed structure will be subjected to moderate to strong ground shaking should one of the many active Southern California faults produce an earthquake.

Seismic Hazards

The California State Legislature passed the Seismic Hazards Mapping Act of 1990. The Seismic Hazards Mapping Act was signed into law and became effective in 1991. The Seismic Hazards Mapping Act was prompted by damaging earthquakes in northern and southern California, and is intended to protect public safety from the effects of strong ground shaking, liquefaction, landslides, and other earthquake-related hazards. The Seismic Hazards Mapping Act requires that the State Geologist delineate the various "seismic hazards zones." The maps depicting the zones are released by the CGS. The fact that a site lies outside of a zone does not mean it is free of seismic or geologic hazards such as landslides, lateral spreading, liquefaction or rockfall. Not all of Southern California has been mapped, although, new maps are issued and existing maps are refined from time to time.

The Seismic Hazards Mapping Act requires a site investigation by a certified engineering geologist and/or civil engineer prior to development of a project sited within a hazard zone. The investigation is to include recommendations for a "minimum level of mitigation" that should reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy. The Seismic Hazards Mapping Act does not require mitigation to a level of no ground failure and/or no structural damage.

Seismic Hazard Zone delineations are based on correlation of a combination of factors, including: surface distribution of soil deposits and bedrock, slope steepness, depth to groundwater, bedding orientation with respect to slopes, bedrock shear strength, and occurrence of past seismic failure. Maps within the series are further designated as Reconnaissance, Preliminary, or Official. Official Seismic Hazard Zones Maps are the culmination of mapping, analysis, review and comment of CGS, other State agencies, and the public following review and revision of the Preliminary Review Map. The Official Maps are the most rigorous and have the highest confidence level.

The CGS has released an official map titled "Seismic Hazard Zones, Calabasas 7.5 Minute Quadrangle," which is included in Open File Report #97-13, dated February 1, 1998. The map delineates areas that have been subject to or are potentially subject to liquefaction; and

areas where previous landsliding has occurred or conditions for potential permanent ground displacements exist as a result of earthquake-caused ground shaking. Dotted zones are for liquefaction hazard. Cross hatch zones are for earthquake-induced landslides.

Liquefaction is a process which occurs when saturated sediments are subjected to repeated strain reversals during a seismic event. The strain reversals cause an increase in pore water pressure such that the internal pore pressure approaches the overburden pressure and the shear strength approaches a low residual value. Liquefied soils are subject to flow, consolidation, or excessive strain. Liquefaction typically occurs in loose to medium dense sand and silty sand soils below the groundwater table. Predominately fine-grained soils, such as silts, and clay, are less susceptible to liquefaction. The site is not included within a zone of potentially liquefiable soil. Liquefaction is not considered a hazard at the subject site because the alluvial soils are comprised predominately of silt and clay.

The site is also not located within an area subject to potential seismic-induced slope instability. This designation has likely been made since the site is not adjoined by significant slopes.

Additional secondary seismic effects, such as earthquake-induced soil densification and ground lurching are not expected to occur on the site.

Retaining Wall Calculations

Retaining wall, shoring pile and temporary excavation design calculations were performed using the MULT CALC 2000 Computer Program by Wolf Software. The program employs a trial wedge analysis, using vectors for each trial wedge to arrive at a horizontal thrust. The factor of safety is applied to the soil strengths.

Seismic Retaining Wall Calculations

The seismic loading on the proposed retaining walls has been analyzed using the MULT CALC 2000 Computer Program by Wolf Software. The program utilizes the Mononobe-Okabe Method to analyze the seismic forces on a retaining wall. This method requires horizontal and vertical seismic coefficients A_h and A_v. Available literature suggests that the use of a horizontal ground acceleration coefficient which represents two thirds the peak ground acceleration is appropriate. The vertical seismic coefficient can be approximated as two thirds the horizontal seismic coefficient. The estimated soft rock peak

ground acceleration at the subject site is 0.40g, as determined from Figure 3.1 of the Seismic Hazards Report for the Canoga Park and Adjacent Quadrangles. The horizontal seismic coefficient $A_h = 2/3$ (PGA) = 2/3 (0.40) = 0.26g. The vertical seismic coefficient $A_v = 2/3\ A_h = 2/3\ (0.26) = 0.17g$.

The Mononobe-Okabe Method provides an estimate of the combined active and seismic lateral loads. The active load under static conditions must be calculated and subtracted to obtain the seismic component. The resultants of the active and seismic loads act at different heights on the wall and therefore must both be determined. The resultant of the static active load acts at one third the wall height above the base. The resultant of the seismic load acts at 0.6H (H=wall height) above the base.

The recommended active load using a factor of safety of 1.5 exceeds the combined active and seismic load using a factor of safety of 1.1. Therefore the active design governs the wall design. Cantilevered basement retaining walls up to 25 feet high may be designed for an active equivalent fluid pressure of 55 pounds per cubic foot.

The above-described calculations are based on shear tests of samples believed to be representative of the earth materials encountered during exploration. Cross sections used are thought to be the most critical for the conditions analyzed.

ENGINEERING CONSIDERATIONS

Samples of the earth materials were obtained from the site and transported to the laboratory for further testing and analysis. The testing performed is described in the Appendix. The testing indicates that the deeper residual soil and alluvial soils are not subject to hydrocollapse upon the introduction of water or significant consolidation upon the application of increased loads. The deeper soil and alluvium are therefore thought to be a suitable bearing material. The compacted fill, residual soil and alluvium are in the moderate expansion range per UBC standards (EI = 52 to 80). Testing conducted by GeoLabs Westlake Village yielded an R value of 23 for the existing fill.

CONCLUSIONS AND RECOMMENDATIONS

General Findings

The subject property is considered a suitable site for the proposed development from a soils engineering standpoint. It is the opinion of the undersigned that the proposed development will be safe against hazards from landslide, settlement or slippage, and that the proposed grading and development will not have an adverse effect on the geologic stability of the property outside the building site provided our recommendations are followed during construction. This opinion is based upon the findings of our investigation. It is our opinion that the nature and extent of the investigation are in conformance with generally accepted practice in the area. Test findings and statements of professional opinion do not constitute a guarantee or warranty, expressed or implied.

Based on the current plan a maximum 25-foot-deep excavation is planned for the commercial building. Due to property line constraints and the proximity of the 101 Freeway and Calabasas Road temporary sloped excavations are not considered to be feasible for this site. The excavations should therefore be supported by closely spaced shoring piles designed per the following sections of this report. The shoring piles may derive resistance to lateral forces within both the alluvium and bedrock. Shoring piles should be spaced a maximum of 8 or 9 feet on center for 2- and 3-foot-diameter piles, respectively. Lagging will be necessary for the entire shored height of the excavation.

The piles may serve as both temporary shoring piles to allow the excavation to proceed and as permanent piles to support the building if desired. If the piles are utilized as permanent piles for a shotcrete wall, the piles should be designed for the full equivalent fluid pressure. Seepage and moisture penetration may occur within the shotcrete walls. If moisture intrusion is undesirable, an independent retaining wall supported by a conventional foundation could be constructed in front of the shoring piles. This retaining wall would have a lower design pressure, as a portion of the soil load would be retained by the shoring piles. Non-expansive granular imported backfill materials should be used to fill the void between the shoring wall and an independent wall, if a lower pressure is used.

The planned building may be supported by conventional foundations bearing in alluvium as long as it is not partially supported by the shoring piles. The building should be entirely supported by piles that extend into bedrock if it is tied to the shoring piles.

The retaining walls proposed for the entry area at the east portion of the site may be founded on conventional foundations extending into compacted fill, the deeper soil, or underlying alluvium. Based on sections C and D, suitable materials will not be encountered at the planned wall foundation elevations for these walls. We believe that the most prudent means of constructing these walls is to remove and recompact the fill and soil to create a certified structural fill. At least 3 feet of fill should be provided beneath the wall foundations. Upon completion of removal and recompaction, the walls may be supported by shallow conventional foundations supported in compacted fill. On-grade slabs may be supported by the residual soil and dense alluvial soils, and should be reinforced for expansive soil pressures.

We recommend installing a series of subdrain pipes beneath the basement slab. A central east/west drain extending the length of the building is recommended. Perpendicular drain lines should also be installed every 30 feet for the length of the building. The pipes should rest on 3 inches of gravel and slope 1 percent to a central sump pit. A capillary break at least 6 inches thick consisting of 3/4 inch crushed rock should be provided above the drain. This gravel should be separated from the sand beneath the slab (if utilized) and from the underlying alluvium by filter fabric.

The existing fill and upper portion of the soil are not considered suitable for support of site hardscape. The existing fill and upper 1 to 2 feet of soil should therefore be removed and recompacted in areas where pavement is planned. All fill on the east portion of the site should be removed from behind the east and north walls. The grade directly behind these existing walls should not be raised. A fill slope could be constructed behind the walls to attain any proposed grade. The toe of the fill slope should be located at least 3 feet away from the back of the wall. The east wall could also be replaced with a new wall supported on a conventional footing bearing into the natural soil. Slight encroachment on the offsite property would likely be necessary to install a new wall. Permission from the adjoining owner should be secured prior to grading offsite.

If widening of Calabasas Road is part of the project, the street widening plan should include removing and recompacting 3 feet of the earth materials where new pavement is planned. The road section should be determined by the civil engineer based on the traffic index and an R value of 23 for the compacted road subgrade.

Grading

The following guidelines may be used in preparation of the grading plan and job specifications for the removal and recompaction for the walls and pavement areas on the east portion of the site.

A. The areas to receive compacted fill shall be stripped of all vegetation, debris, existing fill, and upper soil. The excavated areas shall be observed by the soils engineer and/or geologist prior to placing compacted fill.

B. The removals should provide for at least 3 feet of compacted fill beneath all proposed wall foundations, and should extend laterally beyond the proposed walls for a distance equal to the depth of fill below grade.

C. The exposed grade shall then be scarified to a depth of 6 inches, moistened to approximately equal to or slightly above optimum moisture content, and recompacted to 92 percent of the maximum density as determined by the latest version of ASTM D1557.

D. Fill, consisting of earth materials approved by the soils engineer, shall be placed in compacted layers with suitable compaction equipment. The excavated onsite materials are considered satisfactory for reuse in the controlled fills. Imported fill sources should be approved by this office prior to transporting the fill to the site. A minimum 48-hour notice is required to approve imported fill. Soil engineering and/or environmental reports regarding the source site(s) may be required. Rocks larger than 6 inches in diameter shall not be used in the fill.

E. The fill shall be compacted to at least 92 percent of the maximum laboratory density. The maximum density shall be determined by the latest version of ASTM D1557. The moisture content of the fill shall be approximately equal to or slightly above optimum moisture.

F. Field observation and testing shall be performed by the soils engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until the

required degree of compaction is obtained. A minimum of one compaction test is required for each 2 vertical feet or 500 cubic yards of fill placed.

G. An erosion control plan should be developed and approved when grading is to be performed during the "rainy season" between October 1 and April 15.

Spread Footings

Continuous footings may be used to support the entry retaining walls and an independent basement wall. The entry retaining walls should be founded in compacted fill, while independent basement walls and interior column footings should be founded in alluvium. Continuous footings should be a minimum of 12 inches in width. Pad footings should be a minimum of 24 inches square. Design parameters are outlined in the following chart.

Bearing Material	Minimum Depth into Bearing Material (Inches)	Vertical Bearing (psf)	Coefficient of Friction	Passive Earth Pressure (pcf)	Maximum Earth Pressure (psf)
Compacted Fill	18	1,500	0.34	250	2,500
Alluvium	18	2,000	0.32	300	4,000

Increases in the bearing value are allowable at a rate of 20 percent for each additional foot of footing width or depth to the maximum earth pressures.

The bearing values indicated above are for the total of dead and frequently applied live loads and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces. When combining passive and friction for lateral resistance, the passive component should be reduced by one third. For the purpose of bearing calculations, the weight of the concrete in the footing may be neglected.

All continuous footings should be reinforced with four #4 steel bars, two placed near the top and two placed near the bottom of the footings. Footings greater than 3 feet in depth should be provided with vertical reinforcement consisting of #4 steel bars spaced 24 inches on center. Continuous footings should not exceed a total depth of 5 feet without special design

from the structural engineer. Footings should be cleaned of all loose material, moistened, and free of shrinkage cracks prior to placing concrete. Footing trenches should be pre-saturated to a minimum of 2 percent above optimum moisture to a depth of 18 inches prior to pouring concrete.

Deepened Foundations - Friction Piles

Friction piles may be used to shore the tall basement excavation, and to support permanent walls and interior columns, if desired. Piles should be a minimum of 24 inches in diameter and extend a minimum of 6 feet into bedrock. The piles may be designed for skin friction values of 250 and 750 pounds per square foot for those portions of pile in contact with the alluvium and bedrock, respectively. Spoils from pile excavations should be disposed of properly.

Lateral Design

Permanent and shoring pile shafts should be designed to retain the material located upslope of and between the piles using the pressures provided in the **Retaining Wall** and **Temporary Shoring** sections of this report. The depth of material to be retained is 25 feet, as depicted sections A through D. Piles should be spaced a maximum of 8 or 9 feet on center for 2- and 3-foot-diameter piles, respectively. The area between the shoring piles should be continuously lagged. Slurry should be used to fill any voids between the lagging and soils.

The skin friction values indicated above are for the total of dead and frequently applied live loads and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces. Piles may be assumed fixed at 4 feet into alluvium. Resistance to lateral loading may be provided by passive earth pressure within the alluvium and bedrock. Passive earth pressure may be computed as equivalent fluids having densities of 350 and 650 pounds per cubic foot, with maximum earth pressures of 4,000 and 10,000 pounds per square foot. For design of isolated piles, the allowable passive earth pressure may be increased by 100 percent. Piles which are spaced more than 3-pile diameters on center may be considered isolated.

Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The settlement is expected to be 1/4 to 1/2 inch. Long-term differential settlement is not

expected to exceed 1/4 inch in 20 feet along continuous footings and 1/3 inch between adjacent column footings. These levels of differential settlement are not expected to cause significant cracking in the planned structure.

Utilities

It is recommended that utility trenches not be planned parallel to and below a 2:1 plane projected down from the base of the outer edge of conventional foundations. Footings should be deepened to satisfy the foregoing recommendations. Sand should be placed around utility lines and be properly jetted. Backfill for all utilities trenches above the pipes should be placed by mechanical compaction methods and should be tested and certified. Flooding and/or jetting of utility or other trench backfill does not create compact trench backfill and should not be used except around and up to 6 inches above pipes. Utility penetrations through footings should be tightly sealed when raised-floor construction is utilized.

Utilities bedded in sand can serve as conduits to bring subsurface water onto the site. It is recommended that a slurry or bentonite seal be placed around the pipes at their entrance onto the property to prevent the flow of subsurface water onto the site.

Floor Slabs

The basement floor slab should be cast over a firm subgrade, and should be a minimum of 5 inches thick. The slabs should be reinforced with a minimum of #4 steel bars spaced 18 inches on center. Care should be taken to cast the reinforcement near the center of the slab. "Pulling" the reinforcement up into the slab after pouring is not recommended. Chairs or other devices should be used to support the reinforcement at the proper height. The slab should be dowelled into the basement wall foundations using #4 steel dowels spaced 36 inches on center.

The basement slab may be protected with a minimum 10-mil vapor retarder or vapor barrier placed beneath the slab. The purpose of the vapor retarder or vapor barrier is to limit moisture migration from the subgrade soil into the parking space. The commonly used 6-mil and 10-mil polyethylene plastic sheeting can produce less-than-satisfactory results due to its low puncture resistance, inconsistent vapor permeance, and variable product longevity. We therefore recommend that consideration be given to the use of products that conform with ASTM E1745, such as Stego® Wrap 15-mil Class A vapor barrier, or

10-mil Class A vapor retarder. These products should be installed in accordance with the manufacturer's recommendations. In particular, care should be utilized to seal the sheet boundaries and seal around penetrations. The vapor retarder or barrier should be underlain and overlain by thin layers of sand (about 2 to 4 inches) to prevent punctures and aid in the concrete cure. Care should be exercised during concrete pumping not to displace the sand up into the concrete. Consideration may be given to eliminating the sand above the vapor barrier or retarder if the slab is sufficiently reinforced to resist curling during curing. Prior to placing the vapor barrier or the slab if no vapor barrier is placed, the moisture content of the subgrade earth materials should be raised to 120 percent of optimum to a depth of 18 inches.

The vapor barrier or retarder is intended to prevent the upward migration of moisture from the subgrade soils through the porous concrete slab. It should be noted that vapor retarders, particularly polyethylene-type retarders are not watertight and may not prevent capillary rise of water through the soil to the slab. It should also be noted that vapor barriers and vapor retarders are penetrated by any number of elements, including water lines, drain lines, and footings, which provide additional avenues of water and water vapor migration. Care should be taken to seal sheet boundaries and penetrations. These vapor barriers and vapor retarders should not be assumed to be completely watertight. It is therefore recommended that a surface seal be placed on slabs which will have a floor covering. The floor installer should be consulted regarding an adequate product.

An under-slab drain system is recommended beneath the basement slabs. The drains should consist of 4-inch-diameter perforated pipe surrounded by gravel. A minimum 6-inch-thick gravel layer underlain and overlain by filter fabric should extend between drain pipes. A central drain oriented east/west should be provided beneath the central portion of the slab. Perpendicular drains should be placed approximately 30 feet on center, and should fall a minimum of 1 percent to a sump pit. Water collected in the sump pit should be pumped to the street.

Foundation and Slab Concrete

The contractor should be responsible for supplying to the owner concrete mix designs for slab and foundation concrete. The contractor should provide designs, and place, finish, and cure concrete in accordance with all procedures recommended by American Concrete Institute (ACI). The contractor is referred to the latest version of the ACI publication

"Guide for Concrete Floor and Slab Construction," ACI Document ACI302. The contractor should use care during concrete-slab placement not to mix the concrete with the sand layer above the vapor barrier. If a chemical curing compound is utilized, it should be compatible with proposed floor coverings. As an alternative to a chemical curing compound, the slab area should be kept thoroughly moistened by misting until the initial concrete sets, after which the concrete surface should be suitably covered for at least two weeks. Three to four weeks is preferred. The use of plastic sheeting in curing floor slabs may cause discoloration of the slab surface, which may be undesirable. In this case, the use of plastic sheeting should be avoided. The owner should consider retaining a qualified materials testing laboratory to verify conformance with the specifications.

It should be noted that cracking of concrete floor slabs is very common during curing. The cracking occurs because concrete shrinks as it dries. It is important that additional water not be added to concrete at the site to make pumping easier as this will increase the magnitude of shrinkage. If exposed concrete slabs are used, consideration should be given to using concrete with 1-inch top-size aggregate rather than pea gravel. These mixes are stronger and less susceptible to shrinkage, but are difficult to pump. The use of a conventional pump mix should provide an adequate strength slab but one which is more prone to shrinkage cracking. The use of a low water cement ratio mix will also produce a slab that is less permeable and therefore less susceptible to water vapor transmission. In addition, the use of concrete with a water-cement ratio of less than 0.5 by weight and a minimum 4,000 psi compressive strength will reduce concrete shrinkage and vapor transmission.

Crack-control joints which are commonly used in exterior decking to control such cracking are normally not used in interior slabs. The reinforcement recommended above is intended to reduce cracking, and its proper placement is critical to the slab's performance. The minor shrinkage cracks which often form in interior slabs generally do not present a problem when carpeting, linoleum, or wood floor coverings are used. The slab cracks can, however, lead to surface cracks in brittle floor coverings such as ceramic tile. A mortarbed or slip sheet is recommended between the slab and ceramic tile to limit the potential for cracking.

Crack-control joints are recommended in the subterranean garage slab. Joints should be placed a maximum of 12 feet on center. Joints should extend from column base corners.

Sulfate and corrosion testing of the soil has been performed by Schiff Associates. The results of the testing are included in Appendix B. The tests indicate that the soil is not corrosive to concrete. The soils should be considered highly corrosive to ferrous metals.

Retaining Walls

Non-restrained retaining walls supporting a level backslope may be designed per the pressures shown on the following tables. Uniform traffic surcharges were included for walls that are adjacent to the street, the 101 Freeway and where adjoined by a parking lot. Based on the current plans the freeway and street traffic surcharges are at least 10 feet from the building. Restrained walls may be designed using the trapezoidal pressures distribution indicated in the table. The uniform pressure for the trapezoidal loading column should be applied over the central six-tenths of the wall and then uniformly decreased to zero at the top and bottom of the wall. The following designs assume that the retaining walls are supported by the shoring piles.

South and North Walls Located Parallel to Calabasas Road and the 101 Freeway

Maximum Wall Height (feet)	Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
25	55	36H

East Wall Located Adjacent to Parking Ramp

Maximum Wall Height (feet)	Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
14	45	30H

West Wall Located Adjacent to Parking Lot Area

Maximum Wall Height (feet)	Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
25	56	37H

If independent basement walls (walls not using piles for support) are used, a minimum 35 pound per cubic foot design and 23H trapezoidal pressure design are applicable provided granular non-expansive backfill is used. If onsite materials are used as backfill, a minimum 45 pound per cubic foot design and 30H trapezoidal design will be needed. These designs

assume that permanent shoring piles are present 2 to 4 feet from the rear face of the independent retaining wall.

Conventional retaining walls should be provided with a subdrain and should be backfilled with a minimum of 12 inches of gravel adjacent to the wall to within 2 feet of the ground surface. The gravel should be separated from the earth cut by non-woven filter fabric such as Mirafi 140N. A compacted fill blanket shall be provided at the surface along with proper surface drainage devices. A drainage composite such as Miradrain® may be used in lieu of the gravel column. Any remaining void should be filled with gravel if the void is less than 18 inches. If the void is wider than 18 inches, compacted fill should be utilized or the Building official should be consulted regarding the possible use of a wide gravel column. Gravel backfill should be densified by tamping. Water collected from the subdrain system should be directed to a sump in the subterranean garage and pumped to the street. The pump should be sized assuming a flow rate of 5 gallons per minute per 200 feet of subdrain.

Drainage composite strips secured to the excavation between piles that have a perforated pipe at the base and solid outlet pipe may be used if a shotcrete application is chosen for the permanent wall.

The onsite earth materials may be used for retaining wall backfill. Any imported fill should be approved by the soils engineer. The retaining wall backfill should be compacted to a minimum of 90 percent of the maximum density, as determined by the latest version of ASTM D1557. A compaction test for every 2 feet of backfill placed should be performed.

Footings may be sized per the foundation design sections of this report.

Retaining Wall Deflection

It should be noted that non-restrained retaining walls designed for active earth pressure will deflect 1/4 to 1/2 percent of their height over time in response to loading. This deflection is normal and reduces the earth pressure on the wall. Improvements constructed immediately adjacent to or incorporated with non-restrained retaining walls should be designed to accommodate this movement. Should wall deflection be undesirable, please contact our office for higher, at-rest earth pressures which will reduce wall deflection significantly.

Decking which caps a retaining wall should be provided with a flexible joint to allow for the normal 1/4 to 1 percent deflection of the retaining wall. Decking which does not cap a retaining wall should not be tied to the wall. The space between the wall and the deck will require periodic caulking to prevent moisture intrusions into the retaining wall backfill.

Temporary Excavation Stability

Temporary verticals cuts within the soil and older alluvium with a 1:1 trim may be excavated up to 3½ feet. The fill should be trimmed to 1:1 for all wall excavations.

Temporary shoring piles will be required to support vertical excavations for the subterranean levels. The shoring design is provided in the following tables. The value listed is for a factor of safety of 1.25. Uniform traffic surcharges were added for those wall sections that are adjacent to Calabasas Road and the 101 Freeway. Restrained shoring may be designed using a trapezoidal pressure distribution as noted in the table. The analyses indicate that the same shoring wall pressure can be used at all locations. The uniform pressure noted in the trapezoidal loading column should be applied over the central six-tenths of the wall and then uniformly decreased to zero at the top and bottom of the wall.

Shoring Adjacent to Calabasas Road and the 101 Freeway

Shoring Wall Height (feet)	Shoring Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
14 – 25	37	24H

Shoring Adjacent to West Building Wall

Shoring Wall Height (feet)	Shoring Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
0 to 25	39	25H

Shoring Adjacent to East Building Wall

Shoring Wall Height (feet)	Shoring Wall EFP (pcf)	Trapezoidal Loading (lbs x wall Height-H)
0 to 14	29	19H

Piles may be designed for parameters provided in the **Deepened Foundations** section of this report.

The shoring piles may be designed as cantilevered or raker-braced piles. The use of tie-backs is questionable because of the presence of underground improvements in the streets and the proximity to the freeway. Tie-back recommendations can be provided in the future if desired.

The tops of pad footings for raker-braced piles should be a minimum of 12 inches below the ground surface and 2 feet wide by 2 feet long. A bearing value of 4,000 pounds per square foot may be used for raker pad footings inclined at up to 45 degrees from horizontal.

Continuous lagging will be required for temporary shoring piles. The placement of lagging may also be locally necessary to protect workers from raveling and shallow pop-outs during wall construction and subdrain and waterproofing installation. The lagging should generally be placed against the outer flanges of the shoring pile steel beam. Voids between the lagging and the earth that is to be retained shall be tightly filled with slurry under the observation of this firm.

The soils engineer should be present during grading and construction to observe temporary slopes. All excavations should be stabilized within 30 days of initial excavation. Water should not be allowed to pond on top of the excavations nor to flow toward it. No vehicular surcharge should be allowed within 3 feet of the top of the cuts unless accommodated by the shoring design. Temporary cuts should be covered with plastic and berms should be created to prevent water from overtopping the temporary excavation during the rainy season.

Excavation Characteristics

Hard, cemented bedrock was encountered in the test pits and is expected to be encountered during foundation excavation. Coring or the use of jackhammers may be necessary and should be expected. Casing may be necessary to prevent caving within the alluvium and upper portion of the bedrock where groundwater is encountered.

Groundwater will likely be encountered during foundation excavation. Groundwater should be pumped from excavations prior to pouring or should be displaced by the concrete by being tremied from the bottom of the excavation. The concrete strength should be increased by 1,000 pounds per square inch if the displacement method is used. A deputy concrete inspector may be required by the City if groundwater is encountered.

Waterproofing

Retaining walls, particularly those constructed with concrete blocks, have a history of moisture seepage and leakage. Waterproofing materials, such as asphalt emulsion and Thorough-Seal, have often proved ineffective. A flexible waterproofing membrane should be utilized. Your architect or a waterproofing specialist should be consulted for an appropriate product. The waterproofing membrane should be covered with protection board to prevent puncture during backfilling. Also important is the use of a subdrain which daylights to the atmosphere. The subdrain should be covered with gravel to facilitate collection of water or connected to a drainage composite. The gravel column or drainage composite, such as Miradrain® should be extended up the rear face of the wall to within 2 feet of the ground surface. The gravel column or drainage composite is intended to reduce the amount of time that water is in contact with the waterproofing.

Certain precautions can be taken to reduce the possibility of future seepage problems. Superplasticized and water-retardant concrete may be utilized with poured walls to make pouring easier and reduce cracking and shrinkage. Care should be taken with block walls to adequately seal the joint between the poured concrete footing and the first course of block. Where possible, a poured stem should be utilized.

Pile-supported shotcrete walls are very difficult to waterproof as a continuous waterproof membrane cannot be provided. At a minimum, a waterproof membrane and a drainage composite should be attached to the excavation between piles prior to applying shotcrete. A subdrain pipe attached to a gravel pocket should be provided at the base of the wall between each pair of piles. Some seepage through the wall should be anticipated. The use of this construction technique should be carefully evaluated.

Decking

The existing fill and upper soil are not considered suitable for support of exterior concrete slabs and walkways. Prior to placing decking, the existing fill and upper soil should be removed and recompacted to 92 percent of the maximum dry density, as determined by the latest version of ASTM D1557. Decking should be a minimum of 4 inches thick and reinforced with a minimum of #3 steel bars spaced 18 inches on center. Driveway slabs should be a minimum of 5 inches thick. Care should be taken to cast the reinforcement near the center of the slab. Reinforcement should be supported by chairs rather than being pulled up in the concrete after pouring. The decking should be underlain by a minimum of

2 inches of sand to aid in the concrete cure. Prior to pouring the concrete, the moisture content of the subgrade earth materials should be raised to 120 percent of optimum to a depth of 18 inches.

The contractor should be responsible for supplying to the owner concrete mix designs for slab concrete. The contractor should provide designs, and place, finish, and cure concrete in accordance with all procedures recommended by American Concrete Institute (ACI). The contractor is referred to the ACI publication "Guide for Concrete Floor and Slab Construction," ACI Document ACI302.1R-96. If a chemical curing compound is utilized, it should be compatible with proposed deck coverings. As an alternative to a chemical curing compound, the slab area should be kept thoroughly moistened by misting until the initial concrete sets, after which the concrete surface should be suitably covered for at least two weeks. Three to four weeks is preferred. The use of plastic sheeting in curing exterior decking may cause discoloration of the deck surface, which may be undesirable. In this case, the use of plastic sheeting should be avoided. The owner should consider retaining a qualified materials testing laboratory to verify conformance with the specifications.

Decking should be provided with frequent crack-control or expansion joints. In particular, joints are recommended at 90-degree corners and areas where the deck transitions to a narrower segment. Joints should be spaced a maximum of 8 feet on center. Decking which adjoins a lawn, planter should be provided with a 6-inch-thick deepened edge. The deck reinforcement should be bent down into the edge. Additional #3 steel bars should be provided at the top and bottom of the deepened edge. Deck sections which contain parallel deepened edges should be provided with at least one crack-control joint parallel to and between the deepened edges.

Decking which caps a retaining wall should be provided with a flexible joint to allow for the normal 1/4 to 1/2 percent deflection of the retaining wall. Decking which does not cap a retaining wall should not be tied to the wall. The space between the wall and the deck will require periodic caulking to prevent moisture intrusions into the retaining wall backfill.

Paving

Prior to placing paving, the existing fill and upper soil should be removed, and recompacted to 92 percent of the maximum dry density, as determined by the latest version of ASTM D1557. The trench backfill below paving, should be compacted to 90 percent of the maximum dry density. Irrigation water should be prevented from migrating under paving.

The following pavement sections are recommended.

	Pavement Thickness (Inches)	Base Course (Inches)
Light Passenger Cars	3	3
Moderate Trucks (Storage, etc.)	3	6

Base course should be crusher run base (CRB) or processed miscellaneous base (PMB).

Street paving designs should be provided by the civil engineer based on the traffic index and an R value of 23. A minimum of 3 feet of compacted fill should be provided beneath new street sections.

Vegetation

Shrubs and trees should be avoided adjacent to foundations as these plants will draw moisture from the soil, resulting in soil shrinkage. Shrubs and trees should be located a minimum distance from residence foundations equal to the radius of their foliage canopy without trimming. Consult your nursery or landscape professional regarding expected canopy sizes. Trees with large, massive, near-surface root systems should not be located near foundations or hardscape.

Irrigation

Control of irrigation water is a necessary part of site maintenance. Soggy ground, near-surface perched water, or seeps may result if irrigation water is excessively or improperly applied. All irrigation systems should be adjusted to provide the minimum water needed to sustain landscaping and prevent excessive drying of the soils. Generally significant runoff during an irrigation cycle indicates excessive irrigation, while soils which dry to a depth of more than several inches between irrigation cycles indicate inadequate irrigation. Adjustments should be made for changes in the climate and rainfall. Irrigation should stop when sufficient water is provided by precipitation.

Broken, leaking or plugged sprinklers or irrigation lines should be repaired immediately. Frequent inspections of the irrigation systems should be performed.

Drainage

Roof gutters and downspouts which deposit water into a buried drain system should be installed along all roof lines which drain to planted areas. Pad and roof drainage should be collected and transferred to the street in non-erosive drainage devices. Drainage should not be allowed to pond on the pad or against any foundation or retaining wall.

We recommend a minimum 5-percent pad slope away from the footings for a horizontal distance of at least 3 feet be established in planters preferably 5 feet if there is sufficient room. We also recommend a minimum 2-percent slope around the residence be established where water will flow over a lawn or other planted surface. A minimum 1-percent slope may be used in drainage swales if area drains are provided every 15 feet along the swale and the collected water is transferred to the street via a subsurface pipe. Fine-grade fills placed to create pad drainage should be compacted in order to reduce surface water infiltration.

Preserving proper surface drainage is extremely important. Planters, decorative walls, concrete decking, plants, trees, or accumulations of organic matter should not be allowed to retard surface drainage. Area drains and roof gutters should be kept free of obstruction. Area drains should be located in topographically low areas and should not extend above the adjoining grade. Condensation lines from air conditioners should outlet to area drains or paved drains which conduct the water to the street. Positive drainage along the backs of retaining walls should be maintained. Any other measures that will facilitate positive surface drainage should be employed.

It is recommended that all drainage devices be checked for performance on a regular basis and repaired as necessary. Drainage devices should be kept free of debris. The services of a sewer clean-out company should be used regularly to keep buried drains open. All cracks within exterior flatwork and joints between any slabs and the residence should be kept sealed to prevent saturation of the underlying soils.

Surface outlets for subdrains should be exposed and cleared at the completion of the construction. Every possible effort should be made during and after development to ensure that the outlets remain unobstructed. Owners should be aware of the outlet locations and the need to keep them clear. Owners should also beware of the need to regularly check and service the sump pump for the basement subdrain system.

Plan Review

This report was prepared on the basis of preliminary development plans furnished. We suggest that your architect and/or engineer provide a preliminary set of plans to our office for review and comment. Should the plans differ substantially from the preliminary set, additional geotechnical work may be required. Formal plans should be reviewed by Grover-Hollingsworth and Associates, Inc. The City will require that the plans be signed by a licensed engineering geologist and/or geotechnical engineer. These individuals are not always in the office. Please arrange an appointment for plan signing.

Agency Review

All soil engineering and geologic aspects of the proposed development are subject to the review and approval of the governing agency. It should be recognized that the governing agency can dictate the manner in which the project proceeds and they could approve or deny any aspect of the proposed improvements.

Site Observation During Construction

During construction, a number of reviews by this office are recommended to verify site geotechnical conditions and conformance with the intentions of the recommendations for construction. Although not all possible geotechnical observation and testing services are required by the City of Calabasas, the more site reviews requested, the lower the risk of future problems. The following site reviews are advised or required. Some of these site reviews will probably be required by the City. Foundation reviews should be performed prior to the placement of forms and steel reinforcement.

Pre-construction meeting	Advised
Temporary excavations	Required
Shoring pile installation	Required
Bottom excavation for removals for decking/garage slabs	Required
Compaction of fill	Required
Foundation excavation review for main structures	Required
Foundation excavation review for appurtenances	Required
Slab subgrade pre-saturation	Required
Slab subgrade moisture barrier membrane	Advised
Slab subgrade rock placement	Advised
Slab steel placement, primary and appurtenant structures	Advised

Excavation review for pool and/or spa.....Required
Subdrain and rock placement behind retaining walls .....Required
Compaction of retaining wall backfill.....Required
Compaction of utility trench backfill ..... Advised

Should the observations reveal any unforeseen hazard, the geologist/engineer will provide additional recommendations.

Please advise Grover-Hollingsworth and Associates at least 48 hours prior to the initial site visit or any pre-construction meeting. A 24-hour notice is required for additional site visits. Footing bottom, and slab subgrade observations should be requested prior to placement of steel, forms and vapor barriers. Excavation bottom observations should be requested before the placement of compacted fill. The approved plans and permits should be on the job site and available to the project consultant. The site visits during construction will be billed on an hourly basis in accordance with our most recent schedule of charges.

Construction Site Maintenance

It is the responsibility of the contractor to maintain a safe construction site. The contractor is also responsible for the safe operation of all equipment. When excavations exist on a site, the area should be fenced and warning signs posted. All excavations must be properly covered and secured. Excavation spoils should be either removed from the site or properly placed as a certified compacted fill. Fill temporarily stockpiled on the site should be placed in a stable area, away from slopes, excavations and improvements. Earth materials must not be spilled over any descending slope. Workers should not be allowed to enter any unshored trench excavations over 5 feet deep. Temporary erosion control measures and protection of excavations from drainage and erosion during the rainy season is required.

Please call this office with any questions. This report and our exploration are subject to the following Notice.

NOTICE

General Conditions

In the event of any changes in the design or location of any structure, as outlined in this report, the conclusions and recommendations contained herein may not be considered valid

unless the changes are reviewed by us and our conclusions and recommendations are modified or reaffirmed after such review.

The subsurface conditions, excavation characteristics, and geologic structure and contacts described herein and shown on the enclosed cross sections have been projected from excavations on the site, as indicated and should in no way be construed to reflect any variations which may occur between or away from these excavations or which may result from changes in subsurface conditions. The projection of geologic contacts is based on available data and experience and should not be considered exact.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the site.

If conditions encountered during construction appear to differ from those disclosed herein, notify us immediately so we may consider the need for modifications. Compliance with the design concepts, specifications or recommendations during construction requires our review during the course of construction.

EXPLORATION WAS PERFORMED ONLY ON A PORTION OF THE SITE, IT CANNOT BE CONSIDERED AS INDICATIVE OF THE PORTIONS OF THE SITE NOT EXPLORED.

This report is issued and made for your sole use and benefit. This report is not transferable. The intent of this report is to advise our client on geotechnical matters involving the proposed improvements. It should be understood that the geotechnical consulting provided and the contents of this report are not perfect. Any errors or omissions noted by any party reviewing this report, and/or any other geotechnical aspect of the project, should be reported to this office in a timely fashion. Any liability in connection herewith shall not exceed our fee for the exploration.

Geotechnical engineering is characterized by uncertainty. Geotechnical engineering is often described as an inexact science or art. Conclusions and recommendations presented herein are partly based upon the evaluations of technical information gathered, partly on experience, and partly on professional judgment. The conclusions and recommendations

presented should be considered "advice." Other consultants could arrive at different conclusions and recommendations. No warranty, expressed or implied, is made or intended in connection with the above exploration or by the furnishing of this report or by any other oral or written statement.

Expansive Soils Notice

The subject property is underlain by moderately to highly expansive soil. Expansive soils swell when wetted and shrink when dried. Pressures produced by soil expansion can lift both slabs and bearing foundation elements. Slabs and footings are also subject to settlement when soil shrinks. This movement can produce misalignment of doors, windows and floors, and cracking of slabs, walls and ceilings.

The foundation system and slabs recommended for the site improvements includes deeper, more heavily reinforced footings and reinforced slabs. These elements are intended to reduce but not eliminate deflection and cracking. Some cracks and structure misalignment should be anticipated.

The performance of the structure can be improved through the maintenance of consistent moisture conditions around the structure. Soils should be kept moist, but water should be prevented from ponding around the structure. Trees, large bushes, and uncultivated planters should not be placed adjacent to the structure. Walkways and decking placed adjacent to the structure should be underlain by a vapor barrier to prevent moisture loss through the concrete.

Respectfully submitted,

GREGORY S. BYRNE
Project Geologist

ROBERT A. HOLLINGSWORTH
G.E. 2022/E.G. 1265

REGISTERED PROFESSIONAL ENGINEER
ROBERT A. HOLLINGSWORTH
NO. 2022
EXP. 9-30-09
GEOTECHNICAL
STATE OF CALIFORNIA

GSB:RAH:pr

Enc: References
Appendix
Vicinity Map
Vicinity Topographic Map
Dibblee Geologic Map
Seismic Hazards Map
Site Plan (pocket)
Sections A thru D
Plates A-1a thru A-5
Plates B-l thru B-11
Plates C-l thru C-6
Plate D
Schiff Associates Test Results
GeoLabs Westlake Village Test Sheet
Calculation Sheets (14)
Shear Test Plots (59)

xc: (6) Michael Malamut
(1) Darrel Malamut, by email

REFERENCES

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California Division of Mines and Geology*, February 1, 1998, Seismic Hazard Zones, Official Map, Calabasas 7.5 Minute Quadrangle, Los Angeles County, California, OFR 97-13.

Dibblee, T.W., 1992, Geologic Map of the Calabasas Quadrangle, Dibblee Geological Foundation Map, DF-37, Scale 1:24,000.

Wolf Software, MULT CALC 2000, Version April 24, 2001.

** California Department of Conservation, Division of Mines and Geology (CDMG/DMG) is now known as California Department of Conservation, California Geological Survey (CGS)(2002)*

APPENDIX

LABORATORY TESTING

Sample Retrieval - Hand Labor
Undisturbed samples of earth materials were obtained by driving a thin-walled steel sampler with successive blows of a drop hammer. The material was retained in brass rings of 2.41 inches inside diameter and 1.00 inch height. The samples were stored in close-fitting, water-tight containers for transportation to the laboratory.

Sample Retrieval - Drill Rig
Undisturbed samples of earth materials were obtained at frequent intervals by driving a thin-walled steel sampler with successive drops of the Kelly bar. The material was retained in brass rings of 2.41 inches inside diameter and 1.00 inch height. The central portion of the sample was stored in close-fitting, water-tight containers for transportation to the laboratory.

Moisture Density
The field moisture content and dry density were determined for each of the undisturbed soil samples. The dry density was determined in pounds per cubic foot. The moisture content was determined as a percentage of the dry soil weight. The results are presented on the A-plates.

Compaction Character
Compaction tests were performed on bulk samples of the existing fill in accordance with ASTM D1557-02. The results of the tests are provided on the table below. Remolded samples were prepared at 90 percent of the maximum density for shear tests.

Boring No.	Sample Depth (Feet)	Soil Type	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-1	5.0	Fill	95.0	26.0

Shear Strength
The peak and ultimate shear strengths of the soil, alluvium and bedrock and ultimate shear strength of the fill was determined by performing direct shear tests. The tests were performed in a strain-controlled machine manufactured by GeoMatic. The rate of deformation was 0.01 inches per minute. Samples were sheared under varying confining pressures, as shown on the "Shear Test Diagrams," B-plates. The moisture conditions

during testing are shown on the B-plates. The samples indicated as saturated were artificially saturated in the laboratory and were sheared under submerged conditions.

Consolidation

One-dimensional consolidation tests were performed on samples of the soil and alluvium in a consolidometer manufactured by GeoMatic. The tests were performed on 1-inch-high samples retained in brass rings. The samples were initially loaded to approximately one half the field over-burden pressure and then unloaded to compensate for the effects of possible disturbance during sampling. Loads were then applied in a geometric progression and resulting deformation recorded. Water was added at a specific load to determine the effect of saturation. The results are plotted on the "Consolidation Pressure Curves," C-plates.

Expansion Index

The expansive character of the fill, residual soil and alluvium was determined by performing Expansion Index Tests in accordance with UBC 18-2. A bulk sample of earth material was compacted at a specific moisture content using one fifth the compaction energy for the modified proctor test. The sample was then saturated and the expansion measured. The results of the tests are provided on the following table.

Boring No.	Sample Depth (Feet)	Soil Type	Expansion Index
B-1	5	Fill	52
B-1	10	Soil	80
B-2	10	Alluvium	62

Appendix E

Noise Modeling Results

C:\LARDAV\SLMUTIL\MALMT.bin Event Data

Meas Site	Time of Location	Max Number	Max Date	Max Time	Lmax	Duration	Leq	SEL
0		0	08Jun 10	14:00:30	14:02:17	1200	71.6	102

Lmax	Peak	Uwpk	Sym	Decay	Type	Epnl	*	*
87.1	97.6	108.6	9.8	0	0	0	0	0

Calab btwUS101&PKWY

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Existing Calab btwUS101&PKWY

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1569.6
Average automobile speed (mph):	35.0
Medium truck volume (v/h):	32.7
Average medium truck speed (mph):	35.0
Heavy truck volume (v/h):	32.7
Average heavy truck speed (mph):	35.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Calab btwUS101&PKWY

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	67.7

Existing+Proj Calab btwUS101&PKWY

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Existing+Proj Calab btwUS101&PKWY

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1583.0
Average automobile speed (mph):	35.0
Medium truck volume (v/h):	33.0
Average medium truck speed (mph):	35.0
Heavy truck volume (v/h):	33.0
Average heavy truck speed (mph):	35.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Existing+Proj Calab btwUS101&PKWY

Distance from center of 12-ft wide, single lane roadway (ft):	50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA):	67.8

Appendix F

Comments and Responses

COMMENTS and RESPONSES

CEQA Guidelines Section 15088 requires that the lead agency evaluate public comments on environmental issues included in a Draft MND and prepare written responses to those comments. Pursuant to *CEQA Guidelines* Section 15088(b), "[t]he written responses shall describe the disposition of significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections). In particular, the major environmental issues raised when the lead agency's positions is at variance with recommendations and objections raised in the comments must be addressed in detail giving reasons why specific comments and suggestions were not accepted." The *CEQA Guidelines* call for responses that contain a "good faith, reasoned analysis" with statements supported by factual information.

The City of Calabasas received four comment letters on the Draft MND for the Malamut Vintage Automotive Dealership Project. The comment letters that the City received are below. The letters and responses follow.

Commenter	Page
1. Scott Morgan, Director, State Clearinghouse	2
2. Dave Singleton, Program Analyst, Native American Heritage Commission	8
3. Larry G. Weber, Mayor, City of Hidden Hills	13
4. Neal L. Clover, Civil Engineering Assistant, Las Virgenes Municipal Water District	15

Arnold Schwarzenegger
Governor

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Cathleen Cox
Acting Director

November 18, 2010

Letter 1

Talyn Mirzakhanian
City of Calabasas, Community Development Department
100 Civic Center Way
Calabasas, CA 91302-3172

Subject: Malamut Vintage Automotive Dealership
SCH#: 2010101064

Dear Talyn Mirzakhanian:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on November 17, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2010101064
Project Title Malamut Vintage Automotive Dealership
Lead Agency Calabasas, City of

Type MND Mitigated Negative Declaration

Description The proposed project consists of a two-story, 21,032 square-foot Tuscan-style building that would house a vintage automotive dealership and other automotive retail supporting businesses. As part of the proposed project, the applicant is requesting a General Plan Amendments to change the land use designation of the project site from Business-Limited Intensity (B-LI) to Business-Business Park (B-BP) and zone change from Commercial, Limited (CL) to Commercial, Business Park (C-BP) to accommodate the proposed automotive dealership.

Lead Agency Contact

Name Talyn Mirzakhanian
Agency City of Calabasas, Community Development Department
Phone (818) 224-1712 **Fax**
email
Address 100 Civic Center Way
City Calabasas **State** CA **Zip** 91302-3172

Project Location

County Los Angeles
City Calabasas
Region
Lat / Long 34° 09' 02" N / 118° 39' 34" W
Cross Streets U.S. 101 Off-ramp/Calabasa Road/Mureau Road
Parcel No. 2069-009-029
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways Los Angeles River
Schools Round Meadow Elementary
Land Use Vehicle storage lot for the Bob Smith BMW dealership/Commercial, Limited (CL)/Business Limitied Intesity (B-LI)

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 5; Department of Parks and Recreation; Office of Emergency Management Agency, California; California Highway Patrol; Caltrans, District 7; Regional Water Quality Control Board, Region 4; Native American Heritage Commission

Date Received 10/19/2010 **Start of Review** 10/19/2010 **End of Review** 11/17/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

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RECEIVED
NOV - 2 2010
STATE CLEARING HOUSE

October 28, 2010

Ms. Talyn Mirzakhanian, Planner

City of Calabasas Community Development Department

100 Civic Center Way
Ca;abasas. CA 91302

Re: SCH#2010101064 CEQA Notice of Completion; draft Initial Study / Mitigated Negative Declaration for **Malamut Vintage Automotive Dealership**; located in the City of Caglabasas; San Fernando Valley; Los Angeles County, California

Dear Ms. Mirzakhanian:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources. (Also see *Environmental Protection Information Center v. Johnson (1985) 170 Cal App. 3rd 604).* The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amendment effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance. The lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. State law also addresses Native American Religious Expression in Public Resources Code §5097.9.

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and several Native American Cultural Resources **were not identified** within one-half mile of the Area of Potential Effect (APE). It is important to do early consultation with Native American tribes in your area as the best way to avoid unanticipated discoveries once a project is underway and to learn of any sensitive cultural areas. Enclosed are the names of the culturally affiliated tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes.

Furthermore the NAHC recommends that you contact the California Historic Resources Information System (CHRIS) of the Office of Historic Preservation (OHP), for

information on recorded archaeological data. This information is available at the OHP Office in Sacramento (916) 445-7000.

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f]*et seq.),* 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.* Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e).

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does <u>mandate tribal consultation</u> for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

2.

Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Culturally Affiliated Native American Contacts

Cc: State Clearinghouse

3

Letter 1

COMMENTER: Scott Morgan, Director, State Clearinghouse

DATE: November 18, 2010

Response

The commenter states that the City has complied with the State Clearinghouse review requirements for draft environmental documents pursuant to CEQA. This comment is noted and will be forwarded to City decision makers. The commenter includes a comment letter from the Native American Heritage Commission dated October 28, 2010. This letter is discussed below under Letter 2.

Letter 2

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

RECEIVED
NOV 02 2010
COMMUNITY DEVELOPMENT
PLANNING DEPT.

October 28, 2010

Ms. Talyn Mirzakhanian, Planner

City of Calabasas Community Development Department
100 Civic Center Way
Ca;abasas. CA 91302

Re: SCH#2010101064 CEQA Notice of Completion; draft Initial Study / Mitigated Negative Declaration for **Malamut Vintage Automotive Dealership;** located in the City of Caglabasas; San Fernando Valley; Los Angeles County, California

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Furthermore the NAHC recommends that you contact the California Historic Resources Information System (CHRIS) of the Office of Historic Preservation (OHP), for

information on recorded archaeological data. This information is available at the OHP Office in Sacramento (916) 445-7000.

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f]*et seq.),* 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.* Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e).

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does <u>mandate tribal consultation</u> for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

2

Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Culturally Affiliated Native American Contacts

Cc: State Clearinghouse

Native American Contacts
Los Angeles County
October 28, 2010

Charles Cooke
32835 Santiago Road
Acton , CA 93510
suscol@intox.net

(661) 733-1812 - cell
suscol@intox.net

Chumash
Fernandeno
Tataviam
Kitanemuk

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
,
tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks, CA 91362
folkes@msn.com
805 492-7255
(805) 558-1154 - cell
folkes9@msn.com

Chumash
Tataviam
Ferrnandeño

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez
981 N. Virginia
Covina , CA 91722
(626) 339-6785

Yowlumne
Kitanemuk

Fernandeno Tataviam Band of Mission Indians
William Gonzales, Cultural/Environ Depart/Rudy Ortega
601 South Brand Boulevard, Suite 102
San Fernando CA 91340
rortega@tataviam-nsn.us
(818) 837-0794 Office

(818) 837-0796 Fax

Fernandeno
Tataviam

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838
Newhall , CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax

Fernandeño
Tataviam
Serrano
Vanyume
Kitanemuk

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th Street, Rm.
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 FAX

Randy Guzman - Folkes
655 Los Angeles Avenue, Unit E
Moorpark , CA 93021
ndnRandy@yahoo.com
(805) 905-1675 - cell

Chumash
Fernandeño
Tataviam
Shoshone Paiute
Yaqui

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and fed eral NAGPRA. And 36 CFR Part 800.

This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#2010101064; CEQA Notice of Completion; draft Initial Study / Mitigated Negative Declaration for the Malamut Vintage Automotive Dealership; located in the City of Calabasas; San Fernando Valley; Los Angeles County, California

Letter 2

COMMENTER: Dave Singleton, Program Analyst, Native American Heritage Commission

DATE: October 28, 2010

Response

The commenter states that the Native American Heritage Commission (NAHC) performed a Sacred Lands File search and Native American Cultural resources were not identified within one-half mile of the project site. The commenter further states that early consultation with Native American tribes in the area is the best way to avoid unanticipated discoveries once a project is underway. The commenter lists names of the nearest tribes and interested Native American individuals.

As discussed in Section V, *Cultural and Historic Resources*, on page 22 of the IS/MND, there is no evidence that archaeological resources are present onsite. Nevertheless, activities associated with construction of onsite development could potentially expose previously unknown, buried archaeological resources and human remains at the project site. Mitigation measures CR-1 through CR-5 would reduce impacts to cultural resources. The mitigation required during construction of the project includes consultation with NAHC if resources are found on the project site.

Letter 3

City of Hidden Hills

6165 Spring Valley Road • Hidden Hills, California 91302
(818) 888-9281 • Fax (818) 719-0083

November 15, 2010

RECEIVED
NOV 17 2010
COMMUNITY DEVELOPMENT
PLANNING DEPT.

Ms. Talyn Mirzakhanian, City Planner
Planning Division
City of Calabasas
100 Civic Center Way
Calabasas, California 91302

RE: City of Calabasas Malamut Vintage Automotive Dealership

Dear Ms. Mirzakhanian:

The City of Hidden Hills received the City of Calabasas' "Notice of Intent to Adopt a Negative Declaration/Mitigated Negative Declaration" for the subject project, and would like to thank you for the opportunity to comment.

While the impacts of the proposed project appear negligible to the City of Hidden Hills, we would like to request that parking be prohibited on the north side of Calabasas Road itself, as the area already suffers from traffic congestion. 3.1 We would also like to request that all utilities to the site be undergrounded while the opportunity presents itself, as an aesthetic and public safety enhancement. 3.2

Feel free to call our City Engineer, Dirk Lovett, at (818) 888-9281 should you require additional information. Thank you for your consideration.

Sincerely,

CITY OF HIDDEN HILLS

Larry G. Weber
Mayor

LGW/dl

cc: City Council

Letter 3

COMMENTER: Larry G. Weber, Mayor, City of Hidden Hills

DATE: November 15, 2010

Response 3.1

The commenter requests that parking be prohibited on the north side of Calabasas Road to prevent traffic congestion. As shown on the site plan for the proposed project (see Figure 4), the proposed project would not include street parking on the north side of Calabasas Road.

Response 3.2

The commenter requests that all utilities to the site be undergrounded as an aesthetic and public safety enhancement. The proposed project will underground all utilities as a condition of project approval.

LAS VIRGENES MUNICIPAL WATER DISTRICT
EST. 1958

Dedicated to Providing Quality Water & Wastewater Service

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Charles Caspary
Director, Division 1

Vice President
Lee Renger
Director, Division 3

Secretary
Glen Peterson
Director, Division 2
MWD Representative

Treasurer
Jeffery A. Smith
Director, Division 5

Joseph M. Bowman
Director, Division 4

John R. Mundy
General Manager

Wayne K. Lemieux
Counsel

HEADQUARTERS
4232 Las Virgenes Road
Calabasas, CA 91302
(818) 251-2100
Fax (818) 251-2109

WESTLAKE
FILTRATION PLANT
(818) 251-2370
Fax (818) 251-2379

TAPIA WATER
RECLAMATION FACILITY
(818) 251-2300
Fax (818) 251-2309

RANCHO LAS VIRGENES
COMPOSTING FACILITY
(818) 251-2340
Fax (818) 251-2349

www.lvmwd.com

MEMBER AGENCY OF THE
METROPOLITAN WATER
DISTRICT
OF SOUTHERN CALIFORNIA

Letter 4

October 19, 2010

City of Calabasas
Community Development Department
100 Civic Center Way
Calabasas, CA 91302

Attention: **Talyn Mirzakhanian, Planner**

Subject: **Draft Initial Study**
Malamut Vintage Automotive Dealership
0900006718

Dear Ms. Mirzakhanian:

The District is in receipt of your request for agency comment concerning the Malamut Vintage Automotive Dealership in Calabasas. The District has responded to this project in other letters dated May 19, 2010 and July 23, 2009. Our comments have not changed since those letters were issued.

We have no further comments on the project at this time. Thank you.

Very truly yours,

Neal L. Clover

Neal L. Clover
Civil Engineering Assistant

NLC:nlc

LAS VIRGENES MUNICIPAL WATER DISTRICT
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MEMBER AGENCY OF THE
METROPOLITAN WATER
DISTRICT
OF SOUTHERN CALIFORNIA

May 19, 2010

City of Calabasas
Community Development Department
100 Civic Center Way
Calabasas, CA 91302-3172

RECEIVED
MAY 27 2010
COMMUNITY DEVELOPMENT
PLANNING DEPT.

Attention: **Talyn Mirzakhanian, Planner**

Subject: **90006718 Mr. Darrel Malamut**
24439 Calabasas Road
A.P.N. 2069-009-029

Dear Ms. Mirzakhanian:

The District is in receipt of a review request on a project at 24439 Calabasas Road in the City of Calabasas, California. The District responded to the City in a letter dated July 23, 2009, stating our views on the project. Our comments have not changed on the project from our 2009 letter.

If you have any questions concerning this matter, please feel free to contact me at any time. Thank you.

Very truly yours,

Neal L. Clover

Neal L. Clover
Civil Engineering Assistant

NLC:nlc

LAS VIRGENES MUNICIPAL WATER DISTRICT
EST. 1958

Dedicated to Providing Quality Water & Wastewater Service

OFFICERS

President
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Vice President
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MEMBER AGENCY OF THE
METROPOLITAN WATER
DISTRICT
OF SOUTHERN CALIFORNIA

July 23, 2009

City of Calabasas
Community Development Department
Planning Division
100 Civic Center Way
Calabasas, CA 91302

Attention: **Isidro Figueroa,**
Andy Cohen-Cutler, Associate Planner

Subject: **90002608-Malamut Vintage Automotive Dealership**
24439 Calabasas Road
A.P.N. 2069-009-029

Dear Mr. Figueroa:

The District is in receipt of your request for agency comment concerning 24439 Calabasas Road. The project proposes to construct a two-story, 56,180 sq. ft. building for a vintage auto dealership. The project lies wholly within the boundaries of the Las Virgenes Municipal Water District. The District operates a 12" and a 42" potable waterline fronting this site. In addition, there are 2 LVMWD force main trunk sewers fronting this property. The nearest recycled waterline to this property is at Parkway Calabasas. Accordingly, we are the purveyor of both potable water and sewage treatment to this site.

The District suggests that a CEQA document be prepared regarding this project and that the following items should be addressed in this document.

- The District does advocate strict water conservation measures as a condition of project approval. This would include, but not be limited to, fixture design and installation (use of ultra-low toilets and shower heads), and hot water circulating systems.

- Use of drought tolerant plantings and efficient irrigation systems and techniques.

- Maximum use of recycled water during and after construction. (if available).

- The irrigation systems shall be designed for ease of conversion to use recycled water when made available to this site.

The developer will be required to meet all of the District's conditions of service in order to be served.

Further, the developer will have to pay for any water meters and sewer fees that may be due prior to construction.

If you have any questions concerning this matter, please feel free to contact me at any time. Thank you.

Very truly yours,

Neal L. Clover

Neal L. Clover
Civil Engineering Assistant

NLC:nlc

90002608

Letter 4

COMMENTER: Neal L. Clover, Civil Engineering Assistant, Las Virgenes Municipal Water District

DATE: October 19, 2010

The commenter states that the District's comments on the project have not changed since the District responded to project review requests in two previous letters dated July 23, 2009, and May 19, 2010. These two previously submitted letters are included above for reference. As discussed in the District's letters, the District advocates strict water conservation measures as a condition of project approval, including fixture design and installation, and hot water circulating systems; use of drought tolerant plantings and efficient irrigation systems and techniques; maximum use of recycled water during and after construction; and irrigation systems designed for ease of conversion to use recycled water. As discussed on page 68 of the Draft IS/MND, Mitigation Measure U-1 would be required as follows:

U-1 **Water Conservation Measures.** In order to meet the City's water conservation performance objectives, the following techniques shall be implemented as part of the project:

- *Incorporation of drought tolerant and low water using plants; maximize preservation of natural vegetation.*
- *Incorporation of water conservation techniques into the design of the irrigation system through such techniques as mulching, installation of drip irrigation systems, landscape design to group plants of similar water demand, rain sensors and automatic irrigation systems.*
- *Clustering of landscaped areas to maximize the efficiency of the irrigation system; design of irrigation systems to eliminate watering of impervious surfaces.*
- *Installation of water conserving kitchen and bathroom fixtures and appliances, installation of thermostatically controlled mixing valves for baths and showers, and insulation of hot water circulating systems.*

With incorporation of Mitigation Measure U-1, the project would comply with the District's requirements and recommendations pertaining to water conservation.

The commenter notes that the developer would be required to meet all of the District's conditions of service to be provided with water and sewer service and would have to pay for water meters and sewer fees prior to construction. This comment is noted and will be forwarded to City decision makers.

Appendix G

Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program

Malamut Vintage Automotive Dealership Project

Prepared by:

City of Calabasas
Community Development Department
100 Civic Center Way
Calabasas, California 91302
Contact: Talyn Mirzakhanian, Planner

Prepared with the assistance of:

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

November 2010

Mitigation Monitoring and Reporting Program

This document is the Mitigation Monitoring and Reporting Program (MMRP) for the Malamut Vintage Automotive Dealership Project proposed in the City of Calabasas, California. Public Resources Code Section 21081.6(a) requires that a Lead Agency adopt an MMRP prior to approving a project in order to mitigate or avoid significant impacts that have been identified in a Mitigated Negative Declaration (MND). The purpose of the MMRP is to ensure that the required mitigation measures identified in the MND are implemented as part of the overall project implementation. In addition to ensuring implementation of mitigation measures, the MMRP provides feedback to agency staff and decision-makers during project implementation, and identifies the need for enforcement action before irreversible environmental damage occurs.

The following table summarizes the mitigation measures for each issue area identified in the MND for the Malamut Vintage Automotive Dealership Project. The table identifies each mitigation measure; the action required for the measure to be implemented; the time at which the monitoring is to occur; the monitoring frequency; and the agency or party responsible for ensuring that the monitoring is performed. In addition, the table includes columns for compliance verification. These columns will be filled out by the monitoring agency or party and would document monitoring compliance. Where an impact was identified to be less than significant, no mitigation measures were required.

This MMRP will be used by City staff or the City's consultant to determine compliance with permit conditions. Violations of these conditions may cause the City to revoke the operating permit.

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
AESTHETICS							
AES-1 Landscape Plan. The applicant shall submit a landscape plan to Community Development Department for review and approval prior to issuance of grading permits. At a minimum, the landscape plan shall include the following specific features : • *Plant Screening – plant materials shall screen at least 50% of all architecture facing the Ventura Freeway. In addition, in order to soften building edges, landscaping shall be included adjacent to proposed buildings facing the Ventura Freeway.* • *Random Shrub Placement – **s**hrubs shall be randomly placed in masses in the northern and western portions of the site that are visible from the Ventura Freeway**.***	Verify that a landscape plan is submitted	Prior to issuance of grading permits	Once prior to issuance of grading permits	Community Development Department			
AES-2 Natural Building Colors. All colors, textures, materials and forms shall be compatible with the natural setting. Medium to dark colors, which blend with the surrounding environment, shall be used for building elevations and roof materials.	Verify that all colors, textures, materials and forms are compatible with the natural setting.	Prior to issuance of grading permits	Once prior to issuance of grading permits	Community Development Department			
BIOLOGICAL RESOURCES							
BIO-1 Migratory Bird Species Act Compliance. To avoid the accidental take of any migratory bird species or raptors, the removal or pruning of trees shall be conducted between September 15 and February 15, outside of the typical breeding season, as feasible. If avoidance of the nesting season is not feasible, a qualified biologist/ornithologist satisfactory to the City's Environmental Analyst shall conduct focused nesting surveys weekly for 30 days prior	Verify that removal or pruning of trees occurs between September 15 and February 15 or verify that a qualified biologist/ornithologist conducts focused nesting surveys weekly. Verify that If an active	Prior to and during construction	Prior to construction and during construction as required	Onsite Construction Manager and Public Works Department			

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
to grading or initial construction activity. The results of the nest survey shall be submitted to the City within one week of completion for review via a letter report prior to initiation of grading or other construction activity with the last survey conducted no more than three days prior to any clearance of vegetation or other construction activity. In the event that a nesting migratory bird species or raptor is observed in habitat/trees to be removed or within 250 feet of the construction work areas, the applicant has the option of delaying all construction work in the suitable habitat area or within 250 feet of the nesting activity until after September 15, or continuing focused surveys in order to determine when nesting activity has ceased. If an active nest is found, clearing and construction within 50-250 feet of the nest, depending on the species involved (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest site shall be established in the field with flagging and stakes or construction fencing. Construction personnel shall be instructed regarding the ecological sensitivity of the fenced area. Once the pre-construction bird surveys are conducted by a qualified biologist during the proper seasons, the report results, including survey dates, exact species observed and location of species onsite, shall be submitted to the City and CDFG for review and approval. No construction shall begin prior to this approval.	nest is found, clearing and construction within 50-250 feet of the nest, depending on the species involved is postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Verify that limits of construction to avoid a nest site are established in the field with flagging and stakes or construction fencing. Verify that construction personnel are instructed regarding the ecological sensitivity of the fenced area. Verify that report results are submitted to the City and CDFG for review and approval.						

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
CULTURAL RESOURCES							
CR-1 Resource Recovery Procedures. If unanticipated cultural resource remains are encountered during construction or land modification activities, the developer shall follow the applicable procedures established by the Advisory Council on Historic Preservation concerning protection and preservation of Historic and Cultural Properties (36 CFR 8700). In this event, the developer/construction contractor shall cease work until the nature, extent, and possible significance of any cultural remains can be assessed and, if necessary, remediated. Such assessment and remediation shall be implemented by the developer and shall be subject to review and approval by the Deputy Director/City Planner prior to commencement with onsite construction/grading activities. If remediation is needed, possible techniques include removal, documentation, or avoidance of the resource, depending upon the nature of the find.	Verify that in the event that unanticipated cultural resource remains are encountered during construction or land modification activities, procedures established by the Advisory Council on Historic Preservation are followed and that work is ceased until the nature, extent, and significance of the remains is assed and remediated.	During construction	As required during construction	Onsite Construction Manager and Community Development Department			
CR-2 Human Remains Recovery Procedures. In the event that human remains are discovered during construction or land modification activities, the developer shall follow the procedures in Section 7050.5 of the California Health and Safety Code. These procedures require notification of the County coroner and the Native American Heritage Commission if the coroner determines the remains to be those of Native American ancestry. Onsite construction/grading/excavation shall not commence until evidence has been presented to the City manager that the developer has adhered to these procedures.	Verify that in the event that human remains are discovered during construction or land modification activities, the procedures in Section 7050.5 of the California Health and Safety Code are followed and onsite construction/grading/ excavation ceases until evidence has been presented to the City manager that the developer has adhered to these procedures.	During construction	As required during construction	Onsite Construction Manager, Community Development Department, and City Manager			

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
CR-3 Paleontological Materials. If any paleontological materials are encountered during the course of onsite construction, construction activities shall be halted.	Verify that construction halts if any paleontological materials are encountered	During construction	As required during construction	Onsite Construction Manager and Community Development Department			
CR-4 Paleontologist Review. If undisturbed basement sediments are encountered during site development or if any paleontological artifacts are discovered, the services of a paleontologist shall be secured to assess the find. Such assessment and remediation shall be implemented by the developer and shall be subject to review and approval by the Deputy Director/City Planner prior to commencement with onsite construction/grading activities.	Verity that **i**f undisturbed basement sediments are encountered during site development or if any paleontological artifacts are discovered, the services of a paleontologist are secured to assess the find.	During construction	As required during construction	Onsite construction manager and Community Development Department			
CR-5 Paleontological Study. If the services of a paleontologist are required, copies of the paleontological survey, study, or report shall be submitted to the Los Angeles County Natural History Museum.	Verify that if the services of a paleontologist are required, copies of the survey, study or report are submitted to the Los Angeles County Natural History Museum.	During construction	As required during construction	Community Development Department			
GEOLOGY							
GEO-1 Expansive Soils. All recommendations included in the Soils Engineering Exploration report prepared by Grover Hollingsworth and Associates, Inc and the Geotechnical Site Evaluation prepared by Gorian, Inc. shall be implemented. As discussed in the two reports prepared for the project, measures to reduce impacts from expansive soils shall include but not be limited to the following: • *Existing soils that have been identified as expansive soils shall be excavated and replaced with non-expansive soils.* • *Excavated areas shall be observed by the soils*	Verify that all recommendations included in the Soils Engineering Exploration report and the Geotechnical Site evaluation are implemented	Prior to issuance of grading permits and during construction	Once prior to issuance of grading permits and as required during construction	Onsite construction manager, Community Development Department and Public Works Department			

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
engineer and/or geologist prior to placing compacted fill. • *The exposed grade shall be scarified to a depth of 6 inches, moistened to approximately equal to or slightly above optimum moisture content, and recompacted to 92% of the maximum density as determined by the latest version of ASTM D1557.* • *Fill, consisting of earth materials approved by the soils engineer, shall be placed in compacted layers with suitable compaction equipment. Rocks larger than 6 inches in diameter shall not be used in the fill.* • *Positive drainage shall be provided away from the structure* • *Joints in the flatwork shall be sealed to minimize water entering the subgrade.*							
UTILITIES							
U-1 Water Conservation Measures. In order to meet the City's water conservation performance objectives, the following techniques shall be implemented as part of the project: • *Incorporation of drought tolerant and low water using plants; maximize preservation of natural vegetation.* • *Incorporation of water conservation techniques into the design of the irrigation system through such techniques as mulching, installation of drip irrigation systems, landscape design to group plants of similar water demand, rain sensors and automatic irrigation systems.* • *Clustering of landscaped areas to maximize the efficiency of the irrigation system; design of irrigation systems to eliminate watering of impervious surfaces.* • *Installation of water conserving kitchen and bathroom fixtures and appliances, installation of*	Verify that water conservation measures are implemented as part of the project.	Prior to issuance of grading permits and during construction	Once prior to issuance of grading permits and periodically during construction.	Onsite construction manager and Community Development Department			

Mitigation Measure/Condition of Approval	Action Required	When Monitoring to Occur	Monitoring Frequency	Responsible Agency or Party	Compliance Verification		
					Initial	Date	Comments
thermostatically controlled mixing valves for baths and showers, and insulation of hot water circulating systems.							