APPENDIX A

ARBORIST REPORT

Deborah Ellis, MS
Consulting Arborist & Horticulturist
Service since 1984

ARBORIST REPORT

Project Address:
201-225 Los Gatos-Saratoga Road,
Los Gatos, California

Property Owner:
Rugani Properties LLC

Prepared for:
Jennifer Savage
Town of Los Gatos Community Planning Department
110 E. Main Street
Los Gatos, CA 95031

Prepared by:
Deborah Ellis, MS.
Consulting Arborist & Horticulturist
Registered Consulting Arborist #305, American Society of Consulting Arborists
Board Certified Master Arborist WE-0457B, International Society of Arboriculture
Certified Professional Horticulturist #30022, American Society for Horticultural Science

MARCH 17, 2015

PO Box 3714, Saratoga, CA 95070. 408-725-1357. decah@pacbell.net. http://www.decah.com.

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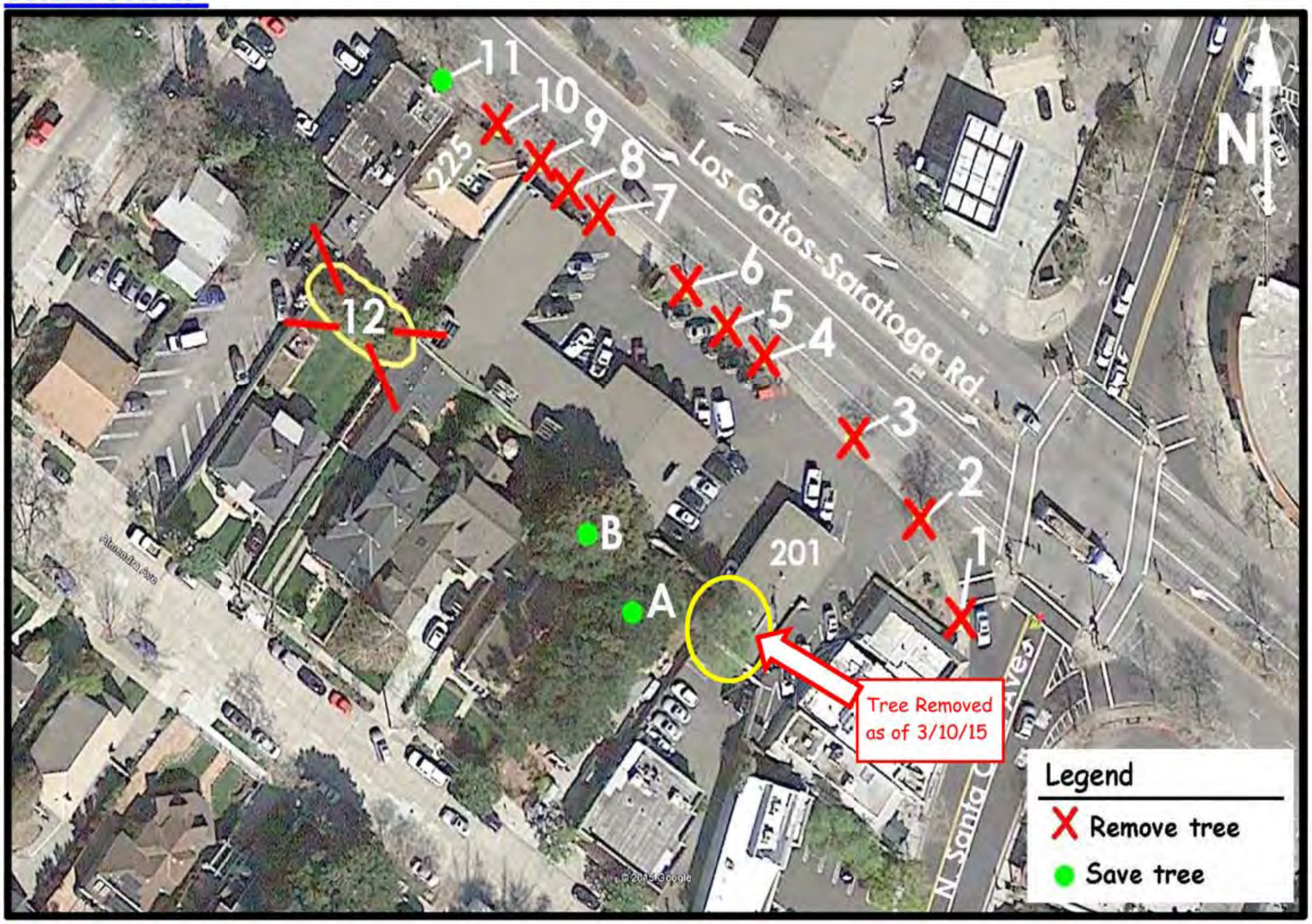
Cover photo: frontage of the property along Los Gatos-Saratoga Road. **London plane Town Street Trees #8-11** are labeled. All photos in this report were taken by D. Ellis on March 10, 2015.

TREE MAP


11
10
9
8
7
6
5
4
3
2
1
12
225
201
B
A
N
Los Gatos-Saratoga Rd.
N. Santa Cruz Ave.
Tree Removed as of 3/10/15
Legend
Remove tree
Save tree

SUMMARY

BRIEF DESCRIPTION OF THE PROJECT

Existing commercial buildings will be demolished and two lots will be merged into a single lot. A new commercial building and electric vehicle service and sales business will be operated on the property.

PLANS REVIEWED

- Project plan set from Kenneth Rodrigues & Partners, February 1, 2015

BRIEF DESCRIPTION OF THE TREES

As described in the previous paragraph there are a total of **32** ***protected trees***[1] on or adjacent to the project site adjacent to or within proposed demolition and construction. This includes 11 Town Street Trees adjacent to the site along Los Gatos-Saratoga Road and North Santa Cruz Avenue. These trees are listed in the *Summary Tree Table* below and on the next page, and the trees are also described in greater detail in the *Complete Tree Table* beginning on page 6.

HOW TREES WILL BE IMPACTED BY PROPOSED CONSTRUCTION

Most of the existing site will be demolished. I congratulate the attempt of the developer and their architects in trying to save as many existing trees as possible. It will not be practical or reasonable however, to save any of the trees except for **London plane #11**, a Town Street Tree on Los Gatos-Saratoga Road just west of the project site. In the project plans only four Town Street Trees **#1-3 and #10** are proposed for removal. **Street trees #4 – 9 and 11** are proposed to be saved; but this will not be practical because the proposed two-story building is within 4 to 10 feet from their trunks. I initially recommend removing these street trees, eliminating their

[1] Protected Tree: For the purpose of this project, a protected tree in Los Gatos as defined in the Los Gatos Town Code, Division 2 Tree Protection, Section 29.10.0960, 12/3/2010 the Scope of Protected Trees is any tree with a 4-inch or greater diameter of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required. Town Street trees of any size are protected. Fruit trees less than 18 inches in trunk diameter are exempt.

sidewalk planting space cutouts and moving the new sidewalk so that it is flush with the curb. This will allow the planting area between the building and the sidewalk to be wider. Planner Jennifer Savage informed me however, that this is not possible because the proposed sidewalk (including the tree planting cutouts) is the minimum width allowable. In that case I recommend removal of the planting cutouts anyway, because new trees planted in them would be too close to the building anyway. Instead, plant new trees in a better location where they have adequate room to grow without causing problems.

A tree row/grove of glossy privets (28 stump sprout or sucker trunks labeled as **tree #12**) is proposed to be retained, but this will not be practical as the tall masonry wall immediately behind them will be removed.

Two large coast live oak trees on adjacent neighboring property to the south (**'A' and 'B'** *on the Tree Map)* could be somewhat impacted by construction, and this should be evaluated further if any excavations will come closer than 10 feet from the trunks of these trees.

TABLE 1 SUMMARY TREE TABLE

Continued on the next page

Tree #	Common Name	Trunk Diam. @3ft.	Preservation Suitability	Expected Construction Impact	Action	Reason
1	coast live oak	3	Poor	Moderate	**Remove**	Future pavement damage, location relative to building show room
2	London plane	11	Fair	Moderate/ Severe	**Remove**	Construction, Future pavement damage, location relative to building show room
3	London plane	8	Fair	Moderate	**Remove**	Construction, Present and future pavement damage, location relative to outdoor plaza and new landscaping.
4	London plane	15	Fair	Severe	**Remove**	Construction. Tree too close to proposed building, and future pavement (sidewalk) damage would continue if the tree survived.
5	London plane	10	Fair	Severe	**Remove**	Same as tree #4
6	London plane	10	Fair	Severe	**Remove**	Same as trees #4 and 5

Tree #	Common Name	Trunk Diam. @3ft.	Preservation Suitability	Expected Construction Impact	Action	Reason
7	London plane	11	Fair	Severe	**Remove**	Same as trees #4, 5 and 6.
8	London plane	9	Fair	Severe	**Remove**	Same as trees #4, 5, 6 and 7.
9	London plane	8	Fair	Severe	**Remove**	Same as trees #4, 5, 6, 7 and 8.
10	London plane	9	Fair	Severe	**Remove**	Construction (within proposed driveway)
11	London plane	14	Fair	Low/ Moderate	Save	
12	glossy privet	28 x 2-11". Average 4-6" 19 trunks 4" or >	Fair	Severe	**Remove**	Construction

RECOMMENDATIONS

1) **Existing trees (to be saved or removed) should be numbered on all site-based plans to match the tree tag numbers that are used in this arborist report.**

2) **Remove Town Street Trees #1-10.** Eliminate the tree planting cutouts in the sidewalks. Plant new trees in locations where they will not cause problems.

3) **Remove tree #12**, the grove of glossy privet trees. Relandscape the planter area in which these trees will be located.

4) **Place Type 3 Tree Protection (straw wattle roll) around the trunk of London plane tree #11 prior to demolition beginning on site**. This tree protection must remain until construction is complete at the site. See the *Town of Los Gatos General Tree Protection Directions* (page 14) for an explanation of this type of tree protection.

5) **Neighboring coast live oak trees 'A' and 'B'** *(see photos, page 19)*: since the existing masonry block wall adjacent to these trees will be demolished, as well as the building and parking lot near these trees, they will require Type 1 and Type 3 Tree Protection Fencing *(see page 14)* unless there is already a 6 foot tall wood fence behind the wall. If this is not the case then the Type 3 (straw wattle trunk wrapping) protection must be installed prior to wall demo, and then Type 1 tree protection fencing (or 6-foot tall cyclone mesh perimeter construction fencing) must be installed immediately after wall debris clean-up and before any construction begins on the site. The wall must be carefully pulled away from the oaks without contacting their canopies or trunk. There must be no excavation (including demo of existing parking lot, construction of new parking lot, drainage, etc.) closer than 10 feet from nearest edge of the trunks of these trees.

6) **For any trees that will be retained on or adjacent to demo or construction work at the project site, follow the Town of Los Gatos General *Tree Protection Directions***, included in this report on pages 14 through 16. A separate copy of these Directions is enclosed and must be incorporated into the project final plans. Additional tree protection information is also available from Deborah Ellis if necessary.

7) **Storm water collection areas**: do not plant trees in storm water collection areas. Trees are shown to be planted in these areas in the Landscape Plans. Instead of trees, plant small plants that are tolerant of both saturated soils and dry conditions, such as California gray rush, *Juncus patens*. If trees are needed for screening in proposed storm water collection areas, consider moving these areas to another location – for example narrow landscape swale areas 4 feet wide within parking lots – and the parking lot is graded to drain toward these areas.

8) **Neighboring trees**: whose canopies overhang the project site must receive tree protection in the same manner as existing trees to remain on the project site; for example tree protection fencing and signage. The general contractor shall fence off the dripline of this tree as much as possible in order to avoid damaging branches and compacting the soil beneath the canopy. If pruning is necessary in order to avoid branch breakage, the general contractor shall hire a qualified tree service to perform the minimum necessary construction clearance pruning. Neighboring trees that require protection are: **coast live oaks labeled 'A' and 'B'**.

9) **General Tree Maintenance**: For any trees that will remain on or adjacent to work at the project site, do no unnecessary pruning, fertilization or other tree work. Pre-construction pruning should be limited to the absolute minimum required for construction clearance. A qualified tree service should be hired to provide such pruning.

APPENDIX

TABLE 2 COMPLETE TREE TABLE

*This Table concludes on the next page. Data fields in the Table are explained on pages 9 to 12. * indicates Town Street Tree.*

Tree #	Species & Common Name	Trunk Diam. @3ft.	Size	CONDITION Vigor	CONDITION Structure	Preservation Suitability	Expected Construction Impact	Action	Reason	Notes
*1	*Quercus agrifolia*, coast live oak	3	12x10	80	50	Poor	Moderate	Remove	Future pavement damage, location relative to building show room	Condition: Planted in a 2x2 foot planter in the sidewalk along Santa Cruz Avenue – not a good idea for this very large growing tree species that is destined to cause massive pavement damage due to its root growth.
*2	*Platanus* x *hispanica*, London plane	11	45x35	90	75	Fair	Moderate/ Severe	Remove	Construction, Future pavement damage, location relative to building show room	Condition: London plane trees #2 – 11 are planted in 2 x 4 foot planters in the sidewalk along Los Gatos/Saratoga Road. These moderately large-growing tree species are likely to cause significant pavement damage, as some of them are, have or will in the future. The sidewalk near London plane #2 has been repaired and damage is recurring.
*3	London plane	8	25x22	80	60	Fair	Moderate	Remove	Construction, Present and future pavement damage, location relative to outdoor plaza and new landscaping.	Construction: new sidewalk will be installed around tree, with new landscaping area and patio within 4 to 5 feet of trunk. Tree could probably be saved if work were done carefully, but if planter area around tree is not made larger pavement damage will recur and it is better to remove the tree. Condition: Same as above regarding planter size. The roots of London plane #3 has caused significant sidewalk lifting and cracking with up to 1.5 inches of vertical separation. Perhaps this is what is meant by the note, (8" Syc. very poor condition) on the Landscape Plans.

Tree #	Species & Common Name	Trunk Diam. @3ft.	Size	CONDITION Vigor	Structure	Preservation Suitability	Expected Construction Impact	Action	Reason	Notes
*4	London plane	15	50x35	85	70	Fair	Moderate/ Severe	Debatable	Tree too close to proposed tall building, future pavement (sidewalk) damage will continue.	Construction: tree is shown to remain, but the proposed 2-story building will be only 4 feet from its trunk. This will not work from a building construction or a canopy destruction standpoint. The tree driplines are much larger than are shown on the landscape plan and half of the canopy (the canopy on the building side of the trunk) will need to be removed. From a root standpoint the tree may survive the removal and replacement of the sidewalk, but sidewalk damage from roots will recur (see below). Integration of the tree's sidewalk planter with the new planting area to the southwest is good and would reduce pavement damage because the pavement is being removed on that side, but this is a moot point because it makes no sense to try to construct the building at 5 feet from the trunk of the tree. Instead I recommend removing the tree and the cutout planters in the proposed sidewalk and planting new trees in better locations where the trees will not cause problems. Condition: Same sidewalk planter situation as for previous London plane trees. London plane #4 is causing significant asphalt pavement (in project site parking lot) raising near the sidewalk. Weeds are growing through mulch and weed fabric on soil surface in planter.
*5	London plane	10	40x30	70	60	Fair	Moderate/ Severe	Debatable	Same as tree #4	Construction: same sidewalk planter situation as for tree #4, except this tree (#5) is 6 feet from the proposed building. This is still too close. Condition: Same sidewalk planter situation as for previous London plane trees.

Tree #	*Species* & Common Name	Trunk Diam. @3ft.	Size	CONDITION Vigor	Structure	Preservation Suitability	Expected Construction Impact	Action	Reason	Notes
*6	London plane	10	35x25	75	70	Fair	Moderate/ Severe	Debatable	Same as trees #4 and 5	Construction: Same as above; tree #6 trunk is 9 feet from building but it will still be unreasonable to construct the building so close to the tree.
*7	London plane	11	40x30	75	70	Fair	Moderate/ Severe	Debatable	Same as trees #4, 5 and 6.	Construction: Same as above; tree #7 trunk is 9 feet from building but it will still be unreasonable to construct the building so close to the tree.
*8	London plane	9	30x25	70	60	Fair	Moderate/ Severe	Debatable	Same as trees #4, 5, 6 and 7.	Construction: Same as above; tree #8 trunk is 10 feet from building but it will still be unreasonable to construct the building so close to the tree.
*9	London plane	8	35x25	75	60	Fair	Moderate/ Severe	Debatable	Same as trees #4, 5, 6, 7 and 8.	Construction: Same as above; tree #8 trunk is 10-11 feet from building but it will still be unreasonable to construct the building so close to the tree.
*10	London plane	9	40x25	75	60	Fair	Severe	Remove	Construction	Construction: within proposed driveway entrance to site.
*11	London plane	14	60x40	90	75	Fair	Low/ Moderate	Save		Construction: new sidewalk begins 4 feet from trunk. Even though tree is beyond the limit of the project, it must receive Type 3 Tree Protection. Condition: Same sidewalk planter situation as for previous London plane trees. London plane #12 has caused asphalt lifting 2-4 inches with cracking.
12	*Ligustrum lucidum* glossy privet	28 x 2-11" Average 4-6" 19 trunks 4" or >	20-40 x 60 (for grove)	65	60	Fair	Severe	Remove		Construction: the 28 trunks are not shown on the plans, but they are very close (most less than 1 foot) to the masonry wall to the south. The wall behind the trees will be removed (including the wall footing), which will be very damaging to the trees because the removal will need to be done from the project side. Therefore it will not be reasonable to save these trees. Better to remove then and replant with new trees or screen shrubs of a better species. Condition: There are 4 main clumps of multiple

Tree #	Species & Common Name	Trunk Diam. @3ft.	Size	CONDITION Vigor	Structure	Preservation Suitability	Expected Construction Impact	Action	Reason	Notes
										stems. Most of these stems seem to be stump sprouts or suckers of adjacent glossy privet trees. These trees provide a nice silhouette against the sky behind them. The trees do not currently provide much screening for the adjacent houses behind them however, due to the removal of most of the lower branches and the resultant high canopy.

End of Table

EXPLANATION OF TREE TABLE DATA COLUMNS:

1) **Tree Number** (the field tag number of the existing tree). Each existing tree in the field is tagged with a 1.25 inch round aluminum number tag that corresponds to its tree number referenced in the arborist report, Tree Map, Tree Protection Specifications and any other project plans where existing trees must be shown and referenced.

2) **Tree Name and Type:**
Species: The *Genus* and *species* of each tree. This is the unique scientific name of the plant, for example *Quercus agrifolia* where *Quercus* is the Genus and *agrifolia* is the species. The scientific names of plants can be changed from time to time, but those used in this report are from the most current edition of the *Sunset Western Garden Book* (2012) Sunset Publishing Corporation. The scientific name is presented at its first occurrence in the Tree Table, along with the regional common name. After that only the common name is used.

3) **Trunk diameter (at 3 feet above the ground).** This is the trunk diameter measurement height required by the Town of Los Gatos, in lieu of *DBH*[2]. For multi-trunk trees, trunk diameter is measured for the largest trunk and estimated for all smaller trunks.

[2] DBH is tree trunk diameter in inches "at breast height", measured at 4.5 feet above ground level. This is the forestry and arboricultural standard measurement height that is also used in many tree-related calculations.

4) **Size**: tree size is listed as height x width in feet, estimated and approximate and intended for comparison purposes.

5) **Condition Ratings**: Trees are rated for their *condition* on a scale of *zero to 100* with zero being a dead tree and 100 being a perfect tree (which is rare – like a supermodel in human terms). A 60 is "average" (not great but not terrible either). There are two components to tree condition – ***vigor*** and ***structure***, and each component is rated separately. Averaging the two components is not useful because a very low rating for either one could be a valid reason to remove a tree from a site -- even if the other component has a high rating. Numerically speaking for each separate component:

   100 is equivalent to *Excellent* (an `A' academic grade), **80** is *Good* (B), **60** is *Fair* (C), **40** is *Poor* (D), **20** is *Unacceptable* (F) and **0** is *Dead*.

6) Relative to the scope of work for this report, tree *Condition* has been rated but not explained in detail and recommendations for the management of tree condition have not been included. The tree owner may contact Deborah Ellis for additional information on tree condition and specific recommendations for the general care of individual trees relative to their condition.

7) The *Condition* of the tree is considered relative to the tree species and present or future intended use of the site to provide an opinion on the tree's Preservation Suitability Rating (i.e. "Is this tree worth keeping on this site, in this location, as explained in Table 3 below and on the next page. This is based upon the scenario that the tree is given enough above and below-ground space to survive and live a long life on the site. Ratings such as "Fair/Good" and "Fair/Poor" are intermediate in nature. The Preservation Suitability rating is not always the same as the Condition Rating because (for example) some trees with poor condition or structure can be significantly improved with just a small amount of work – and it would be worthwhile to keep the tree if this were done.

Table 3 Preservation Suitability Rating Explanation *(continued on the next page)*

Excellent	Such trees are rare but they have unusually good health and structure and provide multiple functional and aesthetic benefits to the environment and the users of the site. These are great trees with a minimum rating of "Good" for both vigor and structure. Equivalent to academic grade `A'.
Good	These trees may have some minor to moderate structural or condition flaws that can be improved with treatment. They are not perfect but they are in relatively good condition and provide at least one significant functional or aesthetic benefit to the environment and the users of the site. These are better than average trees equivalent to academic grade `B'.
Fair	These trees have moderate or greater health and/or structural defects that it may or may not be possible to improve with treatment. These are "average" trees – not great but not so terrible that they absolutely should be removed. The majority of trees on most sites tend to fall into this category. These trees will require more intensive management and monitoring, and may also have shorter life spans than trees in the "Good" category. Retention of trees with moderate suitability for preservation depends upon the degree of proposed site changes. Equivalent to academic grade `C'.

Table 3 **Preservation Suitability Rating Explanation** *(continued from the previous page)*

Poor	These trees have significant structural defects or poor health that cannot be reasonably improved with treatment. These trees can be expected to decline regardless of management. The tree species themselves may have characteristics that are undesirable in landscape settings or may be unsuitable for high use areas. I do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Equivalent to academic grade `D'.
None	These trees are dead and/or are not suitable for retention in their location due to risk or other issues. In certain settings however, (such as wilderness areas, dead trees are beneficial as food and shelter for certain animals and plants including decomposers. Equivalent to academic grade `F'.

8) **Action (Disposition):**
   a) ***Save*****:** it should be no problem save this tree utilizing standard tree protection measures.
   b) ***Remove:*** this recommendation is based upon tree condition, preservation suitability, expected impact of construction, poor species for the site or any combination of these factors.
   c) ***Debatable:*** there is a problem with potentially retaining this tree. Find out why in the *Reason* and Notes columns of the Complete Tree Table. Examples are:
      - The tree is shown to be saved (and may be a desirable tree to save) but proposed construction is too close or is uncertain and may cause too much damage to retain the tree. Design changes may be recommended to reduce damage to the tree so that it can be saved.
      - Further evaluation of the tree is necessary (e.g. the tree requires further, more detailed evaluation that is beyond the scope of this tree survey and report. Examples are advanced internal decay detection and quantification with resistance drilling or tomography, a "pull test" to assess tree stability from the roots, or tissue samples sent to a plant pathology laboratory for disease diagnosis.
      - Condition: the tree is in "so-so" or lesser condition and an argument could be made to either save or remove the tree as it stands now. In some cases the owner will make the decision to save or remove the tree based upon the information provided in this report as well as the owner's own preferences.
      - Species: the tree may be a poor species for the area or the intended use of the developed site.
      - Uncertain construction impact
      - Other (as explained for the individual tree)

9) **Reason** (for tree removal or to explain why a tree is listed as "Debatable" or "Uncertain"). Multiple reasons may be provided, with the most significant reason listed first. Reasons can include but are not limited to:
   - ***Construction*** (excessive construction impact is unavoidable and it is not worthwhile to try and save the tree)
   - ***Condition*** (e.g. poor tree condition – either *vigor*, *structure* or both)
   - ***Landscaping*** (the tree is being removed because it does not fit in with or conflicts with proposed new landscaping)
   - ***Owner's Decision*** (for some reason the owner has decided to remove this tree)

- ***Species*** (the tree is a poor species for the use of the site)
- ***Risk*** (the tree presents moderate to excessive risk to people or property that cannot be sufficiently mitigated)

10) **Notes:** This may include any other information that would be helpful to the client and their architects and contractors within the scope of work for this report, such as a more detailed explanation of tree condition or expected construction impact.

SUPPORTING INFORMATION

PURPOSE & USE OF REPORT

This survey and report was required by the Town of Los Gatos as a part of the building permit process for this project. The purpose of the report is to identify and describe the existing protected trees on site - - their size, condition and suitability for preservation. The audience for this report is the property owner, developer, project architects and contractors, and Town of Los Gatos authorities concerned with tree preservation and tree removal. The goal of this report is to preserve the existing protected trees on site that are in acceptable condition, are good species for the area and will fit in well with the proposed new use of the site.

METHODOLOGY

I performed a brief evaluation of the subject trees on March 10, 2015. Tree characteristics such as form, weight distribution, foliage color and density, wounds and indicators of decay were noted. Surrounding site conditions were also observed. Evaluation procedures were taken from:

- *Guide for Plant Appraisal*, 9th edition, 2000, authored by the Council of Tree and Landscape Appraisers (CTLA) and published by the International Society of Arboriculture (ISA).
- *Species Classification and Group Assignment* published by the Western Chapter of the International Society of Arboriculture (WCISA), 1992.

The above references serve as industry professional standards for tree and landscape evaluations.

I measured the trunk diameter of each tree with a diameter tape at 3 feet above the ground, which is the required trunk diameter measurement height of the Town of Los Gatos. Trunk diameter was extrapolated to *DBH* (diameter at breast height, 4.5 feet above the ground) because DBH is also used calculate tree protection distances and other tree-related factors. The DBH figure is not included in the Tree Tables, but I have used it to estimate construction impacts to trees. Trunk diameter was rounded to the nearest inch. I estimated the tree's height and canopy spread. Tree *Condition* (structure and vigor) was evaluated and I also recorded additional notes for trees when significant. Tree species and condition considered in combination with the current or (if applicable) proposed use of the site yields the *Tree Preservation Suitability* rating. The more significant trees (or groups of trees) were photographed with a digital camera. Some of these photos are included in this report, but all photos are available from me by email if requested.

OBSERVATIONS

SITE CONDITIONS

The existing site contains several one-story commercial buildings, large asphalt parking areas and very limited landscaping. The majority of landscaping connected with the site are the 11 Town Street Trees described in this report. Site topography is mainly level. Sun exposure for the trees varies from full to partly shaded, depending upon proximity to existing buildings and to other trees.

LOS GATOS GENERAL TREE PROTECTION DIRECTIONS

Note that the following is excerpted from* Division 2 *(Tree Protection) of the Los Gatos Town Code and does not constitute the complete Division 2 text. The owner/applicant is responsible for implementing all pertinent requirements of the Code relative to tree protection.

August 7, 2014

Sec. 29.10.1000 New Property Development

(1) The final approved Tree Preservation Report shall be included in the building permit set of development plans and printed on a sheets titled: Tree Preservation Instruction (Sheet T-1, T-2, etc.). These Sheets shall be referenced on all relevant sheets (civil, demolition, utility, landscape, irrigation) where tree impacts from improvements may be shown to occur.

(3.b.) The site or landscape plans shall indicate which trees are to be removed. However, the plans do not constitute approval to remove a tree until a separate permit is granted. The property owner or applicant shall obtain a protected tree removal permit, as outlined in section 29.10.0980 for each tree to be removed to satisfy the purpose of this definition.

(3.e.) Protective fencing inspection: Prior to issuance of any demolition, grading or building permit, the applicant or contractor shall submit to the building department a written statement verifying that the required tree protection fence is installed around street trees and protected trees in accordance with the Tree Preservation Report.

(3.g.) An applicant with a proposed development which requires underground utilities shall avoid the installation of said utilities within the dripline of existing trees whenever possible. In the event that this is unavoidable, all trenching shall be done using directional boring, air-spade excavation or by hand, taking extreme caution to avoid damage to the root structure. Work within the dripline of existing trees shall be supervised at all times by a certified or consulting arborist.

Section 29.10.1005 Protection of Trees during Construction

a) Protective tree fencing shall specify the following:
1) **Size and materials**: A five (5) or six (6) foot high chain link fencing, mounted on two-inch diameter galvanized iron posts, shall be driven into the ground to a depth of at least two (2) feet at no more than 10-foot spacing. For paving area that will not be demolished and when stipulated in a tree preservation plan, posts may be supported by a concrete base.

2) **Area type to be fenced**. Type I: Enclosure with chain link fencing of either the entire dripline area or at the tree protection zone (TPZ), when specified by a certified or consulting arborist[3]. Type II: Enclosure for street trees located in a planter strip: chain link fence around the entire planter strip to the outer branches. Type III: Protection for a tree located in a small planter cutout only (such as downtown): orange plastic fencing shall be wrapped around the trunk from the ground to the first branch with 2-inch wooden boards bound securely on the outside. Caution shall be used to avoid damaging any bark or branches.
3) **Duration of Type I, II, III fencing**. Fencing shall be erected before demolition, grading or construction begins and remain in place until final landscaping is required. Contractor shall first obtain the approval of the project arborist on record prior to removing a tree protection fence.
4) **Warning sign**. Each tree fence shall have prominently displayed an 8.5 x 11-inch sign stating: "Warning—Tree Protection Zone-this fence shall not be removed and is subject to penalty according to Town Code 29.10.1025". A template sign has been provided to be used on the project site.

b) All persons, shall comply with the following precautions:
1) **Prior to the commencement of construction, install the fence** at the dripline, or tree protection zone (TPZ) when specified in an approved arborist report, around any tree and/or vegetation to be retained which could be affected by the construction and prohibit any storage of construction materials or other materials or vehicles inside the fence. The dripline shall not be altered in any way so as to increase the encroachment of the construction.
2) **Prohibit excavation, grading, drainage and leveling within the dripline of the tree** unless approved by the director.
3) **Prohibit disposal or depositing of oil, gasoline, chemicals or other harmful materials within the dripline of or in** drainage channels, swales or areas that may lead to the dripline of a protected tree
4) **Prohibit the attachment of wires, signs or ropes** to any protected tree.
5) **Design utility services and irrigation lines** to be located outside of the dripline when feasible.
6) **Retain the services of the certified or consulting arborist for periodic monitoring** of the project site and the health of those trees to be preserved. The certified or consulting arborist shall be present whenever activities occur that pose a potential threat to the health of the trees to be preserved.
7) **The director and project arborist shall be notified of any damage that occurs** to a protected tree during construction so that proper treatment may be administered.

[3] If it is not possible to place Type 1 or Type 2 tree protection fencing at the dripline due to the construction, then place the fencing as far from the trunk as possible, including as much of the dripline as possible, while still allowing for enough room to build improvements. If this happens to be within all or some of the dripline, then so be it. But the contractor must try to fence off as much area under the canopy as possible, do not be irresponsible about this.-

Section 29.10.1010 Pruning and Maintenance

All pruning of protected trees shall be consistent with the current edition of Best Management Practices – Tree Pruning, established by the International Society of Arboriculture (ISA) and any special conditions as determined by the Director. For developments, which require a tree preservation report, a certified or consulting arborist shall be in reasonable charge of all activities involving protected trees including cabling, and fertilizing if specified.

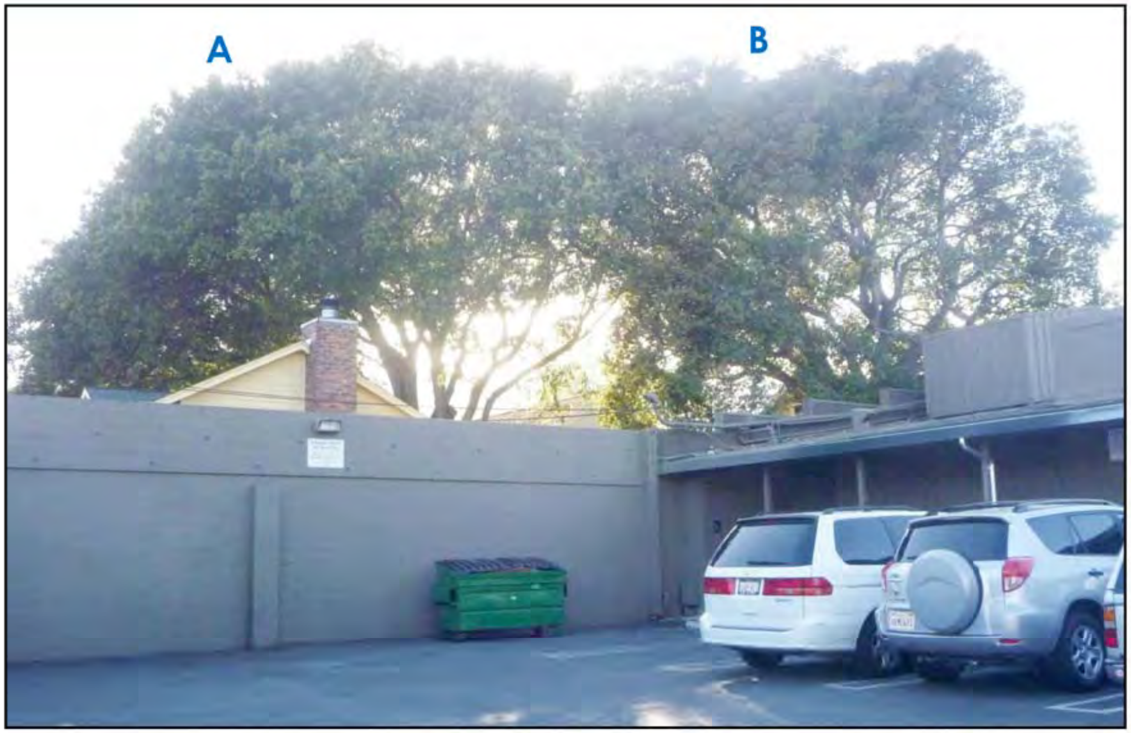
1) **Any public utility installing or maintaining any overhead wires or underground pies or conduits** in the vicinity of a protected tree shall obtain permission from the Director before performing any work, including pruning, which may cause injury to a protected tree (e.g. cable TV/fiber optic trenching, gas, water, sewer trench, etc.)

2) **Pruning for clearance of utility lines and energized conductors** shall be performed in compliance with the current version of the American National Standards Institute (ANSI) A300 (Part 1) - Pruning, Section 5.9 Utility Pruning. Using spikes or gaffs when pruning is prohibited.

TREE PHOTOS

Left photo: **coast live oak #1** on North Santa Cruz Avenue, near the corner of this street and Los Gatos-Saratoga Road.
Center: **London plane trees #2 and 3** along North Santa Cruz Avenue.
Right: typical street tree planter for London planes #2-11. **Tree #3** is shown.

Upper Left: **London plane Town Street trees #4, 5 and 6** along Los Gatos-Saratoga Road.
Center: same as above, **trees #9, 10 and 11**. Tree #11 will not need to be removed, but it should be protected from construction with Type 3 tree protection fencing.
Lower Right: **Glossy privet tree(s) #12**, along the south perimeter of the site. This grove of trees consists of 28 trunks, all stump sprouts and suckers. Nineteen of these trunks have diameters of 4 inches or greater.
Upper Right: close-up of a few of the clumps of glossy privet trees, showing their multiple trunks and stump sprout/sucker nature. Note how close the trunks are to the masonry wall (to be demo'd) and thus how it will be impractical to save these trees.



Large coast live oak trees on neighboring properties to the south. I do not know exactly how close the trunks of these trees are to the property line, but tree `B' appears to be closer than tree `A'. In the right photo you can see that the trees have been pruned so that their branches do not overhang the project site.

Since the existing masonry block wall will be demolished, as well as the building and parking lot near these trees, they will require Type 1 and possibly Type 3 Tree Protection Fencing (see pages 14 and 15) unless there is already a 6 foot tall wood fence behind the wall.

ASSUMPTIONS & LIMITATIONS

1. **A *Basic Evaluation* of the subject trees described in this report was performed on March 10, 2015 for the purpose of this report.** A basic evaluation is a visual evaluation of the tree from the ground, without climbing into the tree or performing detailed tests such as extensive digging, boring or removing samples. This is an initial screening of the tree after which the evaluator may recommend that additional, more detailed examination(s) be performed if deemed necessary.
2. **The *Condition Ratings* for deciduous trees that are out of leaf (because they have shed their leaves for winter dormancy) are estimated.** For this project these are **London plane trees #1-11**. More accurate condition ratings for these trees can be obtained after they have fully leafed out (usually mid-May through September).
3. **Trees on neighboring properties were not evaluated.** They were only viewed cursorily from the project site. I did not enter the neighboring property to inspect these trees up close.
4. **Any information and descriptions provided to me for the purpose of my investigation in this case and the preparation of this report are assumed to be correct**. Any titles and ownerships to any property are assumed to be good and marketable. I assume no responsibility for legal matters in character nor do I render any opinion as to the quality of any title.
5. **The information contained in this report covers only those items that were examined** and reflects the condition of those items at the time of inspection.
6. **Loss or removal of any part of this report** invalidates the entire report.
7. **Possession of this report, or any copy thereof, does not imply right of publication** for use for any purpose by any person other than to whom this report is addressed without my written consent beforehand.
8. **This report and the values represented herein represent my opinion**. My fee is in no way contingent upon the reporting of a specified value or upon any finding or recommendation reported.
9. **This report has been prepared in conformity with generally acceptable appraisal/diagnostic/reporting methods and procedures** and is consistent with practices recommended by the International Society of Arboriculture and the American Society of Consulting Arborists.
10. **My evaluation of the trees that are the subject of this report is limited to visual examination of accessible items without dissection, excavation, probing or coring**. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.
11. **I take no responsibility for any defects in any tree's structure**. No tree described in this report has been climbed and examined from above the ground, and as such, structural defects that could only have been discovered have not been reported, unless otherwise stated. Structural defects may also be hidden within a tree, in any portion of a tree. Likewise, root collar excavations and evaluations have not been performed unless otherwise stated.
12. **The measures noted within this report are designed to assist in the protection and preservation of the trees mentioned herein**, should some or all of those trees remain, and to help in their short and long term health and longevity. This is not however; a guarantee

that any of these trees may not suddenly or eventually decline, fail, or die, for whatever reason. Because a significant portion of a tree's roots are usually far beyond its dripline, even trees that are well protected during construction often decline, fail or die. Because there may be hidden defects within the root system, trunk or branches of trees, it is possible that trees with no obvious defects can be subject to failure without warning. The current state of arboricultural science does not guarantee the accurate detection and prediction of tree defects and the risks associated with trees. There will always be some level of risk associated with trees, particularly large trees. It is impossible to guarantee the safety of any tree. Trees are unpredictable.

****

I certify that the information contained in this report is correct to the best of my knowledge, and that this report was prepared in good faith. Thank you for the opportunity to provide service again. Please call me if you have questions or if I can be of further assistance.

Sincerely,

Deborah Ellis, MS.
Consulting Arborist & Horticulturist
Certified Professional Horticulturist #30022
ASCA Registered Consulting Arborist #305
I.S.A. Board Certified Master Arborist WE-457B
I.S.A. Tree Risk Assessment Qualified

Deborah Ellis
asca
American Society of Consulting Arborists
Registered Consulting Arborist # 305

Enclosures:

- Town of Los Gatos General Tree Protection Directions
- Los Gatos tree protection sign template (For signs to be placed on tree protection fencing)

GLOSSARY

1. **Grove**: is a group of trees that located close together that shelter each other from wind and the elements, having "knit" canopies. If of the same species, there is usually root grafting between trees, which lends support from the ground, as well as water and mineral sharing. Removal of one or some grove members could cause remaining members to be unstable due to a reduction of previous shelter. Grove trees often have asymmetrical canopies when viewed as individuals.
2. **Qualified Tree Service**: A tree service is a company that performs tree pruning and tree removals as their main business. A Qualified Tree Service is a tree service with a supervising arborist who has the minimum certification level of ISA (International Society of Arboriculture) Certified Arborist and acts in a supervisory position on the job site during execution of the tree work. The tree service shall have a State of California Contractor's license for Tree Service (C61-D49) and provide proof of Workman's Compensation and General Liability Insurance. The person(s) performing the tree work must adhere to the most current of the following arboricultural industry tree care standards:
   - *Best Management Practices, Tree Pruning*. 2008. International Society of Arboriculture, PO Box 3129, Champaign, IL 61826-3129. 217-355-9411
   - *ANSI A300 Pruning Standards*. 2008 Edition. Ibid. (Covers tree care methodology).
   - *ANSI Z133.1 Safety Requirements for Arboricultural Operations*. 2006 Edition. Ibid. (Covers safety).
3. **Root collar & root collar excavation and examination**: The *root collar* (junction between trunk and roots) is critical to whole-tree health and stability. A root collar excavation carefully uncovers this area (with hand digging tools, water or pressurized air). The area is then examined to assess its health and structural stability. Buttress roots may be traced outward from the trunk several feet. Decay assessment of the large roots close to the trunk (buttress roots) involves additional testing such as drilling to extract interior wood with a regular drill, or the use of a resistance-recording drill to check for changes in wood density within the root; as would be caused by decay or cavities. It is important to note that root decay often begins on the underside of roots, which is not detectable in a root collar excavation unless the entire circumference of the root is excavated and visible. Drill tests may detect such hidden decay. Note that it is not possible to uncover and evaluate the entire portion of the root system that is responsible for whole-tree stability. Decayed roots that are inaccessible (e.g. underneath the trunk) can be degraded to the extent that the whole tree may fail even though uncovered and examined roots in accessible locations appear to be sound.
4. **Stump sprout trees** are the result of a tree trunk being cut down to a short stump close to the ground. If the tree survives, it sends out many small shoots (suckers) from around the cut stump. Some of these suckers may survive and grow to become significant trunks. These trunks are spaced very close together and usually have included bark between them, which reduces the strength of their union. Such trunks are prone to failure. Stump sprout trees can be very structurally unsound, particularly as they become large and old. There is often a great deal of decay associated with the mother stump, which can also reduce mechanical stability.
5. **Suckers** are secondary upright shoots arising from the roots or root collar (junction between roots and trunk) of a tree, or below the graft union. On a grafted tree the suckers (originating from the *stock* which includes the roots), are often not the same plant species as the *scion* (the grafted, desirable aboveground part). Suckers can be a nuisance in landscape situations. In nature however, suckers can serve to keep a tree alive after fire or mechanical damage that kills or removes the aboveground part of the tree.

APPENDIX B

Geotechnical and Geohazards Investigation Report

Geotechnical and Geohazards Investigation

North Santa Cruz Avenue Multi-Use Development

North Santa Cruz Avenue and Highway 9

Los Gatos, California

Report No. 210359 has been prepared for:

MCCARTHY LAND COMPANY

15425 Los Gatos Boulevard, Suite 102, Los Gatos, California 95032

April 30, 2014

Revised February 5, 2015

Leonardo Alvarez, P.G, C.E.G. Senior Engineering Geologist	Wilson Wong, P.E. Project Engineer	Scott M. Leck, P.E., G.E. Principal Geotechnical Engineer Quality Assurance Reviewer

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LOS GATOS, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the North Santa Cruz Avenue Multi-Use Development located in Los Gatos, California. The location of the site is shown on the Vicinity Map, Figure 1. The purpose of our investigation was to evaluate the subsurface conditions at the site and to provide geotechnical recommendations for design of the proposed project.

For our use we received architectural site plans titled, "North Santa Cruz @ Highway 9, Los Gatos, California, Option 1," prepared by Kenneth Rodrigues and Partners, Inc., dated November 14, 2014.

1.1 Project Description

The site is located at the southwest corner of the intersection of North Santa Cruz Avenue and Highway 9 in Los Gatos and is currently occupied by three single-story buildings, paved parking areas, driveways and landscaping. The layout of the proposed development is shown on the Site Plan, Figure 2.

As presently planned, the project consists of developing the approximately ¾- acre site with two single-story, slab-on-grade buildings with rooftop parking. The rooftop parking will span the area between the two buildings. Based on the plans provided, Buildings 1 and 2 will be approximately 4,900 and 8,300 square feet, respectively. Additional improvement will include underground utilities, pavements, exterior flatwork, and minor grading. Structural loads on the order of 100 kips (per column) were provided to us.

1.2 Scope of Services

Our scope of services was presented in detail in our agreements with you dated November 21, 2013 and March 20, 2014. To accomplish this work, we provided the following services:

- Exploration of subsurface conditions by drilling four exploratory borings and retrieving soil samples for visual observation and laboratory testing.
- Evaluation of the physical and engineering properties of the subsurface soils by visually classifying the samples and performing various laboratory tests on selected samples.
- Evaluation of potential geologic hazards at the site based on site reconnaissance, data and literature review, and interviews with knowledgeable professionals. No additional field exploration was performed.
- Engineering analysis to evaluate site earthwork, building foundations, slabs-on-grade, retaining walls and pavements.
- Preparation of this report to summarize our findings and to present our conclusions and recommendations for the project.

2.0 SITE CONDITIONS

2.1 Site Reconnaissance

Our Senior Staff Engineer performed a reconnaissance of the site on December 3, 2013 and our Certified Engineering Geologist performed another reconnaissance on April 18, 2014. The site is bordered by residences and commercial developments to the southwest, Highway 9 to the northeast, North Santa Cruz Avenue to the southeast, and commercial development to the northwest. At the time of the inspection, the site was occupied by one-story commercial buildings and asphalt concrete parking areas. The site is at approximate elevation 395 feet above sea level, gently sloping southeast at a gradient of approximately 0.03 with some additional minor grade variations for drainage purposes.

2.2 Exploration Program

Subsurface exploration was performed on December 3 and 4, 2013 using conventional, truck-mounted, hollow-stem auger drilling equipment to investigate, sample, and log the subsurface soils. Four exploratory borings were drilled to depths of up to approximately 45 feet. Our borings were backfilled with cement grout in accordance with Santa Clara Valley Water District guidelines. The approximate locations of the borings are shown on the Site Plan, Figure 2. Logs of our borings and details regarding our field investigation are included in Appendix A; our laboratory tests are discussed in Appendix B.

2.3 Subsurface

Our borings encountered a pavement section consisting of approximately 3½ to 4½ inches of asphalt concrete. Beneath the pavement sections, all of our borings except EB-3 generally encountered interbedded layers consisting of hard lean clay and sandy lean clay, medium dense to very dense clayey gravel, medium dense to very dense clayey sand, and to a depth of approximately 22½ feet. Below this depth, our borings encountered interbedded layers consisting of very dense clayey gravel, very dense poorly graded gravel, and hard lean clay and sandy lean clay to a depth of approximately 45 feet, the maximum depth explored.

Fill was encountered at the location of boring EB-3 to the maximum explored depth of 20 feet. This boring was terminated because of the strong petroleum odor detected during drilling. The fill encountered consisted of dense clayey sand, concrete, and medium dense clayey gravel to a depth of approximately 11½ feet, followed by hard sandy lean clay to a depth of about 17½ feet, and very dense clayey gravel to the depth of 20 feet.

Two Plasticity Index (PI) tests were performed on clay samples from Borings EB-1 and EB-4 at depths of approximately 2 feet. The tests resulted in PI's of 8 and 11, indicating low plasticity and expansion potential of the near surface soils. Washed sieve analyses were performed for classification of the gravels, which indicated between 17 and 23 percent fines. Results of these tests are presented on the boring logs and in Appendix B.

2.4 Ground Water

Free ground water was encountered during subsurface exploration in all of our borings, except for EB-3, at depths ranging from approximately 17½ to 23½ feet. According to the Seismic Hazard Zone Report 069 for the Los Gatos Quadrangle, prepared by the California Geological Survey (CGS, 2002, updated in 2006), historical high ground water level in the site vicinity is estimated to be approximately 10 feet below the ground surface. Fluctuations in the level of the ground water may occur due to variations in rainfall, underground drainage patterns, and other factors not evident at the time we performed our explorations.

3.0 GEOLOGIC SETTING

3.1 Regional Geologic Setting

The San Francisco Peninsula is a relatively narrow band of rock at the north end of the Santa Cruz Mountains separating the Pacific Ocean from San Francisco Bay. This represents one mountain range in a series of northwesterly-aligned mountains forming the Coast Ranges geomorphic province of California that stretches from the Oregon border nearly to Point Conception. In the San Francisco Bay area, most of the Coast Ranges have developed on a basement of tectonically mixed Cretaceous- and Jurassic-age (70 to 200 million years old) rocks of the Franciscan Complex. Locally, these basement rocks are capped by younger sedimentary and volcanic rocks. Most of the Coast Ranges are covered by still younger surficial deposits that reflect geologic conditions of the last million years or so.

Movement on the many splays of the San Andreas fault system has produced the dominant northwest-oriented structural and topographic trend seen throughout the Coast Ranges today. This trend reflects the boundary between two of the Earth's major tectonic plates: the North American plate to the east and the Pacific plate to the west. The San Andreas fault system is about 40 miles wide in the Bay area and extends from the San Gregorio fault near the coastline to the Coast Ranges-Central Valley blind thrust at the western edge of the Great Central Valley as shown on the Regional Fault Map, Figure 3. The San Andreas fault is the dominant structure in this system, nearly spanning the length of California, and capable of producing the highest magnitude earthquakes. Many other sub-parallel or branch faults within the San Andreas system are equally active and nearly as capable of generating large earthquakes. Right-lateral movement dominates on these faults but an increasingly large amount of thrust faulting resulting from compression across the system is now being identified also.

As shown on the Vicinity Geologic Map, Figure 3, the site is situated immediately north of the downtown area of the Town of Los Gatos along the south side of Saratoga-Los Gatos Road (Highway 9) and immediately west of Santa Cruz Avenue, on the western edge of the Santa Clara Valley. It is underlain by Late Pleistocene alluvial fan or stream deposits (McLaughlin et al., 2001; CGS, 2002; Nolan Associates, 1999). The site is within an embayment of alluvial fan deposits in the eastern foothills of the Santa Cruz Mountains. The low hills to the west are composed largely of partially consolidated beds of gravel, sandstone, and siltstone, with minor thin-bedded lacustrine mudstone of the Santa Clara Formation (Pleistocene and Pliocene age). Hills to the east, across Los Gatos Creek, are composed of Middle Miocene age (approximately 5.3 to 23.8 million years old) Monterey siltstone and shale bedrock and presumably also underlies the alluvium. The Monterey Formation is generally composed of siliceous marine siltstone and shale.

Younger surficial deposits, consisting of interfingered alluvial fans and fluvial terraces, locally mantle the Santa Clara Formation throughout this lower foothill terrain. These materials are typically coarse-grained alluvial fan deposits that are interbedded with finer-grained lake and stream sediments.

Franciscan Complex rocks, of Lower Cretaceous to Upper Jurassic age, are exposed in the hills at higher elevations south of the site. These rock units are typically composed of fine to coarse-grained graywacke sandstone and basaltic volcanic rocks (Wentworth et al., 1999).

3.2 Site Geology

The site is underlain by Pleistocene alluvial fan deposits consisting of unsorted boulders, gravel, sand, silt and soil, deposited in older alluvial fans (Figure 3). They also include deposits of older Pleistocene alluvial fans incised by younger Pleistocene and Holocene alluvial deposits. This unit includes channel and overbank deposits of major Pleistocene fluvial systems, as well as fan deposits of ephemeral tributary streams (McLaughlin et al., 2001). Nolan Associates (2002) indicate that the property is underlain by Pleistocene fluvial terrace deposits.

The ground surface in the immediate site vicinity is part of what Hitchcock et al. (1994) identified as a paired fill terrace preserved as broad surfaces along margins of Los Gatos Creek. The terrace is about 14 m (46 feet) above the creek channel and its longitudinal profile suggests contractional deformation between the range front and the trace of the easternmost Shannon fault at Vasona Reservoir (Figure 3).

4.0 GEOLOGIC HAZARDS

A review of geologic hazards was made during this investigation. Our comments concerning these hazards are presented below.

4.1 Fault Rupture Hazard

The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (known formerly as a Special Studies Zone), but is located within a County of Santa Clara Fault Hazard Zone. A concealed branch of the Shannon fault is mapped crossing the entire length of the site in an approximate N60W direction (McLaughlin et al., 2001). This branch of the Shannon fault was originally identified in geologic maps by Bailey and Everhart (1964). The fault was not shown in the preliminary version of Dibblee and Brabb's geologic map of the Los Gatos quadrangle (1978) nor on the final version of that quadrangle map (Dibble, 2005, edited by J. A. Minch). The Geologic Map for the Town of Los Gatos General Plan Update (Nolan Associates, 1999) was based on maps by Bailey and Everhart (1964) and McLaughlin et al. (2001), and shows the same concealed fault traces. The Shannon fault extends from near Saratoga on the northwest to New Almaden on the southeast and consists of four subparallel thrust or reverse faults striking approximately N50ºW in the site area and dipping to the southwest (Fenton and Hitchcock, 2001). Due to the presence of the concealed fault traces in the site area, concentrated damage from the 1989 Loma Prieta earthquake and the existence of lineaments, Nolan Associates designate the site area as having a high fault rupture hazard rating.

According to Bryant (2000) the Shannon fault is one of a series of Late Quaternary active and possibly Holocene active, reverse to reverse-dextral oblique slip faults that form a part of what McLaughlin and others (1996) refer to as the Southwestern Santa Clara Valley thrust belt. This belt is located generally along the foothills of the northeastern Santa Cruz Mountains. The Shannon fault extends to the northwest to join the Monte Vista fault. The Monte Vista-Shannon fault zone commonly is associated with the Berrocal fault zone. The Monte Vista-Shannon fault zone offsets sediments of the Pliocene-Pleistocene Santa Clara Formation; locally colluvial deposits are thrust over fluvial gravel of Permanente Creek, several miles west of the site in the Cupertino area, indicating late Pleistocene and possible Holocene displacement (W. McCormick, 1992, personal communication, in Hitchcock and others, 1994).

Two other traces of the potentially active Shannon fault have been mapped approximately ½ mile northeast of the site (McLaughlin et al., 2001), and the Berrocal fault zone (originally named Shannon fault by Bailey and Everhart, 1964) passes approximately ½ mile south of the site.

The site lies within a zone of faulting and possible fault-related lineaments (Figures 5 and 6) that are interpreted to be related to Late Quaternary deformation (Hitchcock et al., 1994). The lineaments, which include linear depressions and tonal variations in vegetation, generally trend approximately parallel to the Santa Cruz Mountains range front and are sometimes referenced as the Santa Clara Valley thrust belt (McLaughlin and Clark, 1997).

A detailed damage survey was performed in the Los Gatos and surrounding areas after the 1989 Loma Prieta earthquake, which had an epicenter several miles southwest of the Town of Los Gatos (Schmidt et al., 1995). There were northwest trending discontinuous concentrations of damage associated with mapped traces of northwest trending faults north of the San Andreas Fault, but no fault ground rupture was identified or documented. Many damage features were noted in the streets and sidewalks in Los Gatos, both north and southwest of Highway 9 in the immediate vicinity of the site, along Santa Cruz, Alameda and Tait Avenues, and many other streets to the south and north of the site (Figure 7). The zone of deformation in Los Gatos was approximately 2.5 km long and 1 km wide. Buckled and broken concrete strips on streets and sidewalks indicated generally northeast-southwest shortening, consistent with reverse or thrust faulting interpreted to represent sympathetic movement of smaller faults, such as the Shannon fault, in response to the main shock on the San Andreas fault (Haugerud and Ellen, 1990; Hitchcok et al., 1994). However, since deformation was distributed over a wide area across the mapped traces of the Shannon fault, the USGS concluded that surface deformation probably did not reflect slip on a single fault at shallow depths (Haugerud and Ellen, 1990).

A recent fault hazard study was performed at the Los Gatos Lodge located at 50 Los Gatos-Saratoga Road, approximately ½ mile east of the subject site (Treadwell & Rollo, 2008) and is included in Appendix C. The Los Gatos Lodge site is located on the same branch of the Shannon fault that passes through the subject site. The site is underlain by Holocene stream terrace deposits. The investigation included data review as well as drilling and logging several deep borings at close intervals, bracketing the mapped concealed trace of the fault, and excavating and logging a trench perpendicular to the trace. The borings were drilled to depths of up to 80 feet below the ground surface and reached bedrock of the Monterey Formation. An approximately 6-foot step in the bedrock surface disclosed in adjacent borings was interpreted to represent the scarp of a thrust fault dipping approximately 60 degrees to the south. The bedrock consists of Monterey Formation siltstone. This step was interpreted to coincide with the mapped trace of the fault.

An approximately 12-foot deep, 120-foot long fault exploration trench was subsequently excavated, approximately centered over the mapped location of the fault trace. The trench exposed alluvial materials consisting of weathered clayey sand with gravel alluvium with type A and C soil horizons beneath the pavement and baserock of the parking lot. Beneath the soil horizons, the trench exposed stratified alluvium consisting of several relatively horizontal layers of sandy gravel and gravelly sand. The contacts between alluvial layers were distinct, and no faulting offset was observed in them.

Samples of carbon (charcoal/wood fragments)obtained for age dating from two layers of alluvium below the soil horizons indicated that the shallowest is approximately 11,000 years old, and the deeper one is older than 11,000 years old. Along the northeast end of the trench, the deeper alluvial layers appear to dip downward to the northeast, with a maximum change in elevation of the beds of three feet. This change in elevation was interpreted to represent warping due to pre-historic movements of the Shannon fault at depth; the dip and sense of movement of the Shannon fault plane was calculated on the basis of the location of these warped beds and the location determined on the basis of the borings (Chris Hundemere, C2Earth, personal communication, April 25, 2014)

No Holocene (last 11,000 years) surface rupture has been documented in the published literature along the mapped traces of the Berrocal or Monte Vista and Shannon faults (Kelson et al., 1997; Kovach and Page, 1995). Although it is not clear that these faults are seismogenic (capable of generating large earthquakes), microseismicity along these faults has been documented (Kovach and Beroza, 1993) and a clear pattern of damage was observed in the area of these northwest-trending reverse faults in Los Gatos after the 1989 Loma Prieta earthquake. This suggests that they may move or deform co-seismically with large earthquakes on faults to the south and west, such as the San Andreas Fault (Schmidt et al., 1995; Hitchcock and Kelson, 1999). It is also thought that slip on these faults results in tilting or warping of the ground surface instead of producing distinct surface ruptures (Lettis et al., 1997 as quoted in Ferriz and Anderson, 2001) However, investigations of these faults are not complete, and further studies will be required to better understand their potential seismic hazards.

<u>Potential Displacement During Co-Seismic Deformation</u>

If the 3-foot change in elevation of the alluvial beds observed in the trench excavated at the 50 Los Gatos Gatos-Saratoga Road (Treadwell & Rollo, 2008) one half mile to the east represents warping of the alluvium over the last 11,000 or so years to accommodate co-seismic deformation of the concealed fault during discrete earthquakes on the San Andreas Fault, a calculation as to the displacement during a single event is possible. Work by the USGS evaluating the recurrence interval of large earthquakes on the San Andreas Fault in the North Coast and Santa Cruz sections (encompassing the site area) indicated a recurrence interval of between 106 and 248 years for these segments (Dawson et al., 2008). Assuming similar seismic and tectonic conditions will occur in the future, the displacement during a co-seismic event would be on the order of between 0.35 and 0.82 inch.

Measurements of ground deformation resulting from the 1989 Loma Prieta in the vicinity of the site showed slab displacements of 80 mm (3.1 inches) in the lined concrete channel of Los Gatos Creek. Post-earthquake deformation was also reported in the immediate vicinity of the site, in the sidewalk along the west side of Massol Avenue, south of the intersection with Almendra Avenue. Sidewalk slabs that buckled during the earthquake had been partly removed and repaired with an asphalt patch, which, by December 5, 1989, had shortened by about 24 mm (0.95 inch) along a thrust fracture (Schmidt et al. 1995). It is estimated that the site area dropped in elevation by about 6-8 cm (2.4-3.1 inches) and horizontally it would have moved in a northwesterly direction possibly 2 cm (0.8 inch), a good context within which to gauge future coseismic displacement (K. Schmidt, USGS, personal communication, May 5, 2014).

Since the tectonic framework appears to be regional compression or shortening in a NNE-SSW direction, we recommend that the design of the proposed structures at the site accommodate up to 1 inch of differential offset across the length and width of the site.

4.2 Maximum Estimated Ground Shaking

The Seismic Hazard Zone Report for the Los Gatos 7.5-Minute Quadrangle (CGS, 2002) estimates that the peak ground acceleration with a 10% exceedance in 50 years would be approximately 0.73g. However, based on Equation 11.8-1 of ASCE 7-10, a peak ground acceleration of 1.01g can be expected at the site.

4.3 Future Earthquake Probabilities

Although research on earthquake prediction has greatly increased in recent years, seismologists cannot predict with certainty when or where an earthquake will occur. The USGS Working Group on California Earthquake Probabilities (2007), referred to as WG07, determined there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region between 2003 and 2032. For northern California, the most likely source of such earthquakes is the Hayward-Rodgers Creek Fault (31% in the next 30 years). This result is an important outcome of WG07's work, because any major earthquake can cause damage throughout the region.

The 1989 Loma Prieta earthquake demonstrated this potential by causing severe damage in Oakland and San Francisco, more than 50 miles from the fault epicenter. Although earthquakes can cause damage at a considerable distance, shaking will be very intense near the fault rupture. Therefore, earthquakes located in urbanized areas of the region have the potential to cause much more damage than the 1989 Loma Prieta earthquake.

4.4 Liquefaction

During cyclic ground shaking, such as earthquakes, cyclically induced stresses may cause increased pore water pressures within the soil matrix resulting in liquefaction. Liquefied soil may lose shear strength and lead to large shear deformations (Youd et al, 2001). Liquefied soil can also settle (compact) as pore pressures dissipate following an earthquake. Limited field data is available on this subject; however, settlement on the order of 2 to 3 percent of the thickness of the liquefied zone has been measured in some cases. Soils most susceptible to liquefaction are loose to moderately dense, saturated non-cohesive soils with poor drainage, such as sands and silts with interbedded or capping layers of relatively low permeability soil.

The site is not located within an area zoned by the State of California as having potential for seismically induced liquefaction hazards (CGS 2004). The site is also not located within a Santa Clara County Geologic Hazard Zone (2002) for liquefaction. Nolan Associates (1999) designates the site area as having very low potential for liquefaction. The sands and gravels encountered at the site below the groundwater table are generally medium dense to very dense and contain significant amounts of clay. For these reasons, we judge the potential for liquefaction to occur at the site to be low.

4.5 Seismically-Induced Differential Settlements

If near-surface soils vary in composition both vertically and laterally, strong earthquake shaking can cause non-uniform settlement of soil strata. This results in movement of the near-surface soils. Because the subsurface soils encountered at the site are generally stiff to hard clays and medium dense to very dense sands, we judge the probability of seismically-induced differential settlement at the site to be low.

4.6 Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or "free" face such as an open body of water, channel, or excavation. Los Gatos Creek is approximately ¼ mile east of the project site. The banks of Los Gatos Creek at its nearest point with the project site are concrete lined. Due to the relatively low risk of liquefaction and the distance to the concrete lined banks of Los Gatos Creek, we judge the risk of lateral spreading at the site to be low.

5.0 CORROSION EVALUATION

To evaluate the corrosion potential of the subsurface soils at the site, we submitted three samples collected during our subsurface investigation to an analytical laboratory for pH, resistivity, soluble sulfate and chloride content testing. The results of these tests are summarized in Table 1 below.

Table 1. Results of Corrosivity Testing

Sample	Depth (feet)	Chloride (mg/kg)	Sulfate (mg/kg)	pH	Resistivity (ohm-cm)	Estimated Corrosivity Based on Resistivity	Estimated Corrosivity Based on Sulfates
EB-1, 1B	2.0	3	4	6.9	12,231	Very Mildly	Negligible
EB-2, 3A	5.5	9	3	6.2	2,014	Severely	Negligible
EB-4, 2A	3.5	9	<2	6.6	10,272	Very Mildly	Negligible

Notes: 1. mg/kg = milligrams per kilogram.

Many factors can affect the corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on classification developed by William J. Ellis (1978), the approximate relationship between soil corrosiveness was developed as shown in Table 2 below.

Table 2. Relationship Between Soil Resistivity and Soil Corrosivity

Soil Resistivity (ohm-cm)	Classification of Soil Corrosiveness
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Chloride and sulfate ion concentrations and pH appear to play secondary roles in affecting corrosion potential. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried metallic improvements or reinforced concrete structures. Sulfate ions in the soil can lower the soil resistivity and can be highly aggressive to Portland cement concrete (PCC) by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. Soils containing high sulfate content could also cause corrosion of the reinforcing steel in concrete. Table 4.2.1 of the American Concrete Institute (ACI, 2008) provides requirements for concrete exposed to sulfate-containing solutions as summarized in Table 3.

Table 3. Relationship Between Sulfate Concentration and Sulfate Exposure (Table 4.2.1 of ACI)

Water-Soluble Sulfate (SO_4) in soil, ppm	Sulfate Exposure
0 to 1,000	Negligible
1,000 to 2,000	Moderate[1]
2,000 to 20,000	Severe
over 20,000	Very Severe

[1]= seawater

Acidity is an important factor of soil corrosivity. The lower the pH (the more acidic the environment), the higher will the soil corrosivity be with respect to buried metallic structures. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures due to protective surface films which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint.

As shown in Table 1, soil resistivity results ranged from 2,014 to 12,231 ohm-centimeters. Based on these results and the resistivity correlations presented in Table 2, the corrosion potential to buried metallic improvements may be characterized as very mildly to severely corrosive. We recommend that a corrosion protection engineer be consulted about appropriate corrosion protection methods for buried metallic materials.

Based on our previous experience and Table 3 (Table 4.2.1 of the ACI), it is our opinion that sulfate exposure to PCC may be considered negligible for the native subsurface materials sampled.

6.0 CONCLUSIONS AND DEVELOPMENT CONSIDERATIONS

6.1 Conclusions

From a geotechnical engineering viewpoint, the site is suitable for the proposed mixed use development. The primary geotechnical concerns at the site are the area of fill, potential co-seismic ground deformation and strong seismic shaking.

6.1.1 Presence of Fill within the Southeast Area

Fill at least 20 feet deep was encountered within boring EB-3 and consisted of clayey sand, concrete, clay and gravel. The fill materials were noted to have a chemical odor during our field exploration. Unless documentation can be provided, we do not recommend supporting future improvements on it. We recommend any fill beneath new improvements be removed down to (and including) the level of the concrete rubble and recompacted or replaced. The removal and replacement of the fill should extend laterally at least 40 feet from the location of boring EB-3. If additional fill is discovered during earthwork beyond the 40 foot radius, it should also be removed and replaced.

6.1.2 Co-seismic Ground Deformation

As discussed above, ground deformation accompanying a future large magnitude earthquake on the San Andreas Fault could cause displacements during on the order of between 0.35 and 0.82 inch. The deformation would be compression or shortening in a NNE-SSW direction. We therefore recommend that the design of the proposed structures at the site accommodate up to 1 inch of differential offset and vertical movement across the length and width of the site. We recommend that an engineering geologist review the subgrade for indications of ground movement associated with previous earthquake activity prior to construction.

6.1.3 Strong Seismic Shaking

We recommend that at a minimum, the proposed structures be designed in accordance with the seismic design criteria of the 2013 CBC. Site seismic coefficients are presented in the "Foundations" section below.

7.0 EARTHWORK

7.1 Clearing and Site Preparation

The site should be cleared of all surface and subsurface improvements to be removed and deleterious materials including existing building foundations, slabs, irrigation lines, fills, pavements, debris, designated trees, shrubs, and associated roots. Abandonment of existing buried utilities is discussed below. We recommend that trees and shrubs designated to be removed should include the entire rootball and all roots larger that ½-inch in diameter. Depressions resulting from removal of trees and shrubs should be cleaned of loose soils and roots, and properly backfilled in accordance with the "Compaction" section of this report. Excavations extending below the planned finished site grades should be cleaned and backfilled with suitable material compacted as recommended in the "Compaction" section of this report. We recommend that backfilling of holes or pits resulting from demolition and removal of buried structures be carried out under our observation and that backfill be tested during placement.

After clearing, any vegetated areas should be stripped to sufficient depth to remove all surface vegetation and topsoil containing greater than 3 percent organic matter by weight. At the time of our field investigation, we estimated that a stripping depth of approximately three inches would be required in vegetated areas. The actual stripping depth required depends on site usage prior to construction and should be established in the field by us at the time of construction. The stripped materials should be removed from the site or may be stockpiled for use in landscaped areas, if desired.

7.2 Removal of Existing Fill

Based on the previous reports and our exploration, fills at least 20 feet in depth are anticipated within the southeast portion of the site.

All undocumented fill should be removed down to (and including) the concrete rubble or at least 5 feet below existing site grades. Fill removal should extend 40 feet from the location of boring EB-3 or to the lateral extents of the fill encountered during earthwork, whichever is greater. If fill extends beyond the building footprint, it should be removed a horizontal distance of at least 5 feet beyond the perimeter of the building if possible. If the fill material meets the requirements in the "Material for Fill" section below, it may be reused as engineered fill. Where possible, side slopes of fill excavations in building and pavement areas should be sloped at inclinations no greater than 3:1 (horizontal:vertical) to minimize abrupt variations in fill thickness. All fill should be compacted in accordance with the recommendations for fill presented in the "Compaction" section of this report.

7.3 Abandoned Utilities

Abandoned utilities within the proposed building areas should be removed in their entirety. As an alternative, it may be feasible to abandon (in-place) underground utilities within the proposed building area provided the utility does not conflict with new improvements, is completely grouted, and previous fills associated with the utility do not pose a risk to the structure. Existing underground utilities outside the proposed building area(s) should be removed or abandoned in-place by grouting or plugging the ends with concrete. The decision to abandon in-place versus removal should be based on the level of risk associated with the particular utility line.

It should be noted that fills associated with underground utilities abandoned in-place may have an increased potential for settlement, and partially grouted or plugged pipelines will have a potential risk of collapse that may result in ground settlement, soil piping, and leakage of pipeline constituents. The potential risks are relatively low for small diameter pipes (4 inches or less) and increasingly higher with increasing diameter.

7.4 Subgrade Preparation

After the site has been properly cleared, stripped, and necessary excavations have been made, exposed surface soils in those areas to receive fill, slabs-on-grade, foundations, or pavements should be scarified to a depth of 6 inches, moisture conditioned, and compacted in accordance with the recommendations for fill presented in the "Compaction" section.

The finished compacted subgrade should be firm and non-yielding under the weight of compaction equipment. If the relative compaction of the subgrade is less than recommended or the surface of the subgrade has significant yielding, then the area should be over-excavated and rebuilt or reworked until the subgrade conforms to our recommendations.

7.5 Material for Fill

All on-site soils below the stripped layer having an organic content of less than 3 percent by weight are suitable for use as fill at the site. In general, fill material should not contain rocks or lumps larger than 6 inches in greatest dimension, with 15 percent or less larger than 2½ inches in the greatest dimension.

Imported general fill material should be inorganic and should have a Plasticity Index of 15 or less. Imported non-expansive fill material should be inorganic and should have a Plasticity Index of 15 or less. Imported fill should have sufficient binder to reduce the potential for sidewall caving of foundation and utility trenches. Samples of proposed import fill should be submitted to us at least four days prior to delivery to the site to allow for visual review and laboratory testing. This will allow us to evaluate the general conformance of the import fill with our recommendations. It should be noted, that laboratory testing can take up to ten days to complete.

Consideration should also be given to the environmental characteristics and corrosion potential of any imported fill. Suitable documentation should be provided for import material. In addition, it may be appropriate to perform laboratory testing of the environmental characteristics and corrosion potential of imported materials. Import soils should not be more corrosive than the on-site native materials, including pH, soluble sulfates, chlorides, and resistivity.

7.6 Compaction

All fill, as well as scarified surface soils in those areas to receive fill or slabs on grade, should be compacted to at least 90 percent relative compaction as determined by ASTM Test Designation D1557, latest edition. Fill should be placed in lifts no greater than 8 inches in uncompacted thickness. Each successive lift should be firm and non-yielding under the weight of construction equipment.

In pavement areas, the upper 6 inches of subgrade and full depth of aggregate base should be compacted to at least 95 percent relative compaction (ASTM D1557, latest edition), except for the native clays, which should be compacted as noted above. Aggregate base and all import soils should be compacted at a moisture content near the laboratory optimum.

7.7 Wet Weather Conditions

It should be understood that earthwork such as fill placement and trench backfill may be very difficult during wet weather, especially for fill materials with a significant amount of clay. If the percent water in the fill increases significantly above the optimum moisture content, the soils will become soft, yielding, and difficult to compact. Therefore, we recommend that earthwork be performed during periods of suitable weather conditions, such as the "summer" construction season.

There are several alternatives to facilitate fill placement and trench backfill if earthwork is performed during the wet winter season, and the moisture content of the fill materials increases significantly above optimum moisture.

- Scarify and air dry until the fill materials have a suitable moisture content for compaction
- Over-excavation the fill and replace with suitable on-site or import materials with an appropriate moisture content.
- Install a geo-synthetic (geotextile or geogrid) to reduce surface yielding and reinforce soft fill
- Chemically treat with quicklime (CaO), kiln-dust, or cement to reduce the moisture content and increase the strength of the fill

The implementation of these methods should be reviewed on a case-by-case basis so that a cost effective approach may be used for the specific conditions at the time of construction.

7.8 Trench Backfill

Bedding and pipe embedment materials to be used around underground utility pipes should be well graded sand or gravel conforming to the pipe manufacturer's recommendations and should be placed and compacted in accordance with project specifications, local requirements or governing jurisdiction. General fill to be used above pipe embedment materials should be placed and compacted in accordance with local requirements or the recommendations contained in this section, whichever is more stringent.

On-site soils may be used as general fill above pipe embedment materials provided they meet the requirements of the "Material for Fill" section of this report. General fill should be placed in lifts not exceeding 8 inches in uncompacted thickness and should be compacted to at least 90 percent relative compaction (ASTM D1557, latest edition) by mechanical means only. Water jetting of trench backfill should not be allowed. The upper 6 inches of general fill in all pavement areas subject to wheel loads should be compacted to at least 95 percent relative compaction.

Utility trenches located adjacent to footings should not extend below an imaginary 1:1 (horizontal:vertical) plane projected downward from the footing bearing surface to the bottom edge of the trench. Where utility trenches will cross beneath footing bearing planes, the footing concrete should be deepened to encase the pipe or the utility trench should be backfilled with sand/cement slurry or lean concrete within the foundation bearing plane.

7.9 Temporary Slopes and Trench Excavations

The contractor should be responsible for all temporary slopes and trenches excavated at the site and design of any required temporary shoring. Shoring, bracing, and benching should be performed by the contractor in accordance with the strictest governing safety standards.

7.10 Surface Drainage

Positive surface water drainage gradients (2 percent minimum) should be provided adjacent to the structures to direct surface water away from foundations and slabs towards suitable discharge facilities. Ponding of surface water should not be allowed on or adjacent to structures, slabs-on-grade, or pavements. Roof runoff should be directed away from foundation and slabs-on-grade.

8.0 FOUNDATIONS

Based on our investigation, if the proposed structures are three stories high or less and the recommendations from above are followed, the buildings and site structures can be supported on footings connected by grade beams to provide rigidity against the potential for movement along the fault trace crossing the site. Recommendations for foundations are presented below.

8.1 2013 CBC Site Coefficients (CBC) Site Seismic Coefficients

Chapter 16 of the 2013 CBC outlines the procedure for seismic design of structures. The site subsurface profile is judged to be consistent with Site Class D classification. The site may be characterized for design using the information in Table 4.

Table 4. 2013 CBC Site Class and Site Seismic Coefficients

Latitude: 37.2291 N Longitude: 121.9816 W	CBC Table/ Figure	Factor/ Coefficient	Value
Soil Profile Type	Table 1613.3.2	Site Class	D
Mapped Spectral Response Acceleration for MCE at 0.2 second Period	Figure 1613.3.1(1)	S_s	2.70
Mapped Spectral Response Acceleration for MCE at 1 Second Period	Figure 1613.3.1(2)	S_1	1.01
Site Coefficient	Table 1613.3.3(1)	F_a	1.0
Site Coefficient	Table 1613.3.3(2)	F_v	1.5
Adjusted MCE Spectral Response Parameter	Equation 16-37	S_{MS}	2.70
Adjusted MCE Spectral Response Parameter	Equation 16-38	S_{M1}	1.51
Design Spectral Acceleration Parameter	Equation 16-39	S_{DS}	1.80
Design Spectral Acceleration Parameter	Equation 16-40	S_{Ml}	1.01

8.2 Footings

The proposed structures may be supported on conventional continuous and/or isolated spread footings bearing on natural, undisturbed soil or compacted fill. All footings should have a minimum width of 12 inches, and the bottom of footings should extend at least 18 inches below lowest adjacent finished grade and be structurally connected with grade beams. Lowest adjacent finished grade may be taken as the bottom of interior slab-on-grade or the finished exterior grade, excluding landscape topsoil, whichever is lower.

Footings constructed in accordance with the above recommendations would be capable of supporting maximum allowable bearing pressures of 2,500 pounds per square foot (psf) for dead loads, 3,750 psf for combined dead and live loads, and 5,000 psf for all loads including wind or seismic. These allowable bearing pressures are based upon factors of safety of 3.0, 2.0 and 1.5 for dead, dead plus live, and seismic loads, respectively.

These maximum allowable bearing pressures are net values; the weight of the footings may be neglected for design purposes. All footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1:1 (horizontal:vertical) plane projected upward from the bottom edge of the trench to the footing.

All continuous footings should be reinforced with top and bottom steel to provide structural continuity and to help span local irregularities. Footing excavations should be kept moist by regular sprinkling with water to prevent desiccation. It is essential that we observe all footing excavations before reinforcing steel is placed. We estimate that settlement from such structures supported on footing foundations would not exceed ½-inch.

8.3 Moisture Protection Considerations

Since the long-term performance of concrete slabs-on-grade depends to a large degree on good design, workmanship, and materials, the following general guidelines are presented for consideration by the developer, design team, and contractor. The purpose of these guidelines is to aid in producing a concrete slab of sufficient quality to allow successful installation of floor coverings and reduce the potential for floor covering failures due to moisture-related problems associated with mat foundation construction. These guidelines may be supplemented, as necessary, based on the specific project requirements.

- A minimum 15-mil thick vapor barrier meeting minimum ASTM E 1745, Class C requirements should be placed directly below the slab (no sand). The vapor barrier should extend to the edge of the slab. At least 4 inches of free-draining gravel, such as ½- or ¾-inch crushed rock with no more than 5 percent passing the ASTM No. 200 sieve, should be placed below the vapor barrier to serve as a capillary break. The crushed rock should be consolidated in place with vibratory equipment. The vapor barrier should be sealed at all seams and penetrations in accordance with manufacturer's recommendations and ASTM E1643 requirements.

- The concrete water/cement ratio should not exceed 0.45. Midrange plasticizers could be used to facilitate concrete placement and workability.

- Water should not be added after initial batching, unless the slump of the concrete is less than specified, and the resulting water/cement ratio will not exceed 0.45.

- Polishing the concrete surface with metal trowels should not be permitted.

- All concrete surfaces to receive any type of floor covering should be moist cured for a minimum of seven days. Moist curing methods may include frequent sprinkling or using coverings such as burlap, cotton mats or carpet. The covering should be placed as soon as the concrete surface is firm enough to resist surface damage. The covering should be kept continuously wet and not allowed to dry out during the required curing period.

- Water vapor emission levels and pH should be determined before floor installation as required by the manufacturer of the floor covering materials. Measurements and calculations should be made according to ASTM F1869-98 and F710-98 protocol.

The guidelines presented above are based on information obtained from various technical sources, including the American Concrete Institute (ACI), and are intended to present information that can be used to reduce potential long-term impacts from slab moisture infiltration. The application of these guidelines does not affect the geotechnical aspects of the foundation performance.

9.0 RETAINING WALLS

9.1 Lateral Earth Pressures

Any proposed retaining walls should be designed to resist lateral earth pressures from adjoining natural materials, backfill, and surcharge loads. Provided that adequate drainage is provided as recommended below, we recommend that walls restrained from movement at the top be designed to resist an equivalent fluid pressure of 45 pcf plus a uniform pressure of 8H pounds per square foot, where H is the distance in feet between the bottom of the footing and the top of the retained soil. Restrained walls should also be designed to resist an additional uniform pressure equivalent to one-half of any surcharge loads applied at the surface. Any unrestrained retaining walls with adequate drainage should be designed to resist an equivalent fluid pressure of 45 pcf plus one-third of any surcharge loads.

The above lateral earth pressures assume level backfill conditions and sufficient drainage behind the walls to prevent build-up of hydrostatic pressure from surface water infiltration and/or a rise in the ground water level. If adequate drainage is not provided, we recommend an equivalent fluid pressure of 40 pcf be added to the values recommended above for both restrained and unrestrained walls. Damp proofing of the walls should be included in areas where wall moisture and efflorescence would be undesirable.

9.2 Drainage

Adequate drainage may be provided by a subdrain system behind the walls. This system should consist of a 4-inch minimum diameter perforated pipe placed near the base of the wall (perforations placed downward). The pipe should be bedded and backfilled with Class 2 Permeable Material per Caltrans Standard Specifications, latest edition. The permeable backfill should extend at least 12 inches out from the wall and to within 2 feet of outside finished grade. Alternatively, ½- to ¾-inch crushed rock may be used in place of the Class 2 Permeable Material provided the crushed rock and pipe are enclosed in filter fabric, such as Mirafi 140N or equivalent. The upper 2 feet of wall backfill should consist of relatively low permeable compacted on-site clayey soil. The subdrain outlet should be connected to a free-draining outlet or sump.

Miradrain, Geotech Drainage Panels, or Enkadrain drainage matting may be used for wall drainage as an alternative to the Class 2 Permeable Material or drain rock backfill. The drainage panel should be connected to the perforated pipe at the base of the wall, or to some other closed or through-wall system. Miradrain panels should terminate 24 inches from final exterior grade. The

Miradrain panel filter fabric should be extended over the top of and behind the panel to protect it from intrusion of the adjacent soil.

We recommend that design details for draining the basement walls above the design ground water level be determined prior to completion of construction documents as this is often a critical feature. A sump will likely be needed for drainage at this elevation unless storm drains are at an elevation that would accept the water by gravity. A suitable prefabricated drainage system designed for this specific use, such as Miradrain, Geotech Drainage Panels, or Enkadrain drainage matting, is typical. The prefabricated drainage system should be installed against the wall (if excavation is laid back) or shoring system and should be installed in at least 4-foot-wide vertical strips at 8 feet on-center around the basement walls. Drainage panels should terminate 24 inches from final exterior grade. The drainage panel filter fabric should be extended over the top of and behind the panel to protect it from intrusion of the adjacent soil. A horizontal collection system external to the basement walls, or carried inside the basement, should drain to a sump system. Waterproofing should be installed between the drainage system and the basement walls. The project structural engineer should review and approve any notch or penetrations planned in basement walls.

9.3 Backfill

Where surface improvements will be located over the retaining wall backfill, backfill placed behind the walls should be compacted to at least 95 percent relative compaction using light compaction equipment. Where no surface improvements are planned, backfill should be compacted to at least 90 percent. If heavy compaction equipment is used, the walls should be temporarily braced.

9.4 Foundation

Retaining walls may be supported on a continuous spread footing designed in accordance with the recommendations presented in the "Footings" section of this report. Lateral load resistance for the walls may be developed in accordance with the recommendations presented in the "Lateral Loads" section.

10.0 PAVEMENTS

10.1 Asphalt Concrete (AC) Pavements

We obtained a representative bulk sample of the surface soil and performed an R-value test to provide preliminary data for pavement design. The results of the test are included in Appendix B and indicate an R-value of 12. We judged an R-value of 5 to be applicable for design. Using estimated traffic indices for various pavement-loading requirements, we developed the following recommended pavement sections based on Procedure 608 of the Caltrans Highway Design Manual, presented in Table 5.

Table 5. Recommended Asphalt Concrete Pavement Design Alternatives
Pavement Components
Design R–Value = 5

General Traffic Condition	Design Traffic Index	Asphalt Concrete (Inches)	Aggregate Baserock* (Inches)	Total Thickness (Inches)
Automobile Parking	4.0	2.5	7.5	10.0
	4.5	2.5	9.5	12.0
Automobile Parking Channel	5.0	3.0	10.0	13.0
	5.5	3.0	12.0	15.0
Truck Access & Parking Areas	6.0	3.5	12.5	16.0
	6.5	4.0	14.0	18.0

*Caltrans Class 2 aggregate base; minimum R-value equal to 78.

The traffic indices used in our pavement design are considered reasonable values for the proposed development and should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. The traffic parameters used for design were selected based on engineering judgment and not on information furnished to us such as an equivalent wheel load analysis or a traffic study.

In addition, it has been our experience that asphalt concrete pavements constructed adjacent to non-irrigated open space areas may experience cracking parallel to the edge of the pavement. This is typically caused by seasonal shrinkage and swelling adjacent to non-irrigated edges of the pavement. The cracks typically occur within the first few years of construction, and are typically located within a few to several feet of the edge of the pavement. The cracks, if they occur, can be filled with a bituminous sealant. Otherwise, a moisture barrier would need to be installed to a depth of at least 24 inches to reduce the potential for shrinkage of the pavement subgrade soils.

10.2 Portland Cement Concrete (PCC) Pavements

Recommendations for PCC pavements are presented below in Table 6 below. Since the expected Average Daily Truck Traffic (ADTT) is not known at this time, we have provided alternatives for minimum pavement thickness. An allowable ADTT should be chosen that is greater than expected for the development.

Table 6. Recommended Minimum PCC Pavement Thickness

Allowable ADTT	Minimum PCC Pavement Thickness (inches)
0.8	5
13	5½
130	6

Our design is based on an R-value of 5 and a 28-day unconfined compressive strength for concrete of at least 3,500 pounds per square inch. In addition, our design assumes that pavements are restrained laterally by a concrete shoulder or curb and that all PCC pavements are underlain by at least 6 inches of Class 2 aggregate base. We recommend that adequate construction and control joints be used in design of the PCC pavements to control the cracking inherent in this construction.

10.3 Asphalt Concrete, Aggregate Base and Subgrade

Asphalt concrete and aggregate base should conform to and be placed in accordance with the requirements of Caltrans Standard Specifications, latest edition, except that ASTM Test Designation D1557 should be used to determine the relative compaction of the aggregate base. Pavement subgrade should be prepared and compacted as described in the "Earthwork" section of this report.

10.4 Exterior Flatwork and Sidewalks

We recommend that exterior concrete sidewalks be at least 4 inches thick and underlain by at least 4 inches of Class 2 aggregate base compacted to a minimum of 90 percent relative compaction in accordance with ASTM Test Method D1557, latest edition. If sidewalks are subject to wheel loads, they should be designed in accordance with the "Exterior Portland Cement Concrete Pavements" section of this report.

11.0 LIMITATIONS

This report has been prepared for the sole use of McCarthy Land Company, specifically for design of the North Santa Cruz Avenue multi-use development in Los Gatos, California. The opinions presented in this report have been formulated in accordance with generally accepted geotechnical engineering practices that exist in the San Francisco Bay Area at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

The opinions, preliminary conclusions and recommendations contained in this feasibility report are based upon the information obtained from our investigation, which includes data from widely separated locations, visual observations from our site reconnaissance, and review of other geotechnical data provided to us, along with local experience and engineering judgment. The preliminary recommendations presented in this report are based on the assumption that soil and geologic conditions at or between borings do not deviate substantially from those encountered or extrapolated from the information collected during our investigation. We are not responsible for the data presented by others.

We should be retained to review the geotechnical aspects of the final plans and specifications for conformance with our recommendations. recommendations provided in this report are based on the assumption that we will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, TRC cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of TRC's report by others. Furthermore, TRC will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services and/or at the time another consultant is retained for follow up service to this report.

The opinions presented in this report are valid as of the present date for the property evaluated. Changes in the condition of the property will likely occur with the passage of time due to natural processes and/or the works of man. In addition, changes in applicable standards of practice can occur as a result of legislation and/or the broadening of knowledge. Furthermore, geotechnical issues may arise that were not apparent at the time of our investigation. Accordingly, the opinions presented in this report may be invalidated, wholly or partially, by changes outside of our control. Therefore, this report is subject to review and should not be relied upon after a period of three years, nor should it be used, or is it applicable, for any other properties.

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* * * * * * * * * * * * *

SOURCE AERIAL PHOTO: Google Earth, April 2013.

N

APPROXIMATE SCALE (FEET)

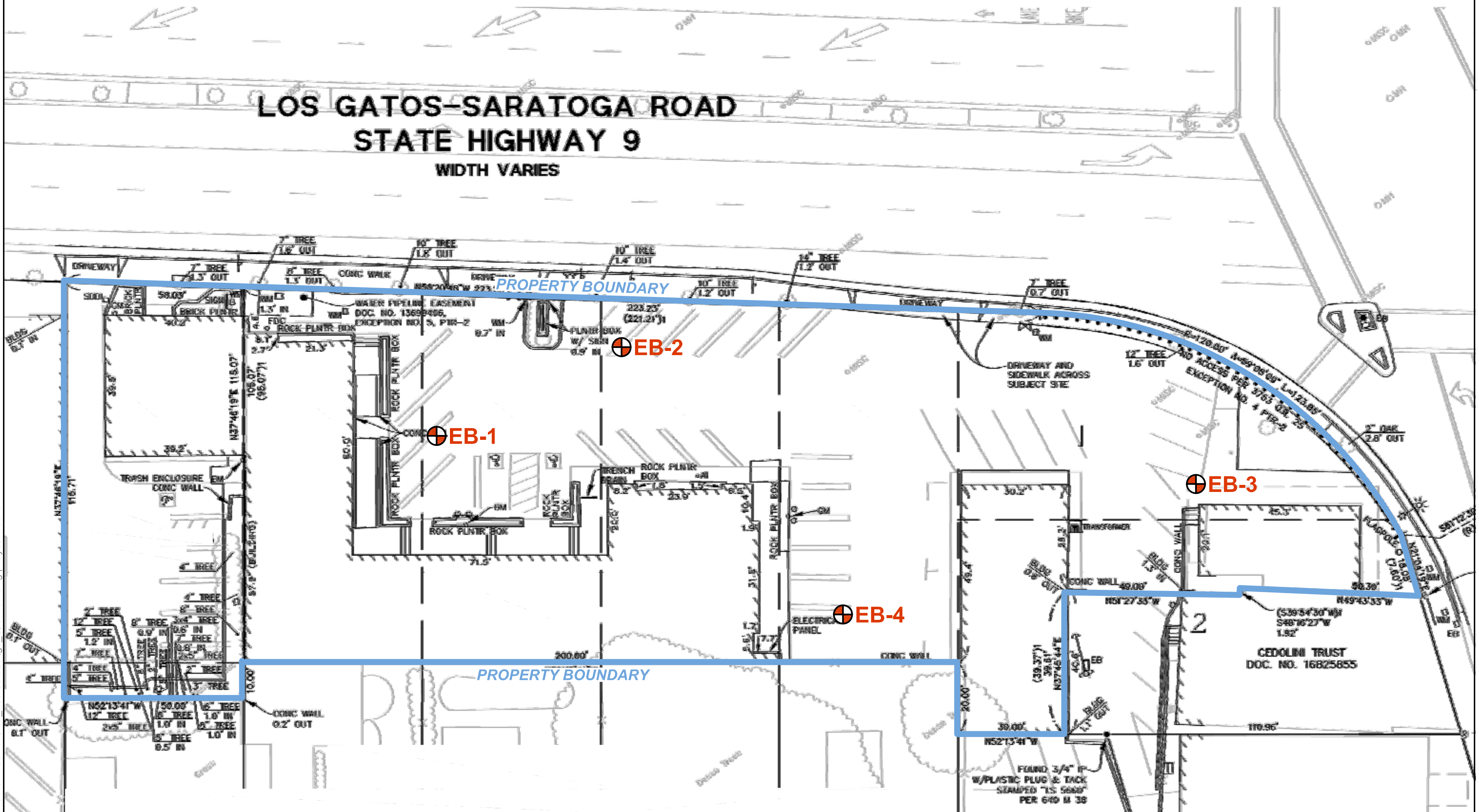
0 200 400

VICINITY MAP

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 1**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig1_Vicinity Map.dwg | Layout Tab: 8x11



SOURCE: Alta/ACSM Land Title Survey by BKF Engineers Surveyors Planners, January 2014.

LEGEND

⊕ Approximate location of exploratory boring

N

SCALE (FEET)

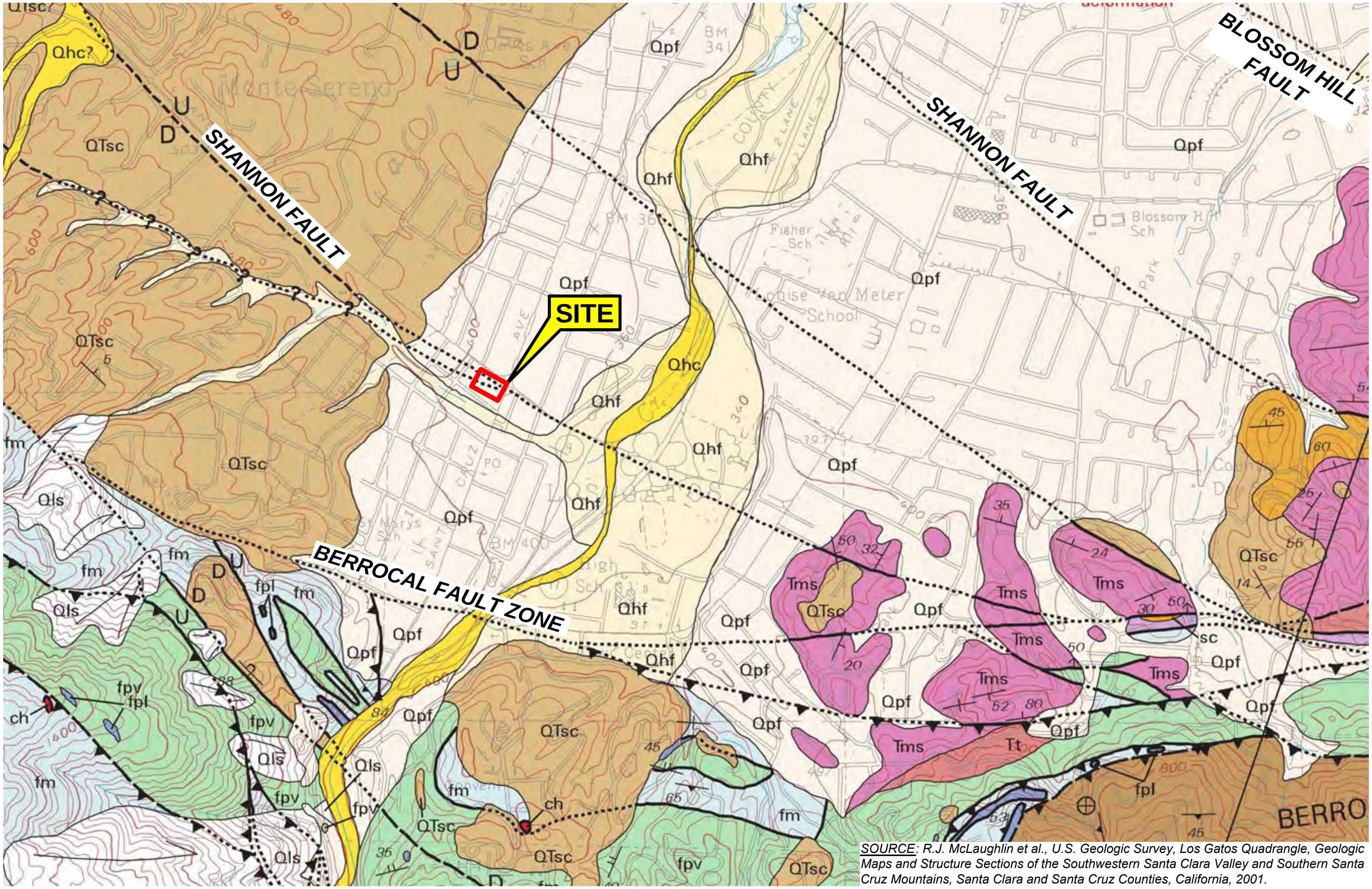
0 40 80

SITE PLAN

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 2**

FILE NAME: Z:\CAD_DRAW\Current\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig2_Site Plan.dwg | Layout Tab: 8x11



SOURCE: R.J. McLaughlin et al., U.S. Geologic Survey, Los Gatos Quadrangle, Geologic Maps and Structure Sections of the Southwestern Santa Clara Valley and Southern Santa Cruz Mountains, Santa Clara and Santa Cruz Counties, California, 2001.

EXPLANATION

Qhc Stream channel deposits (Holocene)

Qhf Alluvial fan deposits (Holocene)

Qpf Alluvial fan deposits (Pleistocene)

QTsc Santa Clara Formation (Pleistocene and Pliocene)

Tms Monterey shale (Middle and Lower Miocene)

N

APPROXIMATE SCALE (MILES)

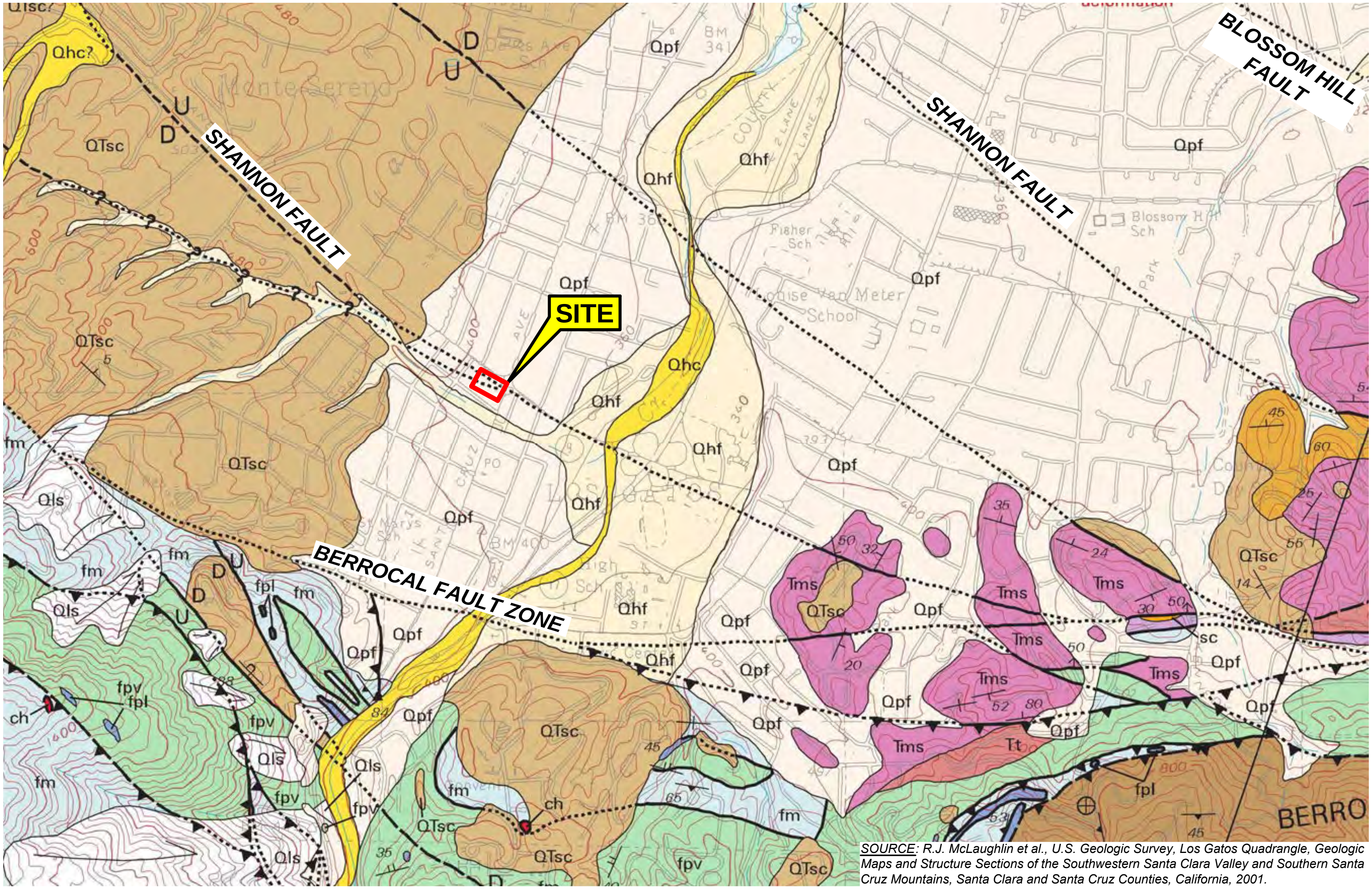
0 1/3 2/3 1 MILE

REGIONAL GEOLOGICAL MAP

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC 210359 **FIGURE 3**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig3_Regional Geologic Map.dwg | Layout Tab: 8x11



SOURCE: R.J. McLaughlin et al., U.S. Geologic Survey, Los Gatos Quadrangle, Geologic Maps and Structure Sections of the Southwestern Santa Clara Valley and Southern Santa Cruz Mountains, Santa Clara and Santa Cruz Counties, California, 2001.

EXPLANATION

Qhc Stream channel deposits (Holocene)

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N

APPROXIMATE SCALE (MILES)

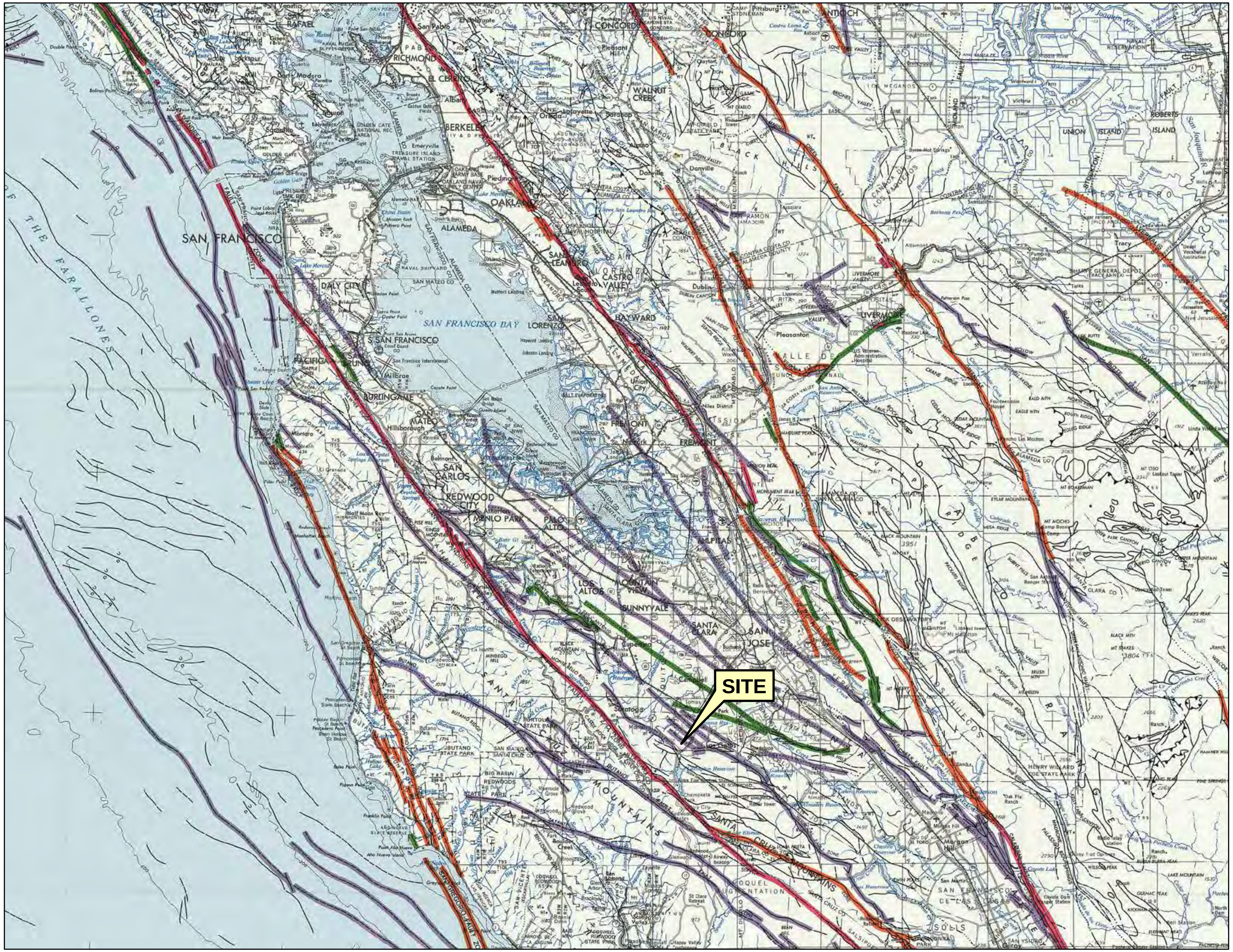
0 1/3 2/3 1 MILE

REGIONAL GEOLOGICAL MAP

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 3**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig3_Regional Geologic Map.dwg | Layout Tab: 8x11



SCALE: 1:500,000

APPROXIMATE GRAPHICAL SCALE (MILES)

0 10 20

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement on Land Offshore[1]	DESCRIPTION
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.
		Holocene	10,000			Displacement during Holocene time[2]
		Pleistocene	700,000			Faults showing evidence of displacement during late Quaternary time.[3,4]
	Early Quaternary		2,000,000			Quaternary (undifferentiated) faults — most faults in this category show evidence of displacement during the last 2,000,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.
Pre-Quaternary	Pliocene		5,000,000			Fault showing evidence of no displacement during Quaternary time or faults without recognized Quaternary displacement.
	Miocene					

NOTES:

Base map is a composite of part the San Francisco 1:250,000 scale map (reference code 37 122-A1-TF-250-00, 1980) and the San Jose 1:250,000 scale map (reference code 37 120-A1-TF-250-00, 1969). For cartographic details, refer to these maps. Bathymetric information is not intended for navigational purposes.

Transverse Mercator Projection 10,000-meter Universal Transverse Mercator grid, zone 10.

Minor corrections and additions to culture by California Division of Mines and Geology 1987.

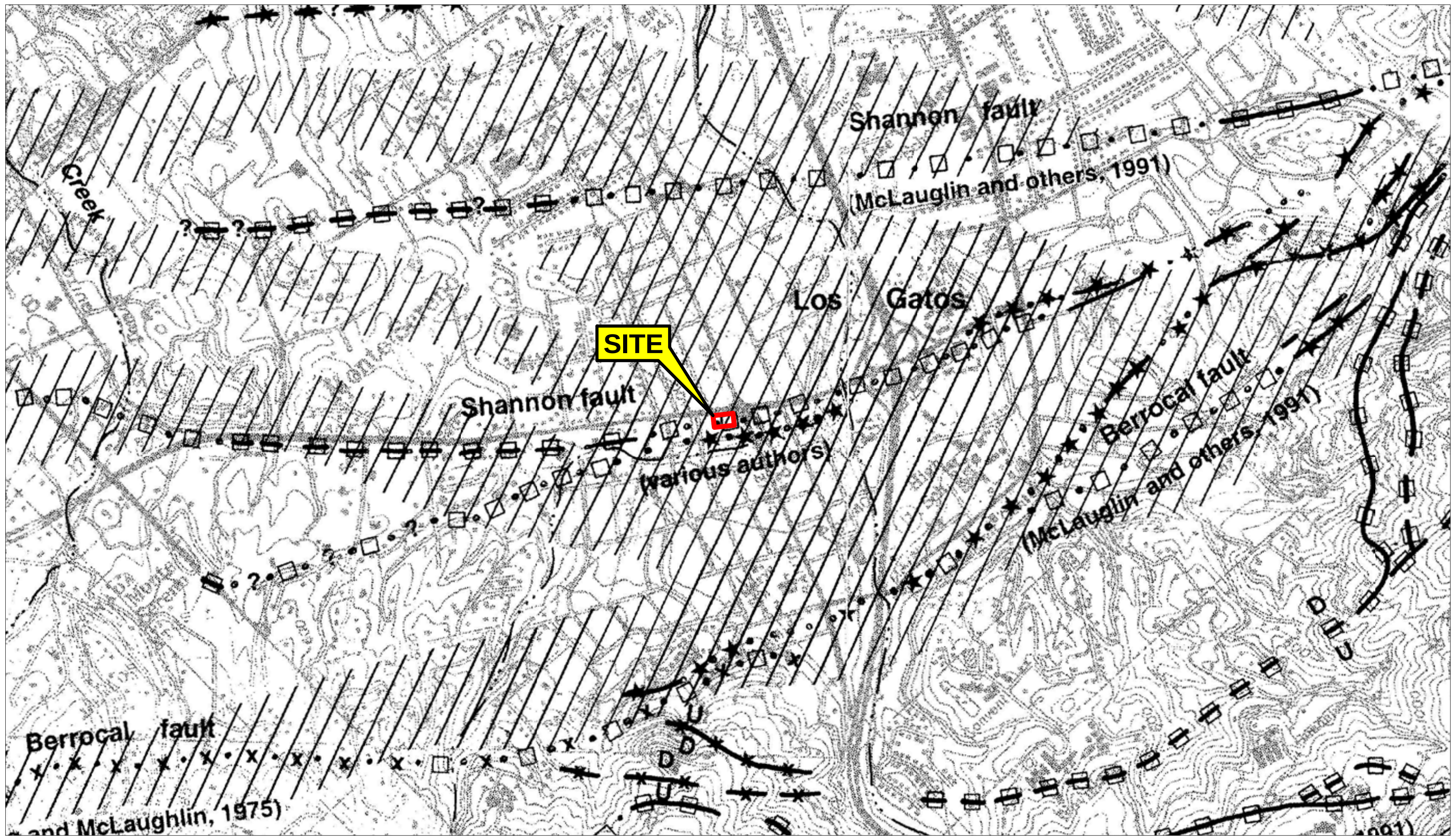
From: Bortugno & others (1991)

Some faults highlighted in purple are not considered active (Holocene Movement) by the State of California.

REGIONAL FAULT MAP

North Santa Cruz Mixed-Use Development
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 4**



EXPLANATION

Fault, dashed where approximately located, dotted where concealed, queried where uncertain. U = up / D = down indicates relative sense of movement where known

Anticlinal axis, dotted where concealed

Synclinal axis, dotted where concealed

Zone of lineaments (this study)

Trench referred to in text. Investigator and year indicated

Previously identified faults:

- Bailey and Everhart (1964)
- Dibblee (1966)
- Rogers and Armstrong in Bedrossian (1980a)
- Rogers and Williams (1974)
- CDWR (1975)
- Sorg and McLaughlin (1975)
- Herd (1980) in Bedrossian (1980a)
- Wesling and Helley (1989)
- McLaughlin and others (1991)

N

APPROXIMATE SCALE (MILES)

0 1/3 2/3 1 MILE

SOURCE: C.S. Hitchcock et al., Plate 1, Faults and Folds Mapped During Previous Investigations and Zones of Lineaments between Los Altos Hills and Lost Gatos, California, USGS National Earthquake Hazards Reduction Program, Northeastern Margin of the Southern Santa Cruz Mountains, 1994.

FAULTS AND ZONES OF LINEAMENTS

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 5**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig5_Faults and Zones of Lineaments.dwg | Layout Tab: 11x17

EXPLANATION

cd Closed depression
ld Linear depression
lf Linear front
v Vegetation

SURFICIAL DEPOSITS/BEDROCK

Qls Landslide deposits
Qal Undifferentiated stream alluvium
Qlv Levee deposits
Qtsc Santa Clara gravel
pQ Undifferentiated bedrock

N

APPROXIMATE SCALE (MILES)

0 1/3 2/3 1 MILE

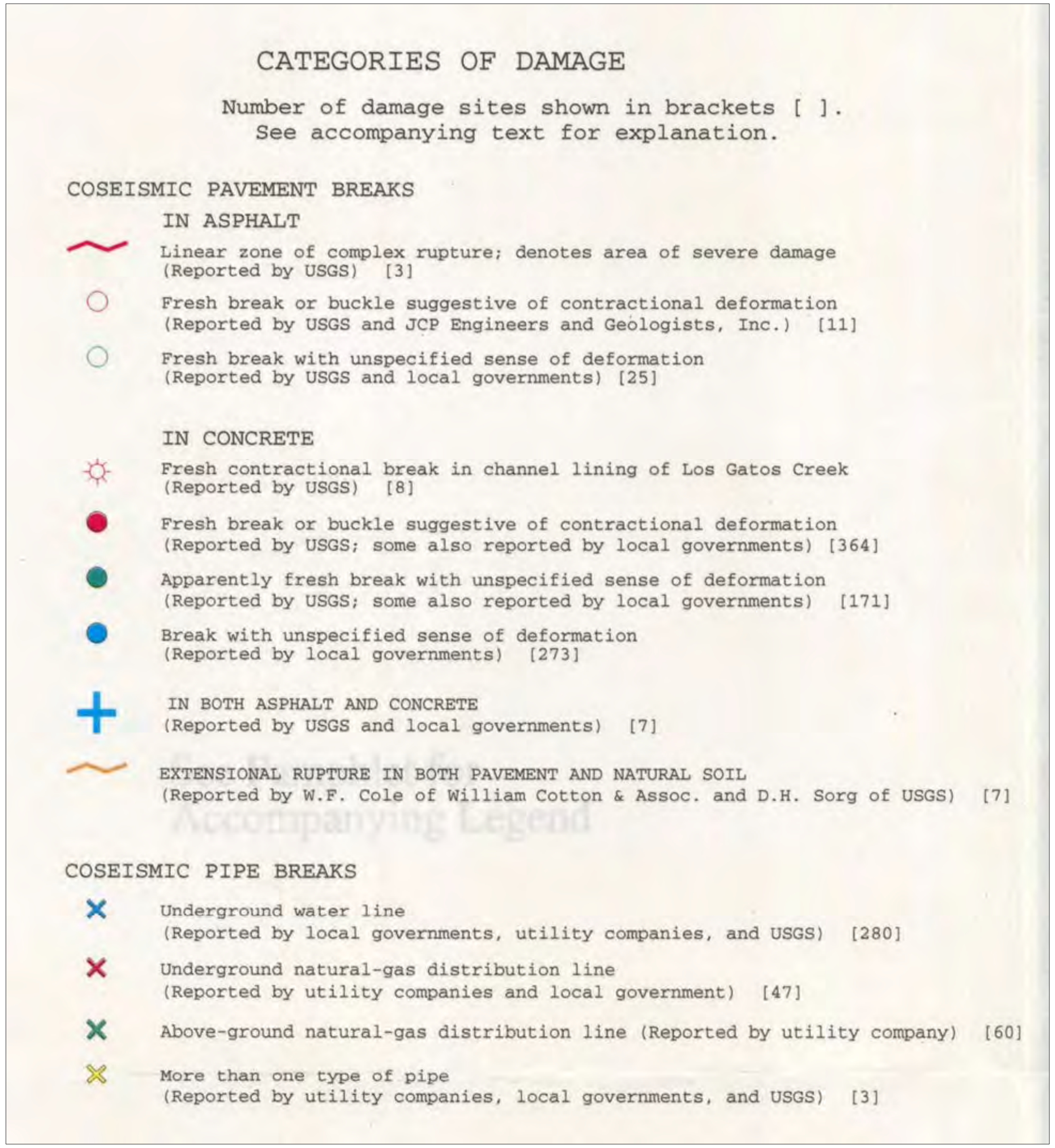
SOURCE: C.S. Hitchcock et al., Plate 2, Preliminary Map of Surficial Deposits and Geomorphic Surfaces along the Northeastern Margin of the Santa Cruz Mountains, California, USGS National Earthquake Hazards Reduction Program, Northeastern Margin of the Southern Santa Cruz Mountains, 1994.

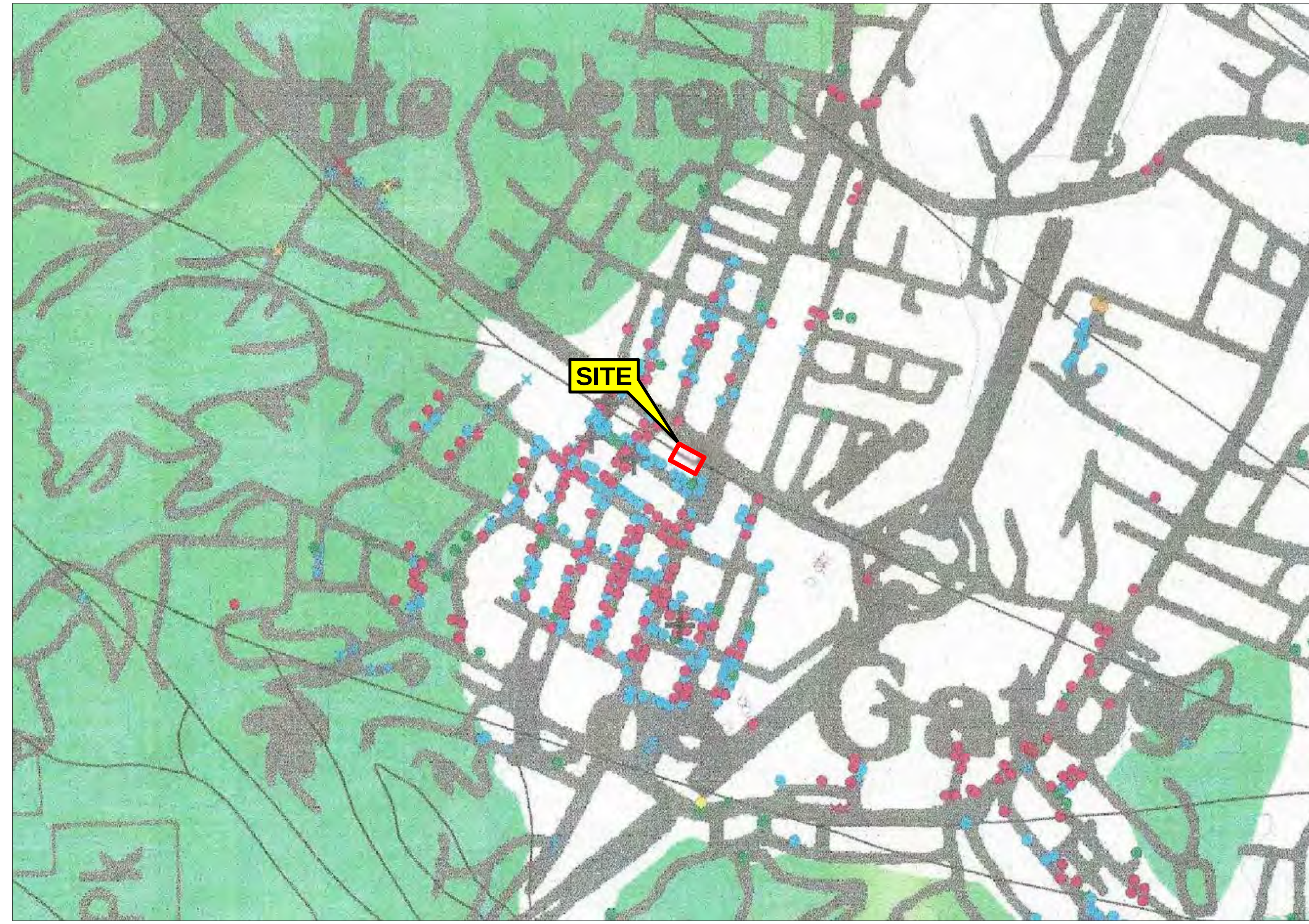
SURFICIAL DEPOSITS, GEOMORPHIC SURFACES AND LINEAMENTS

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 6**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig6_Surficial Deposits_Geomorphic Surfaces.dwg | Layout Tab: 8x11





SOURCE: K.M. Schmidt et al., U.S. Geological Survey, Map of Pavement and Pipe Breaks as Indicators of Range-Front Faulting Resulting from the 1989 Loma Prieta Earthquake, 1995.

N

APPROXIMATE SCALE (MILES)

0 1/2 1 MILE

PAVEMENT AND PIPE BREAKS FROM 1989 LOMA PRIETA EARTHQUAKE

McCarthy Land Company
North Santa Cruz Avenue and Highway 9
Los Gatos, California

TRC | 210359 | **FIGURE 7**

FILE NAME: N:\PROJECTS\CAD\McCarthy Land Co_Hwy 9 and North Santa Cruz_Los Gatos\Fig7_Pavement and Pipe Breaks.dwg | Layout Tab: 11x17

APPENDIX A
FIELD INVESTIGATION

Our field investigation consisted of a surface reconnaissance and a subsurface exploration program using conventional truck-mounted, hollow-stem auger drilling equipment. Four 8-inch-diameter exploratory borings were drilled on December 3 and 4, 2013 to a maximum depth of 45 feet. The approximate locations of the exploratory borings are shown on the Site Plan, Figure 2. The soils encountered were logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488). The logs of the borings, as well as a key to the classification of the soil, are included as part of this appendix.

The locations of borings were approximately determined by pacing from existing site boundaries. The locations and elevations of the borings should be considered accurate only to the degree implied by the method used.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. Penetration resistance blow counts were obtained by dropping a 140-pound hammer 30 inches. Modified California 3.0-inch outside diameter (O.D.) and Standard Penetration Test (SPT) 2-inch O.D. samples were obtained by driving the samplers 18 inches and recording the number of hammer blows for each 6 inches of penetration. Unless otherwise indicated, the blows per foot recorded on the boring logs represent the accumulated number of blows required to drive the samplers the last two 6-inch increments. When using the SPT sampler, the last two 6-inch increments is the uncorrected SPT measured blow count. The various samplers are denoted at the appropriate depth on the boring logs and symbolized as shown on the Key to Exploratory Boring Logs.

Field tests included an evaluation of the unconfined compressive strength of the cohesive soil samples using a pocket penetrometer device. The results of these tests are presented on the individual boring logs at the appropriate sample depths.

The attached boring logs and related information depict subsurface conditions at the locations indicated and on the date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these boring locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

* * * * * * * * * * * * *

PRIMARY DIVISIONS			SOIL TYPE	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (Less than 5% Fines)	GW	Well graded gravels, gravel–sand mixtures, little or no fines
			GP	Poorly graded gravels or gravel–sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel–sand–silt mixtures, plastic fines
			GC	Clayey gravels, gravel–sand–clay mixtures, plastic fines
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (Less than 5% Fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand–silt–mixtures, non–plastic fines
			SC	Clayey sands, sand–clay mixtures, plastic fines
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50 %		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50 %		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils

DEFINITION OF TERMS

U.S. STANDARD SIEVE SIZE: 200, 40, 10, 4

CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

SILTS AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

0.08 | 0.4 | 2 | 5 | 19 | 76mm

GRAIN SIZES

TERZAGHI SPLIT SPOON STANDARD PENETRATION

MODIFIED CALIFORNIA

ROCK CORE

PITCHER TUBE

NO RECOVERY

SAMPLERS

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0–4
LOOSE	4–10
MEDIUM DENSE	10–30
DENSE	30–50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH+	BLOWS/FOOT*
VERY SOFT	0–1/4	0–2
SOFT	1/4–1/2	2–4
MEDIUM STIFF	1/2–1	4–8
STIFF	1–2	8–16
VERY STIFF	2–4	16–32
HARD	OVER 4	OVER 32

CONSISTENCY

*Number of blows of 140 pound hammer falling 30 inches to drive a 2–inch O.D. (1–3/8 inch I.D.) split spoon (ASTM D–1586).
+Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D–1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS

Unified Soil Classification System (ASTM D–2487)

TRC

FIGURE A–1

EXPLORATORY BORING: EB-1

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-3-13 FINISH DATE: 12-3-13	COMPLETION DEPTH: 45.0 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS SURFACE ELEVATION:	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	0	**4.5" of AC**	AC					
		SANDY LEAN CLAY (CL) hard, moist, brown, fine to coarse sand, fine gravel (sub-angular), low plasticity	CL	32	9	108		○
				24	13	110		○
	5			56	10	116		○
		CLAYEY GRAVEL (GC) medium dense, moist, brown, fine to coarse sand, fine to coarse gravel (sub-angular to sub-rounded)	GC	39	12	119	23	
	10							
	15	dense		62	7	120		
	20	very dense		27 50/4				
∇				50/6				
	25							
		POORLY GRADED GRAVEL WITH CLAY (GP-GC) very dense, wet, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GP-GC	37 50/2				
	30							

Continued Next Page

GROUND WATER OBSERVATIONS:

∇ : FREE GROUND WATER MEASURED DURING DRILLING AT 23.5 FEET

LA_CORP.GDT 12/17/13 MV* AC

EXPLORATORY BORING: EB-1 Cont'd

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-3-13 FINISH DATE: 12-3-13	COMPLETION DEPTH: 45.0 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	30	**POORLY GRADED GRAVEL WITH CLAY (GP-GC)** very dense, wet, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GP-GC	50/6	X				
	35								
		LEAN CLAY WITH SAND (CL) hard, moist, brown, fine to coarse sand, fine gravel (sub-angular), low plasticity	CL	62	X	20			○
	40								
		LEAN CLAY (CL) hard, moist, brown, trace fine sand, low to moderate plasticity	CL	42	X	20			○
	45								
	50								
	55								
	60								

GROUND WATER OBSERVATIONS:

▽ : FREE GROUND WATER MEASURED DURING DRILLING AT 23.5 FEET

LA_CORP.GDT 12/17/13 MV* AC

TRC

EXPLORATORY BORING: EB-2

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-3-13 FINISH DATE: 12-3-13	COMPLETION DEPTH: 45.0 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

SURFACE ELEVATION:

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
	0	**3.5" of AC**	AC				
		LEAN CLAY (CL) hard, moist, brown, trace fine to coarse sand and fine gravel (sub-angular to sub-rounded), low plasticity Plasticity Index = 8, Liquid Limit = 23	CL	50	10	113	
				17 50/6	18	109	
	5	**CLAYEY GRAVEL (GC)** medium dense, moist, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GC	46	11	115	
		SANDY LEAN CLAY (CL) hard, moist, brown, fine to coarse sand, fine gravel (sub-angular), low plasticity	CL	58	12	111	
	10						
		LEAN CLAY (CL) hard, moist, light brown to light gray, trace fine sand, low plasticity	CL	32	11		
	15	**CLAYEY SAND (SC)** dense, moist, brown, fine to coarse sand, fine gravel (sub-angular)	SC				
		CLAYEY GRAVEL (GC) medium dense, moist to wet, brown, fine to coarse sand, fine gravel (sub-angular)	GC	20	15		17
	20						
		POORLY GRADED GRAVEL WITH CLAY (GP-GC) very dense, wet, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GP-GC	50/5			
	25						
		SANDY LEAN CLAY (CL) hard, moist, brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded), low plasticity	CL	17 50/5	11		
	30						

Continued Next Page

GROUND WATER OBSERVATIONS:

▽ : FREE GROUND WATER MEASURED DURING DRILLING AT 17.5 FEET

LA_CORP.GDT 12/17/13 MV* AC

EXPLORATORY BORING: EB-2 Cont'd

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-3-13 FINISH DATE: 12-3-13	COMPLETION DEPTH: 45.0 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	30		**SANDY LEAN CLAY (CL)** hard, moist, brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded), low plasticity	CL						
	~34				32 50/4	X	14			○ (>4.0)
	35									
			LEAN CLAY (CL) hard, moist, brown, trace fine to coarse sand, low plasticity	CL						
	~39				71	X				○ (>4.0)
	40		**CLAYEY GRAVEL (GC)** very dense, moist, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GC						
			LEAN CLAY (CL) very stiff, moist, brown, trace fine to medium sand, low plasticity	CL						
	~44				28	X	21			○ (3.0)
	45									
	50									
	55									
	60									

GROUND WATER OBSERVATIONS:

▽ : FREE GROUND WATER MEASURED DURING DRILLING AT 17.5 FEET

EXPLORATORY BORING: EB-3

Sheet 1 of 1

DRILL RIG: TRUCK MOBILE B-56
BORING TYPE: 8-INCH HOLLOW STEM
LOGGED BY: AC
START DATE: 12-4-13 FINISH DATE: 12-4-13

PROJECT NO: 210359
PROJECT: N. Santa Cruz Ave Multi-Use Development
LOCATION: Los Gatos, CA
COMPLETION DEPTH: 20.0 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

SURFACE ELEVATION:

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	0	**3.5" of AC**	AC					
		CLAYEY SAND (SC) [FILL] dense, moist, dark brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded)	SC, FILL	70	7	118		
		CONCRETE [FILL]	FILL	62				
	5	**SANDY LEAN CLAY (CL) [FILL]** hard, moist, brown, fine to coarse sand, fine to coarse gravel (sub-angular to sub-rounded), low plasticity	CL, FILL	23	13	116		○ (>4.0)
				26				
	10	no recovery						
				49	22	104		○ (>4.0)
	15	brown to light bluish gray, fine sand, trace medium sand						
		CLAYEY GRAVEL (GC) [FILL] very dense, moist to wet, bluish gray, fine to coarse sand, fine to coarse gravel (sub-angular)	GC, FILL	21 50/6	11	124		
	20							
	25							
	30							

GROUND WATER OBSERVATIONS:
NO FREE GROUND WATER ENCOUNTERED

LA_CORP.GDT 12/17/13 MV* AC

TRC

EXPLORATORY BORING: EB-4

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-4-13 FINISH DATE: 12-4-13	COMPLETION DEPTH: 44.5 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

Undrained Shear Strength (ksf): ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression (scale 1.0, 2.0, 3.0, 4.0)

SURFACE ELEVATION:

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	0	**4.0" of AC**	AC					
		LEAN CLAY (CL) hard, moist, brown, trace fine to coarse sand and fine gravel (sub-angular), low plasticity Plasticity Index = 10, Liquid Limit = 27	CL	34	9	117		○
				79	8	108		○
	5			33 50/4	12	120		○
		SANDY LEAN CLAY (CL) hard, moist, brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded), low plasticity	CL					
		CLAYEY SAND WITH GRAVEL (SC) very dense, moist, reddish brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded)	SC	50/5	8	106		
	10							
		LEAN CLAY WITH SAND (CL) hard, moist, brown, fine sand, low plasticity	CL	42 50/4	17	107		○
	15	**SANDY LEAN CLAY (CL)** hard, moist, brown, fine to coarse sand, fine gravel (sub-angular to sub-rounded), low plasticity	CL					
▽		**CLAYEY GRAVEL (GC)** medium dense, moist to wet, brown, fine to coarse sand, fine gravel (sub-angular)	GC	16				
	20							
		POORLY GRADED GRAVEL WITH CLAY (GP-GC) very dense, moist to wet, dark brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GP-GC	44 50/6				
	25							
		LEAN CLAY (CL) hard, moist, dark brown, trace fine sand and fine gravel (sub-angular to sub-rounded), low plasticity	CL	32	23			○
	30							

Continued Next Page

GROUND WATER OBSERVATIONS:
▽ : FREE GROUND WATER MEASURED DURING DRILLING AT 18.0 FEET

LA_CORP.GDT 12/17/13 MV* AC

EXPLORATORY BORING: EB-4 Cont'd

DRILL RIG: TRUCK MOBILE B-56	PROJECT NO: 210359
BORING TYPE: 8-INCH HOLLOW STEM	PROJECT: N. Santa Cruz Ave Multi-Use Development
LOGGED BY: AC	LOCATION: Los Gatos, CA
START DATE: 12-4-13 FINISH DATE: 12-4-13	COMPLETION DEPTH: 44.5 FT.

This log is a part of a report by TRC, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (FT)	DEPTH (FT)	SOIL LEGEND	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE	Undrained Shear Strength (ksf)
	30			CL						
			CLAYEY GRAVEL (GC) very dense, moist, brown, fine to coarse sand, fine to coarse gravel (sub-angular)	GC						
					37 50/5	X				Pocket Penetrometer: >4.0
	35									
					23 50/6	X				Pocket Penetrometer: >4.0
	40									
					42 50/4	X				Pocket Penetrometer: 3.0
	45									
	50									
	55									
	60									

Undrained Shear Strength (ksf) legend: ○ Pocket Penetrometer; △ Torvane; ● Unconfined Compression; ▲ U-U Triaxial Compression. Scale: 1.0, 2.0, 3.0, 4.0

GROUND WATER OBSERVATIONS:
▽ : FREE GROUND WATER MEASURED DURING DRILLING AT 18.0 FEET

LA_CORP.GDT 12/17/13 MV* AC

TRC

APPENDIX B

LABORATORY PROGRAM

The laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site and to aid in verifying soil classification.

Moisture Content: The natural water content was measured (ASTM D2216) on 26 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

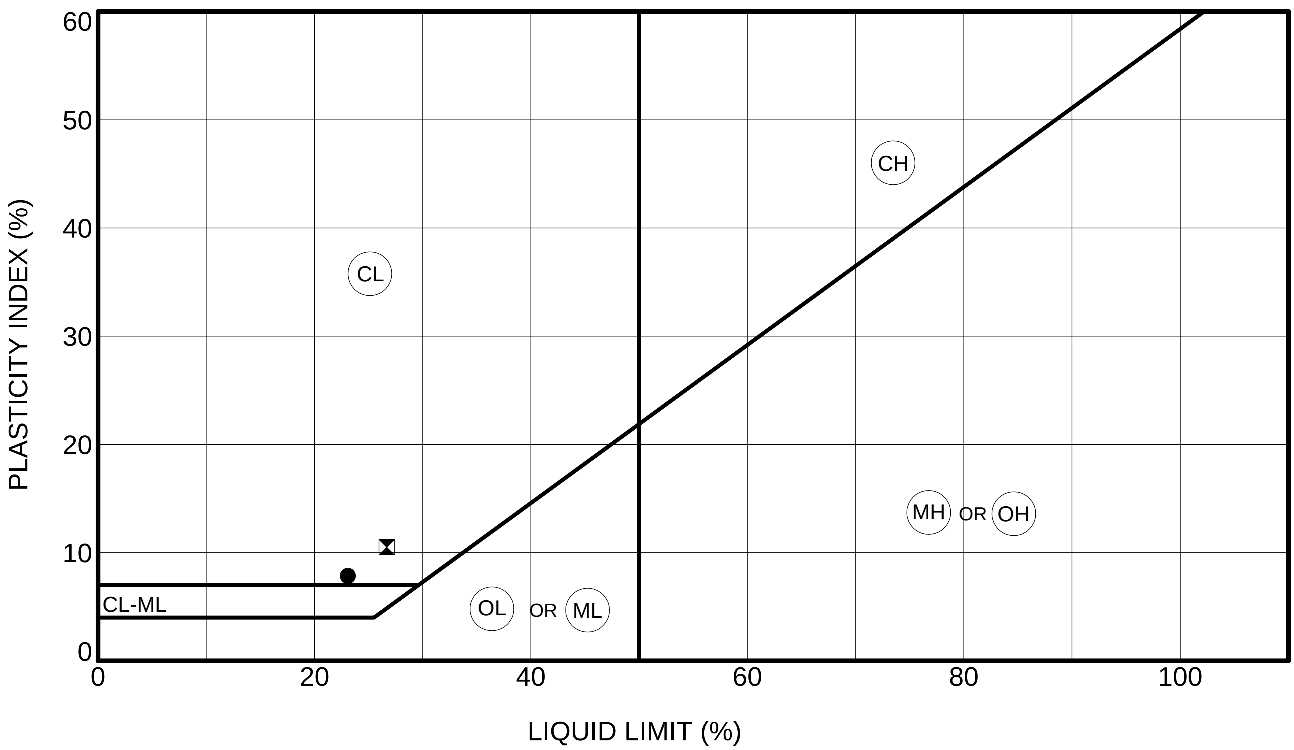
Dry Densities: In place dry density tests (ASTM D2937) were performed on 18 samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Plasticity Index determinations (ASTM D4318) were performed on 2 samples of the subsurface soils to measure the range of water contents over which these materials exhibit plasticity. The Plasticity Index was used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of these tests are presented on Figure B-1 and on the logs of the borings at the appropriate sample depths.

Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was performed on 2 samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

R-Value: An R-value resistance test (California Test Method No. 301) was performed on a representative sample of the surface soils at the site to provide data for the pavement design. The test indicated an R-value of 12 at an exudation pressure of 300 pounds per square inch. The results of the test are presented in this appendix.

* * * * * * * * * * *



Symbol	Boring No.	Depth (ft.)	Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing No. 200 Sieve	Unified Soil Classification Description
●	**EB-2**	**2.0**		**23**	**15**	**8**		
⧗	**EB-4**	**2.0**		**27**	**16**	**11**		

LA CORP.GDT 12/15/13 MV* AC

TRC

PLASTICITY CHART AND DATA

Project: N. Santa Cruz Ave Multi-Use Development

Location: Los Gatos, CA

Project No.: 210359

FIGURE B-1

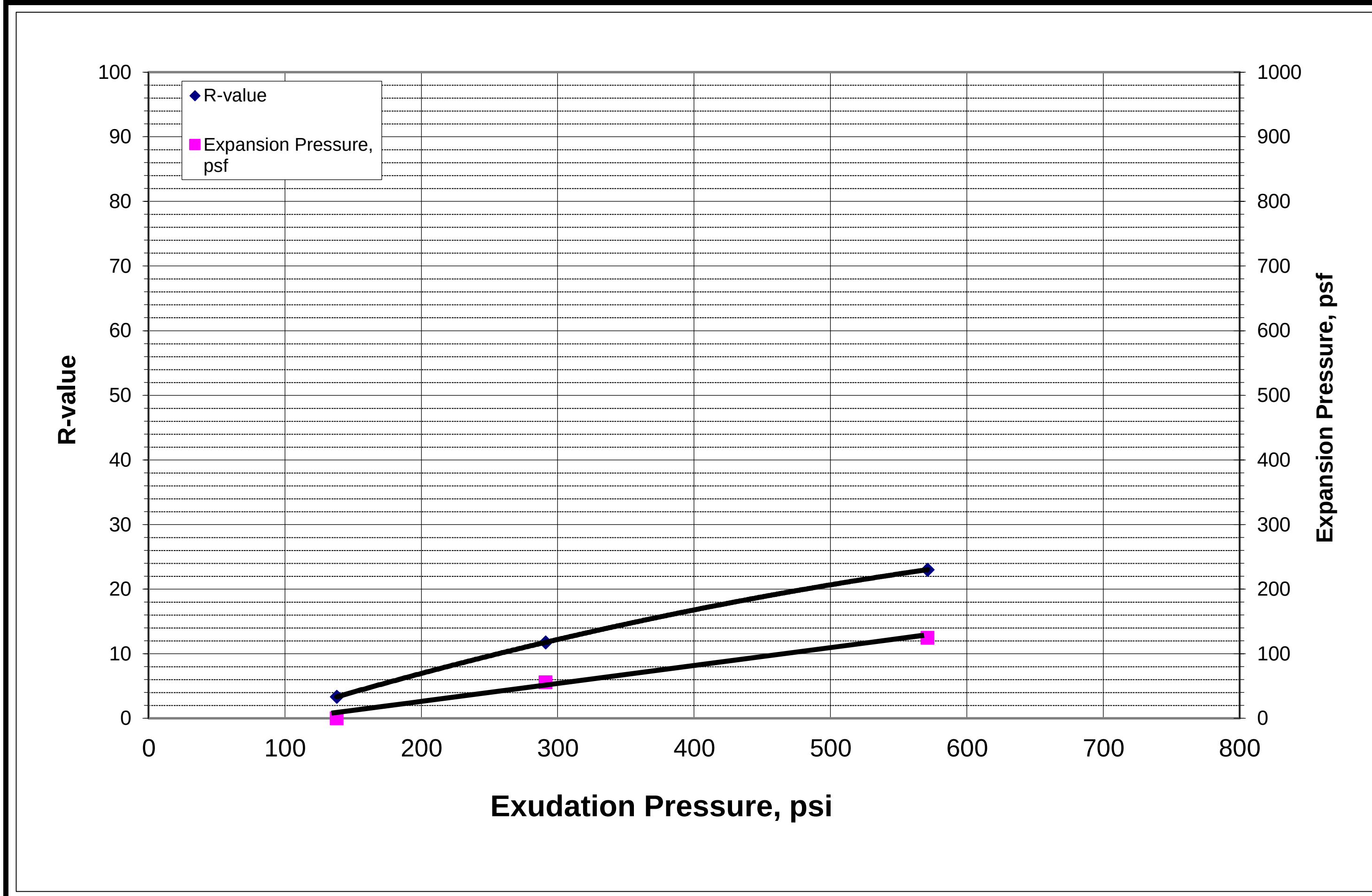
R-value Test Report (Caltrans 301)

Job No.:	028-2347	**Date:**	12/16/13
Client:	TRC	**Tested**	MD
Project:	N. Santa Cruz Ave & Hwy 9 - 210359	**Reduced**	RU
Sample	EB-4; Bucket @ top 5'	**Checked**	DC
Soil Type:	Dark Yellowish Brown Sandy CLAY		

Initial Moisture,	11.4%	
R-value by Stabilometer	**12**	
Expansion Pressure	**55**	**psf**

Specimen Number	A	B	C	D
Exudation Pressure, psi	138	291	571	
Prepared Weight, grams	1200	1200	1200	
Final Water Added, grams/cc	96	43	25	
Weight of Soil & Mold, grams	3188	3158	3155	
Weight of Mold, grams	2078	2076	2083	
Height After Compaction, in.	2.68	2.45	2.33	
Moisture Content, %	20.3	15.4	13.7	
Dry Density, pcf	104.3	115.9	122.5	
Expansion Pressure, psf	0.0	55.9	124.7	
Stabilometer @ 1000				
Stabilometer @ 2000	152	136	112	
Turns Displacement	4	3.24	3.1	
R-value	3	12	23	

Remarks:



Corrosivity Tests Summary

CTL # 028-2347 **Date:** 12/11/2013 **Tested By:** PJ **Checked:** PJ
Client: TRC **Project:** N. Santa Cruz Ave & Hwy 9 **Proj. No:** 210359
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%		(Redox)		Qualitative	At Test	
						Dry Wt.	Dry Wt.	Dry Wt.		E_H (mv)	At Test	by Lead	%	
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
EB-1	1B	2.0	-	-	12,231	3	4	0.0004	6.9	-	-	-	8.9	Dark Yellowish Brown Clayey SAND w/ Gravel
EB-2	3A	5.5	-	-	2,014	9	3	0.0003	6.2	-	-	-	9.1	Olive Brown Sandy CLAY w/ Gravel
EB-4	2A	3.5	-	-	10,272	9	<2	<0.0002	6.6	-	-	-	9.5	Olive Clayey SAND w/ Gravel

REVISED FAULT HAZARD INVESTIGATION
50 LOS GATOS-SARATOGA ROAD PROPERTY
Los Gatos, California

Classic Residence by Hyatt
Chicago, Illinois

4 September 2008
Project No. 4844.01

Treadwell&Rollo
Environmental and Geotechnical Consultants

Treadwell&Rollo

4 September 2008
Project 4844.01

Mr. John Hoover
Classic Residence by Hyatt
71 S. Wacker Drive, Suite 900
Chicago, Illinois 60606

Subject: Revised Fault Hazard Investigation
50 Los Gatos-Saratoga Road Property
Los Gatos, California

Dear Mr. Hoover:

This letter transmits our fault hazard investigation report of the 50 Los Gatos-Saratoga Road property in Los Gatos, California. The investigation was performed in accordance with our proposal dated 18 July 2008. The report was revised to include estimates of settlement of the alluvium that may occur should there be sympathetic movement within the underlying bedrock during an earthquake on the nearby active San Andreas Fault. In summary, while the Shannon Fault crosses the site, we found no evidence that the fault has been active. The fault has not broken the ground surface or upper 12 feet of the site during Holocene time (the past 11,000 years); therefore, a setback should not be required. However, the fault may move sympathetically during an earthquake on the active San Andreas Fault.

On the basis of recurrence interval data published by the U.S. Geological Survey, we conclude that such sympathetic movement may result in ½- to ¾-inch of settlement of the alluvium overlying the bedrock at the site. Therefore, we recommend structures located near the fault be supported on a mat-like foundation. The reader should refer to the text of the report for detailed findings and conclusions.

We understand Classic Residence by Hyatt plans to purchase the approximately 8.5-acre site that is currently occupied by the Los Gatos Inn. Classic Residence by Hyatt proposed to construct a six- to seven-story, steel framed structure with one level of below-grade parking at the site. The structure will house approximately 300 independent living units and a skilled nursing facility.

Geologic maps by the California Geological Survey and the U.S. Geological Survey indicate that a trace of the Shannon fault is mapped crossing the site. As a result, the site is within the City of Los Gatos and Santa Clara County Hazard Zone for fault rupture. The objectives of our investigation were to evaluate the potential for fault surface rupture and associated ground deformation on the site in the area of the mapped fault trace and to provide conclusions concerning their potential impact on the project.

We appreciate the opportunity to assist you with this project, and look forward to working with you and your design team during final design.

Sincerely yours
TREADWELL & ROLLO, INC.

Christopher R. Hundemer, C.E.G. 2314
Senior Project Geologist

Frank L. Rollo, G.E. 733
Principal Engineer

48440103.LTR

ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS
555 MONTGOMERY STREET, SUITE 1300 SAN FRANCISCO CALIFORNIA 94111 T 415 955 9040 F 415 955 9041 www.treadwellrollo.com

REVISED FAULT HAZARD INVESTIGATION
50 LOS GATOS-SARATOGA ROAD PROPERTY
Los Gatos, California

Classic Residence by Hyatt
Chicago, Illinois

4 September 2008
Project No. 4844.01

Treadwell&Rollo
Environmental and Geotechnical Consultants

Treadwell&Rollo

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APPENDIX A

APPENDIX B

REVISED FAULT HAZARD INVESTIGATION
50 LOS GATOS-SARATOGA ROAD PROPERTY
LOS GATOS, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of our fault hazard investigation of the property located at 50 Los Gatos-Saratoga Road in Los Gatos, California, see Figure 1, Site Location Map. Our services were performed in accordance with our proposal dated 18 July 2008.

We understand Classic Residence by Hyatt plans to purchase the an approximately 8.5-acre site currently occupied by the Los Gatos Inn. Classic Residence by Hyatt proposed to construct several buildings on the site, including a six- to seven-story, steel framed structure with one level of below-grade parking. The structure will house approximately 300 independent living units and a skilled nursing facility, and an assisted living facility will occupy separate structures.

Geologic maps by the California Geological Survey and the U.S. Geological Survey indicate that a trace of the Shannon fault crosses the site. The Shannon fault system is one of four main potentially active faults (along with the Monte Vista, Berrocal, and Sargeant Faults) within the Southern Santa Clara Valley Thrust Zone, consisting of several splays that trend roughly west-northwest along the east foothills of the central Santa Cruz Mountains.

These faults have not been known to produce large earthquakes within historic time, but appear to move as a result of sympathetic or aseismic movement associated with an earthquake on the San Andreas Fault. Uplift and horizontal movements along these faults have been estimated at approximately 0.4 mm per year on the Monte Vista fault, and no movements have been recorded in the Holocene Epoch (the past 11,000 years) on the trace of the Shannon fault that crosses the property.

Because of the sites proximity to this trace of the Shannon fault, the site is within the City of Los Gatos and Santa Clara County Hazard Zone for fault rupture. The objectives of our investigation were to evaluate the potential for fault surface rupture and associated ground deformation on the site in the area of the mapped fault trace, and to provide conclusions concerning their potential impact on the project.

2.0 SCOPE OF SERVICES

We investigated the site and developed conclusions and recommendations regarding:

- location and activity of the Shannon fault
- site geology and geologic hazards
- site seismicity and seismic hazards

To achieve our objectives, we:

- performed a site reconnaissance by our senior project geologist on 2 July 2008
- reviewed of geologic literature of the site vicinity
- reviewed of the draft Feasibility Geologic and Geotechnical Investigation report prepared by Cornerstone Earth Group (CEG), dated 5 October 2007
- reviewed of the Geologic Hazards Assessment report prepared by BAGG Engineers (BAGG), dated April 23, 2008
- drilled and logged of six test borings and a fault exploration trench

3.0 FIELD INVESTIGATION

Before proceeding with our field exploration, we reviewed available published information related to the geology and seismicity of the site, and developed a field program utilizing test borings and a trench.

3.1 Test Borings

On 31 July and 1 August 2008, we logged six test borings drilled to depths between approximately 69½ and 84 feet using a truck-mounted drill-rig equipped with an 8-inch diameter hollow-stem auger. The locations of the test borings are shown on the Site Plan, Figure 2. The boring locations were established by measuring distance and bearing from known points shown on the base map prepared by BKF dated 22 October 2007.

The boring logs are presented in Appendix A on Figures A-1 through A-6. The test borings were continuously logged by our Senior Staff Geologist in accordance with the soil classification system presented on Figure A-7 and the criteria for rock descriptions shown on Figure A-8.

Soil samples were obtained using a Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter, without liners. The SPT sampler was driven with a 140-pound, down-hole automatic hammer falling 30 inches. The blow counts required to drive the sampler the final 12 inches of an 18-inch drive (N-values) were recorded and are shown on the boring logs.

3.2 Fault Exploration Trench

After evaluating the test boring data, we identified the approximate location of the Shannon Fault in the bedrock between borings TR3 and TR4. To evaluate whether the offset observed in the bedrock is present in more recent deposits (surficial materials); a 100-foot long, 12-foot deep trench was excavated in the eastern portion of the property. The trench was excavated approximately perpendicular to, and centered over the mapped location of the fault trace by a four-wheel drive backhoe equipped with a 30-inch bucket. Hydraulic shoring was installed in the trench approximately every 6 feet along the trench in general conformance with OSHA guidelines.

The trench walls were hand-cleaned and logged by our Senior Project Geologist and Senior Staff Geologist between 4 August 2008 and 7 August 2008. A graphic representation of the eastern trench wall is presented on Figure 3, Log of Fault Exploration Trench.

On 7 August 2008, our Senior Project Geologist met at the site with geologists from the California Geological Survey (CGS) and AMEC, the geologic firm providing consulting geologic services to the Town of Los Gatos. The geologists entered the trench, observed the exposures, and discussed their interpretations of the exposures.

On 8 August 2008, the trench was backfilled with spoils generated from the excavation. The backfill material was placed in lifts in the trench, and was compacted using a sheepsfoot compaction wheel on the end of an excavator. Upon completion, the surface was repaved.

3.3 Laboratory Testing

Samples of carbon were obtained from alluvial Units 6 and 7 shown on Figure 3, from depths of approximately 10 and 11 feet respectively. These samples were AMS (Accelerator Mass Spectrometry) radio-carbon dated. The results are presented in Appendix B.

4.0 PREVIOUS INVESTIGATIONS

Two geologic investigations have previously been performed for the project. In 2007, Cornerstone Earth Group (CEG) performed a Feasibility Geologic and Geotechnical Investigation for the project, and submitted the results of that investigation in its report dated 5 October 2007. The CEG study included a site reconnaissance, a review of aerial photographs and geologic literature, the drilling of four test borings, laboratory testing, engineering and geologic analyses. The borings were drilled near the four corners of the property. All four borings encountered sandy clay alluvium over clayey sand to sandy gravel alluvium. Monterey Formation siltstone bedrock was encountered beneath the alluvium in Borings 1 and 4, both drilled on the east side of the site, at depths approximately 43 and 38 feet below ground surface, respectively. Groundwater was encountered in Borings 1 and 2, drilled on the north side of the fault trace, at depths of 28 and 26.5 feet below the ground surface, respectively. No groundwater was observed in Borings 3 or 4, which were drilled on the south side of the mapped fault trace.

In 2008, BAGG Engineers (BAGG) conducted a Geologic Hazards Assessment for the project, and submitted the results of its investigation in a report dated 23 April 2008. The BAGG study included a site reconnaissance, geologic research, and the review of two seismic refraction profiles performed by BAGG's subconsultant NORCAL Geophysical Consultants, Inc. (Norcal). Each profile was performed in two shorter segments that were computer processed into one long profile. The two profiles revealed a velocity contour discontinuity in the approximate centers of each profile. Norcal interprets these discontinuities as computer artifacts created as a result of the processing to combine the segments, and they concluded that the surveys show "no observable vertical offset or lateral variation that could be associated with faulting."

Both reports identified three main geologic constraints to the proposed development, and provided preliminary conclusions for each. The main constraints identified are: fault rupture, ground shaking and liquefaction.

5.0 SITE CONDITIONS

5.1 Surface Conditions

The site is bound by Highway 17 to the west, Los Gatos-Saratoga Road to the North, Bella Vista Avenue to the east, and Los Gatos High School to the South. The site is currently occupied by several one- and two-story, wood-framed structures, surrounded by asphalt parking areas and landscaping. The site is relatively level, approximately 20 to 30 feet lower than Los Gatos-Saratoga Road, and approximately 60 feet lower than Bella Vista Avenue. A moderately steep cut-slope runs along the eastern property boundary between the developed portion of the site and Bella Vista Avenue.

5.2 Regional Geology

The property sits at base of the east side of the central Santa Cruz Mountains, a northwest trending range within the California Coast Ranges geomorphic province. The Coast Ranges geomorphic province of California is characterized by northwest-trending valleys and ridges. These topographic features are controlled by folds and faults that resulted from the collision of the Farallon plate and North American plate and subsequent predominantly strike-slip faulting along the San Andreas fault system. The San Andreas fault is more than 600 miles long from Pt. Arena in the north to the Gulf of California in the south. The Coast Ranges province is bound on the east by the Great Valley and on the west by the Pacific Ocean.

The site is in an area mapped as underlain by Holocene age (approximately 11,000 years old to present) and Pleistocene age (approximately 11,000 to 1.8 million years old) alluvium (see Figure 4, Regional Geologic Map). The alluvium consists of thin to thick layers of clayey sand, sandy clay, and sandy gravels that are dense to very dense, subrounded to rounded, and poorly sorted, with sizes ranging from fine-grained sand to cobbles and boulders up to 3 feet in diameter. The alluvium has been deposited at various times by ancient streams that drained the Santa Cruz Mountains, including the adjacent Los Gatos Creek.

Middle Miocene age (approximately 5.3 to 23.8 million years old) Monterey Formation siltstone and shale bedrock is mapped beneath the alluvium. The Monterey Formation is composed of a silicious marine siltstone and shale bedrock, formed in isolated basins on and off shore, from diatoms and coccolithophorids.

5.3 Regional Seismicity

The major active faults in the area are the San Andreas, San Gregorio, Hayward, and Calaveras Faults. These and other faults of the region, including potentially active faults are shown on Figure 5, Map of Major Faults and Earthquake Epicenters in the San Francisco Bay Area. For each of the active and potentially active faults within 100 kilometers of the site, the distance from the site and estimated maximum Moment magnitude[1] (Working Group of California Earthquake Probabilities (WGCEP) (2003) and Cao et al (2003) are summarized in Table 1.

TABLE 1
Regional Faults and Seismicity

Fault Name	Distance (km)	Direction from Site	Mean Characteristic or Maximum Moment Magnitude	Mean Slip Rate (mm/yr)
Shannon	0.0	Northeast	6.80	0.0
San Andreas – 1906 Rupture	5.7	Southwest	7.90	19
San Andreas – Peninsula	5.7	Southwest	7.15	17
San Andreas – Santa Cruz Mnts.	6.1	Southwest	7.03	17
Sargent	10.0	Southeast	6.80	3
Zayante-Vergeles	15	South	6.80	0.1
Hayward – South East Extension	22	East	6.40	3
Total Calaveras	26	East	6.93	
South Hayward	28	Northeast	6.67	9
Total Hayward	28	Northeast	6.91	9
Total Hayward-Rodgers Creek	28	Northeast	7.26	9
Northern San Gregorio	31	West	7.23	7
Total San Gregorio	31	West	7.44	5
Monterey Bay-Tularcitos	36	Southwest	7.10	0.5
Southern San Gregorio	45	Southwest	6.96	3
Greenville	49	Northeast	6.94	2
Mt Diablo	58	North	6.65	2
Ortigalita	62	East	6.90	1
Quien Sabe	64	East	6.40	2
Rinconada	64	Southeast	7.30	1
Great Valley 6	68	Northeast	6.70	1.5
Great Valley 7	68	Northeast	6.70	1.5
North Hayward	70	North	6.49	9
Concord/Green Valley	75	North	6.71	
Great Valley 8	76	East	6.60	1.5
San Andreas – North Coast South	82	Northwest	7.45	24
Great Valley 9	89	East	6.60	1.5
Great Valley 5	97	North	6.50	1.5

[1] Moment magnitude is an energy-based scale and provides a physically meaningful measure of the size of a faulting event. Moment magnitude is directly related to average slip and fault rupture area.

Figure 5 also shows the earthquake epicenters for events with magnitude greater than 5.0 from January 1800 through December 2000. Since 1800, four major earthquakes have been recorded on the San Andreas Fault. In 1836 an earthquake with an estimated maximum intensity of VII on the Modified Mercalli (MM) scale (Figure 6) occurred east of Monterey Bay on the San Andreas Fault (Toppozada and Borchardt 1998). The estimated Moment magnitude, M_w, for this earthquake is about 6.25. In 1838, an earthquake occurred with an estimated intensity of about VIII-IX (MM), corresponding to a M_w of about 7.5. The San Francisco Earthquake of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture along the San Andreas Fault from Shelter Cove to San Juan Bautista approximately 470 kilometers in length. It had a maximum intensity of XI (MM), a M_w of about 7.9, and was felt 560 kilometers away in Oregon, Nevada, and Los Angeles. The most recent earthquake to affect the Bay Area was the Loma Prieta Earthquake of 17 October 1989, in the Santa Cruz Mountains with a M_w of 6.9, approximately 22 km from the site.

In 1868 an earthquake with an estimated maximum intensity of X on the MM scale occurred on the southern segment (between San Leandro and Fremont) of the Hayward Fault. The estimated M_w for the earthquake is 7.0. In 1861, an earthquake of unknown magnitude (probably a M_w of about 6.5) was reported on the Calaveras Fault. The most recent significant earthquake on this fault was the 1984 Morgan Hill earthquake (M_w = 6.2).

The 2007 WGCEP at the U.S. Geologic Survey (USGS) predicted a 63 percent chance of a magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Area in 30 years. More specific estimates of the probabilities for different faults in the Bay Area are presented in Table 2.

TABLE 2
WGCEP (2007) Estimates of 30-Year Probability of a Magnitude 6.7 or Greater Earthquake

Fault	Probability (percent)
Hayward-Rodgers Creek	31
N. San Andreas	21
Calaveras	7
San Gregorio	6
Concord-Green Valley	3
Greenville	3
Mount Diablo Thrust	1

The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF2) published by the USGS contains information on the average recurrence interval for earthquakes occurring on active faults in California. The intervals were established by trenching across the fault, and radio-dating samples of carbon obtained from offset soil horizons relating to specific earthquake events. To evaluate the Southern Santa Cruz Mountains segment of the San Andreas Fault, a trench was excavated in Mill Canyon (approximately 25½ miles southeast of the property), and nine earthquake events were noted in the trench. The earthquake recurrence interval for this section of the San Andreas Fault was calculated to be 106 years. Along the North Coast section of the San Andreas Fault, a trench was excavated at Vedanta (approximately 72 miles northwest of the property), and twelve earthquake events were noted in the trench. The earthquake recurrence interval for this section of the San Andreas Fault was calculated to be 248 years. Using these two recurrence intervals, we calculated that 104 and 44 earthquakes occurred during the past 11,000 years for the Southern Santa Cruz Mountains and North Coast segments of the San Andreas Fault, respectively.

5.4 Local Seismicity

The site is within the City of Los Gatos and Santa Clara County Hazard Zone for fault rupture; a trace (of the Shannon fault is mapped beneath the property. At the site, the fault location is mapped as approximate where it is mantled by alluvium. Southeast of the site, this trace of the Shannon fault is shown entirely within the Miocene age (approximately 5.3 to 24 million years old) Monterey Siltstone and Shale formation. Northeast of the site, the fault is shown entirely within the Pliocene and Pleistocene (approximately 11,000 to 4.8 million years old) Santa Clara Formation. Further northwest, the fault is shown to offset the Monterey and Santa Clara Formations.

Geomorphic studies performed by William Lettis and Associates under contract from the U.S. Geological Survey have mapped several types of surface lineaments related to faulting along the northeast margin of the Santa Cruz Mountains in the site vicinity. Two relatively short vegetation lineaments and a tonal lineament have been identified in the immediate vicinity of the site (see Figure 7, Regional Fault Lineament Map). It should be noted that not all lineaments mapped are fault related, and the orientation of these three lineaments is not along the same trend as the mapped fault.

Following the 1989 Loma Prieta Earthquake, the USGS compiled a database of distress to local infrastructure within the subject area. The results of that study were presented in USGS Open-File Report 95-820, *Breaks in Pavement and Pipes as Indicators of Range-Front Faulting resulting from the 1989 Loma Prieta Earthquake Near the Southwest Margin of the Santa Clara Valley, California* (Schmidt, et al, 1995). While not mapping distress on private properties, the report does identify areas along Los Gatos Boulevard southwest of the site, along the mapped fault trend (see figure 8, Loma Prieta Earthquake Ground Deformation Map). This distress is characterized as a "fresh break or buckle suggestive of contractional deformation."

5.5 Site Geology and Subsurface Conditions

The site consists of a relatively flat pad that may have been created by cut-fill techniques. A minor amount of fill is apparent in the northeast portion of the site, placed for the construction of Los Gatos-Saratoga Road. A cut-slope exposing colluvium. Where the colluvium is on moderate to steep slopes, it is subject to downhill creep, a process by which the soil moves downslope at an imperceptibly slow rate as a result of gravity.

We logged six borings that were drilled in the western portion of the site. The borings were excavated in a line approximately perpendicular to the mapped trace of the Shannon fault, spaced every approximately 20 to 25 feet apart. All borings encountered a similar sequence of subsurface materials, consisting of alluvium over Monterey Formation siltstone bedrock. The alluvium consisted of dense to very dense sandy clay with gravel to clayey sand with gravel (see Logs of Borings 1 through 6 in Appendix A). A consistent trend in the depth to bedrock below ground surface was observed in the test borings, with an approximately 6 foot vertical offset in the bedrock surface between borings B3 and B4 (see Figure 9, Idealized Geologic Cross-Section A-A'). To achieve the offset between borings B3 and B4, we interpret the fault to be a thrust fault, dipping approximately 60 degrees as shown on Figure 9. The location of this offset coincides with the mapped location shown on the McLaughlin regional geologic map. Using trigonometric relationships, we have determined that the surface of the Monterey Formation bedrock beneath the alluvium strikes (is oriented) 27 degrees west of north, and dips (slopes downward) 35 degrees to the north.

A fault exploration trench was excavated in the eastern portion of the site, approximately centered over the mapped location of the fault trace (after the mapped location was confirmed by the test borings). The trench exposed a thin veneer of artificial fill and baserock beneath the asphalt parking lot, underlain by up to approximately 5 feet of dark yellowish brown to brown clayey sand with gravel alluvium that has weathered to type A and C soil horizons. Beneath the soil horizons, the trench exposed stratified alluvium consisting of one to three foot thick, relatively horizontal layers of dark yellowish brown sandy gravel, dark brown sand with scattered gravels, and brown gravels with sand. Yellowish brown, very dense clayey sand with scattered gravels was observed beneath the brown gravels with sand layer in the southern third of the trench (see Figure 3). The contacts between alluvial layers were distinct, and were not offset by faulting. We did not observe any evidence of faulting within the alluvium in the trench, exposed to a depth of approximately 12 feet. We obtained samples of carbon (charcoal/wood fragments) from two layers of alluvium (units 7 and 8 shown on Figure 3) for age dating. The results of carbon dating performed on these samples are presented in Appendix B, and indicate that Unit 7 is approximately 11,000 years old, and Unit 8 is older than 11,000 years old. Along the northeast end of the trench, the alluvial layers appear to dip downward to the northeast, with a maximum change in elevation of the beds of three feet, as shown on Figure 3.

5.6 Groundwater

Groundwater was encountered in all six test borings during drilling, and stabilized groundwater levels were measured in five of the six borings (all except Boring B-5). Groundwater was not encountered in the fault exploration trench. Groundwater levels measured in the test borings indicate groundwater in the western side of the site to be approximately 21 to 24 feet below the ground surface. We observed a sharp change in the depth to groundwater between borings B-3 and B-4, in the area of the Shannon fault. It should be noted that the Shannon fault was initially defined by a linear groundwater barrier.

6.0 CONCLUSIONS

On the basis of the results of our investigation and studies, we conclude a trace of the Shannon Fault crosses the site, and this trace is inactive[2]; there is no evidence that any movements have occurred on this trace for at least 11,000 years. In our opinion, the primary constraint to the proposed development include the proximity of the site to the San Andreas and other active faults.

6.1 Fault Rupture Hazard

The splay of the Shannon fault mapped as crossing the subject site does in-fact cross the site. Our review of prior reports and published geologic maps and geologic hazard maps, revealed that no other known active or potentially active faults pass through the subject property.

---

[2] Inactive faults are faults that are faults that can be identified through stratigraphy or displacements, but has not moved in the last 11,000 years. Such faults are deemed not likely to move again in the near future, or be a source of seismic activity.

On the basis of the exposures within our fault trench, we conclude the upper 12 feet of alluvium at the site has not experienced active faulting[3]. Considering the thickness of the alluvium, and the results of the age dating from the carbon samples obtained from the trench, we conclude there is no evidence that this splay of the Shannon fault has been active during Holocene time (the past 11,000 years). Furthermore, there is no evidence that the fault has broken the ground surface. Therefore, we conclude that the potential from fault offset through the property is negligible, and a setback from this fault should not be required.

In our opinion, minor movement along the fault may occur as sympathetic movement during a large earthquake on the San Andreas Fault. During an earthquake on the San Andreas Fault, the Shannon Fault may move as a thrust fault through the bedrock at depth, but would not rupture the surface. During such an event, tilting of the alluvial beds exposed in the trench may occur and cause minor settlement of the alluvium overlying the bedrock on the footwall (down-dropped side of the thrust fault). Based on a maximum offset in the alluvial beds of 3 feet, no evidence of fault offset of the beds for at least 11,000 years, and our calculations of 104 and 44 earthquakes in the past 11,000 years on the nearest segments of the San Andreas Fault, we conclude the maximum differential settlement of the alluvium is ½- to ¾-inch per earthquake event. We believe movement of this magnitude can be successfully accommodated by supporting structures in the immediate vicinity of the fault on mat-like foundations.

6.2 Ground Shaking

Considering the proximity of the site to the San Andreas and other known active faults, it is reasonable to assume that the site will be subjected to strong to very strong ground shaking from a major earthquake on at least one of the nearby active faults during the design-life of future improvements.

6.3 Seismic Hazards

During a major earthquake on a segment of one of the nearby faults, strong to very strong shaking is expected to occur at the project site. Strong shaking during an earthquake can result in ground failure

[3] Active faults are defined as a fault which has had displacement or seismic activity during the geologically recent period. In the United States, an active fault is generally defined as a fault which has displaced earth materials during the Holocene Epoch (during the last 11,000 years).

such as that associated with soil liquefaction[4], lateral spreading[5], and differential compaction[6]. We used the results of the borings to evaluate the potential of these phenomena occurring at the project site.

The site is located within a State of California seismic hazard zone for earthquake-induced liquefaction. Liquefaction occurs when loose sand below the groundwater table is subjected to intense and prolonged vibrations. These vibrations cause the sand grains to move closer together, driving out the water surrounding the grains. This increase in water flow can cause the sandy soil to loose its strength and flow like a liquid, damaging overlying structures. Lateral spreading takes place if liquefaction occurs near an open slope face, such as a creek bank. Mass movement of the soil towards the bank can occur throughout the duration of the shaking. Differential settlement may result from the non-uniform densification of the loose sands during liquefaction, causing variations in the ground surface.

On the basis of the relative density of the alluvium interpreted from the N-values (blow-counts) obtained during our field exploration, we conclude the risk of seismically induced liquefaction or differential settlement is low. Furthermore, because there are no open faces within the site vicinity, and the risk of liquefaction at the site is low, we conclude the risk of lateral spreading to affect the site is nil.

---

4 Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.

5 Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

6 Differential compaction is a phenomenon in which non-saturated, cohesionless soil is densified by earthquake vibrations, causing differential settlement.

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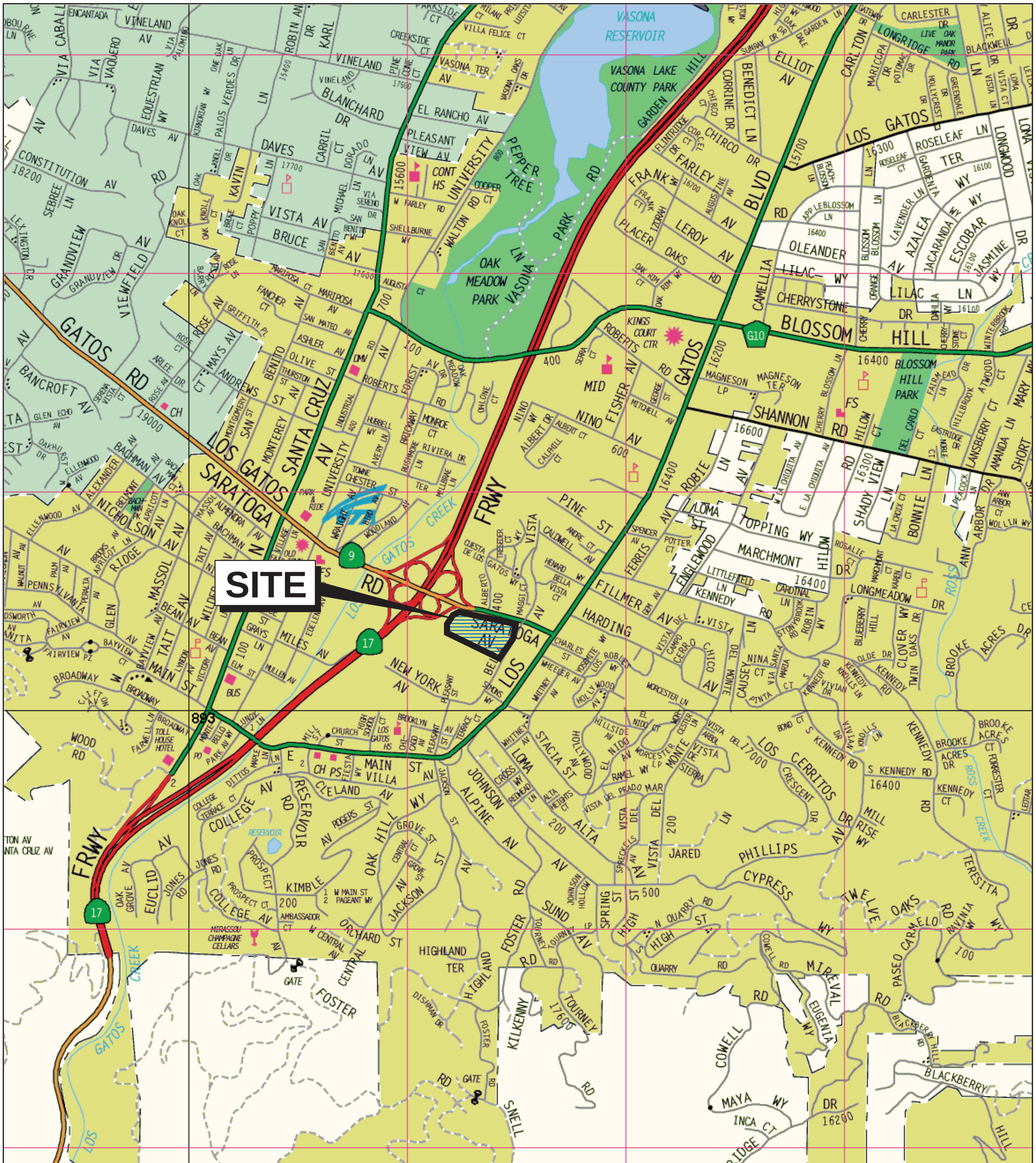
FIGURES



Base map: The Thomas Guide
Santa Clara County
1999

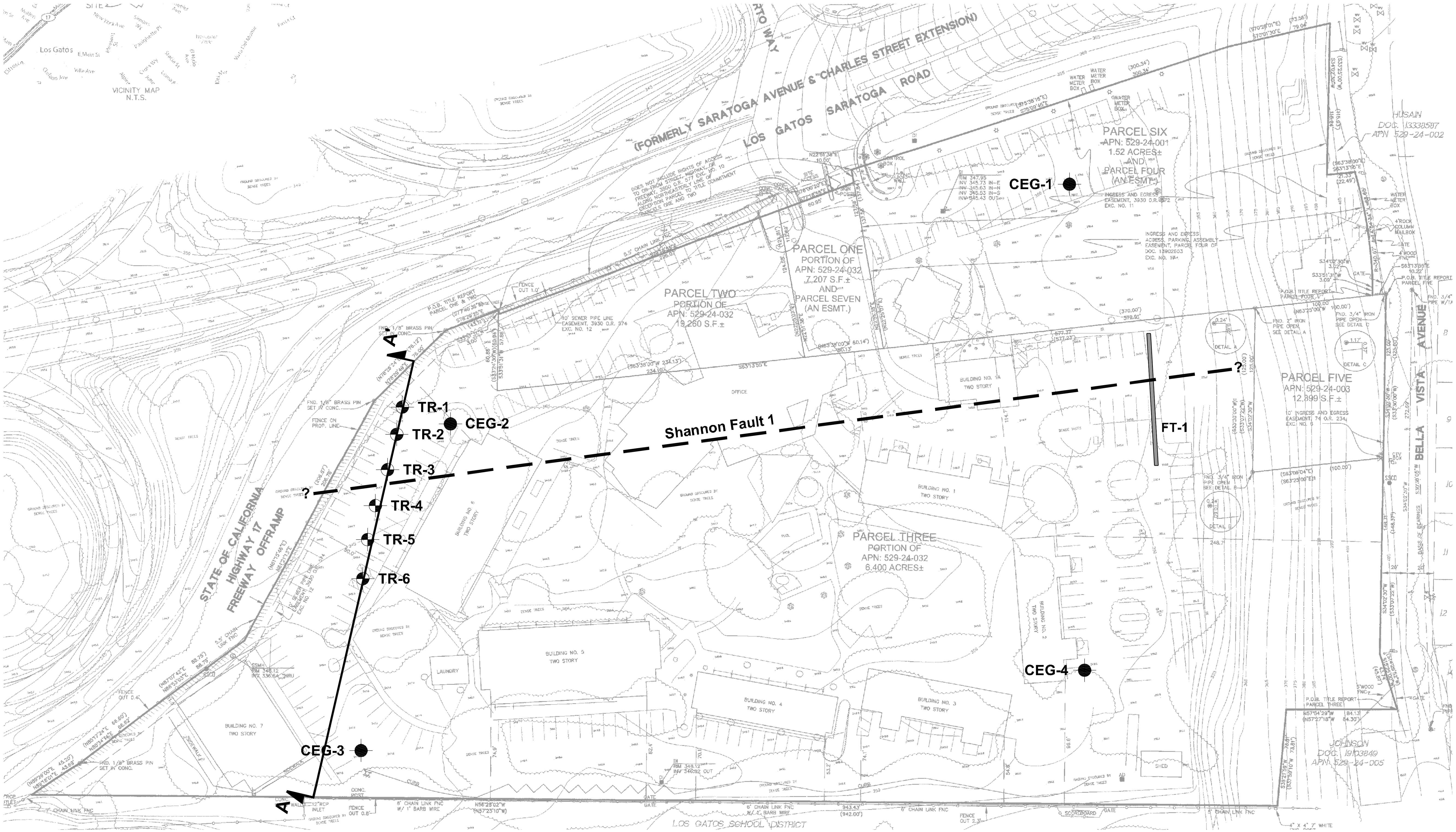
0 1/4 1/2 Mile
Approximate scale

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

SITE LOCATION MAP

Treadwell&Rollo

Date 08/15/08	Project No. 4844.01	Figure 1



EXPLANATION

TR-1	Approximate location of boring by Treadwell & Rollo, Inc., July and August 2008
CEG-1	Approximate location of boring by others
FT-1	Approximate location fo fault trench by Treadwell & Rollo, Inc.
A A'	Idealized subsurface profile location

Notes:

1. Location of Shannon Fault based on observations of bedrock in borings TR-3 and TR-4 along with mapped location of the Geologic Map of the Los Gatos Quadrangle (McLoughlin et. al., 2001).
2. Base map from a drawing titled "ALTA/ACSM Land Title Survey, 50 Los Gatos - Saratoga Road, Los Gatos, California, 95032", by BkF, dated 10/22/07.

0 80 Feet

Approximate scale

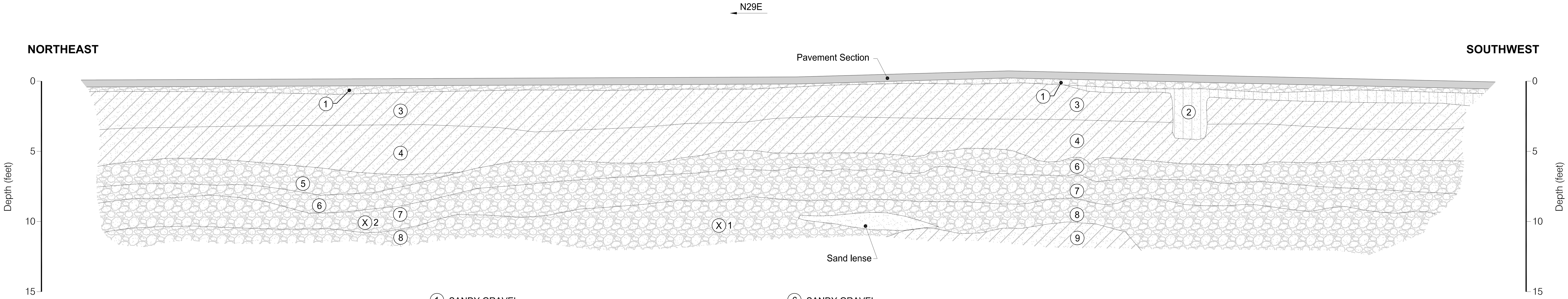
50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

SITE PLAN

Date 08/13/08 | Project No. 4844.01 | Figure 2

Treadwell&Rollo

R:\Trgraphics\4800's\4844.01\4844.01 Site Plan.dwg 8/20/08



1. SANDY GRAVEL
light yellowish-brown (2.5Y 6/4), homogeneous, dense to very dense, dry, poorly graded, sand to 1" sub angular gravel ***[BASEROCK]***

2. SILTY SAND with GRAVEL
brown (10YR 4/3), homogeneous, dense to very dense, dry, well compacted, 30 to 40% rounded to sub angular gravel to 1/12", scattered roots and organics ***[FILL]***

3. CLAYEY SAND with GRAVEL
dark yellowish-brown (10YR 3/4), homogeneous, medium dense to dense, dry to slightly moist, 10 to 15% rounded gravel to 2", scattered roots and organics ***[ALLUVIUM - "A" soil horizon]***

4. CLAYEY SAND with GRAVEL
brown (7.5YR 4/4), homogeneous, medium dense to dense, slightly moist, 10 to 20% rounded to sub rounded gravel, poorly graded friable, trace rootlets ***[ALLUVIUM - "C" soil horizon]***

5. SAND with CLAY and GRAVEL
dark yellowish-brown (10YR 4/4), homogeneous, medium dense to dense, dry to moist, 10 - 20% subrounded to rounded gravel up to 2", poorly graded

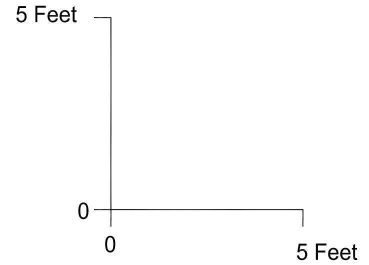
6. SANDY GRAVEL
dark yellowish-brown (10YR 4/4), homogeneous, poorly graded gravel and cobbles to 1' diameter, rounded to sub rounded, cobbles are predominantly sandstone and siltstone, matrix is mostly poorly graded, fine-to coarse-grained sand with trace clay ***[ALLUVIUM]***

7. SAND with GRAVEL
dark brown (7.5YR 3/4) to very dark gray (7.5YR 3/1), medium dense, slightly moist, oxidized, sub angular to sub rounded, poorly graded (fine-to coarse-grained) with scattered gravel up to 2" diameter, friable ***[ALLUVIUM]***

8. GRAVEL with SAND
brown (7.5YR 4/4), homogeneous, dense to very dense, dry to slightly moist, predominantly boulders and gravel up to 3" diameter in a sandy matrix with trace clay, rounded to sub rounded ***[ALLUVIUM]***

9. CLAYEY SAND
yellowish-brown (10YR 5/6), homogeneous, dense, fine-to very fine-grained, well graded, moderately cemented, trace gravel ***[ALLUVIUM]***

(X) 1 Location and number of carbon date sample



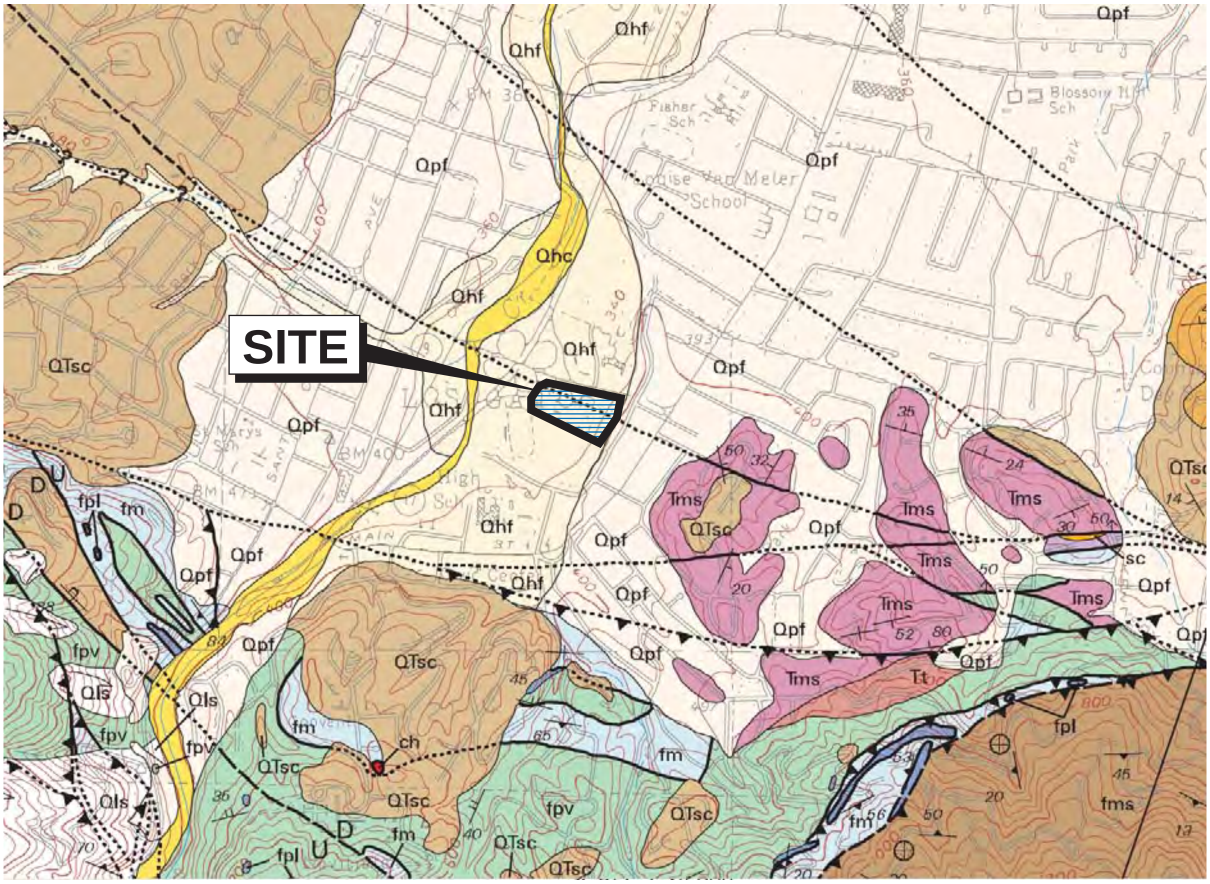
Approximate Scale

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

LOG OF FAULT EXPLORATION TRENCH

Date 09/05/08	Project No. 4844.01	Figure 3

Treadwell&Rollo



Base map: Geologic Maps of the Southwestern Santa Clara Valley and Southern, Santa Cruz Mountains, Sheet 1: Los Gatos Quadrangle, by R.J. McLaughln, J.C. Clark, E. E. Brabb, and E. J. Helley, 2001.

EXPLANATION

QTsc	Santa Clara Formation (Pleistocene and Pliocene)
Qhf	Alluvial fan deposits (Holocene)
Qpf	Alluvial fan deposits (Pleistocene)
Qhc	Stream channel deposits (Holocene)
Tms	Monterey Shale (middle and lower Miocene)
Tt	Temblor Sandstone (middle Miocene to Oligocene?)
ch	Chert Blocks
fpl	Formatinoal Limestone (Upper and Lower Cretaceous)
fpv	Volcanic rocks (Lower Cretaceous)

Geologic contact: dashed where approximate and dotted where concealed, queried where uncertin

U D 10 **Fault:** dashed where approximate and dotted where concealed, queried where uncertain. U and D denote upthrown and downthrown blocks. Arrow with (without) numbers denote fault dip (or direction). Bar and ball Locally denote downthrow block. Horizontal arrows denote relative horizontal movement. Double barb denotes vertical fault

Thrust Fault: Barbs on upper plate. Dashed where approximate, dottoed where concealed, queried where uncertain

15 **Strike and dip**

15 **Vertical shear foliation**

15 **Inclined shear foliation**

15 **Approximate strike and dip**

15 **Strike and dip of volcanic flow or of dikes and sills**

15 **Lineation direction**

0 2000 Feet

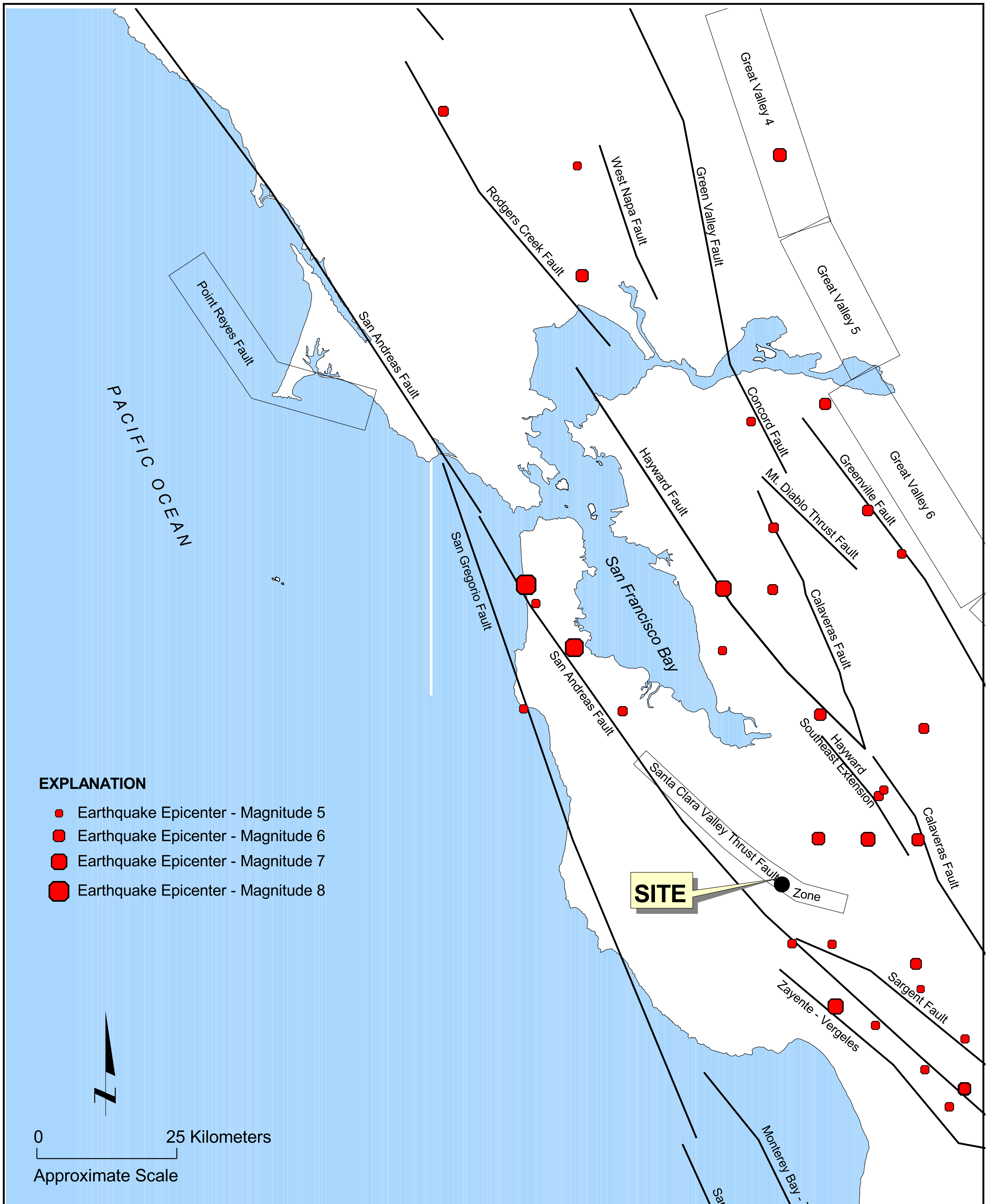
Approximate scale

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

Treadwell&Rollo

REGIONAL GEOLOGIC MAP

Date 08/18/08 | Project No. 4844.01 | Figure 4



NOTES:
Digitized data for fault coordinates and earthquake catalog was developed by the California Department of Conservation Division of Mines and Geology. The historic earthquake catalog includes events from January 1800 to December 2000.

50 LOS GATOS - SARATOGA ROAD PROPERTY Los Gatos, California	**MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS IN THE SAN FRANCISCO BAY AREA**
Treadwell&Rollo	Date: 08/18/08 · Project No. 4844.01 · Figure 5

I **Not felt by people, except under especially favorable circumstances. However, dizziness or nausea may be experienced.**
Sometimes birds and animals are uneasy or disturbed. Trees, structures, liquids, bodies of water may sway gently, and doors may swing very slowly.

II **Felt indoors by a few people, especially on upper floors of multi-story buildings, and by sensitive or nervous persons.**
As in Grade I, birds and animals are disturbed, and trees, structures, liquids and bodies of water may sway. Hanging objects swing, especially if they are delicately suspended.

III **Felt indoors by several people, usually as a rapid vibration that may not be recognized as an earthquake at first. Vibration is similar to that of a light, or lightly loaded trucks, or heavy trucks some distance away. Duration may be estimated in some cases.**
Movements may be appreciable on upper levels of tall structures. Standing motor cars may rock slightly.

IV **Felt indoors by many, outdoors by a few. Awakens a few individuals, particularly light sleepers, but frightens no one except those apprehensive from previous experience. Vibration like that due to passing of heavy, or heavily loaded trucks. Sensation like a heavy body striking building, or the falling of heavy objects inside.**
Dishes, windows and doors rattle; glassware and crockery clink and clash. Walls and house frames creak, especially if intensity is in the upper range of this grade. Hanging objects often swing. Liquids in open vessels are disturbed slightly. Stationary automobiles rock noticeably.

V **Felt indoors by practically everyone, outdoors by most people. Direction can often be estimated by those outdoors. Awakens many, or most sleepers. Frightens a few people, with slight excitement; some persons run outdoors.**
Buildings tremble throughout. Dishes and glassware break to some extent. Windows crack in some cases, but not generally. Vases and small or unstable objects overturn in many instances, and a few fall. Hanging objects and doors swing generally or considerably. Pictures knock against walls, or swing out of place. Doors and shutters open or close abruptly. Pendulum clocks stop, or run fast or slow. Small objects move, and furnishings may shift to a slight extent. Small amounts of liquids spill from well-filled open containers. Trees and bushes shake slightly.

VI **Felt by everyone, indoors and outdoors. Awakens all sleepers. Frightens many people; general excitement, and some persons run outdoors.**
Persons move unsteadily. Trees and bushes shake slightly to moderately. Liquids are set in strong motion. Small bells in churches and schools ring. Poorly built buildings may be damaged. Plaster falls in small amounts. Other plaster cracks somewhat. Many dishes and glasses, and a few windows break. Knickknacks, books and pictures fall. Furniture overturns in many instances. Heavy furnishings move.

VII **Frightens everyone. General alarm, and everyone runs outdoors.**
People find it difficult to stand. Persons driving cars notice shaking. Trees and bushes shake moderately to strongly. Waves form on ponds, lakes and streams. Water is muddied. Gravel or sand stream banks cave in. Large church bells ring. Suspended objects quiver. Damage is negligible in buildings of good design and construction; slight to moderate in well-built ordinary buildings; considerable in poorly built or badly designed buildings, adobe houses, old walls (especially where laid up without mortar), spires, etc. Plaster and some stucco fall. Many windows and some furniture break. Loosened brickwork and tiles shake down. Weak chimneys break at the roofline. Cornices fall from towers and high buildings. Bricks and stones are dislodged. Heavy furniture overturns. Concrete irrigation ditches are considerably damaged.

VIII **General fright, and alarm approaches panic.**
Persons driving cars are disturbed. Trees shake strongly, and branches and trunks break off (especially palm trees). Sand and mud erupts in small amounts. Flow of springs and wells is temporarily and sometimes permanently changed. Dry wells renew flow. Temperatures of spring and well waters varies. Damage slight in brick structures built especially to withstand earthquakes; considerable in ordinary substantial buildings, with some partial collapse; heavy in some wooden houses, with some tumbling down. Panel walls break away in frame structures. Decayed pilings break off. Walls fall. Solid stone walls crack and break seriously. Wet grounds and steep slopes crack to some extent. Chimneys, columns, monuments and factory stacks and towers twist and fall. Very heavy furniture moves conspicuously or overturns.

IX **Panic is general.**
Ground cracks conspicuously. Damage is considerable in masonry structures built especially to withstand earthquakes; great in other masonry buildings - some collapse in large part. Some wood frame houses built especially to withstand earthquakes are thrown out of plumb, others are shifted wholly off foundations. Reservoirs are seriously damaged and underground pipes sometimes break.

X **Panic is general.**
Ground, especially when loose and wet, cracks up to widths of several inches; fissures up to a yard in width run parallel to canal and stream banks. Landsliding is considerable from river banks and steep coasts. Sand and mud shifts horizontally on beaches and flat land. Water level changes in wells. Water is thrown on banks of canals, lakes, rivers, etc. Dams, dikes, embankments are seriously damaged. Well-built wooden structures and bridges are severely damaged, and some collapse. Dangerous cracks develop in excellent brick walls. Most masonry and frame structures, and their foundations are destroyed. Railroad rails bend slightly. Pipe lines buried in earth tear apart or are crushed endwise. Open cracks and broad wavy folds open in cement pavements and asphalt road surfaces.

XI **Panic is general.**
Disturbances in ground are many and widespread, varying with the ground material. Broad fissures, earth slumps, and land slips develop in soft, wet ground. Water charged with sand and mud is ejected in large amounts. Sea waves of significant magnitude may develop. Damage is severe to wood frame structures, especially near shock centers, great to dams, dikes and embankments, even at long distances. Few if any masonry structures remain standing. Supporting piers or pillars of large, well-built bridges are wrecked. Wooden bridges that "give" are less affected. Railroad rails bend greatly and some thrust endwise. Pipe lines buried in earth are put completely out of service.

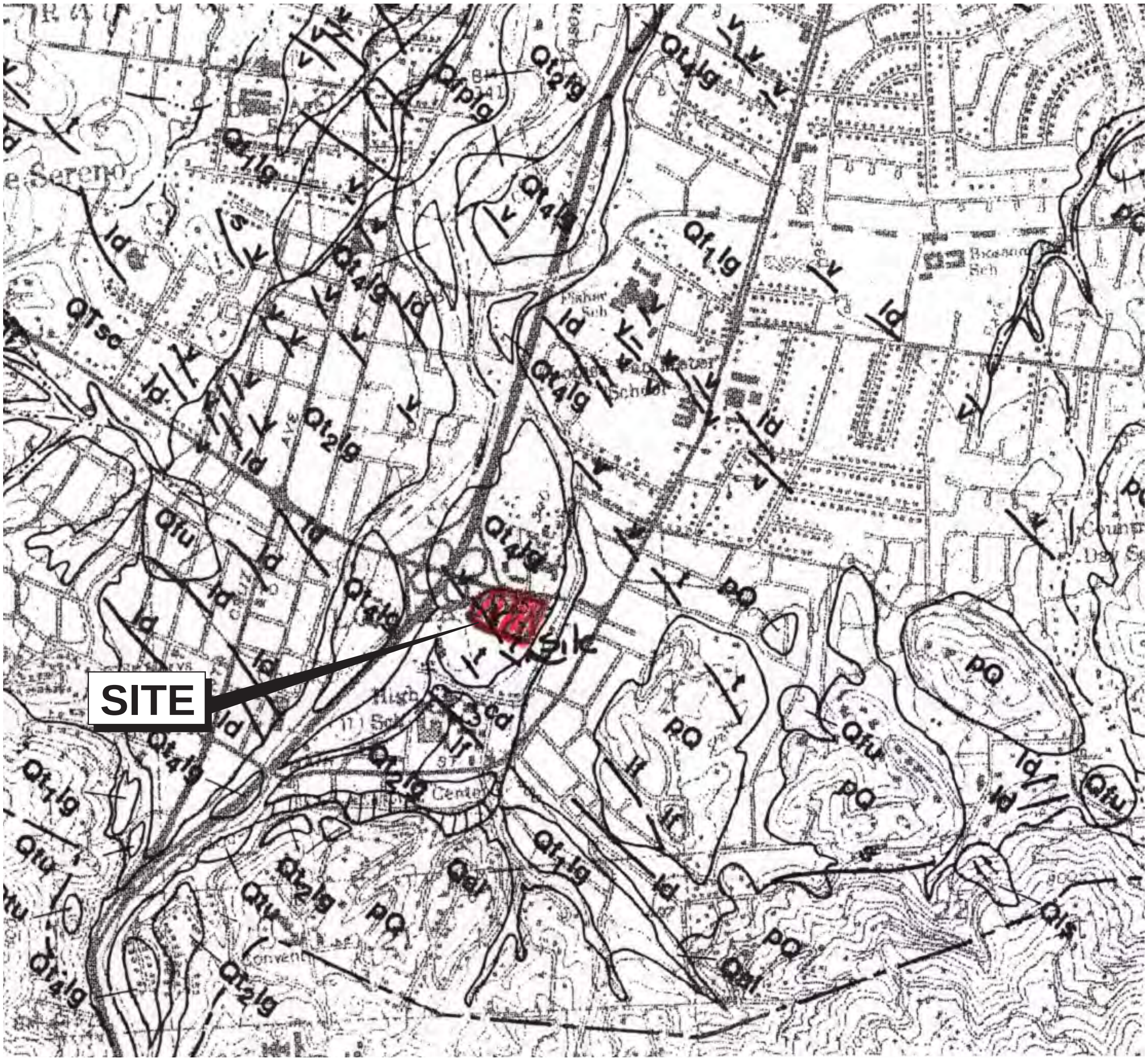
XII **Panic is general.**
Damage is total, and practically all works of construction are damaged greatly or destroyed. Disturbances in the ground are great and varied, and numerous shearing cracks develop. Landslides, rock falls, and slumps in river banks are numerous and extensive. Large rock masses are wrenched loose and torn off. Fault slips develop in firm rock, and horizontal and vertical offset displacements are notable. Water channels, both surface and underground, are disturbed and modified greatly. Lakes are dammed, new waterfalls are produced, rivers are deflected, etc. Surface waves are seen on ground surfaces. Lines of sight and level are distorted. Objects are thrown upward into the air.

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

MODIFIED MERCALLI INTENSITY SCALE

Treadwell&Rollo

Date 08/18/08 | Project No. 4844.01 | Figure 6



EXPLANATION

GEOMORPHIC SURFACES

Permanente Creek	Stevens Creek	Regnart Creek	Calabazas Creek	Saratoga Creek	San Thomas de Aquinas Creek	Los Gatos Creek
Qf4p Qf2p Qf1p Qtu Qfu Qp	Qfps Qf5s Qt4s Qf4s Qt3s Qt2s Qf2s Qt1s Qf1s Qfu	Qf2r Qf1r Qfu	Qf5c Qf4c Qf2c Qf1c Qtu Qfu	Qfpst Qf5st Qt4st Qf4st Qt3st Qt2st Qf2st Qt1st Qf1st Qtu Qfu Qp	Qfpa Qf5a Qt4a Qt2a Qt1a Qtu Qfu Qp	Qfplg Qt4lg Qt4lg Qt3lg Qt2lg Qt2lg Qt1lg Qt1lg Qfu Qp

KEY

Qt4p
Surface type — Drainage basin — Relative age

SURFACE TYPE

- fp active floodplain
- t fluvial terrace
- f alluvial fan
- lv levee
- p pediment developed on QTsc

Note to Users:
Lineament shown on this map are not necessarily fault-traces, nor are they necessarily fault-related. This map provides geologic data based on field reconnaissance, interpretation of aerial photographs, and review of publised and intended as a substitute for detailed, site-specific geotechnical or geologic investigations. This map is not intended for planning purposes.
Where specific geologic features are shown on map, geologic criteria were found to support their existence. However, absence of appropriate symbols (e.g. landslides, faults, etc.) from any part of this map may not be used to prove the absence of those features.

RELATIVE AGE

- u undifferentiated
- 5 youngest
- 4
- 3
- 2
- 1 oldest

DRAINAGE BASIN

- p Permanente Creek
- s Stevens Creek
- r Regnart Creek
- c Calabazas Creek
- st Saratoga Creek
- a Aquinas Creek
- lg Los Gatos Creek
- rs Ross Creek

LINEAMENTS

- v vegetation
- s saddle
- sc scarp
- t tonal
- fct faceted spur
- cd closed depression
- ld linear depression
- lf linear front

SURFICIAL DEPOSITS/BEDROCK

- Qls Landslide deposits
- Qal Undifferentiated stream alluvium
- Qlv Levee deposits
- QTsc Santa Clara gravel (this study; Sorg and McLaughlin, 1975)
- pQ Undifferentiated bedrock (after Sorg and McLaughlin, 1975)

SYMBOLS

- Undifferentiated colluvial slope
- Internal unit boundary

0 2000 Feet

Approximate scale

Reference:
Preliminary Map of Surficial Deposits & Geomorphic surfaces along the Northeastern margin of the Santa Cruz Mountains, CA, USGS OFR 94-187.

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

Treadwell&Rollo

REGIONAL FAULT LINEAMENT MAP

Date 08/18/08 | Project No. 4844.01 | Figure 7

EXPLANATION

Base map: Schmidt and others (1995), USGS OFR 9.

CATEGORIES OF DAMAGE

Number of damage sites shown in brackets [ ].
See accompanying text for explanation.

COSEISMIC PAVEMENT BREAKS

IN ASPHALT

Linear zone of complex rupture; denotes area of severe damage (Reported by USGS) [3]

Fresh break or buckle suggestive of contractional deformation (Reported by USGS and JCP Engineers and Geologists, Inc.) [11]

Fresh break with unspecified sense of deformation (Reported by USGS and local governments) [25]

IN CONCRETE

Fresh contractional break in channel lining of Los Gatos Creek (Reported by USGS) [8]

Fresh break or buckle suggestive of contractional deformation (Reported by USGS; some also reported by local governments) [364]

Apparently fresh break with unspecified sense of deformation (Reported by USGS; some also reported by local governments) [171]

Break with unspecified sense of deformation (Reported by local governments) [573]

IN BOTH ASPHALT AND CONCRETE (Reported by USGS and local governments) [7]

EXTENSIONAL RUPTURE IN BOTH PAVEMENT AND NATURAL SOIL (Reported by W.F. Cole of William Cotton & Assoc. and D.H. Sorg of USGS) [7]

COSEISMIC PIPE BREAKS

Underground water line (Reported by local governments, utility companies, and USGS) [288]

Underground natural-gas distribution line (Reported by utility companies and local government) [47]

Above-ground natural-gas distribution line (Reported by utility company) [60]

More than one type of pipe (Reported by utility companies, local governments, and USGS) [1]

OTHER BREAKS

In both pipe and pavement (Reported by USGS, utility companies, and local governments) [9]

Pavement break that pre-dates the earthquake (Reported by USGS) [illegible]

Combination of pre-earthquake and coseismic break in pavement (Reported by USGS and local governments) [illegible]

Contractional deformation that post-dates the earthquake (Reported by USGS) [4]

OTHER SYMBOLS

Fault (from Brabb and others, in progress; and Wentworth and others, in progress)

Limit of investigation — Within this boundary, all agencies responsible for the kinds of breaks listed above contributed available information

Hillside area underlain by bedrock (from Wentworth, 1993)

0 2000 Feet

Approximate scale

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

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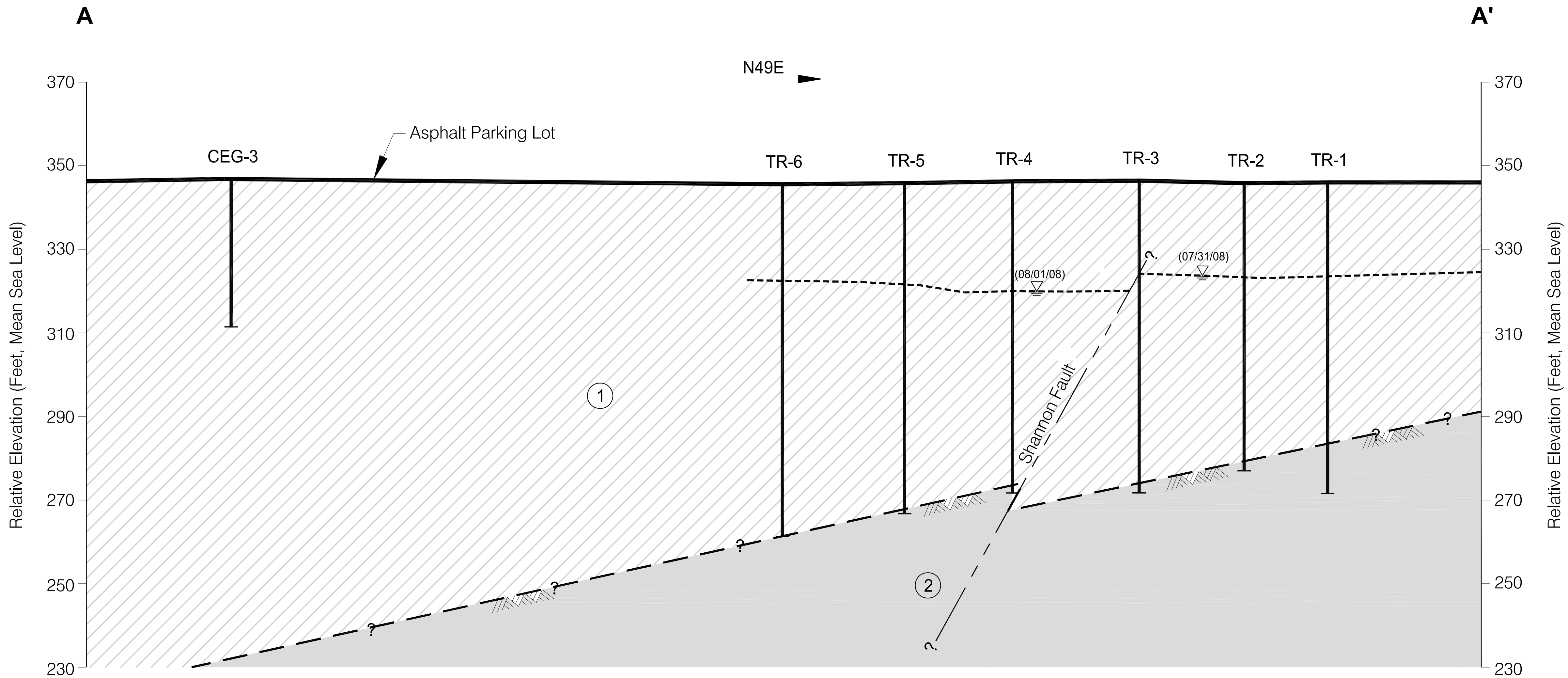
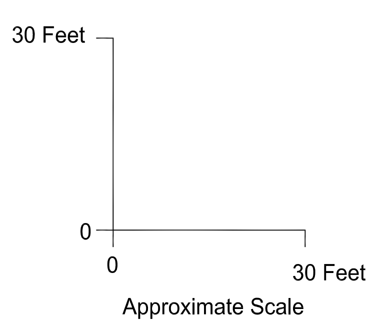
LOMA PRIETA EARTHQUAKE GROUND DEFORMATION MAP

Date 08/18/08 | Project No. 4844.01 | Figure 8



1 CLAYEY SAND to SANDY CLAY with GRAVEL SILTY SAND
Yellow-brown to olive-gray at depth, very dense to hard, poorly graded, fine-to coarse-grained sand, subangular to rounded, scattered cobbles and boulders to 3' diameter, interbeded sand lenses ***[ALLUVIUM]***

2 SILTSTONE
olive-gray, hard, moderately fractured, closely spaced fractures, friable, slight to moderately weathered ***[MONTEREY FORMATION]***



Notes:
1. The above profile represents a generalized soil cross section interpreted from widely spaced borings. Soil deposits may vary in type, strength, and other important properties between points of exploration.

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

IDEALIZED SUBSURFACE PROFILE A-A'

Date 09/05/08	Project No. 4844.01	Figure 9

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R:\Trgraphics\4800's\4844.01\4844.01 Cross section A-A' and Fault Exploration Trench.dwg 9/05/08

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APPENDIX A

Logs of Test Borings and Classification Charts

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY** Santa Clara, California	**Log of Boring B-1**

Boring location: See Site Plan, Figure 2

Logged by: M. Colombo

Date started: 7/31/08

Date finished: 7/31/08

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30-inches

Hammer type: Wire Line Safety

Sampler: Standard Penetration Test (SPT)

Top of Casing Elevation: 344.40[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	Well Completion Details
0							2-inches Asphaltic Concrete (AC)	
0–1							1.5-inches Aggregate Base (AB)	
1						CL	SANDY CLAY with GRAVEL (CL) yellow-brown, very stiff, dry, fine-to coarse-grained sand, with roots	
2.5–4		SPT	8, 9, 10			CL		
5–6.5		SPT	10, 12, 16			CL	trace gravel	
8.5–10		SPT	15, 21, 17			CL	hard, increased cement, with fine-to coarse subangular to rounded gravel	
13.5–15		SPT	16, 18, 23			CL	moist	
17						CL	grades sandier	
18.5–20		SPT	21, 24, 25			CL		
21						CL	▽ (07/31/08, 9:20 a.m.)	
22						SP-SC	CLAYEY SAND with GRAVEL (SP-SC) yellow-brown, dense, dry	
23.5–25		SPT	18, 33, 36			SP-SC	very dense	
28.5–30		SPT	18, 21, 29			SP-SC		

ALLUVIUM (0 to 30 feet)

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Project No.: 4844.01

Figure: A-1a

PROJECT:	50 LOS GATOS - SARATOGA ROAD PROPERTY Santa Clara, California	Log of Boring B-1

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION Top of Casing Elevation: 344.40[1]	Well Completion Details
							SANDY CLAY with GRAVEL (CL) (continued)	
31								
32								
33								
34			18 24 30					
35								
36								
37								
38							color change to gray	
39			18 36 27					
40								
41								
42								
43								
44			24 40 50/ 5"				ALLUVIUM	
45						SP-SC		
46								
47								
48								
49			22 50/ 6"					
50								
51								
52								
53								
54			31 50/ 5"				sandy interbeds	
55								
56								
57								
58								
59			36 50/6"				sandy	
60								

TEST ENVIRONMENTAL WELL REV1 484401.GPJ T&R.GDT 8/20/08

Treadwell&Rollo

Project No.: 4844.01

Figure: A-1b

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-1

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	Well Completion Details
							Top of Casing Elevation: 344.40[1]	
							CLAYEY SAND with GRAVEL (SP-SC)	
61							SILTSTONE **[MONTEREY FORMATION]** light gray, Friable to weak, moderately weathered	
62								
63								
64			16 21 26					
65								
66								
67								
68								
69			50/ 6"					
70								
71								
72								
73			34 50/ 6"				dark brown	
74								
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								
86								
87								
88								
89								
90								

Boring terminated at a depth of 74.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 21.5 feet below ground surface during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

Treadwell&Rollo

Project No.: 4844.01
Figure: A-1c

PROJECT: 50 LOS GATOS - SARATOGA ROAD PROPERTY Santa Clara, California	Log of Boring B-2 PAGE 1 OF 3

Boring location: See Site Plan, Figure 2	Logged by: M. Colombo
Date started: 7/31/08 — Date finished: 7/31/08	
Drilling method: Hollow Stem Auger	
Hammer weight/drop: 140 lbs./30-inches — Hammer type: Wire Line Safety	
Sampler: Standard Penetration Test (SPT)	

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION Top of Casing Elevation: 344.60[1]	Well Completion Details
0							2-inches Asphaltic Concrete (AC) 1.5-inches Aggregate Base (AB)	
1						CL	SANDY CLAY with GRAVEL (CL) yellow-brown, dense to very dense, fine-to coarse-grained sand and subrounded to rounded gravel	
2–21						CL	ALLUVIUM	
22						CL	∇ (07/31/08, 12:45 p.m.)	
23–27						CL		
28			36 50/ 5.5"			CL		
29–30						CL		

TEST ENVIRONMENTAL WELL REV1 484401.GPJ T&R.GDT 8/20/08

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Project No.: 4844.01 Figure: A-2a

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-2

Top of Casing Elevation: 344.60[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION		Well Completion Details
							SANDY CLAY with GRAVEL (CL) (continued)	ALLUVIUM	
31									
32						CL			
33									
34									
35							CLAYEY SAND with GRAVEL (SP-SC) yellow-brown, very dense		
36									
37									
38									
39		Sample	37 50/ 5"						
40							color change to gray		
41									
42									
43									
44									
45									
46									
47									
48									
49		Sample	27 36 49						
50									
51							CLAY with SAND (CL) olive-brown, moist, hard		
52									
53									
54		Sample	14 18 24						
55									
56						CL			
57									
58							olive-gray		
59		Sample	14 22 24						
60									

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Project No.: 4844.01
Figure: A-2b

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-2

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION — Top of Casing Elevation: 344.60[1]	Well Completion Details
60–63						CL	CLAY with SAND (CL) (continued)	
63.5–65		Sample	11 36 50/ 5.5"					
64–68.5						SP-SC	CLAYEY SAND with GRAVEL (SP-SC) olive-gray, dense, wet, fine-to coarse grained sand and gravel	
68.5–69.25		Sample	37 50/ 3"					
68.5–69.5							SILTSTONE **[MONTEREY FORMATION]** light gray, friable to weak, moderately weathered	

ALLUVIUM (60–68.5 ft)

Depth scale: 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Boring terminated at a depth of 69.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 22.8 feet below ground surface during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

Treadwell&Rollo

Project No.: 4844.01 | Figure: A-2c

TEST ENVIRONMENTAL WELL REV1 484401.GPJ T&R.GDT 8/20/08

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-3

Boring location: See Site Plan, Figure 2	Logged by: M. Colombo
Date started: 7/31/08 / Date finished: 7/31/08	
Drilling method: Hollow Stem Auger	
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Wire Line Safety
Sampler: Standard Penetration Test (SPT)	

Well Completion Details

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 344.70[1]
0							2-inches Asphaltic Concrete (AC)
							1.5-inches Aggregate Base (AB)
1							SANDY CLAY with GRAVEL (CL) yellow-brown, moist, dense to very dense, fine-to coarse grained sand and subrounded to rounded gravel
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15						CL	ALLUVIUM
16							
17							
18							
19							
20							
21							
22							▽ (07/31/08, 3:30 p.m.)
23							
24							
25							
26							
27							
28			24				
29		SPT	37				
			44				
30							

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Project No.: 4844.01 | Figure: A-3a

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-3

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION Top of Casing Elevation: 344.70[1]	Well Completion Details
31–38						CL	SAND CLAY with GRAVEL (CL) (continued)	
38–39			24 50/ 5"					
48–50			14 22 40				color change to olive-gray	
55–60						CL	CLAY with SAND (CL) olive-gray, hard, moist, fine sand	
58–60			12 25 32					

ALLUVIUM (30–60 ft)

TEST ENVIRONMENTAL WELL REV1 484401.GPJ T&R.GDT 8/20/08

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Project No.: 4844.01 | Figure: A-3b

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-3

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION (Top of Casing Elevation: 344.70[1])	Well Completion Details
61						CL	CLAY with SAND (CL) (continued)	
62								
63						CL	SANDY CLAY (CL) olive-bray, hard, moist, fine-to medium-grained sand, very cemented	
64			11 13 28					
65								
66								
67						CL	CLAY with SILT and SAND (CL) olive-gray, hard, moist, fine-grained sand	
68								
69			13 17 22					
70								
71							ALLUVIUM (61–71.5 ft)	
72							SILTSTONE **[MONTEREY FORMATION]** olive-gray, weak to friable, moderately weathered	
73			50/ 6"					
74								
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								
86								
87								
88								
89								
90								

Boring terminated at a depth of 74 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 22.3 feet below ground surface during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

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Project No.: 4844.01 | Figure: A-3c

PROJECT:	50 LOS GATOS - SARATOGA ROAD PROPERTY Santa Clara, California	Log of Boring B-4 PAGE 1 OF 3

Boring location: See Site Plan, Figure 2		Logged by: M. Colombo
Date started: 8/1/08	Date finished: 8/1/08	
Drilling method: Hollow Stem Auger		
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Wire Line Safety	
Sampler: Standard Penetration Test (SPT)		

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION Top of Casing Elevation: 344.80[1]	Well Completion Details
0							2-inches Asphaltic Concrete (AC)	
							1.5-inches Aggregate Base (AB)	
1							GRAVELLY CLAY with SAND (CL) yellow-brown, hard, moist, fine-to coarse-grained sand and subangular to subrounded gravel	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15		SPT	13 23 28			CL	ALLUVIUM	
16								
17								
18								
19								
20								
21							▽ (08/01/01, 9:00 a.m.)	
22								
23								
24								
25								
26								
27								
28								
29								
30								

TEST ENVIRONMENTAL WELL REV1 484401.GPJ T&R.GDT 8/20/08

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Project No.:	Figure:
4844.01	A-4a

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION Top of Casing Elevation: 344.80[1]	Well Completion Details
30–31.5			19 29 34			CL	GRAVELLY CLAY with SAND (CL) (continued)	
40–41.4			14 29 50/5"			CL		
48.5–49.5			19 50/6"			CL		
53–54			30 50/6"			CL	color change to olive-gray	
56.5						CL	CLAY with SILT (CL) olive-gray, mottled yellow-brown, hard, moist	
58.5–60			13 20 28			CL		

ALLUVIUM (30–60 feet)

Top of Casing Elevation: 344.80[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION		Well Completion Details
60–61.5						CL	CLAY with SILT (CL) (continued)	ALLUVIUM (60–71.5)	
61.5–66		63.5–65	7, 14, 21			CL	CLAY with SAND (CL) olive-gray, hard, moist, fine-grained sand		
66–71.5		68–68.75	14, 50/3"			CL	SANDY CLAY (CL) olive-gray, hard, moist, fine-to coarse-grained sand; fine gravel (at ~69.5)		
71.5–74.5		73.5–74.25	36, 50/3"				SILTSTONE **[MONTEREY FORMATION]** olive-gray, weak to friable, moderately weathered		

Boring terminated at a depth of 74.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 26.2 feet below ground surface during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

PROJECT: 50 LOS GATOS - SARATOGA ROAD PROPERTY, Santa Clara, California	Log of Boring B-5
	PAGE 1 OF 3

Boring location: See Site Plan, Figure 2	Logged by: M. Colombo
Date started: 8/1/08 — Date finished: 8/1/08	
Drilling method: Hollow Stem Auger	
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Wire Line Safety
Sampler: Standard Penetration Test (SPT)	

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION (Top of Casing Elevation: 345.00[1])	Well Completion Details
0							2-inches Asphaltic Concrete (AC)	
							1.5-inches Aggregate Base (AB)	
1							SANDY CLAY with GRAVEL (CL) yellow-brown, hard, moist, fine-to coarse-grained sand and subangular to subrounded gravel	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15						CL	ALLUVIUM	
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-5

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION — Top of Casing Elevation: 345.00[1]	Well Completion Details
							SANDY CLAY with GRAVEL (CL) (continued)	
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45						CL	ALLUVIUM	
46								
47								
48								
49								
50								
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								

Treadwell&Rollo

Project No.:	Figure:
4844.01	A-5b

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-5

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION — Top of Casing Elevation: 345.00[1]	Well Completion Details
60–73						CL	SANDY CLAY with GRAVEL (CL) (continued)	
73–77			13 50/ 5.5"			CL	SANDY CLAY with GRAVEL (CL) olive-gray, hard, moist, fine-to coarse-grained sand, fine-to coarse-grained subangular to subrounded gravel	
77–79.5			36 50/ 5"				SILTSTONE **[MONTEREY FORMATION]** olive-brown, weak to friable, moderately weak	

ALLUVIUM (approximately 60 to 77 feet)

Depth scale: 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Boring terminated at a depth of 79.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

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Project No.: 4844.01

Figure: A-5c

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-6

Boring location: See Site Plan, Figure 2	Logged by: M. Colombo
Date started: 8/1/08	Date finished: 8/1/08
Drilling method: Hollow Stem Auger	
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Wire Line Safety
Sampler: Standard Penetration Test (SPT)	

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION — Top of Casing Elevation: 345.20[1]	Well Completion Details
0							2-inches Asphaltic Concrete (AC)	
							1.5-inches Aggregate Base (AB)	
1							SANDY CLAY with GRAVEL (CL) yellow-brown, hard, moist, fine-to coarse-grained sand and subangular to subrounded gravel	
15						CL	ALLUVIUM	
22							∇ (08/01/08, 12:00 p.m.)	
30							gravel chunk	

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Project No.: 4844.01 | Figure: A-6a

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY**
Santa Clara, California

Log of Boring B-6

Top of Casing Elevation: 345.20[1]

DEPTH (feet)	Sample Number	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION		Well Completion Details
30–53		50/ 6" (30–30.5); 28, 50/ 5" (40–41)			CL	SANDY CLAY with GRAVEL (CL) (continued)	ALLUVIUM	
48.5–50		16, 30, 35						
53.5–57		14, 16, 21 (53.5–55)			CL	CLAY with SILT and SAND (CL) olive-gray, hard, moist, fine-grained sand		
57–60		16, 20, 23 (56.5–58)			CL	CLAY with SILT (CL) olive-gray, hard, moist, mottled yellow-brown		

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Project No.: 4844.01

Figure: A-6b

PROJECT: **50 LOS GATOS - SARATOGA ROAD PROPERTY** Santa Clara, California	**Log of Boring B-6** PAGE 3 OF 3

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION — Top of Casing Elevation: 345.20[1]	Well Completion Details
60–68							CLAY with SILT (CL) (continued)	
63–64.5		sample	10 22 24			CL		
68–84							SANDY CLAY (CL) olive-gray, hard, wet, fine-to medium grained sand	
68–69.5		sample	16 36 50					
73–73.5		sample	50/ 6"				with fine-to medium-grained subangular to subrounded gravel	
78–79.5		sample	24 50/ 6"			CL		
83–84.3		sample	36 50/ 4"					
84							SILTSTONE **[MONTEREY FORMATION]** olive-gray, weak to friable, moderately weathered	

ALLUVIUM (60 to 84 feet)

Depth scale: 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Boring terminated at a depth of 84.3 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 22.7 feet below ground surface during drilling

[1] Elevations based on Topographic Survey, BKF, 10/22/07.

Treadwell&Rollo

Project No.: 4844.01 | Figure: A-6c

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	**Gravels** (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes: U.S. Standard Sieve Size	Range of Grain Sizes: Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

▽ Unstabilized groundwater level

▼ Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

- Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered
- Classification sample taken with Standard Penetration Test sampler
- Undisturbed sample taken with thin-walled tube
- Disturbed sample
- Sampling attempted with no recovery
- Core sample
- Analytical laboratory sample
- Sample taken with Direct Push sampler
- Sonic

SAMPLER TYPE

C — Core barrel

CA — California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter

D&M — Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube

O — Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube

PT — Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube

S&H — Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter

SPT — Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter

ST — Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

Treadwell&Rollo

CLASSIFICATION CHART

Date 08/07/08 | Project No. 4844.01 | Figure A-7

I FRACTURING

Intensity	**Size of Pieces in Feet**
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	**Thickness**	**Stratification**
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

50 LOS GATOS - SARATOGA ROAD PROPERTY
Los Gatos, California

Treadwell&Rollo

PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

Date 08/18/08 | Project No. 4844.01 | Figure A-8

Treadwell&Rollo

APPENDIX B

Laboratory Test Results

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Ms. Mary Colombo — Report Date: 8/20/2008

Treadwell & Rollo, Inc. — Material Received: 8/15/2008

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 247956 SAMPLE : 4844-1 ANALYSIS : AMS-TIMEGUIDE Delivery MATERIAL/PRETREATMENT : (wood): acid washes 2 SIGMA CALIBRATION : Cal BC 11480 to 11140 (Cal BP 13430 to 13090)	NA	NA	11390 +/- 90 BP
Beta - 247957 SAMPLE : 4844-2 ANALYSIS : AMS-TIMEGUIDE Delivery MATERIAL/PRETREATMENT : (wood): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 11150 to 10870 (Cal BP 13100 to 12820)	NA	NA	10980 +/- 90 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=N/A:lab. mult=1)

Laboratory number: **Beta-247956**

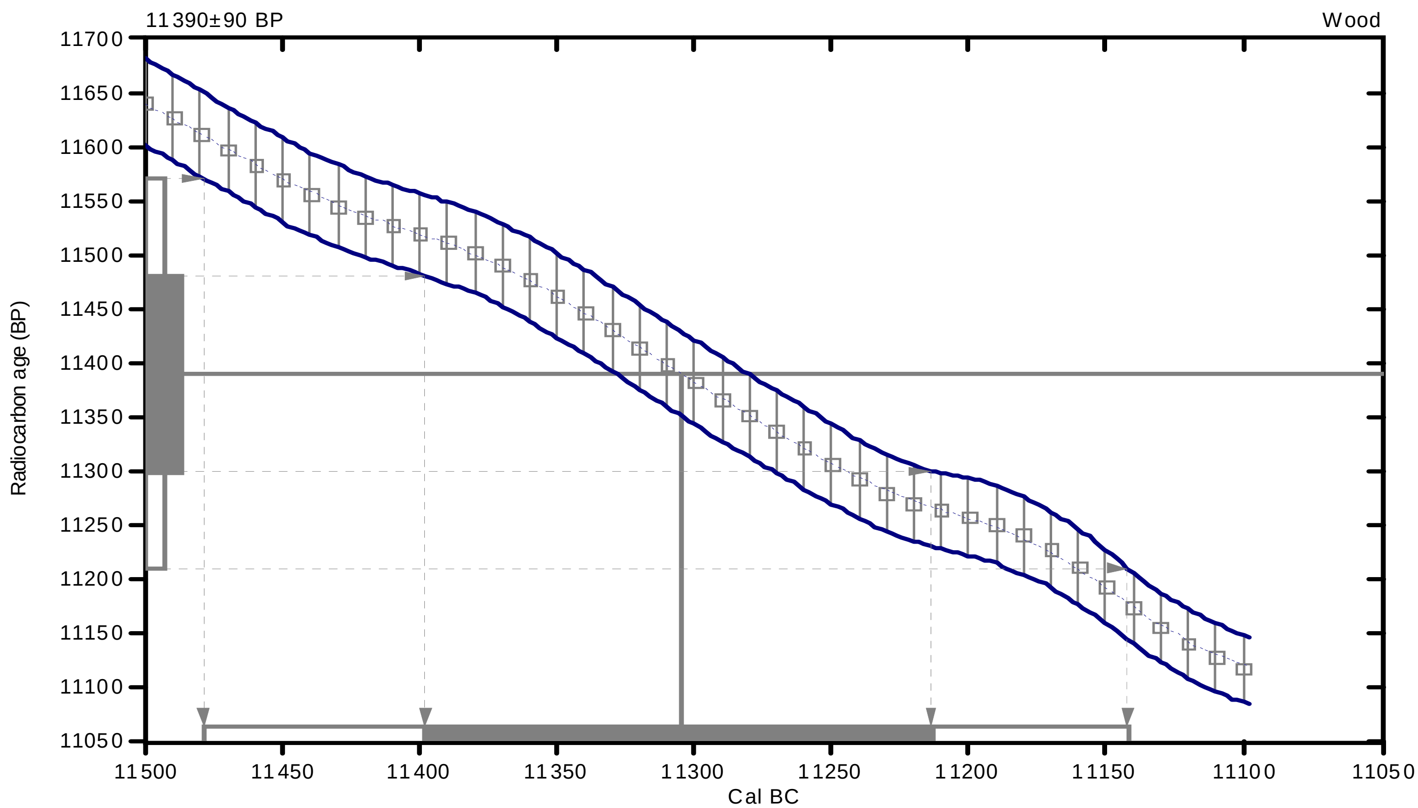
Conventional radiocarbon age: **11390±90 BP**

2 Sigma calibrated result: **Cal BC 11480 to 11140 (Cal BP 13430 to 13090)**
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 11300 (Cal BP 13260)

1 Sigma calibrated result: Cal BC 11400 to 11210 (Cal BP 13350 to 13160)
(68% probability)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=N/A:lab. mult=1)

Laboratory number: **Beta-247957**

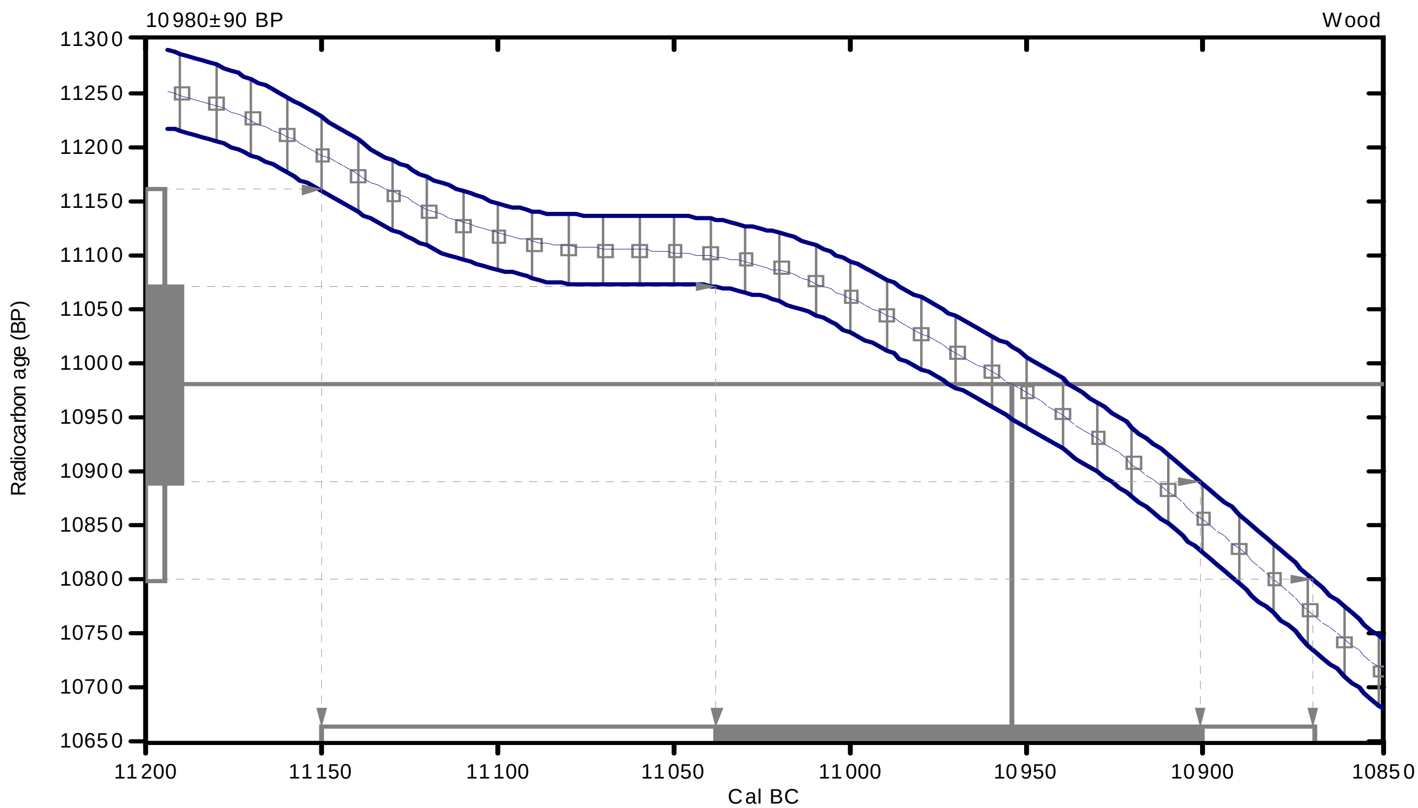
Conventional radiocarbon age: **10980±90 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 11150 to 10870 (Cal BP 13100 to 12820)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 10950 (Cal BP 12900)

1 Sigma calibrated result: (68% probability) Cal BC 11040 to 10900 (Cal BP 12990 to 12850)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

Treadwell&Rollo

DISTRIBUTION

6 copies:	Mr. John Hoover Classic Residence by Hyatt 71 S. Wacker Drive, Suite 900 Chicago, Illinois 60606
1 copy (email):	Ms. Anne Rosinski California Geological Survey
1 copy (email):	Mr. Bob Wright AMEC
1 copy (email):	Ms. Trang Tu-Nguyen Town of Los Gatos

APPENDIX C

DESIGN PLANS

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CA

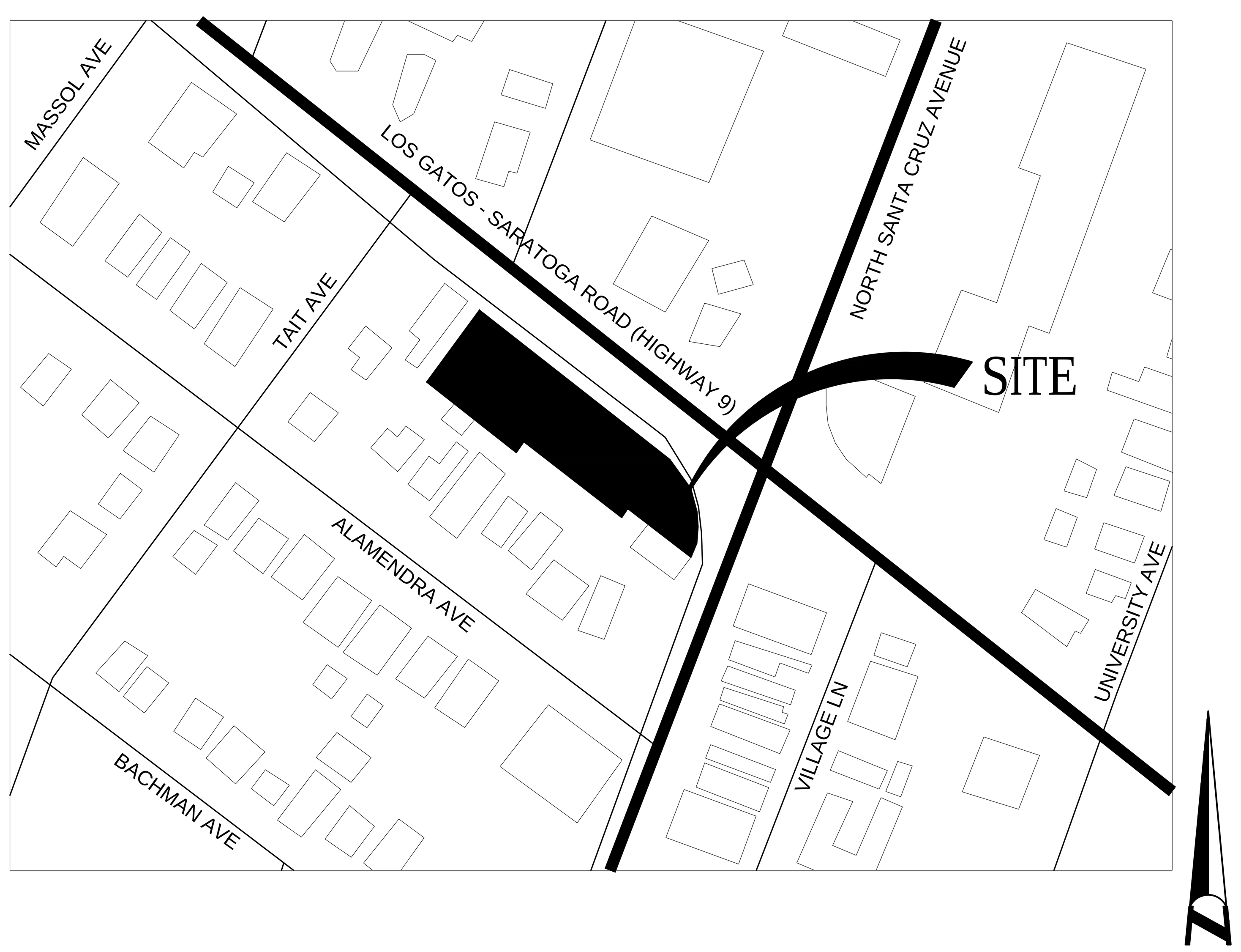
KENNETH RODRIGUES & PARTNERS, INC.

MARCH 21, 2016

TECHNICAL REVIEW MEETING #1 REVISIONS 1 JUNE 6, 2016

TECHNICAL REVIEW MEETING #2 REVISIONS 2 JULY 12, 2016

VICINITY MAP



PROJECT TEAM

CLIENT/OWNER

HWY 9 Partners, LLC.
15425 Los Gatos Boulevard, Suite 102
Los Gatos, CA 95030

Phone: 408-356-2300
Fax: 408-356-2338
Contact: Joey McCarthy

ARCHITECT

Kenneth Rodrigues & Partners, Inc.
445 N. Whisman Road, Suite 200
Mountain View, CA 94043

Phone: 650-965-0700
Fax: 650-960-0707
Contact: Kenneth Rodrigues, FAIA (Ext. 13)

CIVIL

BKF
1650 Technology Dr. Suite 650
San Jose, CA 95110

Phone: 408-467-9100
Fax: 408-467-9199
Contact: Patrick Chan
Michael Silveira

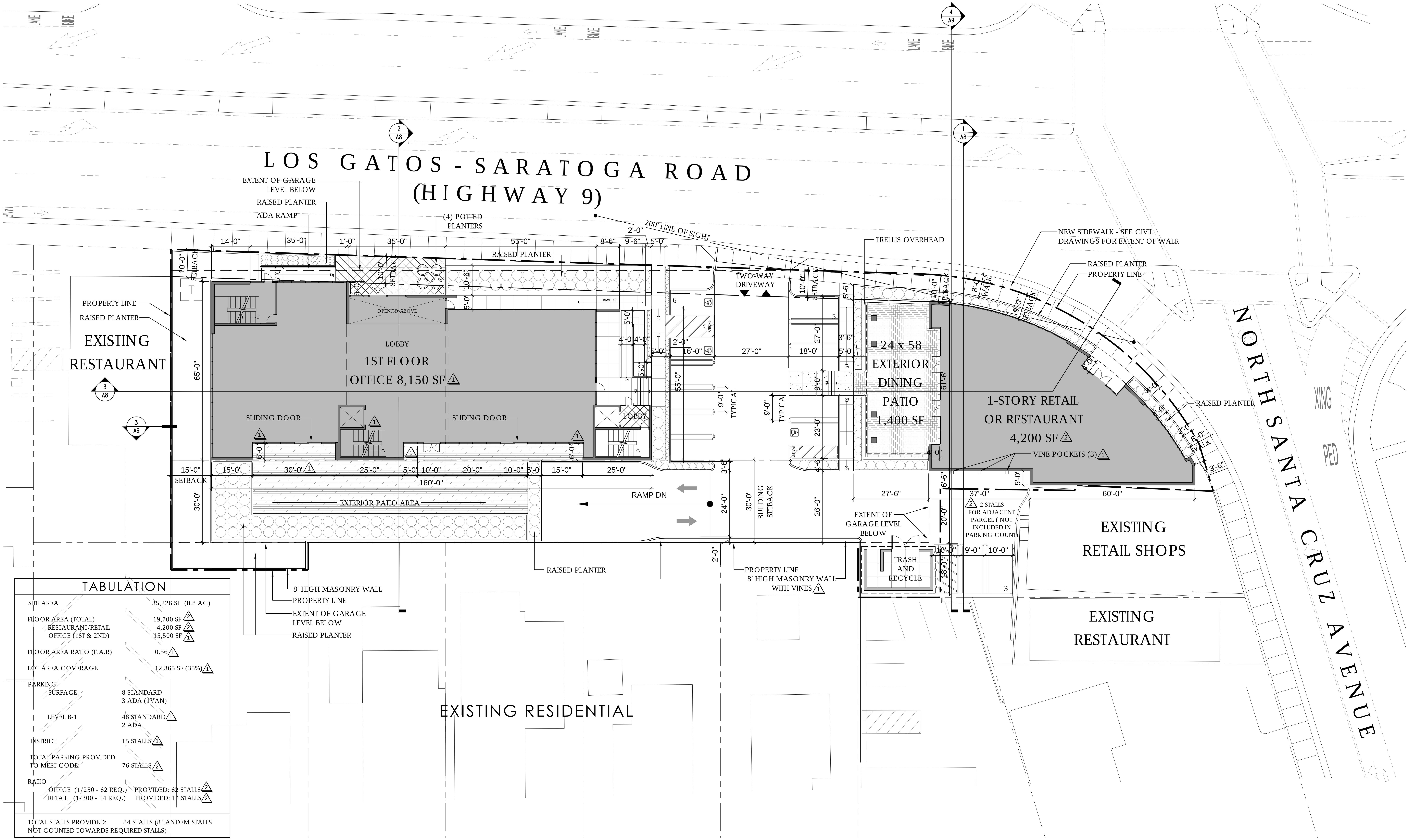
LANDSCAPE ARCHITECT

Lauderbaugh Associates
425 Clyde Ave
Mountain View, CA 94043

Phone: 650-691-9711
Fax: 650-691-9713
Contact: Jim Lauderbaugh

SHEET INDEX

KRP PROJECT#128.022



TABULATION

SITE AREA		35,226 SF (0.8 AC)
FLOOR AREA (TOTAL)		19,700 SF (2)
RESTAURANT/RETAIL		4,200 SF (2)
OFFICE (1ST & 2ND)		15,500 SF (1)
FLOOR AREA RATIO (F.A.R)		0.56 (1)
LOT AREA COVERAGE		12,365 SF (35%) (1)
PARKING		
SURFACE	8 STANDARD 3 ADA (1VAN)	
LEVEL B-1	48 STANDARD (1) 2 ADA	
DISTRICT	15 STALLS (1)	
TOTAL PARKING PROVIDED TO MEET CODE:	76 STALLS (2)	
RATIO		
OFFICE (1/250 - 62 REQ.)	PROVIDED: 62 STALLS (2)	
RETAIL (1/300 - 14 REQ.)	PROVIDED: 14 STALLS (2)	
TOTAL STALLS PROVIDED:	84 STALLS (8 TANDEM STALLS NOT COUNTED TOWARDS REQUIRED STALLS)	

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

LEVEL 1 FLOOR PLAN

GROUND FLOOR

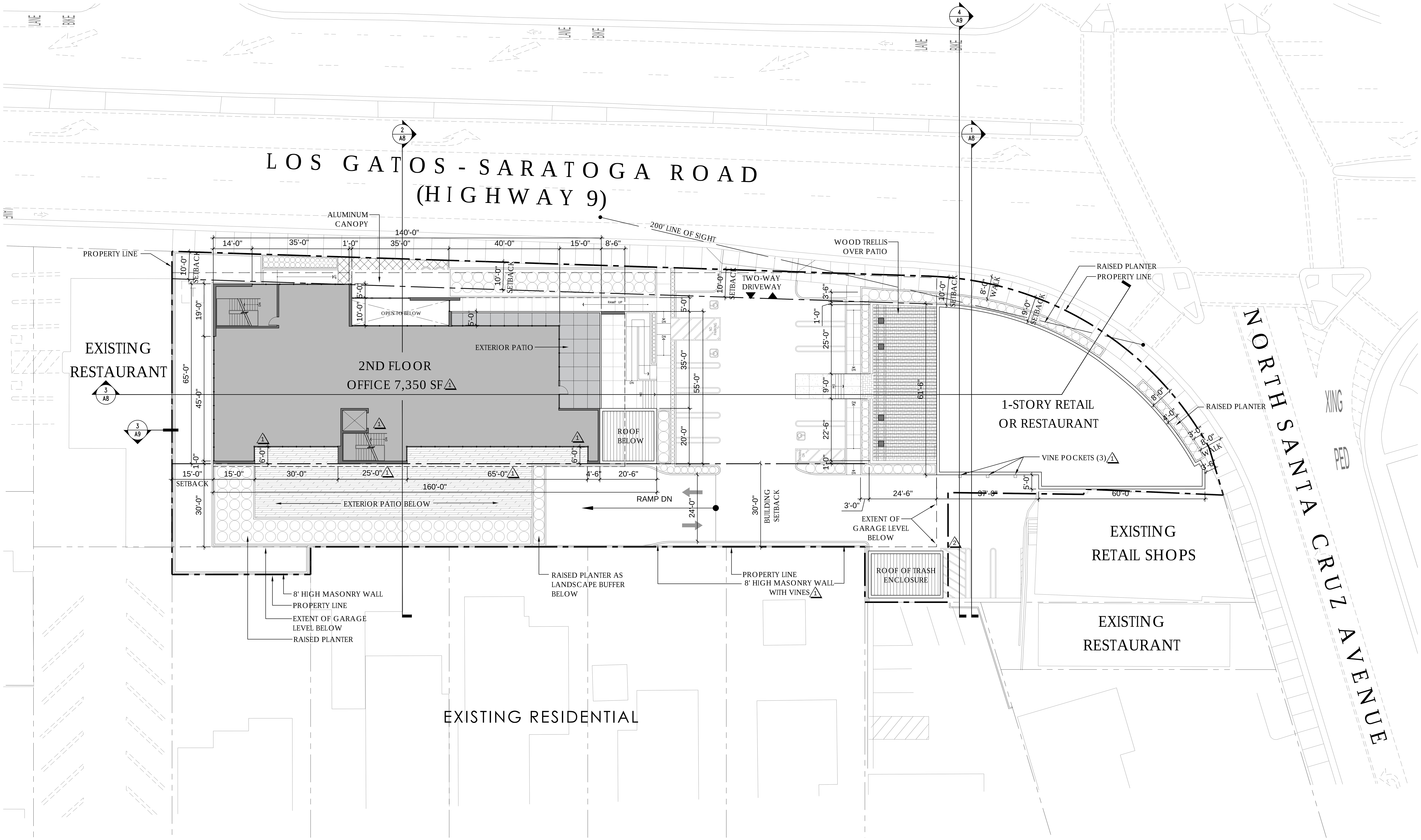
0 8' 16' 32' 48'

TRUE N

128.022

03.21.16
(1) 06.06.16
(2) 07.12.16

A-1



NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

LEVEL 2 FLOOR PLAN

SECOND FLOOR

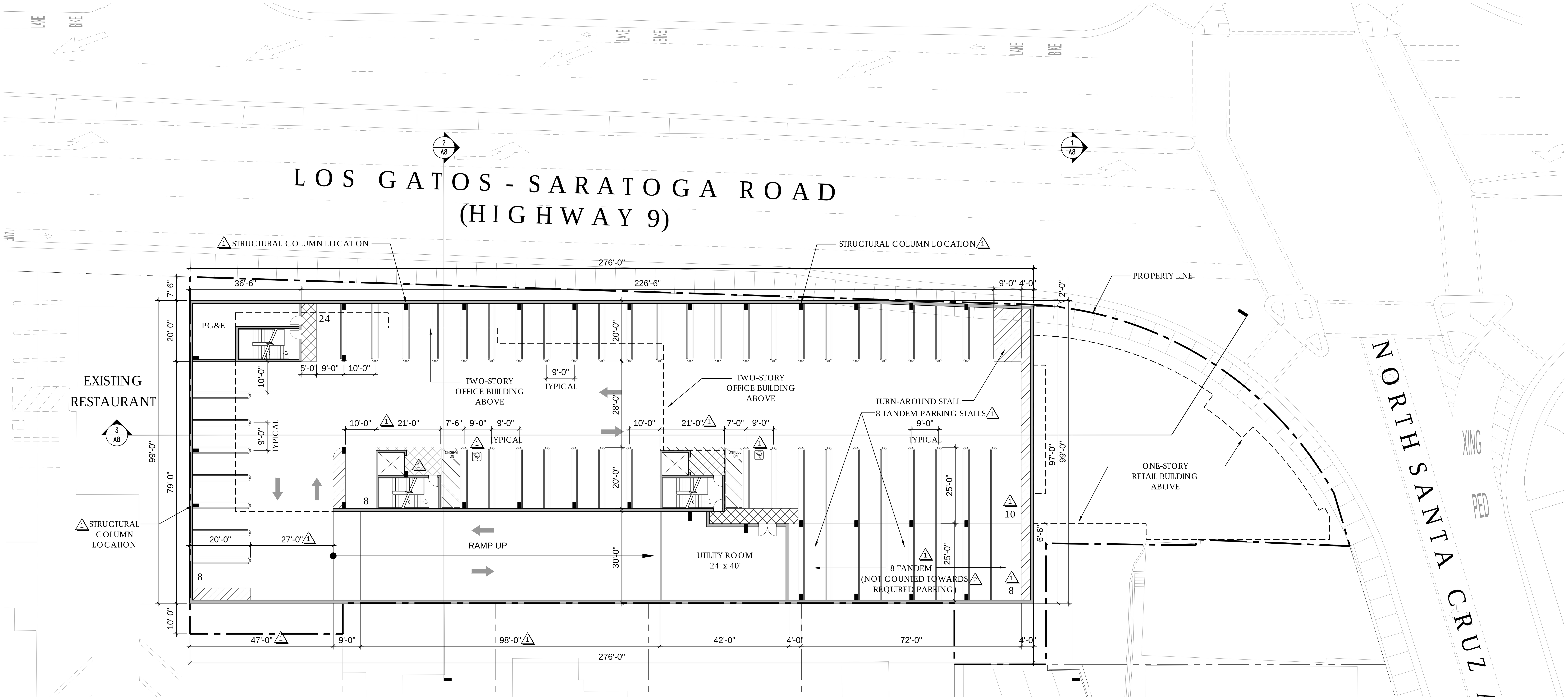
0 8' 16' 32' 48'

128.022

03.21.16
1 06.06.16
2 07.12.16

TRUE N

A-2



BASEMENT PARKING TABULATION	
SITE AREA	35,226 SF (0.80 AC)
UNDERGROUND PARKING AREA:	27,273 SF
UNDERGOUND PARKING	
STANDARD	48 STALLS
ADA	2 STALLS
TOTAL REQUIRED STALLS	50 STALLS
TANDEM (NOT COUNTED TOWARDS REQUIRED PARKING)	8 STALLS
AREA PER STALL	470 SF/STALL

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

GARAGE LEVEL B1

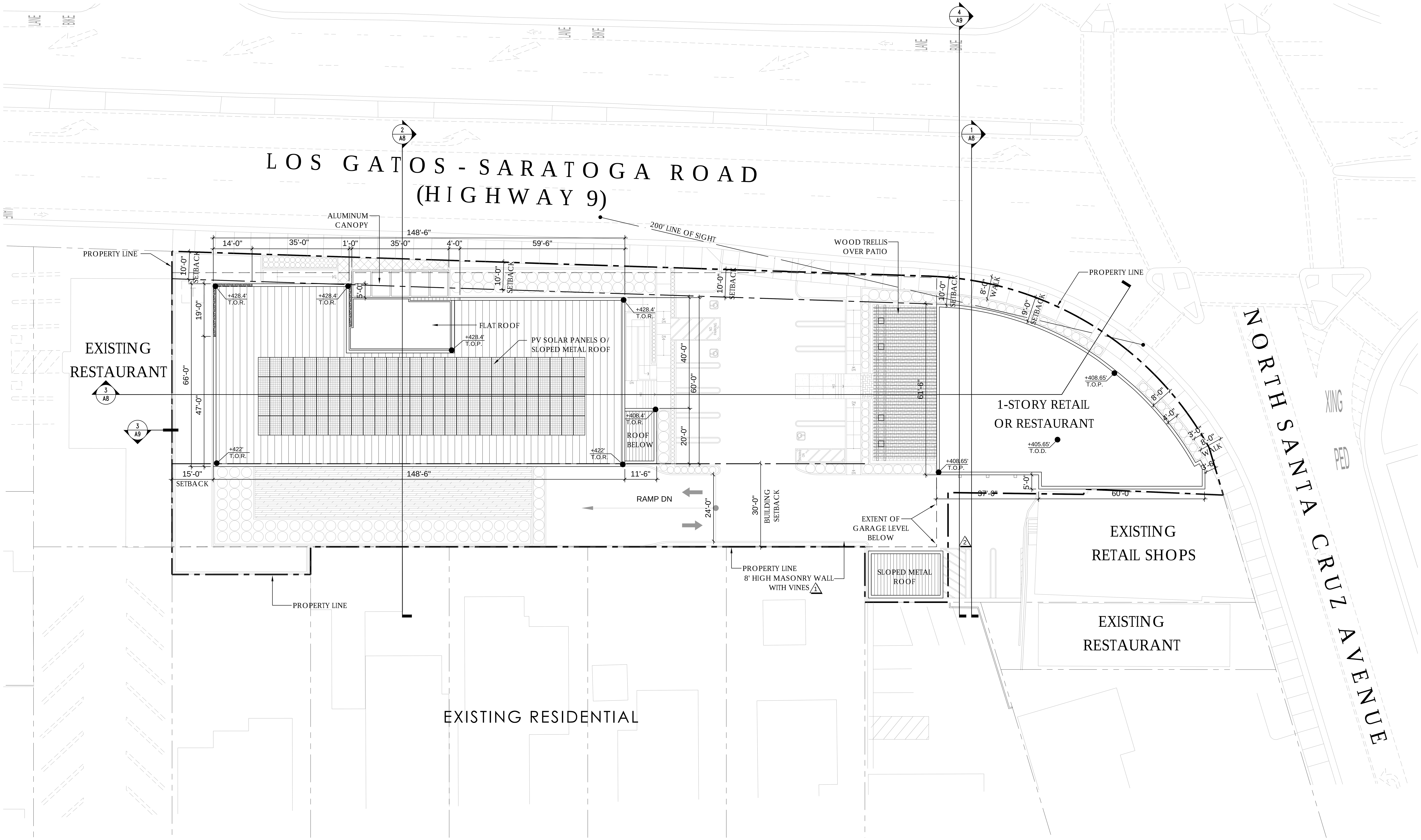
0 8' 16' 32' 48'

128.022

03.21.16
1 06.06.16
2 07.12.16

TRUE N

A-3



NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

ROOF PLAN

0 8' 16' 32' 48'

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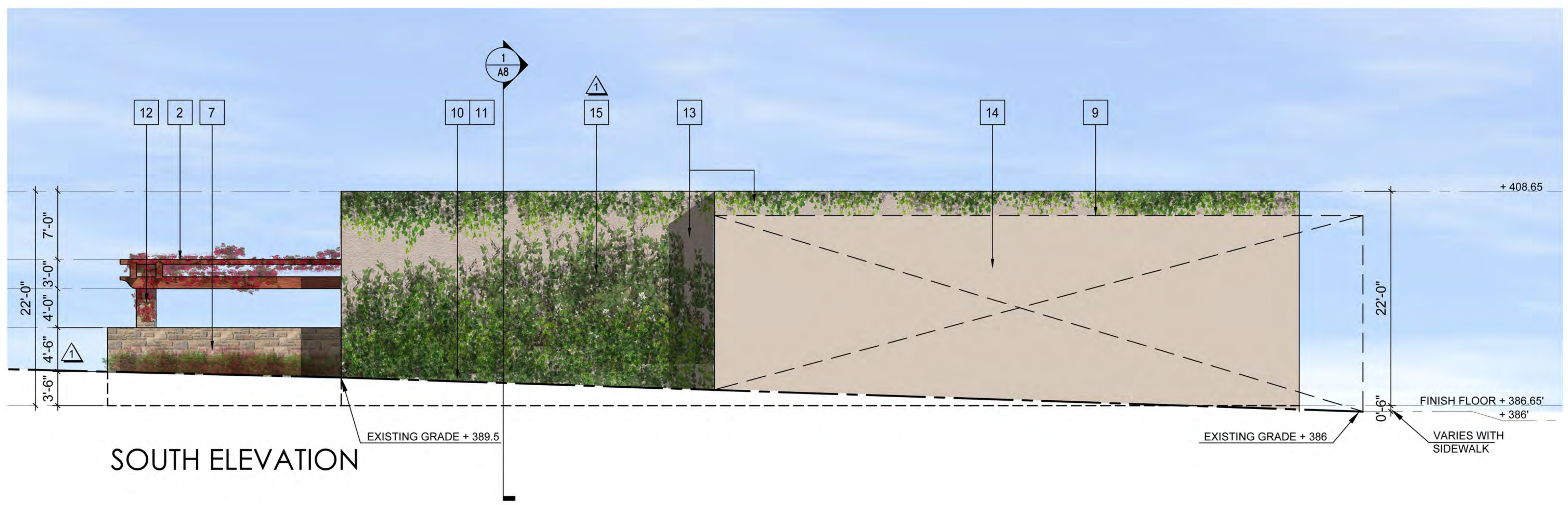
03.21.16
1 06.06.16
2 07.12.16

TRUE N

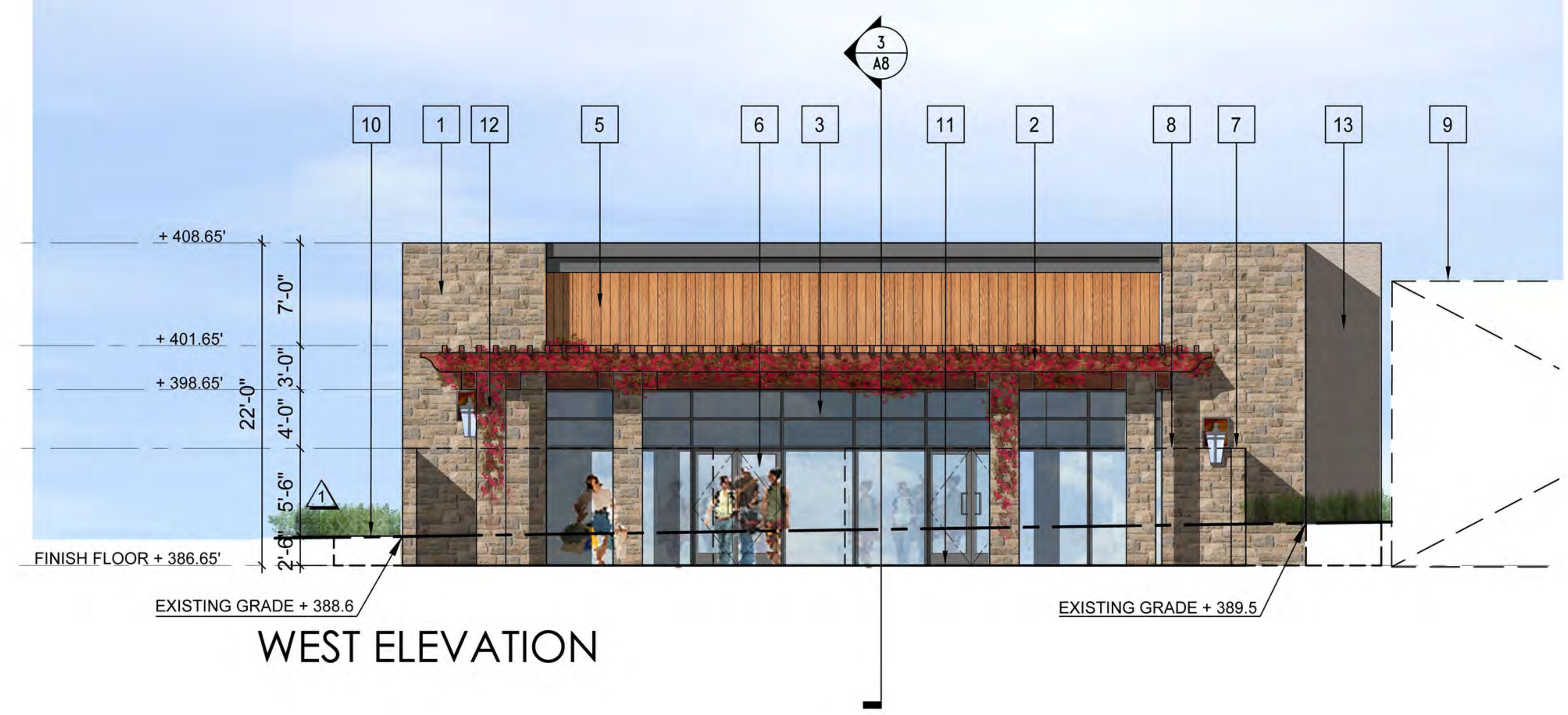
A-4

NORTH ELEVATION

EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

LEGEND

1	RUSTIC LIMESTONE VENEER	4	RAISED PLANTER	7	LIMESTONE VENEER RETAINING WALL	10	EXISTING GRADE	13	PLASTER WALL
2	STAINED WOOD TRELLIS	5	STAINED WOOD ACCENT FEATURE	8	LIMESTONE VENEER WALL IN FRONT	11	PROPOSED GRADE	14	AREA ABUTTING ADJACENT BUILDING AT PROPERTY LINE- NO FINISH REQUIRED
3	CLEAR GLASS SET IN ALUM. FRAMES	6	GLASS ENTRY DOOR	9	EXISTING NEIGHBORING BUILDING	12	STONE COLUMN	15	CREEPING VINE △1

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

1-STORY BUILDING ELEVATIONS

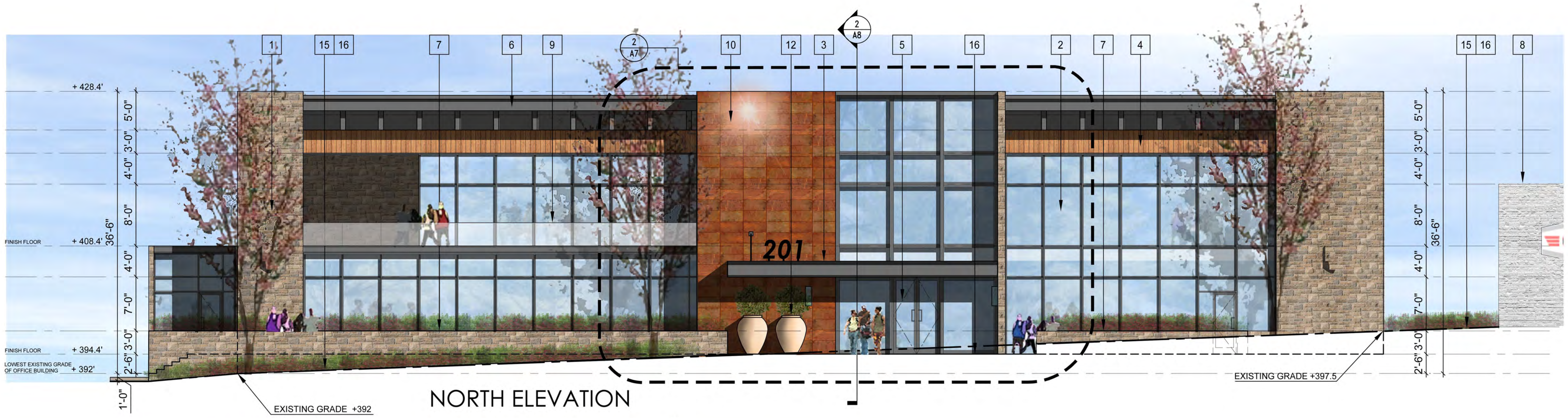
0 4' 8' 16' 24'

128.022

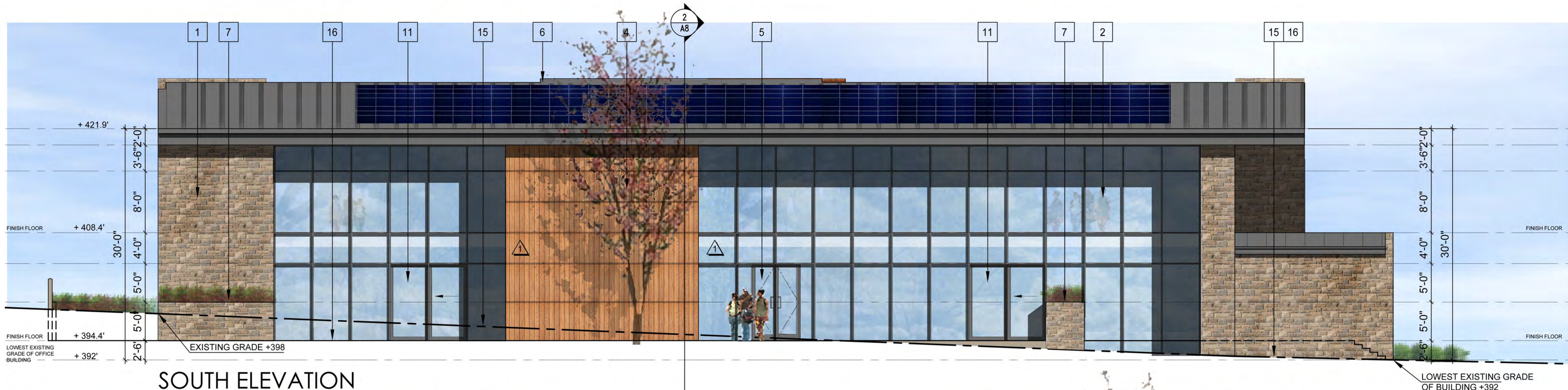
03.21.16

△1 06.06.16

A-5

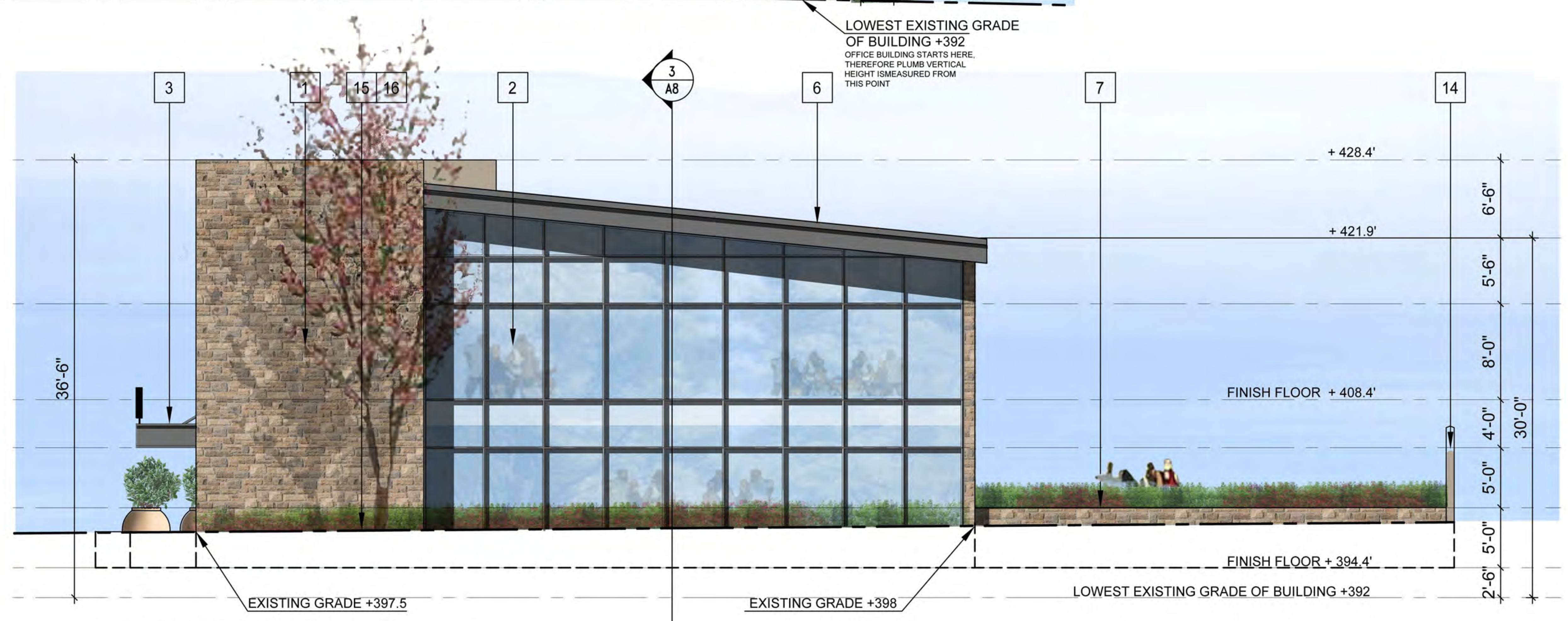


NORTH ELEVATION



SOUTH ELEVATION

EAST ELEVATION



WEST ELEVATION

LEGEND

1. RUSTIC LIMESTONE VENEER
2. CLEAR GLASS SET IN ALUM. FRAMES
3. ALUMINUM ENTRY CANOPY
4. STAINED WOOD ACCENT FEATURE
5. GLASS ENTRY DOOR
6. ALUMINUM SLOPED ROOF W/ SOLAR PANELS
7. RAISED PLANTER
8. ADJACENT LOS GATOS DINER
9. GLASS BALCONY RAILING
10. COPPER PANEL ACCENT WALL
11. GLASS SLIDING DOOR
12. DECORATIVE POTTED PLANTERS (4)
13. ADA ACCESSIBLE RAMP
14. 8' HIGH MASONRY WALL AT PROPERTY LINE
15. EXISTING GRADE
16. PROPOSED GRADE

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA
KENNETH RODRIGUES & PARTNERS, INC.

2-STORY BUILDING ELEVATIONS

0 4' 8' 16' 24'

128.022

03.21.16
⚠ 06.06.16

A-6

1 1-STORY BUILDING ENLARGED ELEVATION

2 2-STORY BUILDING ENLARGED ELEVATION

MATERIAL BOARD

LEGEND

1 RUSTIC LIMESTONE VENEER
2 CLEAR GLASS SET IN ALUM. FRAMES
3 RAISED PLANTER
4 STAINED WOOD ACCENT FEATURE
5 ALUMINUM AND GLASS ENTRY CANOPY
6 ALUMINUM SLOPED ROOF WITH SOLAR PANELS
7 COPPER PANEL ACCENT WALL
8 DECORATIVE POTTED PLANTERS (4)
9 GLASS BALCONY RAILING
10 NEIGHBORING BUILDING
11 EXISTING GRADE

NORTH SANTA CRUZ @ HIGHWAY 9

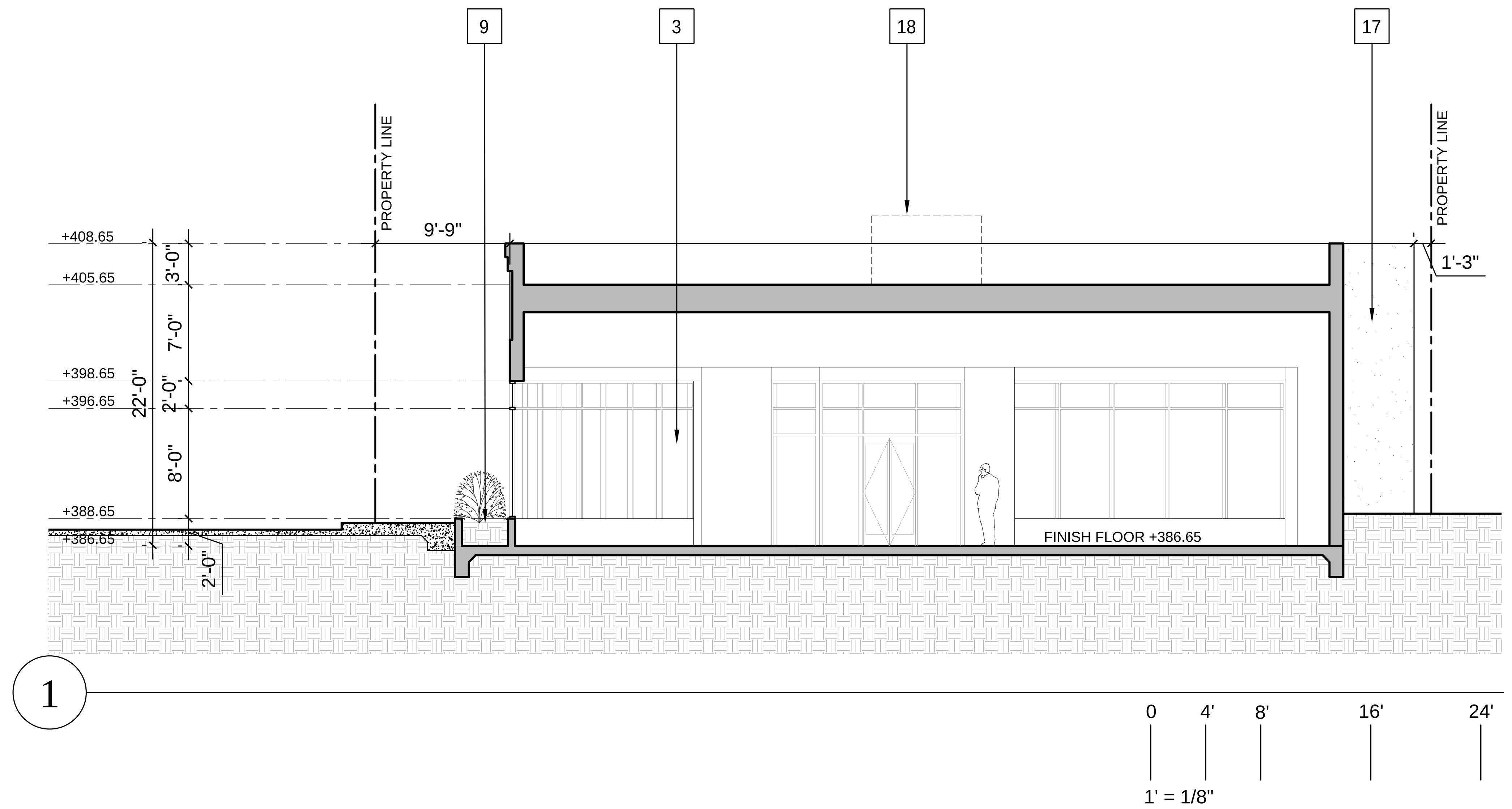
LOS GATOS, CALIFORNIA
KENNETH RODRIGUES & PARTNERS, INC.

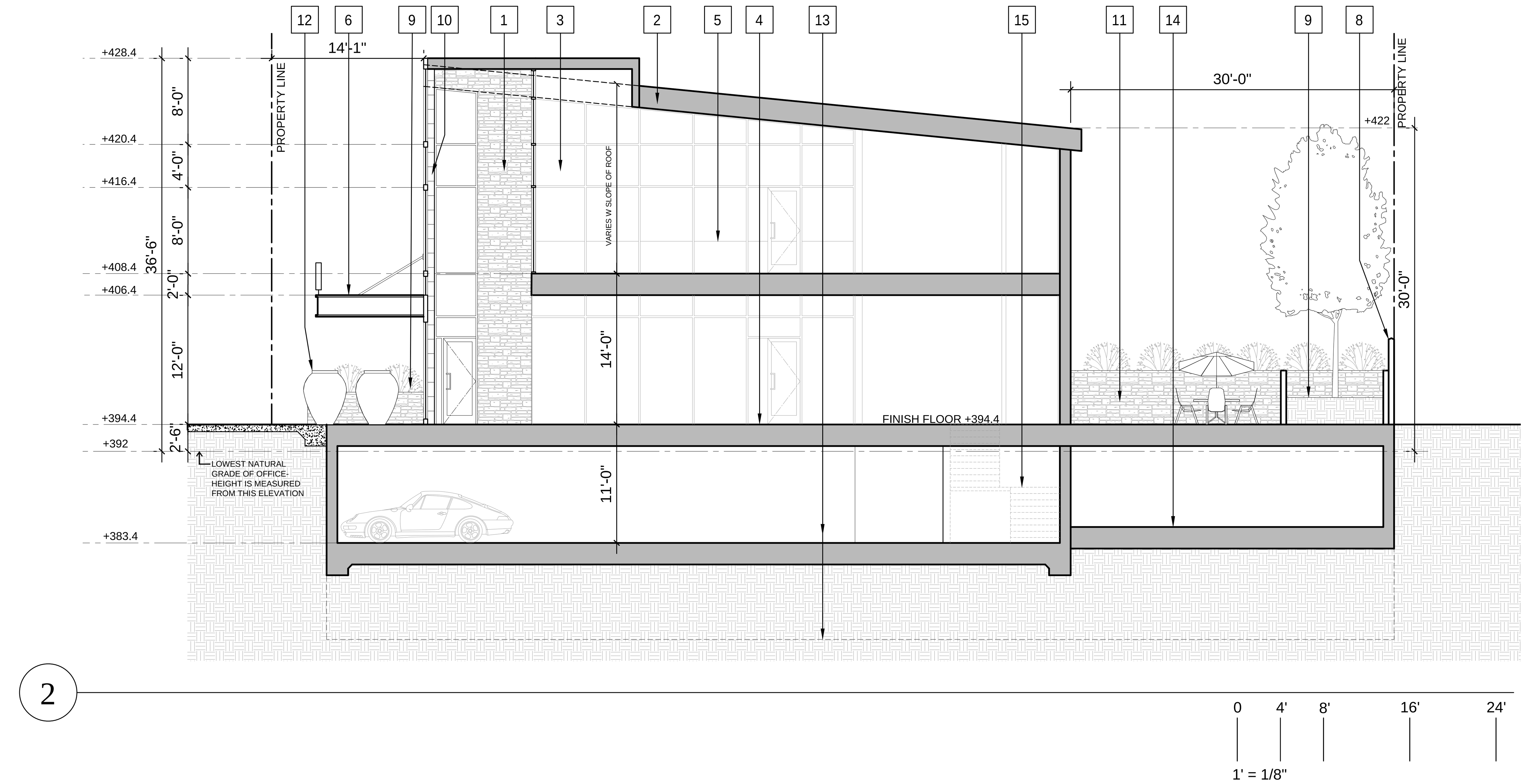
ENLARGED ELEVATION & MATERIAL BOARD

0 2' 4' 8' 12'

128.022 03.21.16

A-7





LEGEND

1	RUSTIC LIMESTONE VENEER	4	CONCRETE PODIUM SLAB	7	STAINED WOOD TRELLIS	10	COPPER PANEL ACCENT FEATURE	13	SLOPED PARKING GARAGE BELOW BUILDING	16	LIMESTONE VENEER RETAINING WALL
2	ALUMINUM SLOPED ROOF WITH SOLAR PANELS	5	GLASS BALCONY RAILING	8	8' HIGH MASONRY WALL AT PROPERTY LINE	11	OUTDOOR PATIO	14	PARKING ENTRY RAMP	17	PLASTER WALL
3	CLEAR GLASS SET IN ALUM. FRAMES	6	ALUMINUM ENTRY CANOPY WITH ADDRESS SIGNAGE	9	RAISED PLANTER	12	DECORATIVE POTTED PLANTERS	15	ELEVATOR AND STAIR CORE BEYOND	18	FUTURE MECHANICAL UNIT

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

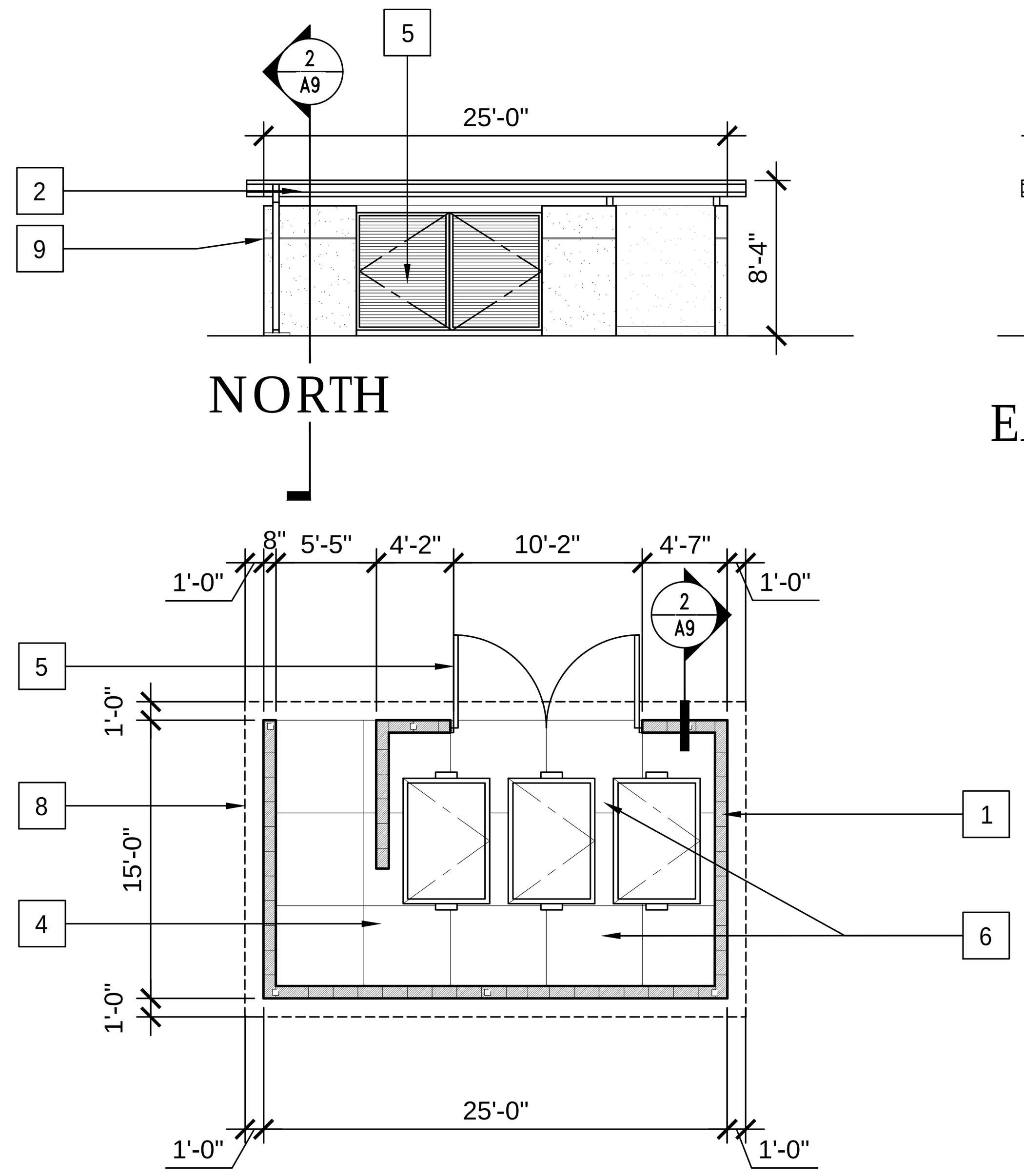
BUILDING SECTIONS A-8

128.022

03.21.16

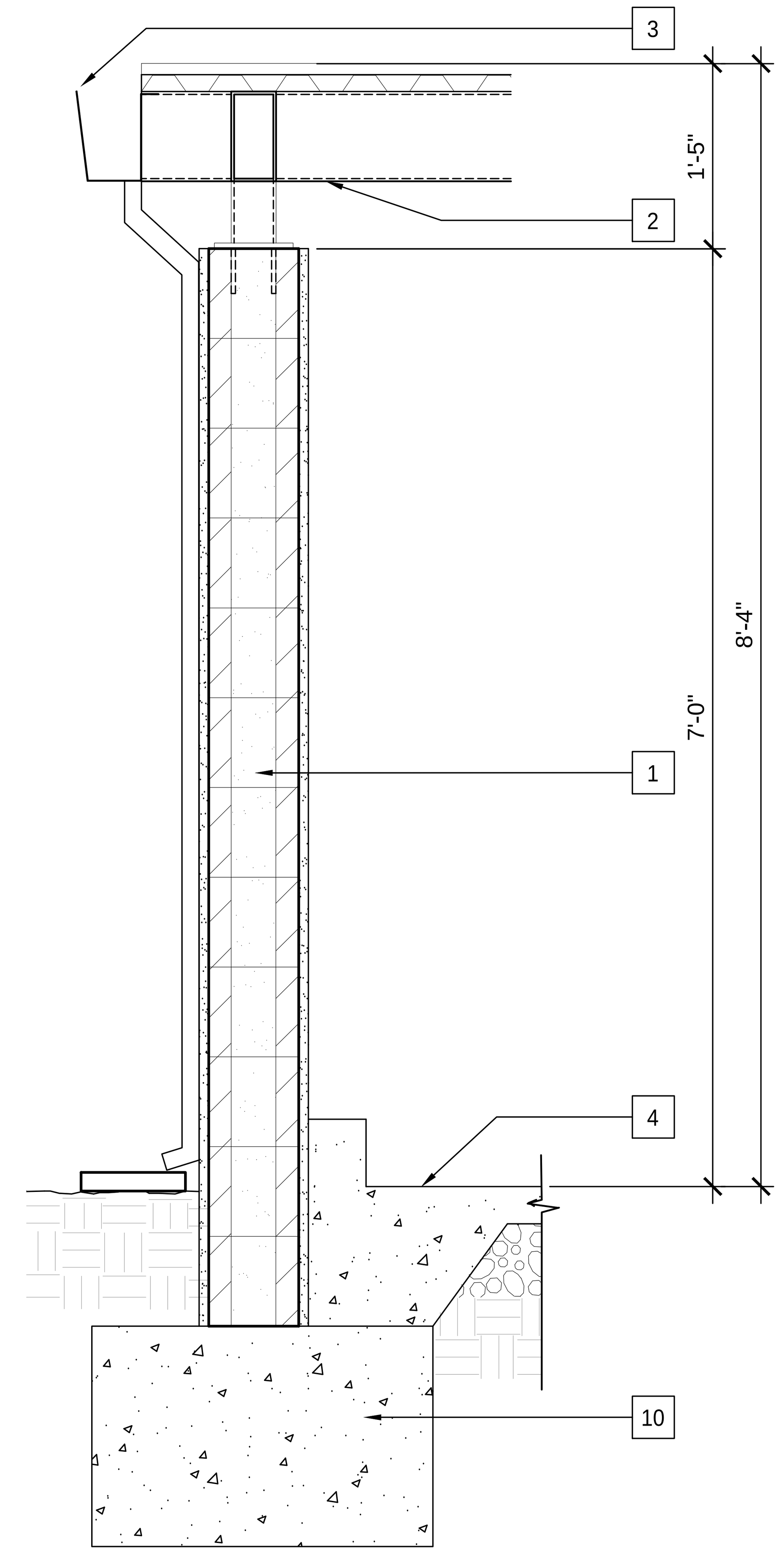
LEGEND

1	EXTERIOR CEMENT PLASTER SYSTEM OVER CMU, PAINTED	4	CONCRETE SLAB	7	PROPERTY LINE	10	CONCRETE FOOTING
2	ALUMINUM CANOPY	5	METAL GATE	8	LINE OF ROOF ABOVE		
3	ALUMINUM GUTTER	6	WASTE DISPOSAL BINS	9	CEMENT PLASTER REVEALS		



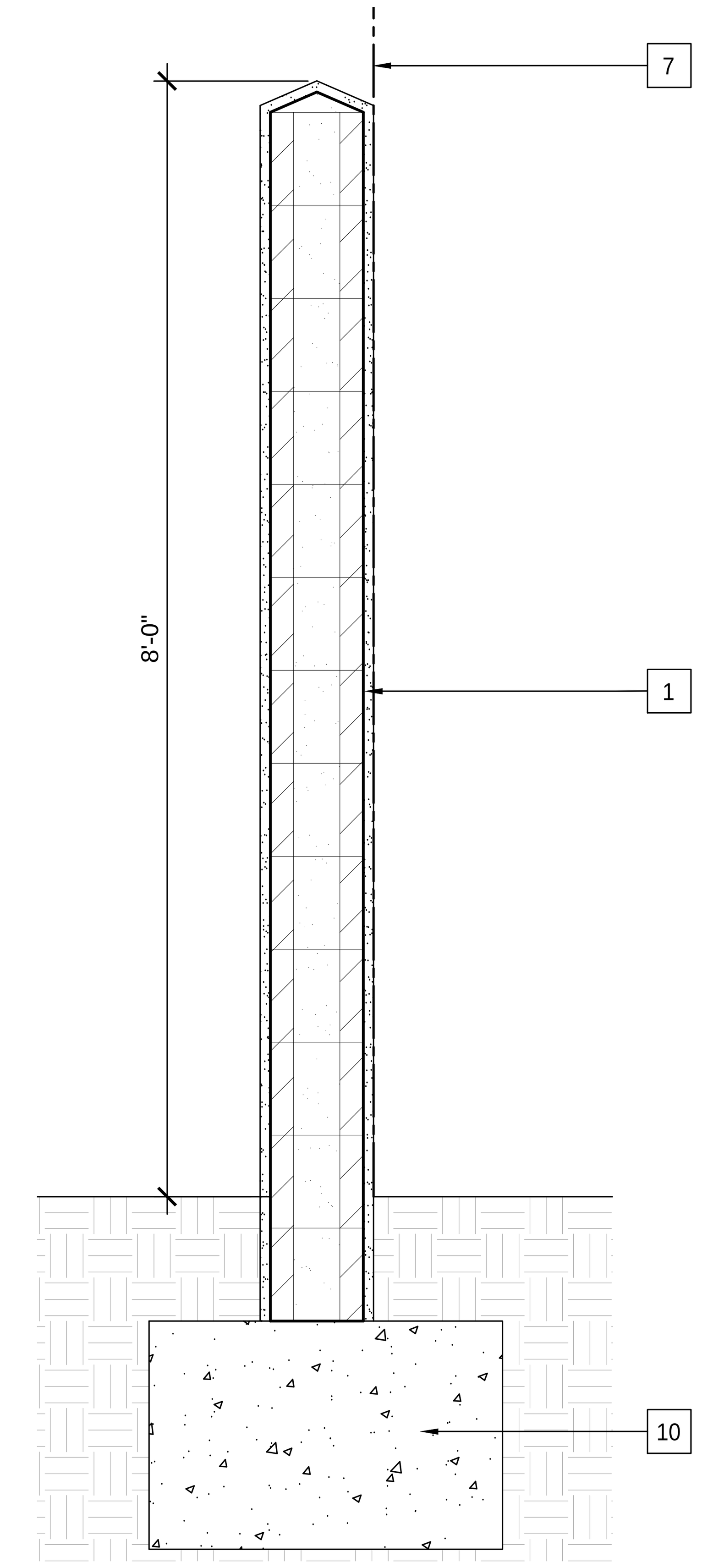
1 TRASH ENCLOSURE PLAN & ELEVATIONS

0 4' 8' 16' 24'
1' = 1/8"



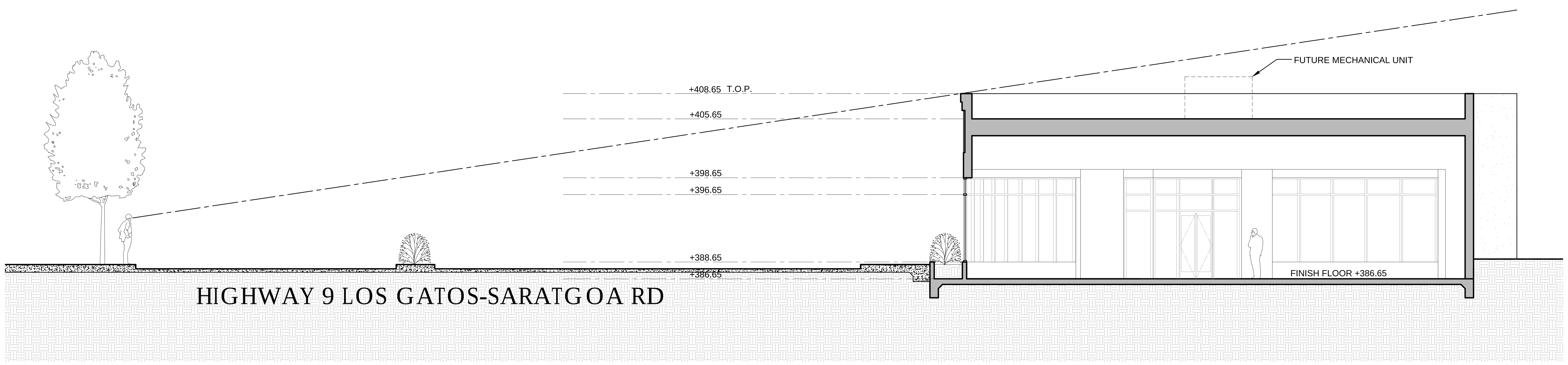
2 TRASH ENCLOSURE WALL SECTION

0 1' 2' 3'
1' = 1"



3 MASONRY WALL AT PROPERTY LINE SECTION

0 1' 2' 3'
1' = 1"



4 SIGHT LINE STUDY

0 4' 8' 16' 24'
1' = 1/8"

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

SIGHT LINE STUDY & BUILDING DETAILS A-9

128.022

03.21.16

PLAN VIEW: JUNE 21, 8:00 AM

JUNE 21, 12:00 PM

JUNE 21, 4:00 PM

PLAN VIEW: DECEMBER 21, 9:00 AM

DECEMBER 21, 12:00 PM

DECEMBER 21, 3:00 PM

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

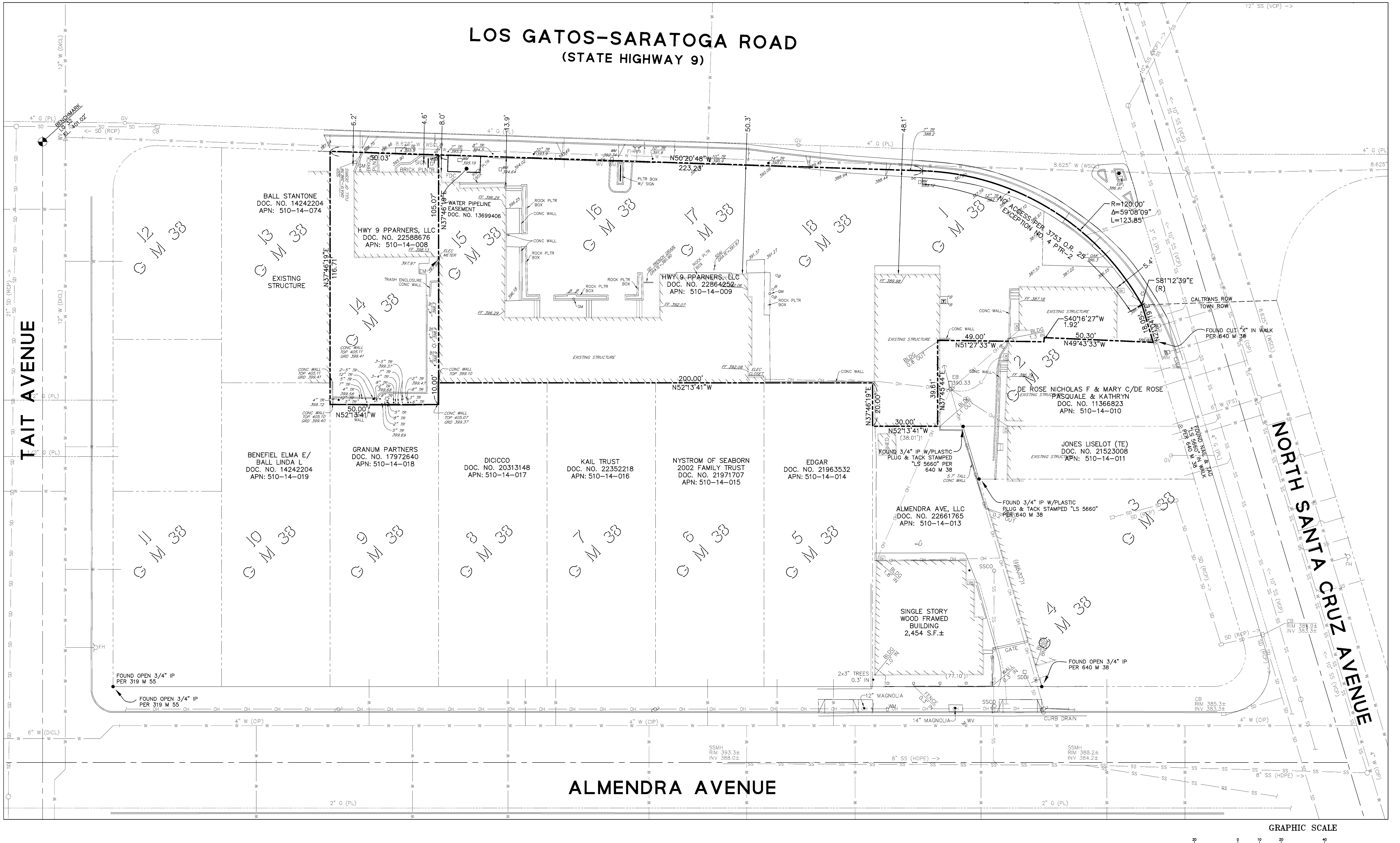
KENNETH RODRIGUES & PARTNERS, INC.

SHADOW STUDY

128.022 03.21.16

N

A-10



NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

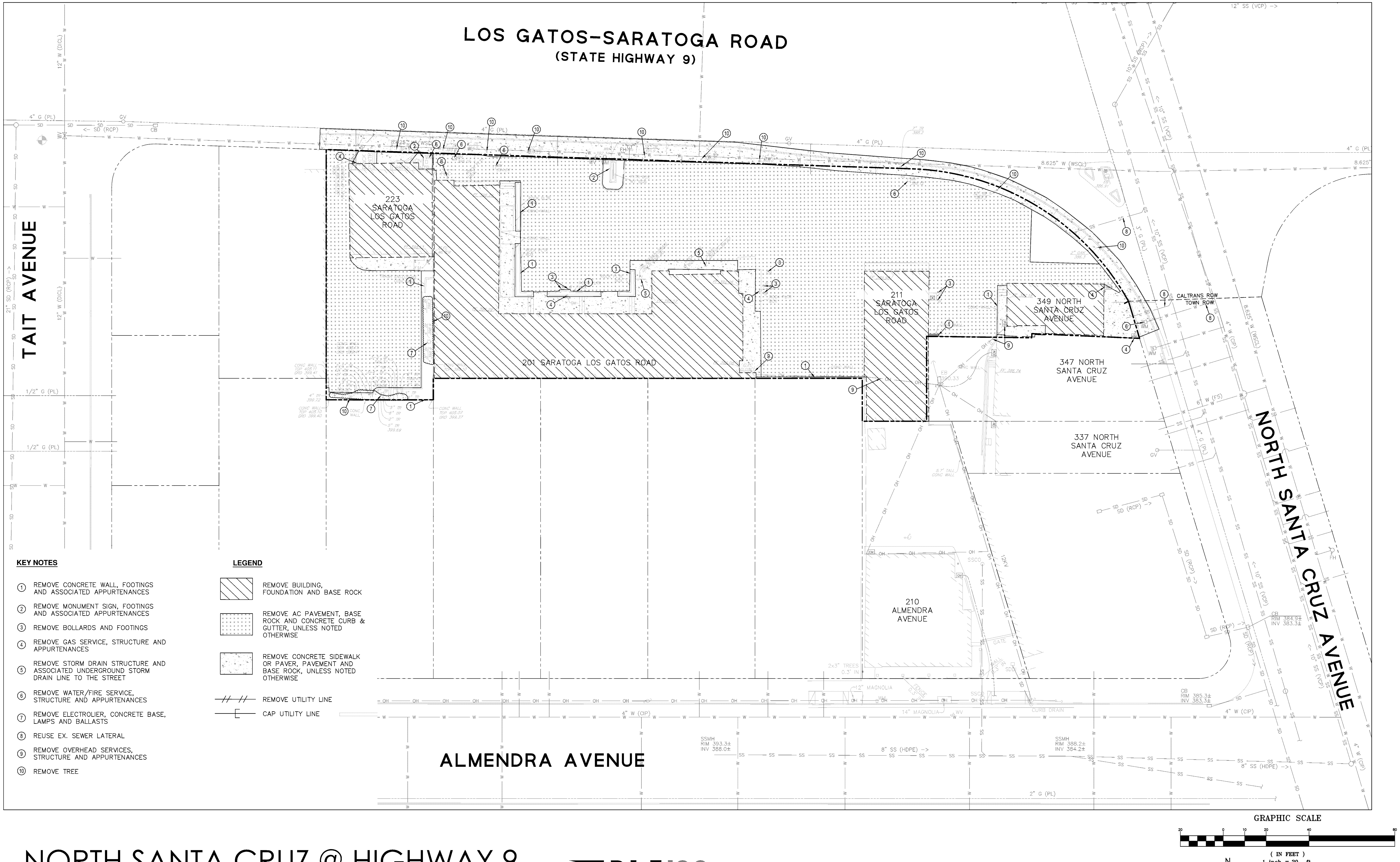
KENNETH RODRIGUES & PARTNERS, INC.

BKF 100+ YEARS
ENGINEERS . SURVEYORS . PLANNERS

1730 N. FIRST STREET, SUITE 600
SAN JOSE, CA 95112
408/467-9100
408/467-9199 (FAX)

EXISTING CONDITIONS

C-1



NORTH SANTA CRUZ @ HIGHWAY 9

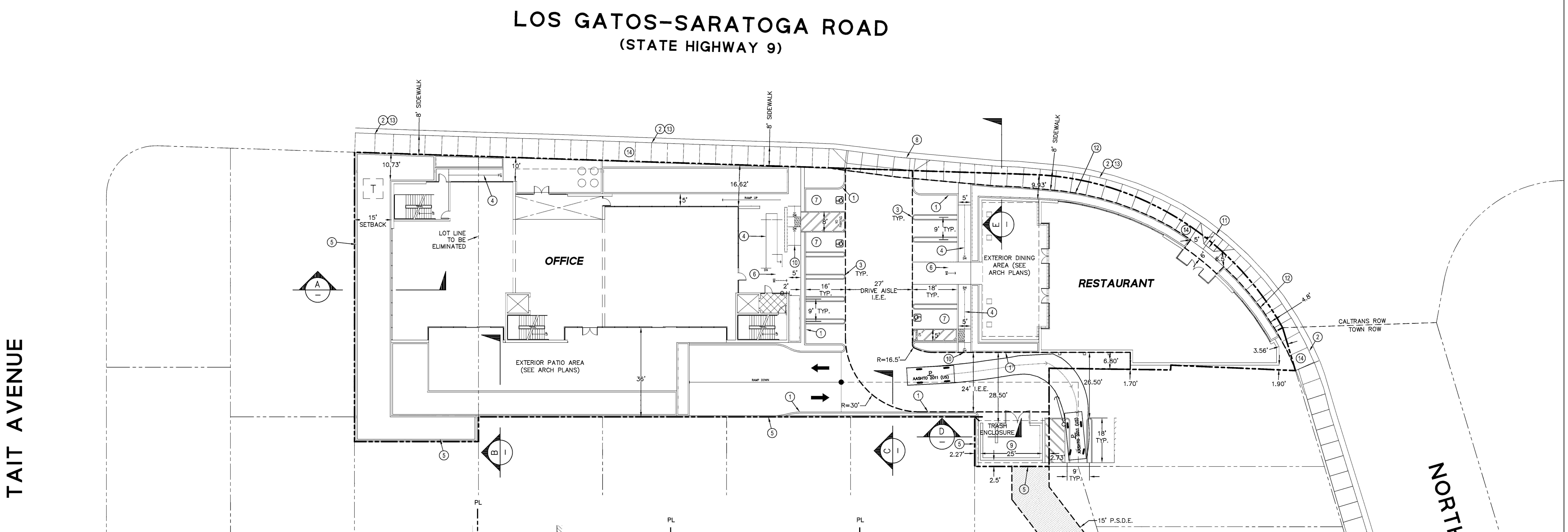
LOS GATOS, CALIFORNIA

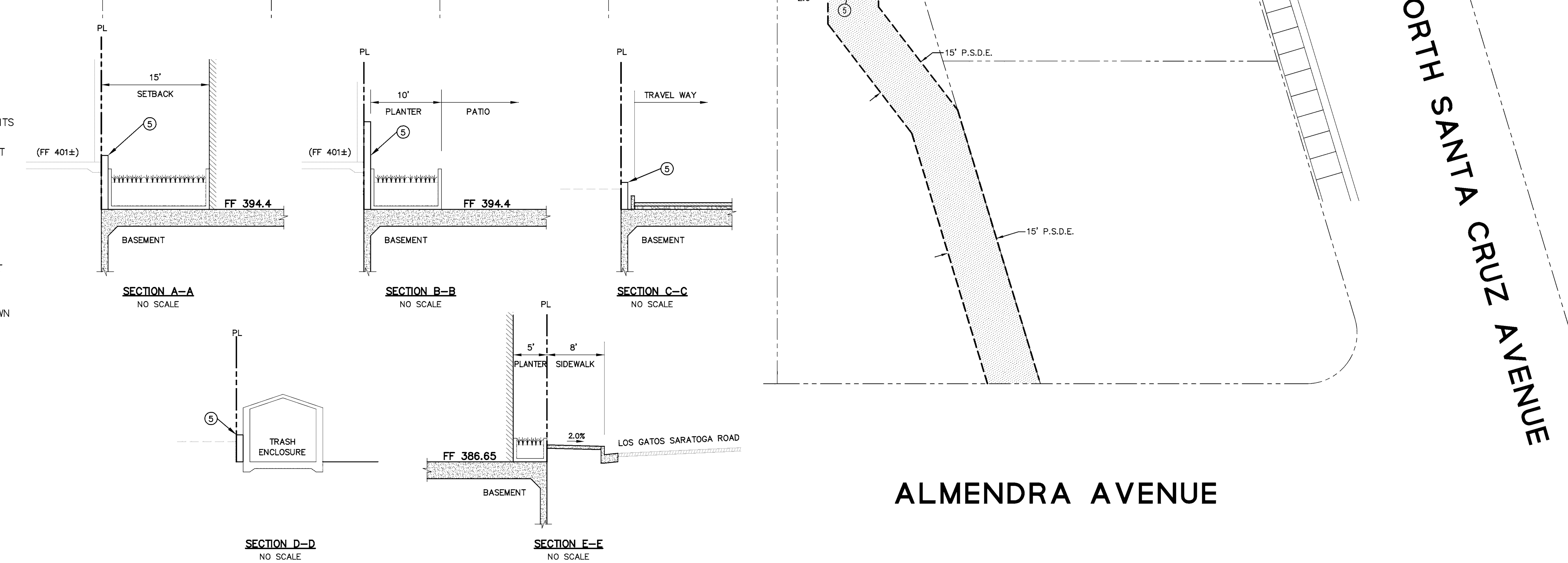
KENNETH RODRIGUES & PARTNERS, INC.

BKF 100+ YEARS
ENGINEERS . SURVEYORS . PLANNERS
1730 N. FIRST STREET, SUITE 600
SAN JOSE, CA 95112
408/467-9100
408/467-9199 (FAX)

DEMOLITION PLAN

C-2





KEY NOTES

1. VERTICAL CURB AND/OR GUTTER
2. CONCRETE CURB AND GUTTER PER CALTRANS STANDARD PLANS
3. WHITE PAVEMENT MARKING
4. RAMP, SEE ARCHITECTURAL PLANS
5. RETAINING WALL AT PROPERTY LINE
6. STAIRS, SEE ARCHITECTURAL PLANS
7. ADA STALL
8. DRIVEWAY PER CALTRANS STANDARD PLAN A87A. ALL SIDEWALK SHALL BE VILLA HERMOSA STYLE PER TOWN STANDARD.
9. TRASH ENCLOSURE PER ARCHITECTURAL PLANS
10. CURB RAMP
11. NEW CURB RAMP PER CALTRANS STANDARD PLAN A88A, CASE A
12. PUBLIC SIDEWALK EASEMENT DEDICATION TO THE TOWN
13. SAWCUT 20" MINIMUM FOR NEW GUTTER. CONFORM TO EXISTING ASPHALT CONCRETE.
14. PUBLIC SIDEWALK TO BE VILLA HERMOSA SIDEWALK PER TOWN STANDARD ST-224.

LEGEND

	UNDERGROUND GARAGE LIMITS
	PUBLIC SIDEWALK EASEMENT (TBD WITH CALTRANS)
	PRIVATE STORM DRAIN EASEMENT (P.S.D.E.)
I.E.E.	INGRESS/EGRESS EASEMENT
	STREET DEDICATION TO TOWN OF LOS GATOS
P.U.E.	PUBLIC UTILITY EASEMENT

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GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

NORTH SANTA CRUZ @ HIGHWAY 9

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408/467–9100
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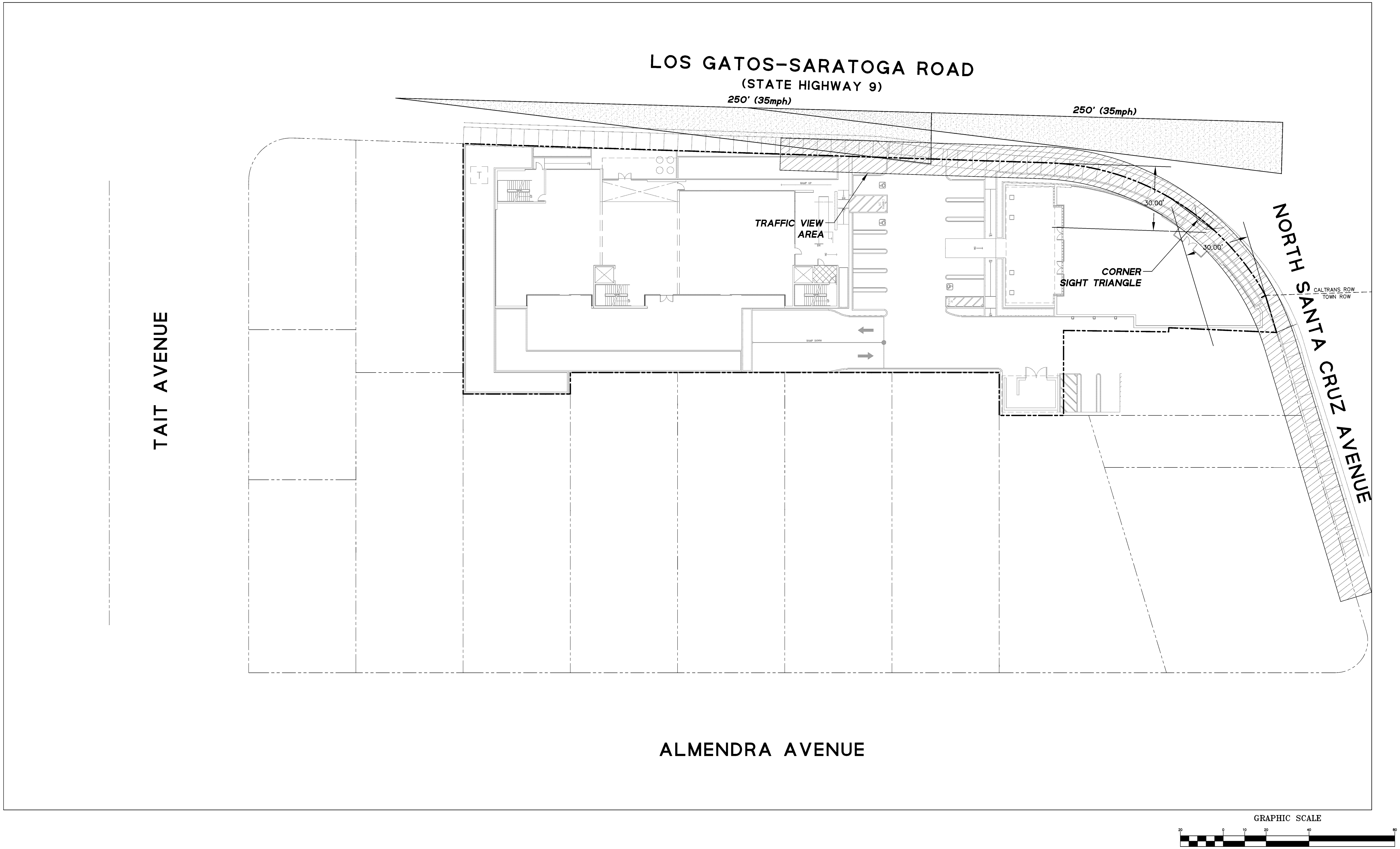
SITE PLAN

C-3



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TRAFFIC VIEW TRIANGLES

C-3.1

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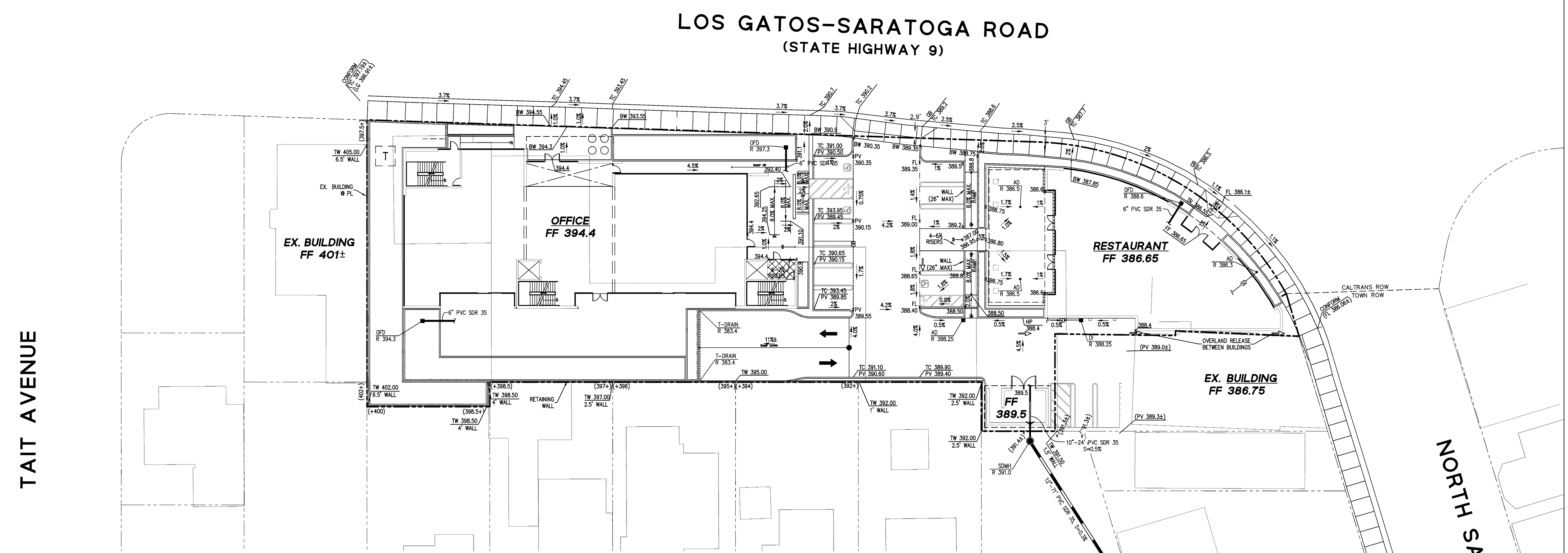

NOTE: EXISTENCE OF OVERHEAD WIRES CROSSING THE PROJECT BOUNDARIES, AND ITS ACTUAL LOCATIONS, IS TO BE FIELD VERIFIED. NECESSARY EASEMENTS WILL BE PROVIDED AS NEEDED.

LEGEND

(XXX.XX±)	EXISTING ELEVATION
BS	BOTTOM OF STAIR ELEVATION
BW	BOTTOM OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
FL	FLOW LINE ELEVATION
PV	TOP OF PAVEMENT ELEVATION
TC	TOP OF CURB ELEVATION
TS	TOP OF STAIR ELEVATION
TW	TOP OF WALL ELEVATION
═══	UNDERGROUND GARAGE LIMITS
⇨	OVERLAND RELEASE

EROSION CONTROL

THE PROJECT WILL IMPLEMENT TOWN AND COUNTY BEST MANAGEMENT PRACTICES DURING CONSTRUCTION.

EARTHWORK QUANTITIES

13,000 CY CUT
0 CY FILL
13,000 CY (EXPORT)

EARTHWORK QUANTITIES SHOWN ARE FOR PLANNING PURPOSES ONLY. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK QUANTITY CALCULATION, AND USE THEIR CALCULATION FOR BIDDING AND COST ESTIMATING PURPOSES.

EARTHWORK SUMMARY

	CUT (C.Y.)	FILL (C.Y.)
BUILDING/GARAGE	1810	–
DRIVEWAY	–	1.5
LANDSCAPE	–	–
*TOTAL	1810	–

*EARTHWORK QUANTITIES ARE SHOWN FOR PLANNING PURPOSES ONLY. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK CALCULATION.

TABLE A

PERVIOUS AND IMPERVIOUS SURFACES COMPARISON TABLE

PROJECT PHASE NUMBER (N/A, 1, 2, 3, ETC):			N/A
TOTAL SITE (ACRES):	0.80±	TOTAL AREA OF SITE DISTURBED (ACRES):	0.80±
IMPERVIOUS SURFACES	EXISTING CONDITION OF SITE AREA DISTURBED (SQUARE FEET)	PROPOSED CONDITION OF SITE AREA DISTURBED (SQUARE FEET)	
		REPLACED	NEW
ROOF AREA (NOT GREEN ROOF)	14,000	14,562	0
PARKING (INCLUDES DRIVE AISLES)	18,140	8,315	0
SIDEWALKS AND PATIOS	1,274	1,274	5,334
OTHER (E.G. TENNIS COURT)	0	0	0
TOTAL IMPERVIOUS SURFACES:	34,114	24,151	5,334
PERVIOUS SURFACES			
LANDSCAPE AREA	1,112	0	5,741
PERVIOUS PAVING	0	0	0
OTHER PERVIOUS SURFACES (GREEN ROOF, ETC)	0	0	0
TOTAL PERVIOUS SURFACES:	1,112	0	5,741
TOTAL PROPOSED REPLACED + NEW IMPERVIOUS SURFACES:			29,485
TOTAL PROPOSED REPLACED + NEW PERVIOUS SURFACES:			5,741

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

NORTH SANTA CRUZ @ HIGHWAY 9

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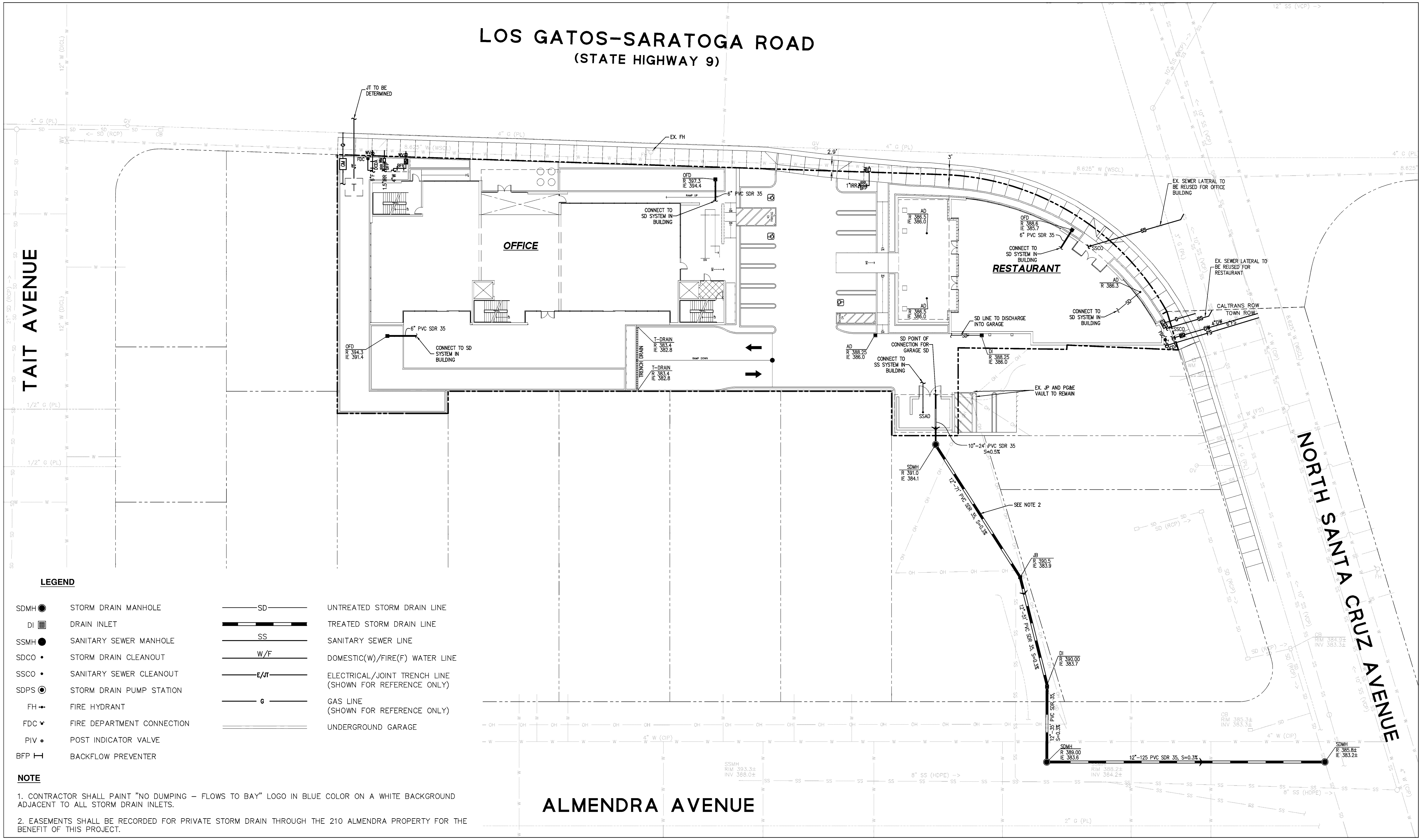
GRADING PLAN

C-4



LEGEND

SDMH	STORM DRAIN MANHOLE	——SD——	UNTREATED STORM DRAIN LINE
DI	DRAIN INLET		TREATED STORM DRAIN LINE
SSMH	SANITARY SEWER MANHOLE	SS	SANITARY SEWER LINE
SDCO	STORM DRAIN CLEANOUT	W/F	DOMESTIC(W)/FIRE(F) WATER LINE
SSCO	SANITARY SEWER CLEANOUT	E/JT	ELECTRICAL/JOINT TRENCH LINE (SHOWN FOR REFERENCE ONLY)
SDPS	STORM DRAIN PUMP STATION	G	GAS LINE (SHOWN FOR REFERENCE ONLY)
FH	FIRE HYDRANT		UNDERGROUND GARAGE
FDC	FIRE DEPARTMENT CONNECTION		
PIV	POST INDICATOR VALVE		
BFP	BACKFLOW PREVENTER		

NOTE

1. CONTRACTOR SHALL PAINT "NO DUMPING – FLOWS TO BAY" LOGO IN BLUE COLOR ON A WHITE BACKGROUND ADJACENT TO ALL STORM DRAIN INLETS.

2. EASEMENTS SHALL BE RECORDED FOR PRIVATE STORM DRAIN THROUGH THE 210 ALMENDRA PROPERTY FOR THE BENEFIT OF THIS PROJECT.

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

NORTH SANTA CRUZ @ HIGHWAY 9

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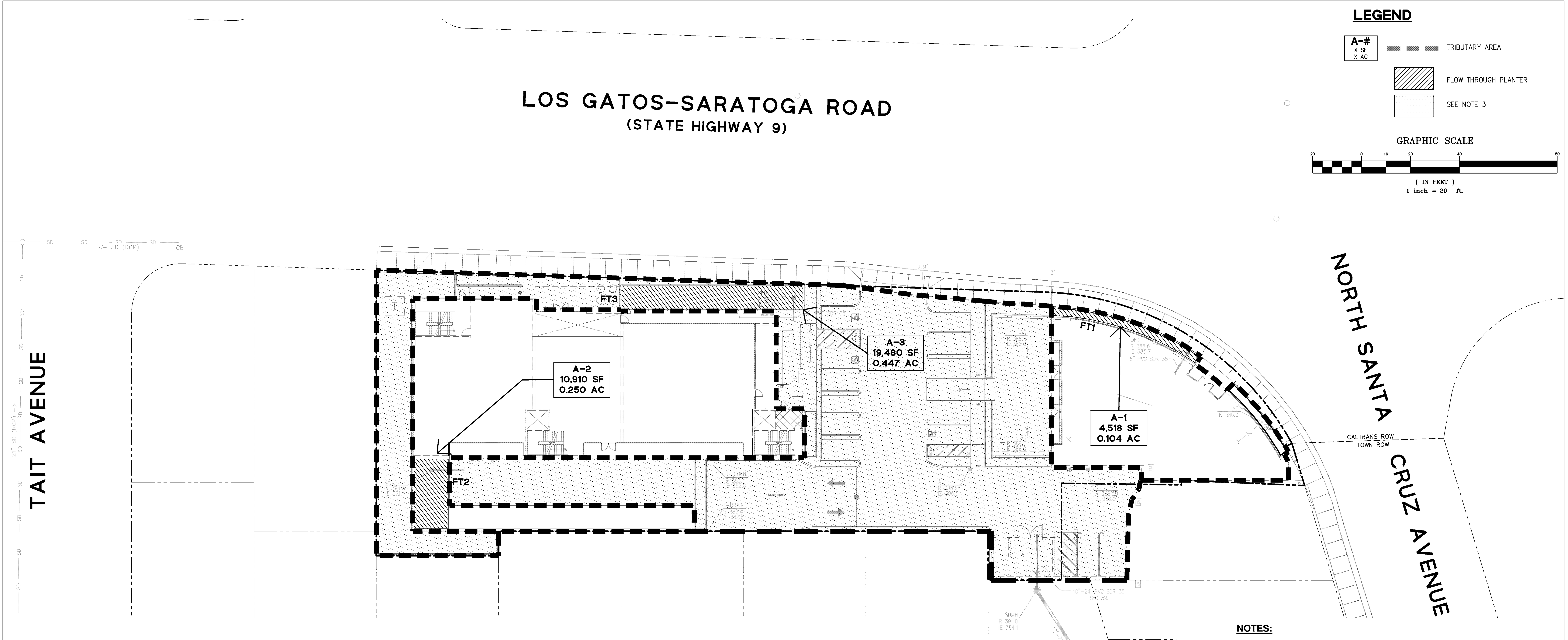
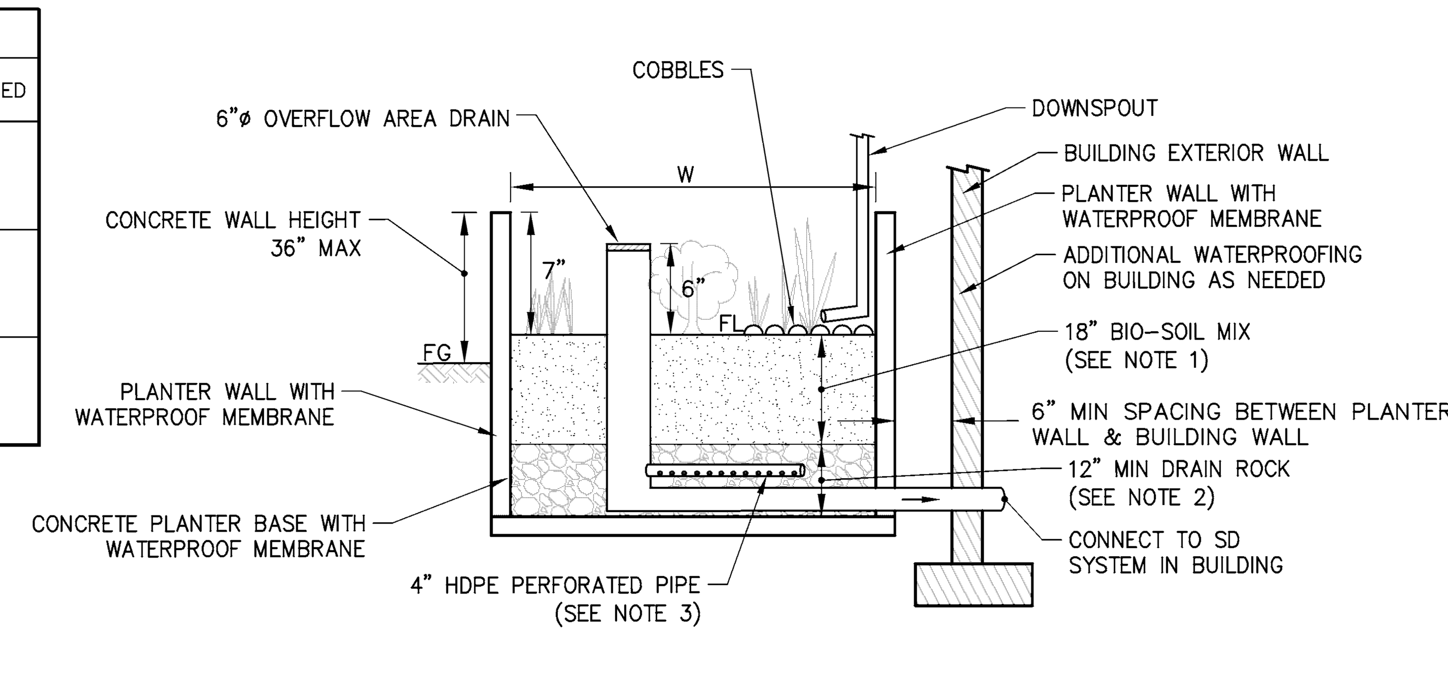
UTILITY PLAN

C-5



TREATMENT CONTROL MEASURE SUMMARY							
DRAINAGE AREAS	DRAINAGE AREA SIZE (SQFT)	PERVIOUS SURFACE (SQFT)	TYPE OF PERVIOUS SURFACE	IMPERVIOUS SURFACE (SQFT)	TYPE OF IMPERVIOUS SURFACE	TREATMENT REQUIRED	TREATMENT PROVIDED
A-1	4,518	297	LANDSCAPE	4,221	ROOF (4,221 SF) CONCRETE (0 SF) AC (0 SF)	136 SQFT	136 SQFT FLOW THROUGH PLANTER
A-2	10,910	1,300	LANDSCAPE	9,610	ROOF (8,367 SF) CONCRETE (1,243 SF) AC (0 SF)	305 SQFT	305 SQFT FLOW THROUGH PLANTER
A-3*	19,480	4,056	LANDSCAPE	15,424	ROOF (0 SF) CONCRETE (15,424 SF) AC (0 SF)	491 SQFT	491 SQFT FLOW THROUGH PLANTER

*SEE NOTE 3



FLOW THROUGH PLANTER - TYPICAL SECTION
NTS

NOTES:

1. STENCIL "NO DUMPING. FLOWS TO BAY" LOGO IN BLUE COLOR ON A WHITE BACKGROUND, ADJACENT TO STORM DRAIN INLET.
2. BIOTREATMENT SOIL MIX
   A. BIOTREATMENT SOIL MIX SHALL CONFORM TO THE SPECIFICATIONS PROVIDED IN ATTACHMENT L OF THE MUNICIPAL REGIONAL STORMWATER PERMIT (WHICH ARE ALSO INCLUDED IN APPENDIX C OF SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM'S C.3 HANDBOOK).
   B. ACHIEVE A LONG-TERM, IN-PLACE INFILTRATION RATE OF AT LEAST 5 INCHES PER HOUR.
   C. SUPPORT VIGOROUS PLANT GROWTH.
   D. CONSIST OF THE FOLLOWING MIXTURE OF FINE SAND AND COMPOST, MEASURED ON A VOLUME BASIS:
      60%-70% SAND
      30%-40% COMPOST
3. TRIBUTARY AREA (A-3) TO DRAIN INTO THE STORM DRAIN SYSTEM AND PUMPED INTO THE FLOW THROUGH PLANTER (FT3) FOR TREATMENT PRIOR TO BEING DISCHARGED INTO CITY SYSTEM.
4. PLANTING FOR BIORETENTION AREAS SHALL BE DROUGHT TOLERANT PLANTS AND CONFORM TO THE PLANT LIST PROVIDED IN APPENDIX D OF SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM'S C.3 HANDBOOK.

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C.3 STORMWATER CONTROL PLAN

N

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201-225 LGSR [A-1/F.T.P.1]: COMBINATION METHOD		
DRAINAGE AREA FOR BMP:		
Determine the drainage area flowing into the bioretention	A_d (ft^2)	4,518
	A_d (acres)	0.10
IMPERVIOUS AREA RATIO AND EQUIVALENT IMPERVIOUS AREA		
Impervious Area	$A_{impervious}$ (ft^2)	4,221
Pervious Area	$A_{pervious}$ (ft^2)	297
Total Equivalent Impervious	**IA_{eq}**	**4251**
MEAN ANNUAL PRECIPITATION (M.A.P.):		
Determine mean storm event at site using reference gages		
M.A.P at San Jose Airport	MAP_{gage} (in)	13.90
M.A.P at Site	MAP_{site} (in)	24
Correction Factor $C = MAP_{site}/MAP_{gage}$	C	1.73
UNIT BASIN STORAGE VOLUME		
(Use Figure B-2 Unit Basin Volume for 80% Capture - San Jose Rain Gage)	u (in)	0.55
Average slope of drainage area between 1% and 15%	**$u_{adjusted}$ (in)**	0.95
Adjusted Unit Basin Storage Vol. $u_{adjusted} = C \times u$		
WATER QUALITY DESIGN VOLUME		
$V_{quality} = u_{adjusted} \times IA_{eq}$	**$V_{quality}$ (ft^3)**	**336**
RAIN EVENT DURATION		
$T_{event} = u_{basin} / i$	**T_{event} (hours)**	**4.75**
i = 0.2 in/hr (flow based sizing criteria per SVURPPP)		
TREATMENT AREA REQUIRED		
Maximum Ponding Depth Proposed	D_{pond} (in)	**6**
Treatment Soil Infiltration Rate *(5 in/hr minimum)*	I_{soil} (in/hr)	5
Volume of Treated Runoff in Soil	V_T (ft^3)	269
Ponding between Flowline and Overflow	V_{pond} (ft^3)	68
Minimum Treatment Area Required	$A_{required}$ (ft^2)	136

201-225 LGSR [A-2/F.T.P.2]: COMBINATION METHOD		
DRAINAGE AREA FOR BMP:		
Determine the drainage area flowing into the bioretention	A_d (ft^2)	10,910
	A_d (acres)	0.25
IMPERVIOUS AREA RATIO AND EQUIVALENT IMPERVIOUS AREA		
Impervious Area	$A_{impervious}$ (ft^2)	9,610
Pervious Area	$A_{pervious}$ (ft^2)	1,300
Total Equivalent Impervious	**IA_{eq}**	**9740**
MEAN ANNUAL PRECIPITATION (M.A.P.):		
Determine mean storm event at site using reference gages		
M.A.P at San Jose Airport	MAP_{gage} (in)	13.90
M.A.P at Site	MAP_{site} (in)	24
Correction Factor $C = MAP_{site}/MAP_{gage}$	C	1.73
UNIT BASIN STORAGE VOLUME		
(Use Figure B-2 Unit Basin Volume for 80% Capture - San Jose Rain Gage)	u (in)	0.5
Average slope of drainage area between 1% and 15%	**$u_{adjusted}$ (in)**	0.86
Adjusted Unit Basin Storage Vol. $u_{adjusted} = C \times u$		
WATER QUALITY DESIGN VOLUME		
$V_{quality} = u_{adjusted} \times IA_{eq}$	**$V_{quality}$ (ft^3)**	**701**
RAIN EVENT DURATION		
$T_{event} = u_{basin} / i$	**T_{event} (hours)**	**4.32**
i = 0.2 in/hr (flow based sizing criteria per SVURPPP)		
TREATMENT AREA REQUIRED		
Maximum Ponding Depth Proposed	D_{pond} (in)	**6**
Treatment Soil Infiltration Rate *(5 in/hr minimum)*	I_{soil} (in/hr)	5
Volume of Treated Runoff in Soil	V_T (ft^3)	548
Ponding between Flowline and Overflow	V_{pond} (ft^3)	152
Minimum Treatment Area Required	$A_{required}$ (ft^2)	305

201-225 LGSR [A-3/F.T.P.3]: COMBINATION METHOD		
DRAINAGE AREA FOR BMP:		
Determine the drainage area flowing into the bioretention	A_d (ft^2)	19,480
	A_d (acres)	0.45
IMPERVIOUS AREA RATIO AND EQUIVALENT IMPERVIOUS AREA		
Impervious Area	$A_{impervious}$ (ft^2)	15,424
Pervious Area	$A_{pervious}$ (ft^2)	4,056
Total Equivalent Impervious	**IA_{eq}**	**15830**
MEAN ANNUAL PRECIPITATION (M.A.P.):		
Determine mean storm event at site using reference gages		
M.A.P at San Jose Airport	MAP_{gage} (in)	13.90
M.A.P at Site	MAP_{site} (in)	24
Correction Factor $C = MAP_{site}/MAP_{gage}$	C	1.73
UNIT BASIN STORAGE VOLUME		
(Use Figure B-2 Unit Basin Volume for 80% Capture - San Jose Rain Gage)	u (in)	0.48
Average slope of drainage area between 1% and 15%	**$u_{adjusted}$ (in)**	0.83
Adjusted Unit Basin Storage Vol. $u_{adjusted} = C \times u$		
WATER QUALITY DESIGN VOLUME		
$V_{quality} = u_{adjusted} \times IA_{eq}$	**$V_{quality}$ (ft^3)**	**1093**
RAIN EVENT DURATION		
$T_{event} = u_{basin} / i$	**T_{event} (hours)**	**4.14**
i = 0.2 in/hr (flow based sizing criteria per SVURPPP)		
TREATMENT AREA REQUIRED		
Maximum Ponding Depth Proposed	D_{pond} (in)	**6**
Treatment Soil Infiltration Rate *(5 in/hr minimum)*	I_{soil} (in/hr)	5
Volume of Treated Runoff in Soil	V_T (ft^3)	848
Ponding between Flowline and Overflow	V_{pond} (ft^3)	245
Minimum Treatment Area Required	$A_{required}$ (ft^2)	491

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C.3 STORMWATER CONTROL PLAN

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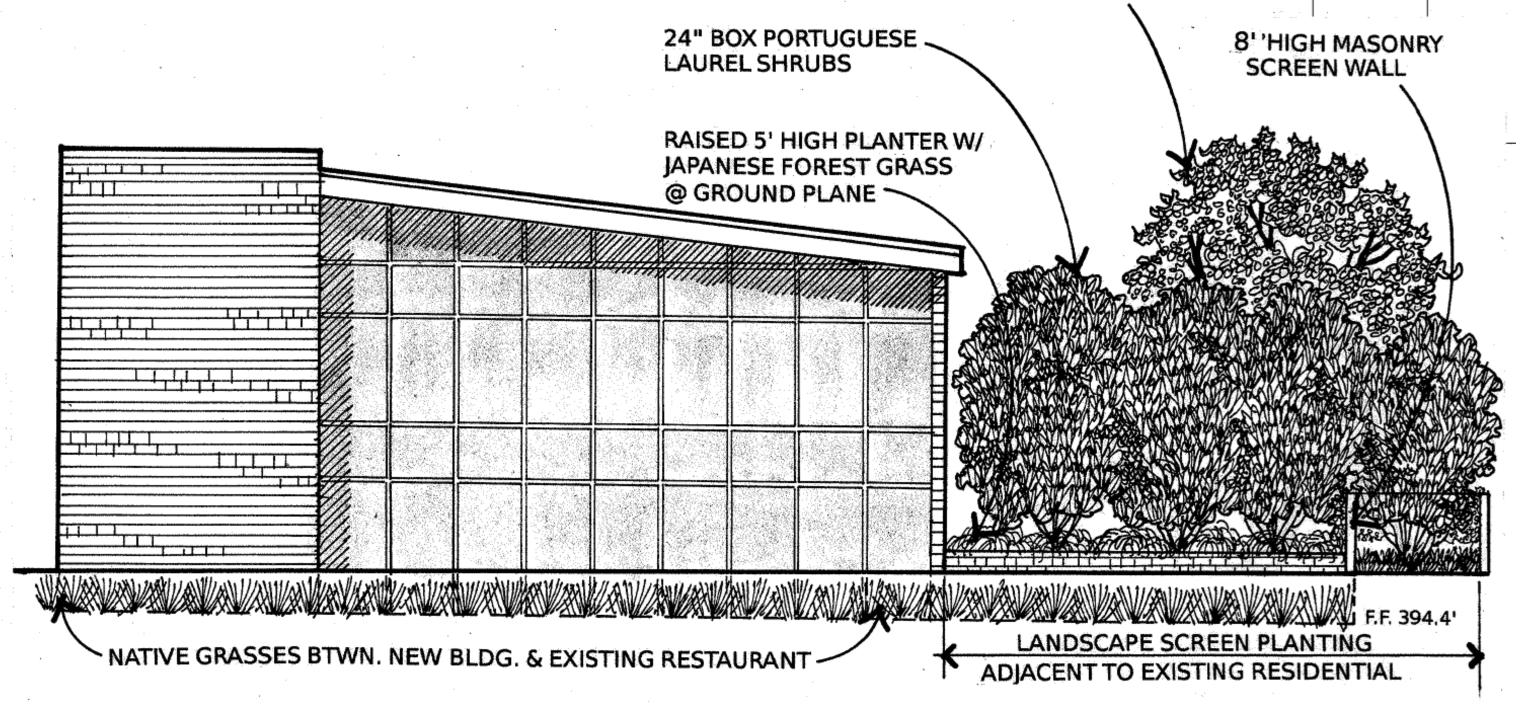

LANDSCAPE ELEVATION @ WEST FACADE & SOUTH PATIO

PRELIMINARY LANDSCAPE PLANT PALETTE

BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	WUCOLS
TREES:				
PLATANUS ACERIFOLIA 'COLUMBIA'	COLUMBIA SYCAMORE	24" BOX	STANDARD	LOW
PRUNUS CAROLINIANA	CAROLINA LAUREL CHERRY	36" BOX	STANDARD	LOW
SHRUBS, PERENNIALS, VINES, GRASSES & GROUND COVERS				
BOUGAINVILLEA 'SAN DIEGO RED'	S.D. RED BOUGAINVILLEA	5 GALLON	ESPALIER ON TRELLIS POST	LOW
CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	1 GALLON	@ 18" O.C.	MOD.
CAREX TUMULICOLA (C. DIVULSA)	BERKELEY SEDGE	1 GALLON	@ 24" O.C.	MOD.
FESTUCA CALIFORNICA	CALIFORNIA FESCUE	1 GALLON	@ 24" O.C.	LOW
FESTUCA GLAUCA 'ELIJAH BLUE'	ELIJAH BLUE FESCUE	1 GALLON	@ 18" O.C.	LOW
FESTUCA RUBRA	CREEPING RED FESCUE	1 GALLON	@ 24" O.C.	MOD.
FICUS PUMILA	CREEPING FIG	5 GALLON	ESPALIER ON WALL	MOD.
HAKONECHLOA MACRA 'ALBOSTRIATA'	JAPANESE FOREST GRASS	1 GALLON	@ 24" O.C.	MOD.
HELICTOTRICHON SEMPERVIRENS	BLUE OAT GRASS	5 GALLON	@ 30" O.C.	LOW
LIRIOPE MUSCARI	BIG BLUE LILY TURF	1 GALLON	@ 18" O.C.	MOD.
MACFADYENA UNGUIS-CATI	YELLOW CAT'S CLAW VINE	5 GALLON	ESPALIER ON WALL	LOW
MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	1 GALLON	2 24" O.C.	LOW
PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	5 GALLON	@ 36" O.C.	LOW
PHORMIUM X 'DUET'	DUET HYBRID FLAX	5 GALLON	@ 36" O.C.	LOW
PRUNUS LUSITANICA	PORTUGAL LAUREL	24" BOX	@ 10' O.C.	LOW

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

PRELIMINARY
LANDSCAPE PLAN

LAUDERBAUGH
ASSOCIATES
Landscape Architecture/Planning
1699 Palo Santo Drive
Campbell,California 95008
(408)374-4963 F.(408)374-4983

0 8' 16' 32' 48'

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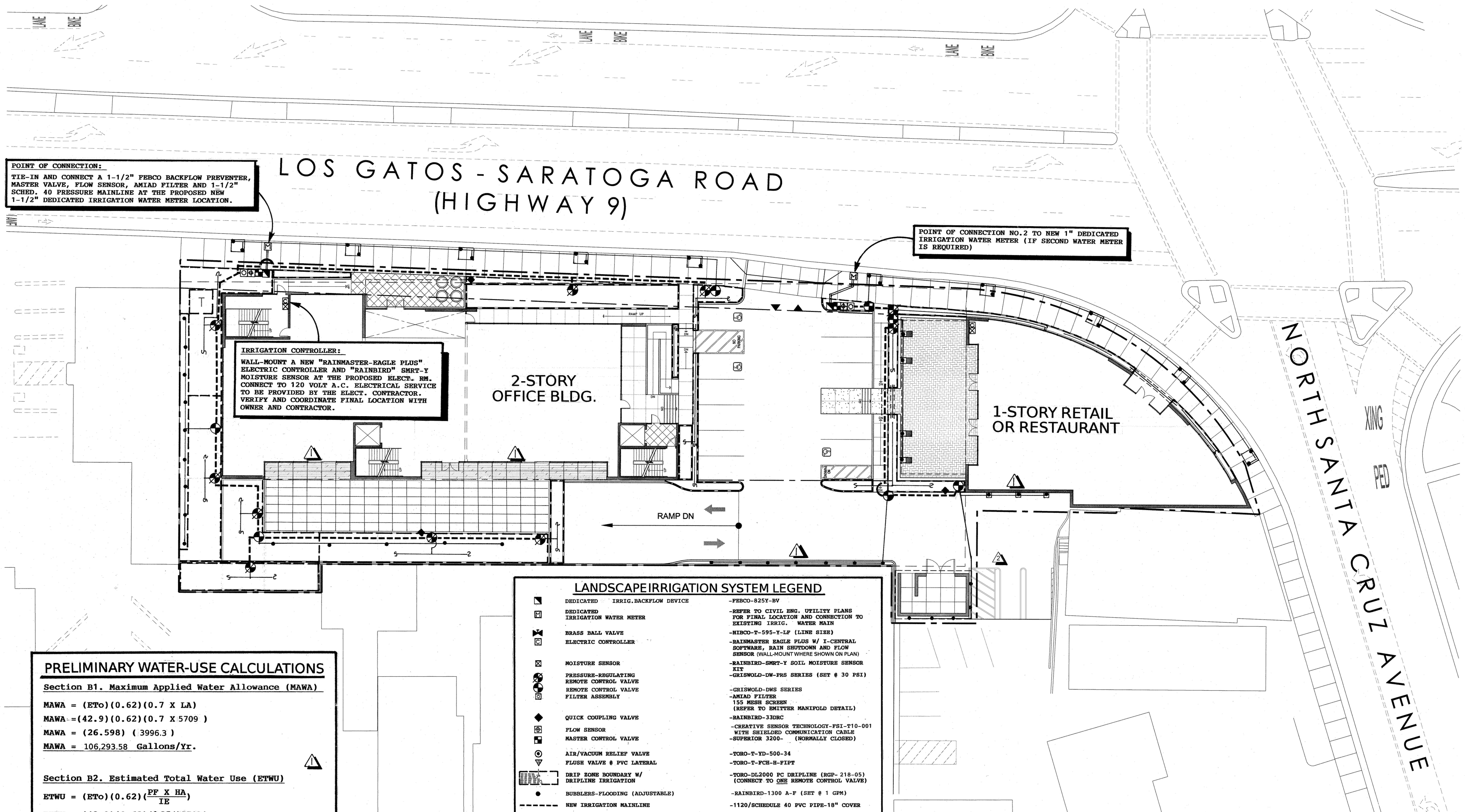

POINT OF CONNECTION:

TIE-IN AND CONNECT A 1-1/2" FEBCO BACKFLOW PREVENTER, MASTER VALVE, FLOW SENSOR, AMIAD FILTER AND 1-1/2" SCHED. 40 PRESSURE MAINLINE AT THE PROPOSED NEW 1-1/2" DEDICATED IRRIGATION WATER METER LOCATION.

POINT OF CONNECTION NO.2 TO NEW 1" DEDICATED IRRIGATION WATER METER (IF SECOND WATER METER IS REQUIRED)

IRRIGATION CONTROLLER:

WALL-MOUNT A NEW "RAINMASTER-EAGLE PLUS" ELECTRIC CONTROLLER AND "RAINBIRD" SMRT-Y MOISTURE SENSOR AT THE PROPOSED ELECT. RM. CONNECT TO 120 VOLT A.C. ELECTRICAL SERVICE TO BE PROVIDED BY THE ELECT. CONTRACTOR. VERIFY AND COORDINATE FINAL LOCATION WITH OWNER AND CONTRACTOR.

PRELIMINARY WATER-USE CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

MAWA = (ETo)(0.62)(0.7 X LA)

MAWA =(42.9)(0.62)(0.7 X 5709)

MAWA = (26.598) (3996.3)

MAWA = 106,293.58 Gallons/Yr.

Section B2. Estimated Total Water Use (ETWU)

$$ETWU = (ETo)(0.62)\left(\frac{PF \times HA}{IE}\right)$$

$$ETWU = (42.9)(0.62)\left(\frac{0.25 \times 5709}{.80}\right)$$

ETWU = (26.598)(1784.06)

ETWU = 47,452.49 Gallons/Yr.

LANDSCAPE IRRIGATION SYSTEM LEGEND

DEDICATED IRRIG. BACKFLOW DEVICE	-FEBCO-825Y-BV
DEDICATED IRRIGATION WATER METER	-REFER TO CIVIL ENG. UTILITY PLANS FOR FINAL LOCATION AND CONNECTION TO EXISTING IRRIG. WATER MAIN
BRASS BALL VALVE	-NIBCO-T-595-Y-LF (LINE SIZE)
ELECTRIC CONTROLLER	-RAINMASTER EAGLE PLUS W/ I-CENTRAL SOFTWARE, RAIN SHUTDOWN AND FLOW SENSOR (WALL-MOUNT WHERE SHOWN ON PLAN)
MOISTURE SENSOR	-RAINBIRD-SMRT-Y SOIL MOISTURE SENSOR KIT
PRESSURE-REGULATING REMOTE CONTROL VALVE	-GRISWOLD-DW-PRS SERIES (SET @ 30 PSI)
REMOTE CONTROL VALVE	-GRISWOLD-DWS SERIES
FILTER ASSEMBLY	-AMIAD FILTER 155 MESH SCREEN (REFER TO EMITTER MANIFOLD DETAIL)
QUICK COUPLING VALVE	-RAINBIRD-33DRC
FLOW SENSOR	-CREATIVE SENSOR TECHNOLOGY-FSI-T10-001 WITH SHIELDED COMMUNICATION CABLE
MASTER CONTROL VALVE	-SUPERIOR 3200- (NORMALLY CLOSED)
AIR/VACUUM RELIEF VALVE	-TORO-T-YD-500-34
FLUSH VALVE @ PVC LATERAL	-TORO-T-FCH-H-FIPT
DRIP ZONE BOUNDARY W/ DRIPLINE IRRIGATION	-TORO-DL2000 PC DRIPLINE (RGP- 218-05) (CONNECT TO ONE REMOTE CONTROL VALVE)
BUBBLERS-FLOODING (ADJUSTABLE)	-RAINBIRD-1300 A-F (SET @ 1 GPM)
NEW IRRIGATION MAINLINE	-1120/SCHEDULE 40 PVC PIPE-18" COVER
NEW IRRIGATION LATERAL LINE	-1120/SCHEDULE 40 PVC PIPE-12" COVER
IRRIGATION SLEEVING	-1120/SCHEDULE 40 PVC PIPE-24" COVER
PIPE CROSSOVER (NO CONNECTION)	
CONTROLLER STATION NUMBER GALLONS PER MINUTE THRU VALVE CONTROL VALVE SIZE	

NORTH SANTA CRUZ @ HIGHWAY 9

LOS GATOS, CALIFORNIA

KENNETH RODRIGUES & PARTNERS, INC.

PRELIMINARY IRRIGATION PLAN

LAUDERBAUGH ASSOCIATES
Landscape Architecture/Planning
1699 Palo Santo Drive
Campbell,California 95008
(408)374-4963 F.(408)374-4983

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APPENDIX D

Environmental Noise Assessment

ENVIRONMENTAL NOISE ASSESSMENT

NORTH SANTA CRUZ AVENUE AT HIGHWAY 9 PROJECT
LOS GATOS, CALIFORNIA

WJVA Report No. 16-028

PREPARED FOR

EMC PLANNING
301 LIGHTHOUSE AVENUE, SUITE C
MONTEREY, CA 93940

PREPARED BY

WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA

AUGUST 11, 2016

1. INTRODUCTION

Project Description:

The project is a proposed 35,226 square-foot mixed-use development to be located at the southwest corner of Los Gatos-Saratoga Road (Highway 9) and North Santa Cruz Avenue within the Town of Los Gatos. The project applicant proposes the demolition of four (4) existing buildings located at the project site and the construction of two (2) new multi-use buildings with below grade and at grade parking. The 0.8-acre project site is currently zoned C-2 (Central Business District Commercial).

Environmental Noise Assessment:

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon the project Submittal dated June 6, 2016, a traffic impact analysis prepared by Hexagon Transportation Consultants and a project site visit on August 4, 2016. Revisions to the site plan, traffic impact analysis or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

2. THRESHOLDS OF SIGNIFICANCE

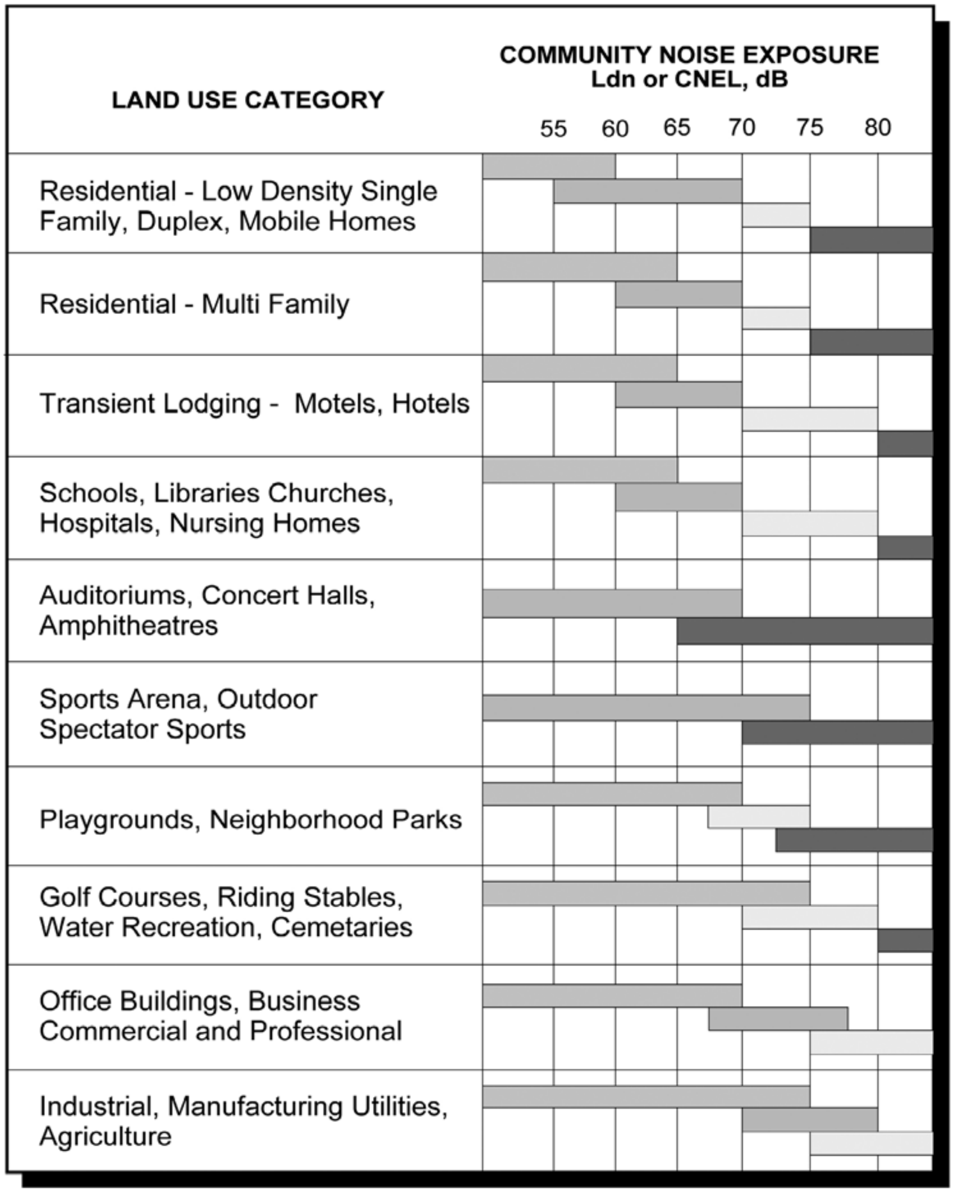
The CEQA Guidelines indicate that significant noise impacts occur when the project exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project.

a. Noise Level Standards

Town of Los Gatos

The Town of Los Gatos Noise Element of the General Plan (2020) provides goals, policies and guidelines for minimizing noise levels within the Town. The Noise Element applies General Plan Guidelines established by the California Office of Planning Research (2003) to set noise and land use compatibility guidelines for the Town. The guidelines are provided below as Figure 1 (Figure NOI-1 of the Noise Element).

FIGURE 1: NOISE AND LAND USE COMPATIBILITY



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features *included in the design. Conventional* construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new constuction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Additionally, Table NOI-2 of the Noise Element establishes outdoor noise limits for the Town. These outdoor noise limits are provided below as Table I.

TABLE I

TOWN OF LOS GATOS OUTDOOR NOISE LIMITS (dBA)

LAND USE	MAX L_{DN}	MAX 24 HOUR L_{EQ}	COMPARABLE NOISE SOURCE	RESPONSE
Residential	55		Light Auto Traffic (100 feet)	Quiet
Commercial		70	Freeway Traffic (50 feet)	Telephone Difficult to Use
Industrial		70	Freeway Traffic (50 feet)	Telephone Difficult to Use
Intensive (Developed Park)		55	Light Auto Traffic (100 feet)	Quiet
Passive (Nature Park)		50	Light Auto Traffic (100 feet)	Quiet
Hospital		55	Light Auto Traffic (100 feet)	Quiet
Educational		55	Light Auto Traffic (100 feet)	Quiet
Source: Town of Los Gatos 2020 General Plan				

Policy NOI-3 of the Noise Element discusses the outdoor noise limits provided above in Table I, and states that the Town should *"pursue the outdoor noise limits shown in Table NOI-2 as representing long range community aspirations and work toward their accomplishment, even though some may be presently unattainable".*

Additionally, The Town of Los Gatos Municipal Code provides further exterior noise limits applicable to the project.

- §16.20.015 (Exterior noise levels for residential zones) states *"No person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than six (6) dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane".*

- §16.20.025 (Noise levels for commercial and industrial zones) states *"No person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same, in any commercial or industrial zone, a noise level more than eight (8) dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane".*

The applicable Municipal Code exterior noise level limits (based upon the Town of Los Gatos Noise Zone Map and project site location) or provided below in Table II.

TABLE II TOWN OF LOS GATOS EXTERIOR NOISE LEVEL LIMITS (dBA)			
LAND USE	**6:00 A.M.- 1:00 P.M.**	**1:00 P.M.- 10:00 P.M.**	**10:00 P.M.- 6:00 A.M.**
Residential	51	51	48
Commercial/Industrial	53	53	50
Source: Town of Los Gatos Municipal Code			

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

Substantial Noise Increases:

CEQA does not define what constitutes a substantial increase in noise levels. Some guidance is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the DNL (or CNEL). Annoyance is a summary measure of the general adverse reaction of people to noise that results in speech interference, sleep disturbance, or interference with other daily activities.

Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for all transportation noise sources that are described in terms of cumulative noise exposure metrics such as the L_{dn} or CNEL. Table III summarizes the FICON recommendations.

TABLE III MEASURES OF SUBSTANTIAL NOISE INCREASE FOR TRANSPORTATION SOURCES	
Ambient Noise Level Without Project (L_{dn}/CNEL)	**Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:**
<60 dB	+ 5 dB or more
60-65 dB	+3 dB or more
>65 dB	+1.5 dB or more
Source: FICON, 1992, as applied by WJV Acoustics, Inc.	

For noise sources that are not transportation related, which usually includes commercial or industrial activities and other stationary noise sources, it is common to assume that a 3-5 dB increase in noise levels represents a substantial increase in ambient noise levels. This is based on laboratory tests that indicate that a 3 dB increase is the minimum change perceptible to most people, and a 5 dB increase is perceived as a "definitely noticeable change."

b. Construction Noise

§16.20.035 (Construction) of the Town of Los Gatos Municipal Code establishes permissible hours for construction activity. The codes states *"Notwithstanding any other provision of this chapter, between the hours of 8:00 a.m. to 8:00 p.m., weekdays and 9:00 a.m. to 7:00 p.m. weekends and holidays, construction, alteration or repair activities which are authorized by a valid Town permit or as otherwise allowed by Town permit, shall be allowed if they meet at least one of the following noise limitations:*

(1) No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.

(2) The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA."

3. <u>SETTING</u>

The proposed project site is a 0.80-acre lot located in the Town of Las Gatos. The project site currently consists of multiple retail/commercial building spaces. The project site is generally surrounded by commercial/retail land uses, with residential uses located south of the project site, on Almendra Avenue. The project site plan is provided as Figure 2. The project site and vicinity are provided as Figure 3.

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by traffic noise along Los Gatos-Saratoga Road (Highway 9) and North Santa Cruz Avenue. Additional sources of noise observed during site inspection included aircraft overflights, industrial/commercial activities, HVAC/mechanical sources and human voices.

Measurements of existing ambient noise levels in the project vicinity were conducted on August 4, 2016. Long-term (24-hour) ambient noise level measurements were conducted at two (2) locations (sites LT1 and LT2). Site LT1 was located on the project site, and was exposed to traffic along Los Gatos-Saratoga Road (Highway 9) and N. Santa Cruz Avenue, and noise related to activities associated with nearby commercial and retail developments. Site LT2 was located within a residential backyard located at 234 Almendra Avenue, south of (and adjacent to) the project site.

Sources of noise affecting site LT2 included traffic along Los Gatos-Saratoga Road, N. Santa Cruz Avenue and Almendra Avenue, as well as localized noise sources within the backyard (human voices, HVAC/mechanical sources).

Additionally, short-term (15-minute) ambient noise level measurements were conducted at six (6) locations (Sites ST1 through ST6). The locations of the noise monitoring sites are shown on Figure 3. Two (2) individual measurements were taken at each of the six short-term sites to quantify ambient noise levels in the morning and afternoon hours.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with B&K Type 4176 1/2" microphones. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

Measured hourly energy average noise levels (L_{eq}) at site LT1 ranged from a low of 49.6 dB between 2:00 a.m. and 3:00 a.m. to a high of 68.1 dBA between 9:00 a.m. and 10:00 a.m. Hourly maximum (L_{max}) noise levels at site LT1 ranged from 64.3 to 84.1 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 38.3 to 59.0 dBA. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured L_{dn} value at site LT1 during the 24-hour noise measurement period was 66.4 dB.

Measured hourly L_{eq} noise levels at site LT2 ranged from a low of 39.8 dB between 3:00 a.m and 4:00 a.m. to a high of 55.6 dBA between 5:00 a.m. and 6:00 a.m. Hourly L_{max} noise levels at site LT2 ranged from 49.3 to 75.8 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 37.4 to 55.2 dBA. The measured L_{dn} value at site LT2 during the 24-hour noise measurement period was 56.3 dB.

Short-term noise measurement data included energy average (L_{eq}) maximum (L_{max}) as well as five individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. Table IV summarizes short-term noise measurement results. Figure 4 graphically depicts hourly variations in ambient noise levels at the long-term monitoring sites.

TABLE IV

SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA
N. SANTA CRUZ AVENUE AT HIGHWAY 9 PROJECT, LOS GATOS
AUGUST 4, 2016

Site	Time	A-Weighted Decibels, dBA							Sources
		L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}	
ST1	7:50 a.m.	71.1	80.6	77.7	73.9	71.8	69.9	62.2	TR
ST1	3:05 p.m.	69.4	79.2	75.7	72.8	70.7	68.2	60.6	TR
ST2	8:09 a.m.	59.7	66.6	64.0	61.3	60.0	58.1	57.4	TR, HV
ST2	3:27 p.m.	58.6	65.7	63.2	60.6	58.8	57.9	56.6	TR, HV, AC
ST3	8:27 a.m.	61.0	76.2	68.0	65.1	60.3	55.1	51.4	TR, L, V
ST3	3:50 p.m.	58.4	70.3	66.8	63.3	58.1	52.8	48.2	TR, D, V
ST4	8:48 a.m.	70.2	79.9	77.1	75.5	73.0	67.6	62.1	TR, AC
ST4	4:08 p.m.	69.9	78.9	76.7	74.3	71.2	67.3	60.2	TR
ST5	9:07 a.m.	66.8	82.1	73.7	70.2	66.0	63.3	60.7	TR, V
ST5	4:28 p.m.	65.0	78.0	71.9	68.4	64.9	63.1	60.4	TR
ST6	9:28 a.m.	62.8	75.0	67.9	65.0	62.6	60.1	55.5	TR, V, IC
ST6	4:50 p.m.	63.0	74.3	69.3	65.8	63.6	61.8	56.1	TR, V, IC

TR: Traffic AC: Aircraft V: Voices L: Landscaping Activities IC: Industrial/Commercial Activity HV: HVAC
Source: WJV Acoustics, Inc.

Short-term noise measurements were conducted for 15-minute periods. Sites ST1, ST3, ST4, ST5 and ST6 were located adjacent to roadways and vehicle traffic dominated the noise environment. Site ST2 was located in the rear parking lot behind one of the buildings to be demolished with the project. The noise environment at site ST2 was dominated by HVAC/mechanical noise associated with the restaurant located to the northwest of the monitoring site.

The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic on Los Gatos-Saratoga Road (Highway 9) and North Santa Cruz Avenue. Additionally, existing noise levels at the residential land uses located south of the project site are impacted by traffic from the above described roadways, traffic along Almendra Avenue and HVAC/mechanical equipment associated with existing retail and commercial land uses within the project site as well as localized HVAC/mechanical noise associated with the residences. L_{max} values were in the range of 66-82 dBA, and were typically the result of a loud vehicle.

4. PROJECT-RELATED NOISE LEVELS

a. Traffic Noise

WJVA utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure along roadways in the project vicinity. In order to validate the accuracy of the noise model, a noise level measurement and a concurrent traffic count were conducted by WJVA along Los Gatos-Saratoga Road (Highway 9), just west of the project site on August 4, 2016.

The FHWA Model is a standard analytical method used by state and local agencies for roadway traffic noise prediction. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ±1.5 dB. To predict L_{dn} values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the FHWA Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of that comparison are shown in Table V.

TABLE V

COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) NOISE LEVELS NORTH SANTA CRUZ AVENUE AT HIGHWAY 9 PROJECT, LOS GATOS AUGUST 4, 2016

	Los Gatos-Saratoga Road (Highway 9)
Start Time	9:45 a.m.
Microphone Height, Ft. (above the ground)	5
Observed # Autos/Hr.	968
Observed # Medium Trucks/Hr.	12
Observed # Heavy Trucks/Hr.	4
Posted Speed (MPH)	35
Distance, ft.	100
L_{eq}, dBA (Measured)	61.1
L_{eq}, dBA (Predicted)	59.4
Difference between Measured and Predicted L_{eq}, dB	**-1.7**

Note: FHWA “soft site” assumed for calculations
Source: WJV Acoustics, Inc.

From Table V it may be determined that the predicted traffic noise levels were 1.7 dB lower than the measured noise levels for the traffic conditions observed at the time of the noise measurement. This slight under-prediction by the model is expected, and is due to the presence of other, non-traffic (commercial, retail, etc.) noise sources contributing to the overall noise exposure measured during the monitoring period. However, this is considered reasonable agreement between modeled and measured noise levels, therefore an adjustment (offset) to modeled noise levels in the project vicinity is not required.

Traffic noise exposure for Cumulative No Project and Cumulative Plus Project traffic conditions was calculated based upon the FHWA Model and traffic volumes provided in the project Traffic Impact Analysis (TIA) prepared by Hexagon Transportation Consultants. The posted vehicle speed limit on the analyzed roadways is generally 35 miles per hour (mph). The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix B. Table VI provides these noise exposure levels at a reference distance of 75 feet from the center of the analyzed roadways (typical residential setback).

From Table VI it can be determined that traffic noise exposure at existing land uses in the project vicinity would be expected to increase by approximately 0.0 to 0.2 dB as a result of the project. This is not considered to be a significant impact. It should be noted, although traffic noise levels described in Table VI exceed the Town's applicable exterior noise level standard along several of the analyzed roadway segments, the exceedance is not a result of the project, and therefore does not indicate a project-related impact. Additionally, noise levels described in Table VI do not take into consideration any site-specific shielding that may occur, and are considered to be a generalized worst-case assessment of traffic noise levels in the project area.

TABLE VI

CUMULATIVE BASELINE AND CUMULATIVE PLUS PROJECT TRAFFIC NOISE LEVELS NORTH SANTA CRUZ AVENUE @ HIGHWAY 9 PROJECT, LOS GATOS

Roadway Name (segment description)	L_{dn}, dB[1]		Change	Significant Impact?
	No Project	With Project		
Los Gatos-Saratoga Road (w/o Massol Avenue)	65.4	65.5	+0.1	No
Los Gatos-Saratoga Road (e/o Massol Avenue)	65.8	65.9	+0.1	No
Los Gatos-Saratoga Road (w/o N. Santa Cruz Avenue)	58.0	58.0	0.0	No
Los Gatos-Saratoga Road (e/o N. Santa Cruz Avenue)	65.9	65.9	0.0	No
Los Gatos-Saratoga Road (w/o University Avenue)	65.1	65.2	+0.1	No
Los Gatos-Saratoga Road (e/o University Avenue)	63.5	63.6	+0.1	No
Massol Avenue (s/o Los Gatos-Saratoga Road)	61.4	61.6	+0.2	No
N. Santa Cruz Avenue (n/o Los Gatos-Saratoga Road)	65.3	65.4	+0.1	No
N. Santa Cruz Avenue (s/o Los Gatos-Saratoga Road)	66.3	66.3	0.0	No
University Avenue (n/o Los Gatos-Saratoga Road)	61.0	61.1	+0.1	No
University Avenue (s/o Los Gatos-Saratoga Road)	61.6	61.6	0.0	No

[1]At a typical residential setback (assumed to be 75 feet from the center of the roadway).

Source: WJV Acoustics, Inc.

b. Operational Noise from On-Site Sources

Sources of operational noise from the proposed multi-use development would typically be limited to parking lot vehicle movements, outdoor human activity and mechanical/HVAC systems. The project design does not include any loading docks or trash compactors. The applicant proposes the inclusion of an eight-foot masonry wall to be constructed along the southern and western property boundaries. The masonry wall would provide acoustical shielding from project-site noise levels to existing land uses located south and west of the project site.

Vehicles accessing the project site would enter and exit via a two-way driveway on Los Gatos-Saratoga Road (Highway 9). The project would incorporate approximately 69 on-site parking spaces, of which 58 parking spaces would be located below ground level in a subterranean parking structure below the project site.

Noise due to traffic in parking lots is typically limited by low speeds and is not usually considered to be significant. Human activity in parking lots that can produce noise includes voices, stereo systems and the opening and closing of car doors and trunk lids. Such activities can occur at any time during regular hours of operation. The noise levels associated with these activities cannot be precisely defined due to variables such as the number of parking movements, time of day and other factors.

It is typical for a passing car in a parking lot to produce a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice. For this project, the closest proposed parking would be located approximately 50 feet from the closest existing residential uses and the closest vehicle movements would occur at a distance of approximately 40 feet from residential land uses, as vehicles utilize the ramp to access below grade parking. The proposed 8-foot masonry wall would provide acoustical shielding from vehicle movement noise levels at the residences south of the project site. With consideration of the acoustical shielding provided by the masonry wall, vehicle movements would not be expected to exceed 40-45 dB at adjacent residential land uses. Reference to existing ambient noise levels (Table IV and Figure 4) indicate that existing ambient noise levels at the residential land uses adjacent to the project site and areas surrounding the project site already exceed noise levels that would be expected to occur as a result of on-site vehicle movements. Parking lot vehicle movement and human activity noise would not be considered a significant impact.

The project may include a restaurant, to be located in the eastern building. The restaurant use would include a 1,400 square-foot outdoor patio seating area. Noise associated with outdoor dining is typically limited to human voices (conversation, laughter, etc.) and noise associated with dishes hitting together.

WJVA has conducted noise level measurements of several outdoor seating areas at restaurants and breweries for multiple previous projects. A review of previously collected data indicates that noise levels associated with outdoor dining activities are typically in the range of 50-60 dB at a distance of approximately 50 feet from the outdoor dining area. The proposed outdoor dining area would be located approximately 60 feet from the closest existing residential land uses. Taking into account the distance from the patio, and the attenuation provided by the proposed 8-foot masonry wall along the property line, noise levels associated with the outdoor dining area would be expected to be in the range of approximately 40-50 dB at the closest residential land uses. Such levels would not exceed any applicable Town of Los Gatos noise level standards and would not be expected to exceed existing ambient noise levels.

The project will include roof-mounted Mechanical/HVAC units on the buildings. Based upon data collected by WJVA for previous acoustical studies, it is estimated that noise levels from roof-mounted HVAC units at the closest off-site land uses to the project site would be in the range of 45-50 dBA. This does include consideration of acoustic shielding provided by the proposed screening around the roof-mounted Mechanical/HVAC units. These levels would generally not be audible above existing ambient noise levels at adjacent land-uses and would not exceed any Town noise level standards.

c. Noise from Construction

Construction noise could occur at various locations within the project site through the demolition and build-out period. Table VII provides typical construction-related noise levels at reference distances of 25 feet, 50 feet, and 100 feet.

TABLE VII

TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA

Type of Equipment	25 Ft.	50 Ft.	100 Ft.
Backhoe	84	78	72
Concrete Saw	96	90	84
Crane	87	81	75
Excavator	87	81	75
Front End Loader	85	79	73
Jackhammer	95	89	83
Paver	83	77	71
Pneumatic Tools	91	85	79
Dozer	88	82	76
Rollers	86	80	74
Trucks	92	86	80
Pumps	86	80	74
Scrapers	93	87	81
Portable Generators	86	80	74
Front Loader	92	86	80
Backhoe	92	86	80
Excavator	92	86	80
Grader	92	86	80

Source: FHWA
Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Construction noise is not usually considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The Town of Los Gatos Municipal Code limits construction activities to between the hours of 8:00 a.m. to 8:00 p.m., weekdays and 9:00 a.m. to 7:00 p.m. weekends and holidays. Construction activities should adhere to these time limits.

Additionally, the Municipal Code states that no individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. The types of equipment that may be used during demolition and construction is not known at this time. If equipment which exceeds 85 dB at a distance of 25 feet is to be used, effort should be made to increase the distance between the equipment and the adjacent land-uses to reduce construction noise levels at nearby noise-sensitive land uses. If the above-described considerations are incorporated into project construction, construction noise would not be considered to be an impact.

5. IMPACT SUMMARY

Project-related noise levels resulting from the proposed North Santa Cruz Avenue @ Highway 9 development, to be located in the Town of Los Gatos, are not expected to exceed any applicable Town of Los Gatos noise level standards or result in any significant long-term increases in ambient noise levels in the project vicinity or throughout the Town. Project site demolition and project construction could result in-short term increases in localized ambient noise levels. However, construction-related noise levels are not considered to be a significant impact if local construction noise time limits are observed and equipment is properly maintained and muffled. Additional mitigation is not required.

FIGURE 2: PROJECT SITE PLAN

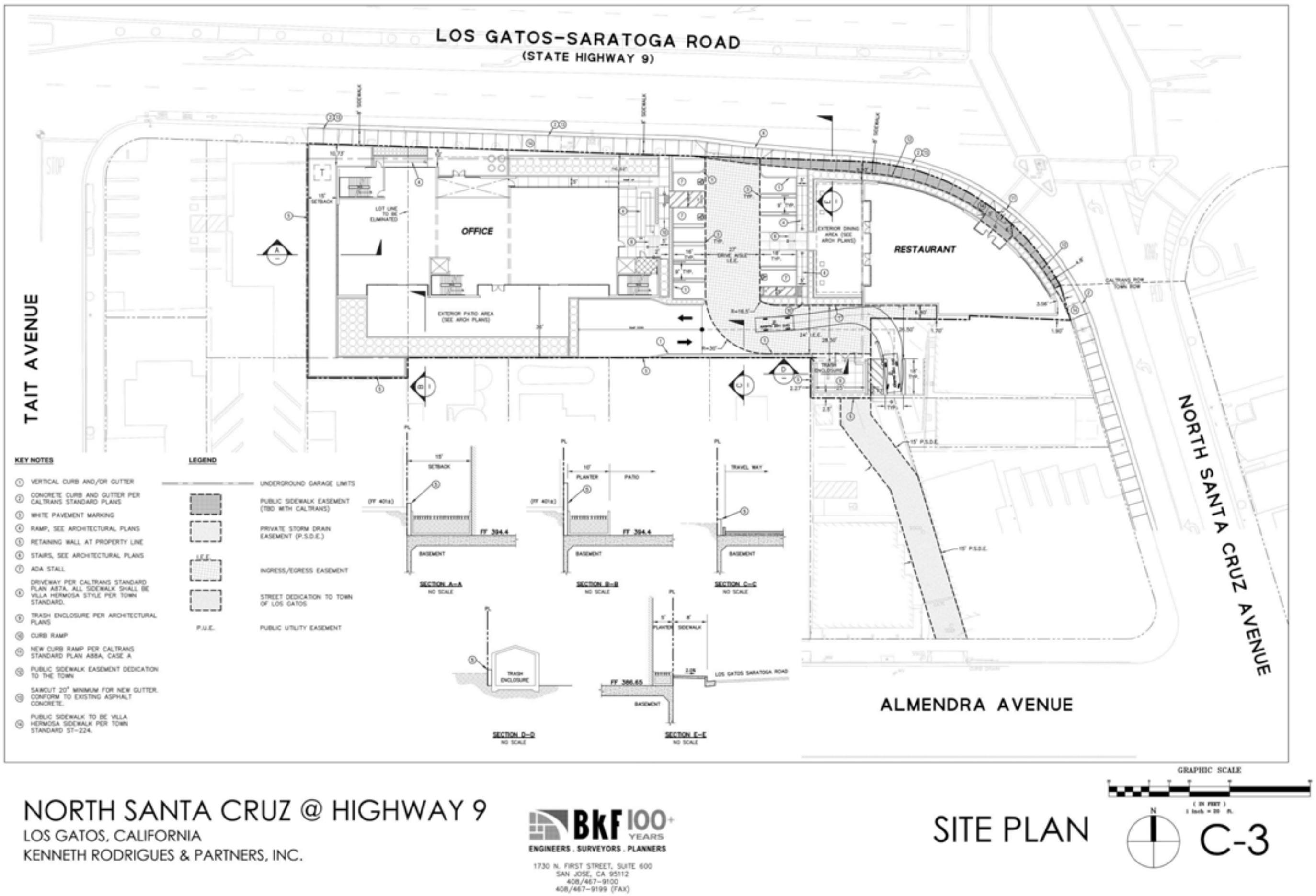


FIGURE 3: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES

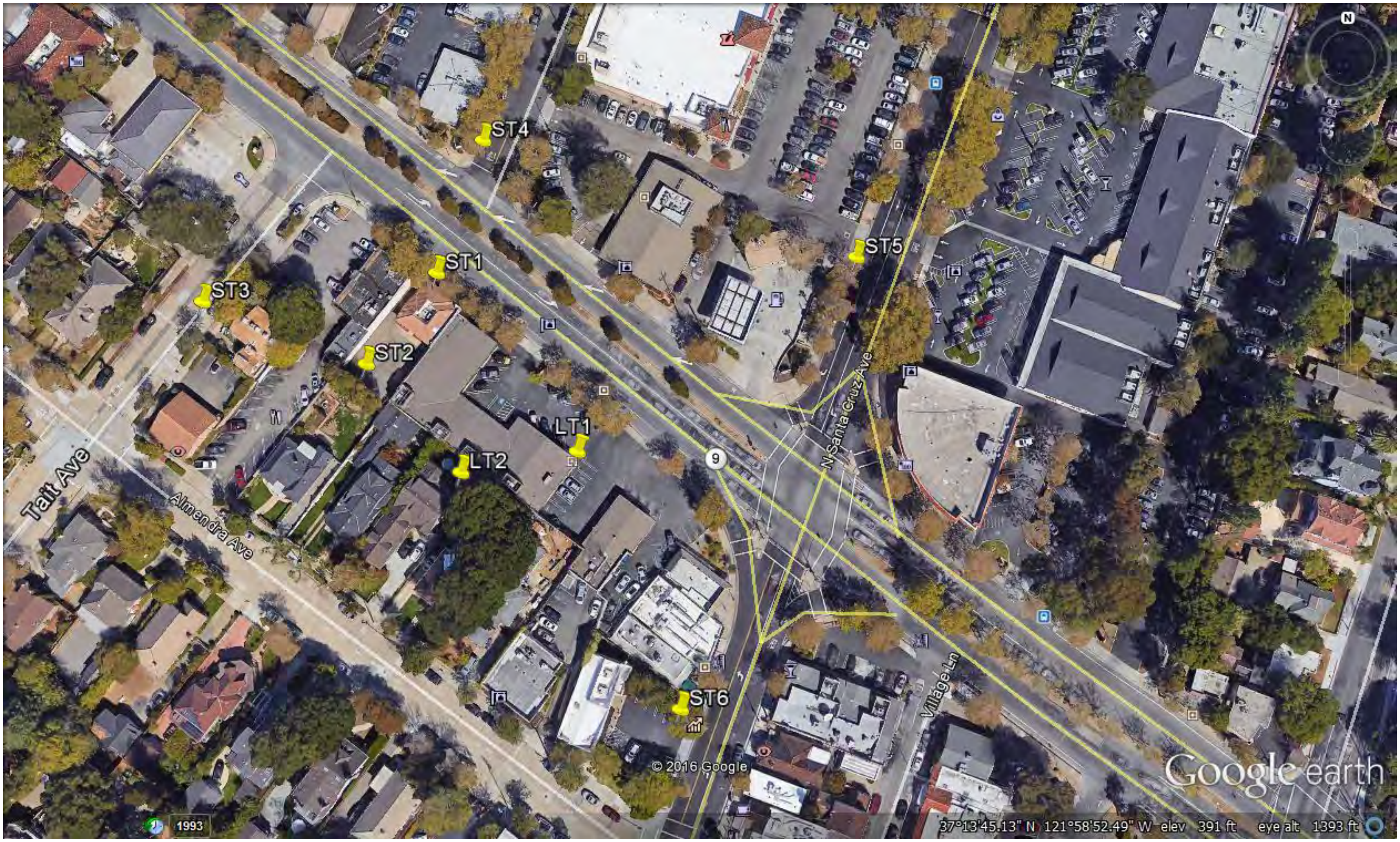
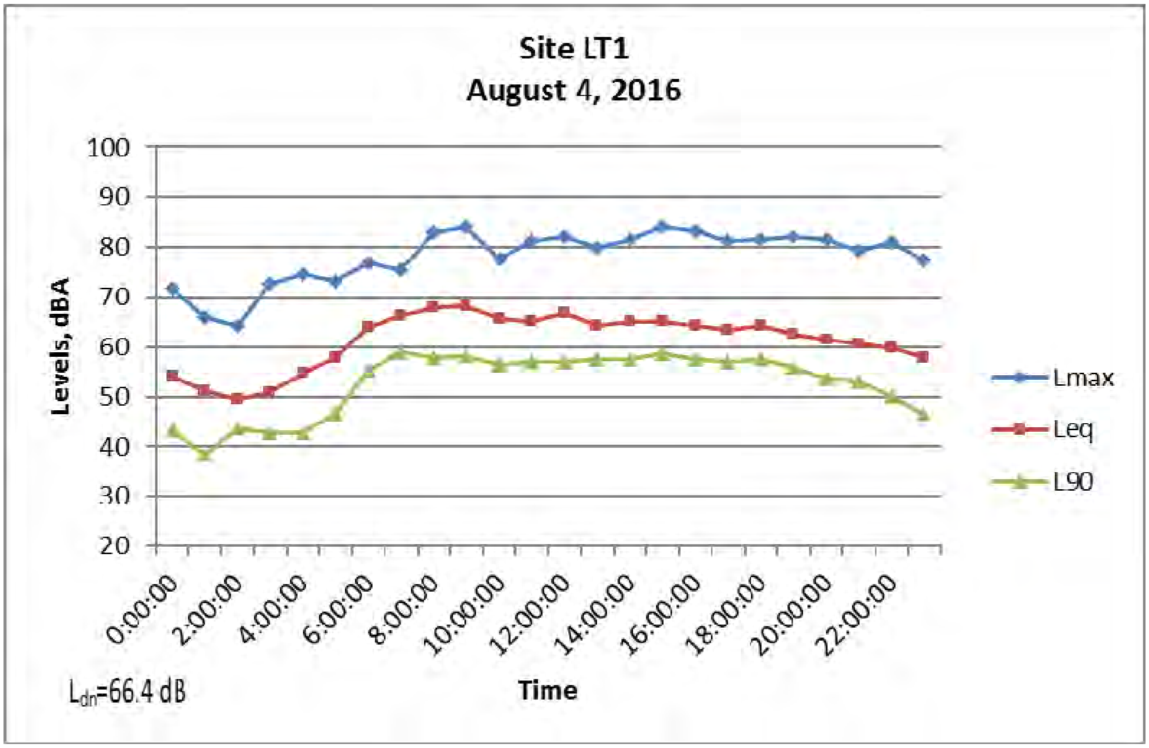
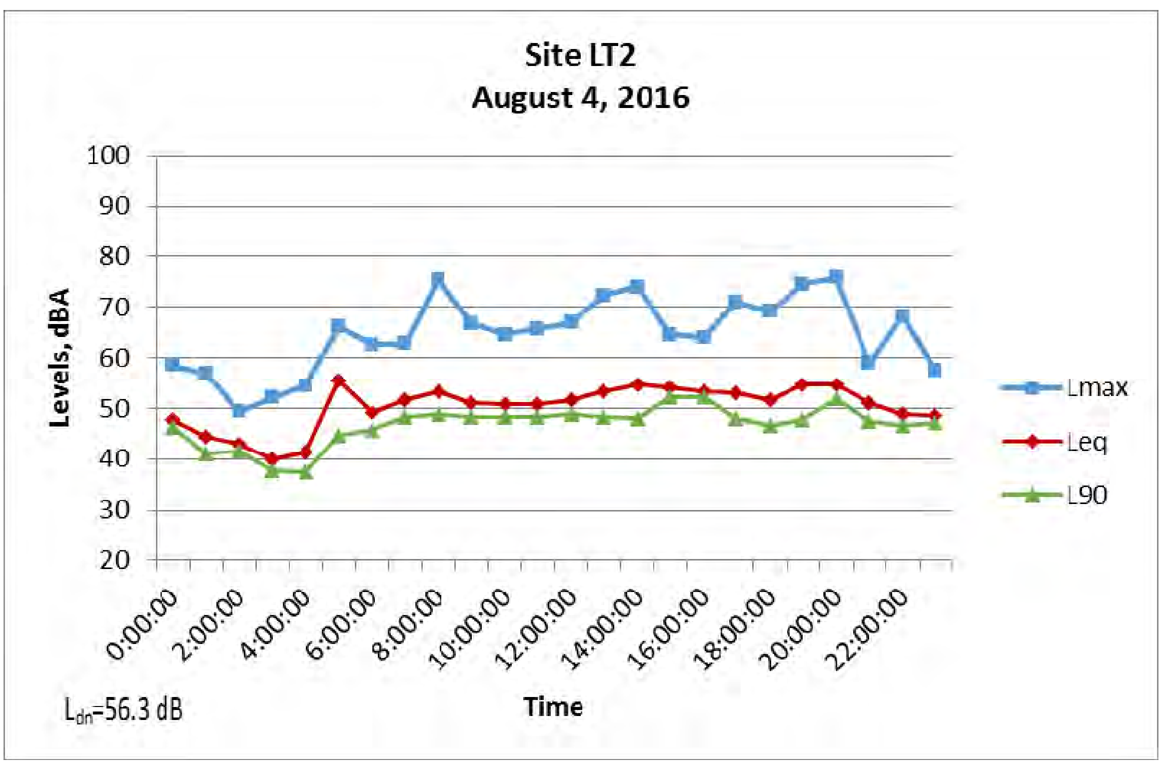


FIGURE 4: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITES





APPENDIX A-1

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of Anoise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B

TRAFFIC NOISE MODELING CALCULATIONS

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
August 11, 2016

Project #:	16-028		**Contour Levels (dB)**	60	65	70	75						
Description:	Cumulative No Projec												
Ldn/Cnel:	Ldn												
Site Type:	Soft												

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Los Gatos-Saratoga	w/o Massol	22020	85		15	2	1	35	75	
2	Los Gatos-Saratoga	e/o Massol	24110	85		15	2	1	35	75	
3	Massol	s/o Los Gatos-Saratoga	3950	85		15	2	1	35	75	
4	Los Gatos-Saratoga	w/o N. Santa Cruz	24350	85		15	2	1	35	75	
5	Los Gatos-Saratoga	e/o N. Santa Cruz	20650	85		15	2	1	35	75	
6	N. Santa Cruz	n/o Los Gatos-Saratoga	14290	85		15	2	1	35	75	
7	N. Santa Cruz	s/o Los Gatos-Saratoga	8770	85		15	2	1	35	75	
8	Los Gatos-Saratoga	w/o University	21450	85		15	2	1	35	75	
9	Los Gatos-Saratoga	e/o University	26780	85		15	2	1	35	75	
10	University	n/o Los Gatos-Saratoga	8030	85		15	2	1	35	75	
11	University	s/o Los Gatos-Saratoga	9030	85		15	2	1	35	75	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
August 11, 2016

Project #:	16-028
Description:	Cumulative + Projec
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)								
60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Los Gatos-Saratoga	w/o Massol	22200	85		15	2	1	35	75	
2	Los Gatos-Saratoga	e/o Massol	24590	85		15	2	1	35	75	
3	Massol	s/o Los Gatos-Saratoga	3950	85		15	2	1	35	75	
4	Los Gatos-Saratoga	w/o N. Santa Cruz	24680	85		15	2	1	35	75	
5	Los Gatos-Saratoga	e/o N. Santa Cruz	20950	85		15	2	1	35	75	
6	N. Santa Cruz	n/o Los Gatos-Saratoga	14550	85		15	2	1	35	75	
7	N. Santa Cruz	s/o Los Gatos-Saratoga	9060	85		15	2	1	35	75	
8	Los Gatos-Saratoga	w/o University	21700	85		15	2	1	35	75	
9	Los Gatos-Saratoga	e/o University	27060	85		15	2	1	35	75	
10	University	n/o Los Gatos-Saratoga	8190	85		15	2	1	35	75	
11	University	s/o Los Gatos-Saratoga	9170	85		15	2	1	35	75	

APPENDIX E

TRANSPORTATION IMPACT ANALYSIS

HEXAGON TRANSPORTATION CONSULTANTS, INC.

201-225 Los Gatos-Saratoga Road

Transportation Impact Analysis

Prepared for:

McCarthy Ranch

September 30, 2016

Hexagon Office: 4 North Second Street, Suite 400, San Jose, CA 95113
Hexagon Phone: 408-971-6100
Job Number: 15JC01
Document Name: Los Gatos-Saratoga Rd TIA 09-30-2016.doc

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Executive Summary

This report presents the results of the Transportation Impact Analysis (TIA) prepared for the various proposed land uses for a site located at 201-225 Los Gatos-Saratoga Road in Los Gatos, California. The site is located on the southwest corner of the intersection of Los Gatos-Saratoga Road (SR 9) and N. Santa Cruz Avenue. Existing uses on the project site consist of 3,250 square feet of retail space and 8,222 square feet of office space. The project would demolish the existing buildings and replace them with two buildings. One proposed building, which would be located on the corner, would include 4,200 square feet that would be used as either a restaurant or as retail space. The second proposed building would include 15,500 square feet and would be used as general office space, medical office space, up to 4,000 s.f. for a bank, or some combination of these uses.

Access to the site is provided from Los Gatos-Saratoga Road via a driveway that would be located in between the two buildings. Due to the presence of a median on Los Gatos-Saratoga Road, access to the site would be right-turn-in and right-turn-out only provided from eastbound Los Gatos-Saratoga Road. The driveway would provide access to 11 surface parking spaces and a ramp leading to a below-grade parking garage with 58 parking spaces. The site also has the use of 15 parking spaces in the parking assessment district.

This study was conducted for the purpose of identifying potential traffic impacts related to the proposed project. The impacts of the project were evaluated following the standards and methodologies set forth by the Town of Los Gatos and the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program (CMP). The study evaluated the traffic impacts of the project on three intersections and two freeway segments in the vicinity of the project site during the weekday AM and PM peak periods of traffic.

Project Trip Generation

The trip generation estimates in this TIA are based on a slightly larger total square footage for the project than is currently proposed, as of July 2016. [1] Thus, the trip generation estimates in this study are slightly overstated. Because it is not yet known precisely what land uses would occupy the two proposed buildings, the combination of uses that would generate the most trips was used as a basis for this TIA. If a different combination of uses ultimately occupies the site, the site would generate fewer trips than estimated in this study. Since restaurants generate more trips than retail uses, this study assumes that the corner building will include a restaurant. Since banks generate more trips than medical offices, and medical offices generate more trips than general offices, the second building is assumed to include a 4,000 s.f. bank (the maximum bank size proposed) and 12,000 s.f. of medical office space.

[1] The retail/restaurant space analyzed in this TIA is 4,622 s.f., which is 422 s.f. larger than the 4,200 s.f. proposed for the corner building as of July 2016. The office/bank space analyzed is 16,000 s.f., which is 500 s.f. larger than the 15,500 s.f. proposed for the second building as of July 2016. The entire project, as proposed in July 2016, is 922 s.f. smaller than the project as proposed in January 2016 and as analyzed in this traffic study. However, the July 2016 square footage amounts are used in this report for purposes of analyzing parking requirements.

Standard trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 9th Edition*, for the potential uses to be included on the site were used. For the bank land use, trip generation rates developed by the San Diego Association of Governments (SANDAG) were used because good data are not available from the ITE manual for a bank without a drive-through window.

Pass-by reductions were applied for the PM peak hour to the restaurant and the bank, using SANDAG's recommended reductions for those uses. Driveway counts were also conducted at the existing uses on the site in order to give credit for the current site trip generation.

It is estimated that after giving credit for the existing uses on the site, the site would generate 90 new trips during the AM peak hour (56 in and 36 out) and 48 new trips during the PM peak hour (15 in and 33 out).

Intersection Level of Service Analysis

The results of the intersection level of service analysis show that neither of the signalized study intersections would be significantly impacted by the project, because they would continue to operate at an acceptable level of service during both the AM and PM peak hours under Existing Plus Project, Background Plus Project, and Cumulative Plus Project scenarios. The intersection of Santa Cruz Avenue and Los Gatos-Saratoga Road would continue to operate at LOS D during both the AM and PM peak hours under all operating scenarios. The intersection of University Avenue and Los Gatos-Saratoga Road would continue to operate at LOS C during the AM peak hour and LOS D during the PM peak hour under all operating scenarios.

At the unsignalized intersection of Massol Avenue and Los Gatos-Saratoga Road, the northbound left turn movement (from Massol Avenue to westbound SR 9) currently operates at LOS F during both the AM and PM peak hours and would continue to operate at LOS F under all operating scenarios. The westbound left turn movement (from SR 9 onto Massol Avenue) is not stop-controlled, but drivers must wait for a gap in eastbound traffic in order to complete their turn. With the existing lane configuration (no U-turns allowed), this movement would operate at LOS A in the AM peak hour and at LOS C in the PM peak hour under background plus project and cumulative plus project conditions. If the intersection were modified to allow U-turns, this movement was projected to continue to operate at LOS A in the AM peak hour and LOS C in the PM peak hour. Because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, these results are shown for information purposes only.

The level of service results are summarized in Table ES-1.

Freeway Segments

Based on CMP guidelines, an analysis of freeway segment levels of service was not required because the project is estimated to add a negligible number of trips to the freeways in the area (i.e., less than one percent of the capacity of each freeway segment that was evaluated). A freeway segment capacity evaluation to substantiate this determination is presented in Chapter 1.

Site Access and Circulation

Site access and on-site circulation would be adequate. Due to the median on Los Gatos-Saratoga Road (SR 9), site access from westbound Los Gatos-Saratoga Road was analyzed, and the feasibility of permitting U-turns from westbound Los Gatos-Saratoga Road at Massol Avenue was evaluated. The first break in the median after passing the project site in the westbound direction is at Massol Avenue, but the presence of a pork chop island currently prevents vehicles from making a U-turn at that location. However, if the pork chop island were moved and the tip of the median next to the westbound left-turn pocket on SR 9 were shortened, it would be possible for vehicles to make a U-turn from westbound SR 9 to eastbound SR 9 at Massol Avenue, improving access to the project site and reducing the number of trips that would need to enter the residential neighborhood along Almendra Avenue and Tait Avenue in order to access the project driveway.

Hexagon estimates that approximately 173 vehicles per day are currently going around the block through the residential neighborhood in order to access the site. With the project and with U-turns permitted, Hexagon estimates that number would be reduced to only approximately 40 trips entering the residential neighborhood.

- **Recommendation:** Hexagon recommends making modifications to the 3-legged intersection of Los Gatos-Saratoga Road and Massol Avenue so that U-turns can be made from westbound Los Gatos-Saratoga Road. The pork chop island on the southeast corner of this intersection should be moved to provide adequate space for the U-turns to be completed. A portion of the median next to the left turn pocket on Los Gatos-Saratoga Road would need to be removed, and the crosswalk and lane striping would need to be repainted to correspond to the new location of the pork chop island. In addition, a sign should be posted to require vehicles turning right from Massol Avenue onto eastbound SR 9 to yield to vehicles making U-turns from westbound SR 9.

- **Recommendation:** Hexagon further recommends that if U-turns are allowed at Massol Avenue that the Town monitor the queues in the westbound left-turn pocket to see if they overflow its capacity during the PM peak hour. Although the TRAFFIX analysis and the queuing analysis indicate that adding U-turns at this location would not cause operational problems, our field observations suggest that the Town may wish to prohibit U-turns during certain hours if queuing becomes a problem when eastbound traffic is heavy.

The project driveway on Los Gatos-Saratoga Road should be free and clear of any obstructions in order to optimize sight distance, so that vehicles exiting the site can see approaching eastbound vehicles and bicyclists and pedestrians in both directions.

- **Recommendation:** Hexagon recommends that all landscaping and signage related to the project be placed to ensure that adequate sight distances are maintained at the driveway. Care should be taken in constructing the new driveway to the site to ensure that drivers entering and exiting the site can easily see approaching bicyclists and vehicles in the eastbound direction and pedestrians on the sidewalk in both directions. Adequate corner sight distance (sight distance triangles) should be provided in accordance with the Town's standards.

Queuing Analysis

An analysis of potential queuing issues indicated that the 95th percentile queue at the westbound left turn movement in the AM peak hour at N. Santa Cruz Avenue would exceed the storage capacity of the left turn pockets at that intersection under existing plus project and background plus project conditions, if no U-turns were allowed at Massol Avenue. The 95th percentile queue for the westbound left turn at University Avenue in the AM peak hour would also exceed that intersection's left turn pocket capacity if no U-turns were allowed at Massol Avenue. However, if U-turns were allowed at Massol Avenue, the drivers who would be making those left turns at N. Santa Cruz and University Avenues would make a U-turn at Massol Avenue instead, and the project would not result in any additional vehicles in those left turn lanes in the AM peak hour.

Parking

The site plan states that the project would provide a total of 84 parking spaces: 11 ground-level spaces, 58 spaces in a below-grade garage, and 15 spaces in the Parking Assessment District. Of the 58 spaces in the below-grade area, 8 would be tandem spaces (i.e., the second space in a 50-foot long tandem parking stall) and may not be counted towards the Town's parking requirements. Thus, the project would provide a total of 76 spaces that may be counted towards the Town's parking requirement (11 ground-level spaces, 50 garage spaces, and 15 Parking District spaces).

An analysis of the Town's parking requirements for the potential land uses that may occupy the site found that if the corner bulding were occupied by retail space, 76 parking spaces would be required for the entire site. If that bulding were occupied by a restaurant, 76 spaces would also be required for the entire site, if the restaurant included 56 seats. Thus, the 76 non-tandem spaces provided would meet the Town's parking requirement.

- **Recommendation**: The current site plan does not show the number of bicycle parking spaces that would be provided. The site plan should be revised to present the appropriate number of bicycle parking spaces in accordance with the Town's bicycle parking requirements.

Transit, Bicycle, and Pedestrian Facilities

The existing transit, bicycle, and pedestrian facilities in the study area are adequate to serve the site. No improvements are needed. Through the Town's Traffic Impact Fee program, if the land uses that ultimately occupy the site would generate more daily trips than the existing uses on the site, the project will contribute towards several projects that would make improvements to the bicycle and pedestrian facilities in the study area.

Transportation Demand Management

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle trips to help relieve traffic congestion, parking demand, and air pollution problems. The purpose of a TDM Plan for a specific site is to develop TDM measures that are tailored to a project's location, size, and land use in order to promote alternative modes of travel, such as riding transit, bicycling, walking, and carpooling. We recommend that the applicant develop a TDM Plan that focuses primarily on reducing employee trips to the site, through such measures as transit ticket subsidies, the inclusion of bike racks and lockers for bicyclists, and provision of current information on alternative transportation modes.

Table ES-1
Intersection Level of Service Summary

			Existing		Background		Background + Project				Cumulative		Cumulative + Project			
Study #	Intersection	Peak Hour	Avg Delay (sec)	LOS	Ave Delay (sec)	LOS	Ave Delay (sec)	LOS	Chg. In Crit. Delay (sec)	Chg. In Crit. V/C	Ave Delay (sec)	LOS	Ave Delay (sec)	LOS	Chg. In Crit. Delay (sec)	Chg. In Crit. V/C
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	**>120**	**F**	**>120**	**F**	**>120**	**F**	**-**	**-**	**>120**	**F**	**>120**	**F**	-	-
			8.8	A	8.9	A	9.0	A	**-**	**-**	9.1	A	9.1	A	-	-
		PM	**>120**	**F**	**>120**	**F**	**>120**	**F**	-	-	**>120**	**F**	**>120**	**F**	-	-
			14.4	B	15.0	C	15.0	C	-	-	15.0	C	15.1	C	-	-
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	41.5	D	42.0	D	42.5	D	0.6	0.009	43.7	D	44.2	D	0.6	0.009
		PM	48.3	D	48.6	D	48.8	D	0.5	0.013	50.0	D	50.3	D	0.6	0.013
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	33.7	C	33.7	C	34.3	C	1.0	0.013	33.6	C	34.2	C	1.0	0.013
		PM	39.7	D	39.7	D	39.9	D	-0.1	0.001	39.6	D	39.8	D	-0.1	0.001

Notes:

* Denotes a CMP intersection

** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. The delay and level of service for the westbound left-turn movement are shown second.

BOLD indicates a substandard level of service

1. Introduction

This report presents the results of the Transportation Impact Analysis (TIA) prepared for the proposed development located at 201-225 Los Gatos-Saratoga Road (State Route 9) in Los Gatos, CA. The project site is on the southwest corner of the intersection of Los Gatos-Saratoga Road and N. Santa Cruz Avenue. Existing uses on the project site consist of 3,250 square feet of retail space and 8,222 square feet of office space. The project would demolish the existing buildings and replace them with two buildings. One proposed building, which would be located on the corner, would include 4,200 square feet that would be used as either a restaurant or as retail space. The second proposed building would include 15,500 square feet and would be used as general office space, medical office space, a bank, or some combination of these uses.

Access to the site is provided from Los Gatos-Saratoga Road via a driveway that would be located in between the two buildings. Due to the presence of a median on Los Gatos-Saratoga Road, access to the site would be right-turn-in and right-turn-out only provided from eastbound Los Gatos-Saratoga Road. The driveway would provide access to 11 surface parking spaces and a ramp leading to a below-grade parking area with 58 parking spaces. The site also has the use of 15 parking spaces in the parking assessment district's lot. Figure 1 shows the study area and project site location.

Scope of Study

This study was conducted for the purpose of identifying potential traffic impacts related to the proposed project. The impacts of the project were evaluated following the standards and methodologies set forth by the Town of Los Gatos and the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program (CMP).

The study evaluated the potential traffic impacts of the project on three intersections and two freeway segments in the vicinity of the project site during the weekday AM and PM peak periods of traffic. The study's trip generation estimates are based on a total square footage that is 922 s.f. larger than the square footage proposed in July 2016.[2] Because of this difference in square footage, the trip generation estimates used in this TIA are slightly overstated and should be regarded as conservative estimates for the project.

Because it is not yet known precisely what land uses would occupy the two proposed buildings, the combination of uses that would generate the greatest number of trips was used as a basis for this TIA. If a different combination of uses ultimately occupies the site, the site would generate fewer trips than estimated in this study.

[2] The retail/restaurant space analyzed in this TIA was 4,622 s.f., which is 422 s.f. larger than the 4,200 s.f. proposed for the corner building in July 2016. The office/bank space analyzed was 16,000 s.f., which is 500 s.f. larger than the 15,500 s.f. proposed for the second building in July 2016. The project, as proposed in July 2016, is 922 s.f. smaller than the project as proposed in January 2016 and as analyzed in this traffic study. However, the July 2016 square footage amounts are used in this report for purposes of analyzing parking requirements.

Since restaurants generate more trips than retail uses, this study assumes that the corner building will include a restaurant. Since banks generate more trips than medical offices, and medical offices generate more trips than general offices, the second building is assumed to include a 4,000 s.f. bank (the maximum bank size proposed) and 12,000 s.f. of medical office space.

The study intersections and freeway segments are identified below. Two of the study intersections are CMP-designated intersections, as indicated by an asterisk (*) The unsignalized intersection of Los Gatos-Saratoga Road and Massol Avenue is a three-legged intersection with one-way stop control on the Massol Avenue approach.

Study Intersections

1. Los Gatos-Saratoga Road (SR 9) and Massol Avenue (unsignalized)
2. Los Gatos-Saratoga Road (SR 9) and N. Santa Cruz Avenue *
3. Los Gatos-Saratoga Road (SR 9) and University Avenue *

Study Freeway Segments

1. SR 17, between Bear Creek Road and SR 9
2. SR 17, between SR 9 and Lark Avenue

Traffic conditions at the signalized study intersections were analyzed for the weekday AM and PM peak hours of adjacent street traffic. The AM peak hour of adjacent street traffic is generally between 7:00 and 9:00 AM, and the PM peak hour of adjacent street traffic is typically between 4:00 and 6:00 PM. It is during these periods on an average weekday that the most congested traffic conditions occur.

Field observations were conducted at all study intersections and at the intersection of N. Santa Cruz Avenue and Bachman Avenue. Field observations were also conducted at all of the on-ramps and off-ramps connecting SR 17 and SR 9 during both the AM and PM peak periods.

Figure 1 presents the site location and the three study intersections. Figure 2 provides the regional context for the site's location. Figure 3 presents the site plan for the project as of July 12, 2016.

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes were obtained from manual turning-movement counts conducted in March 2016. The new intersection count data are included in Appendix A.

Scenario 2: *Existing Plus Project Conditions.* Existing plus project peak hour traffic volumes were estimated by adding to existing traffic volumes the additional traffic generated by the project option that would generate the greatest number of trips and subtracting traffic volumes generated by the uses that currently occupy the site. Existing plus project conditions were evaluated relative to existing conditions in order to determine the effects the project would have on existing traffic conditions.

Scenario 3: *Background Conditions.* Background traffic volumes were estimated by adding to existing peak hour volumes the projected volumes from approved but not yet completed developments. The added traffic from approved but not yet completed developments was provided by the Town of Los Gatos.

Scenario 4: *Background Plus Project Conditions.* Projected near-term peak hour traffic volumes with the project were estimated by adding to background traffic volumes the additional traffic generated by the project option that would generate the greatest number of trips and subtracting traffic volumes generated by the uses that currently occupy the site. Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts according to the Town of Los Gatos Level of Service Policy.

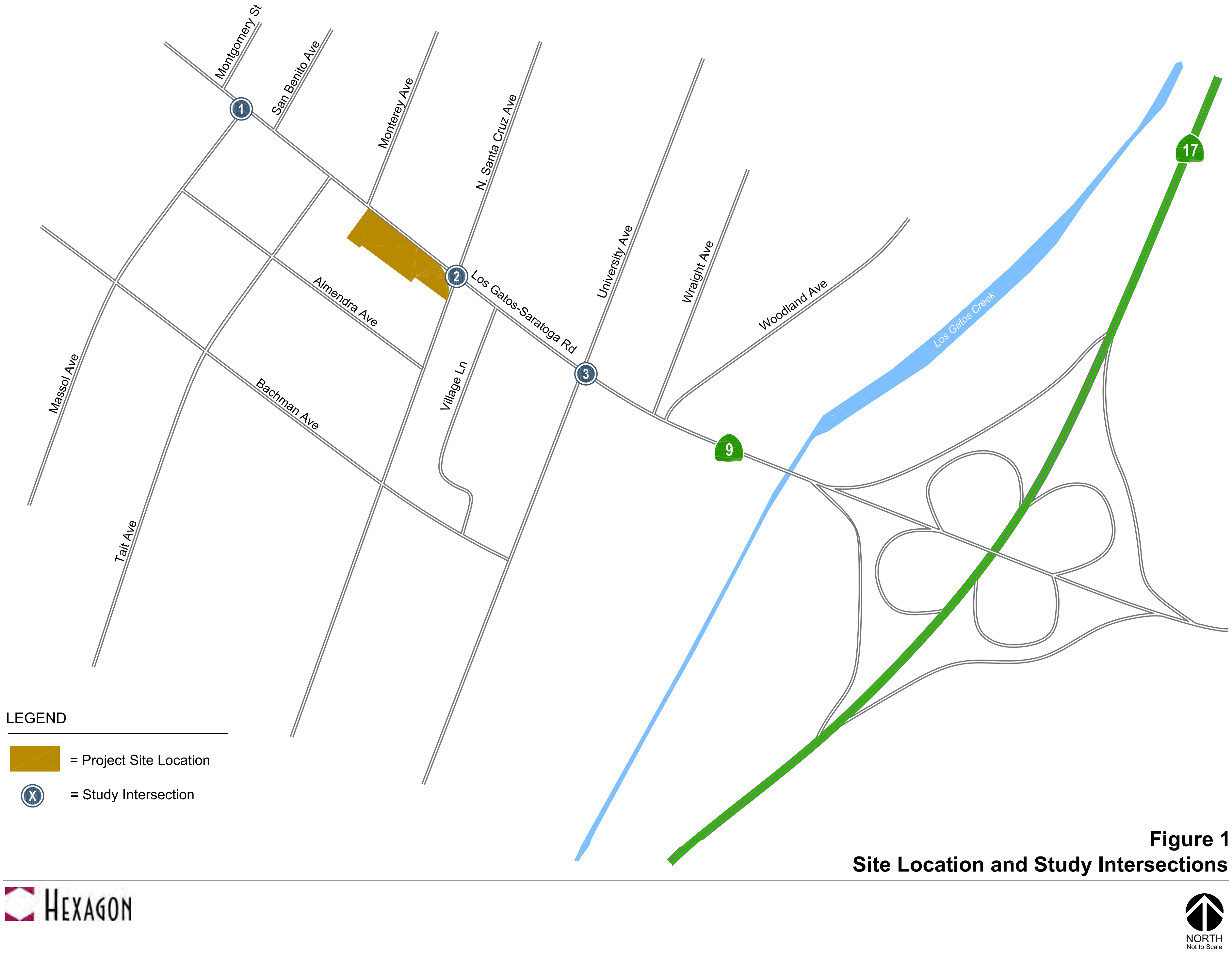
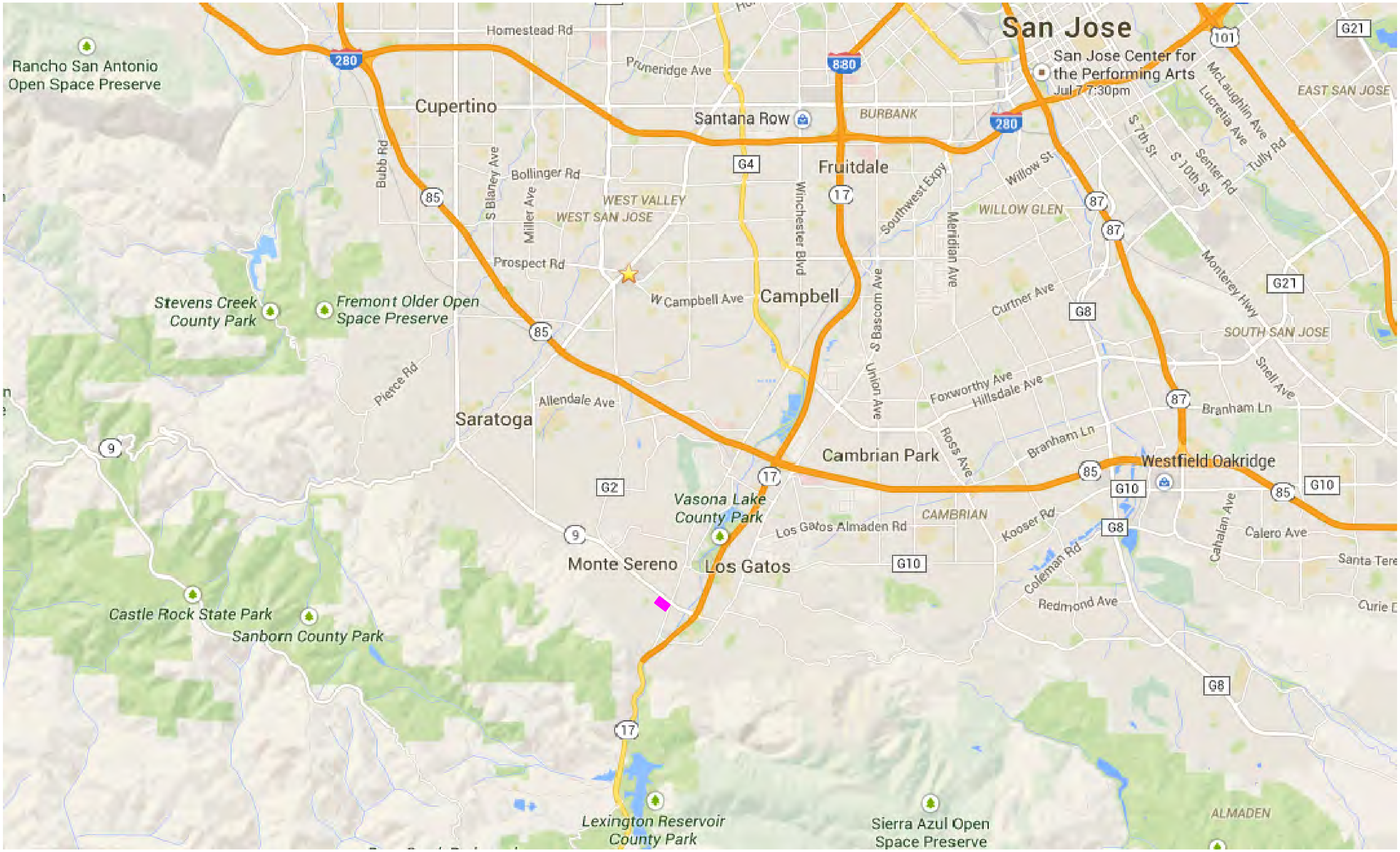


Figure 1
Site Location and Study Intersections

HEXAGON



LEGEND

= Project Site Location

Figure 2
Regional Location Map

HEXAGON

NORTH
Not to Scale

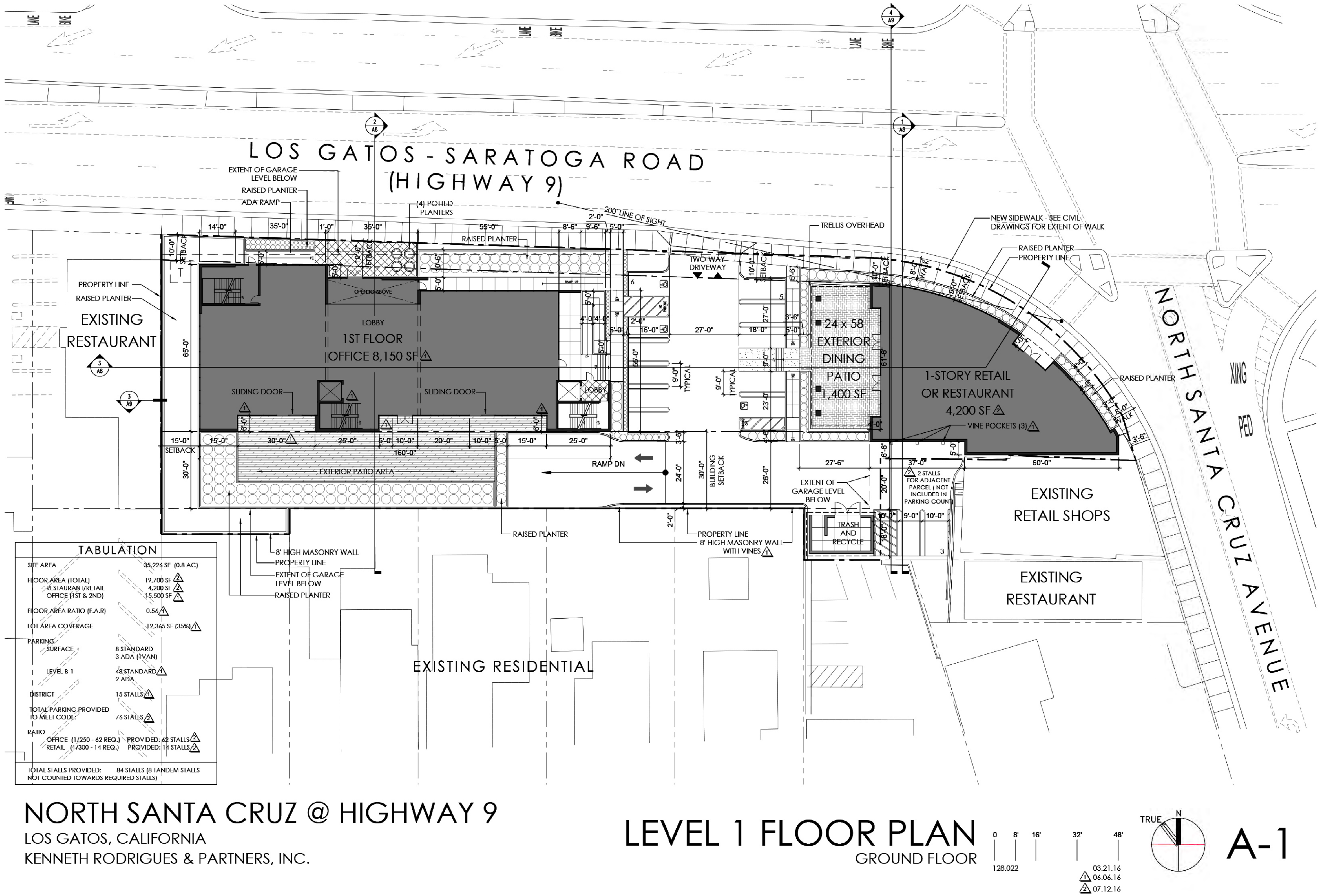


Figure 3
Site Plan

Scenario 5: *Cumulative Conditions.* The two CMP study intersections were evaluated for cumulative conditions, as stipulated by the CMP guidelines. Cumulative conditions include traffic growth projected to occur due to the approved development projects and other proposed but not yet approved (pending) development projects. The added traffic from pending development projects was provided by the Town of Los Gatos.

Scenario 6: *Cumulative Plus Project Conditions*. Cumulative plus project traffic volumes were estimated by adding to cumulative traffic volumes the trips associated with the additional traffic generated by the project option that would generate the greatest number of trips and subtracting traffic volumes generated by the uses that currently occupy the site.

Methodology

This section describes the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, the Town of Los Gatos, and field observations. The following data were collected from these sources:

- Existing traffic volumes
- Approved and pending project trips
- Intersection lane configurations
- Signal timing and phasing

Analysis Methodologies and Level of Service Standards

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

Town of Los Gatos Signalized Intersections

The Town of Los Gatos level of service methodology for signalized intersections is the 2000 *Highway Capacity Manual* (HCM) method. This method is applied using the TRAFFIX software. The 2000 HCM operations method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersection level of service methodology, the Town of Los Gatos methodology employs the CMP default values for the analysis parameters. The Town of Los Gatos level of service standard for all signalized intersections is LOS D or better. The correlation between average control delay and level of service for signalized intersections is shown in Table 1.

CMP Intersections

The designated level of service methodology for the CMP also is the 2000 HCM operations method for signalized intersections, using TRAFFIX. The only difference in level of service standards is that in the Town of Los Gatos the standard is LOS D or better, and the CMP level of service standard for signalized intersections is LOS E or better. However, CMP intersections within the Town of Los Gatos are evaluated according to Town of Los Gatos standards.

Unsignalized Intersections

The intersection of Los Gatos-Saratoga Road and Massol Avenue has one-way stop control on the Massol Avenue approach. Like the signalized intersections, this unsignalized intersection was analyzed using the

2000 HCM method with TRAFFIX software. Because the Town of Los Gatos does not have a level of service standard or a definition of significant impact for unsignalized intersections, this intersection was evaluated for informational purposes only under the different scenarios. The level of service definitions for unsignalized intersections is shown in Table 2.

An assessment of the need for signalization of the intersection was also conducted. The need for signalization of unsignalized intersections is assessed based on the Peak Hour Volume Warrant (Warrant 3) described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD)*, Part 4, Highway Traffic Signals, 2010. This method makes no evaluation of intersection level of service, but simply provides an indication whether vehicular peak hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized level of service analysis and/or operational analysis such as evaluating vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions.

Table 1
Signalized Intersection Level of Service Definitions Based on Average Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lenghts, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Average Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p17-2.

Freeway Segments

According to CMP guidelines, an analysis of freeway segment levels of service is only required if a project is estimated to add trips to a freeway segment equal to or greater than one percent of the capacity of that segment. For the two segments of SR 17 included in this TIA, one percent of capacity is equal to 44 trips in each direction. Since the number of project trips added to the freeway in the area (SR 17) is estimated to be well below the one percent threshold for the option that would generate the greatest number of total trips, based on the trip generation and trip distribution presented in Chapter 3, a detailed analysis of freeway segment levels of service was not performed. A simple freeway segment capacity evaluation to substantiate this determination is presented in Table 3.

Table 3
Freeway Segment Capacity Evaluation

Freeway	Segment	Direction	# of Mixed Flow Lanes	Capacity[1] (vph)	1% of Capacity	Peak Hour	Project Trips
SR 17	Bear Creek Rd to Los Gatos-Saratoga Rd	NB	2	4400	44	AM	5
						PM	2
SR 17	Los Gatos-Saratoga Rd to Lark Avenue	NB	2	4400	44	AM	2
						PM	11
SR 17	Lark Avenue to Los Gatos-Saratoga Rd	SB	2	4400	44	AM	8
						PM	4
SR 17	Los Gatos-Saratoga Rd to Bear Creek Rd	SB	2	4400	44	AM	1
						PM	6

Notes:
(1) Capacity is based on the capacity cited in the 2000 *Highway Capacity Manual* of 2,200 vehicles per hour per lane.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. Impacts on intersections are based on the significance criteria and level of service standards of the jurisdiction in which the intersection is located. For this analysis, significance criteria for impacts on signalized intersections are based on the Town of Los

Gatos level of service standard. As noted above, LOS D is an acceptable level of traffic operation at signalized intersections in Los Gatos.

In the Town of Los Gatos, a project is said to create a significant adverse impact on traffic conditions at an intersection if, for either peak hour, either of the following conditions occurs:

1. The addition of project traffic causes an intersection operating at LOS A, B, or C under no-project conditions to degrade more than one letter grade under with-project conditions, or

2. The level of service at an intersection is LOS D or worse under no-project conditions and the addition of project traffic causes a degradation of level of service to LOS E or F.

The project shall mitigate any intersection project impact so that the level of service will remain at an acceptable level (LOS D) or, if it is already at LOS E, to the level of service without project conditions or better.

As noted above, the CMP standard for an acceptable level of service is LOS E or better. The CMP definition of a significant impact states that a project is said to create significant adverse impact on traffic conditions at a CMP-designated signalized intersection if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS E or better under without project conditions to an unacceptable LOS F under with project conditions, or

2. The level of service at the intersection is an unacceptable LOS F under without project conditions and the addition of project trips causes both the average control delay for critical movements at the intersection to increase by four (4) or more seconds ***and*** the critical volume-to-capacity ratio (V/C) to increase by one percent (0.01) or more.

An exception to this rule applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e., the change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection level of service to without project conditions or better.

Report Organization

The remainder of this report is divided into seven chapters. Chapter 2 describes existing conditions including the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the intersection operations under existing plus project conditions and describes the method used to estimate project traffic. Chapter 4 presents the intersection operations under background conditions. Chapter 5 presents the intersection operations under background plus project conditions and describes the project's impact on the near-term transportation system. Chapter 6 presents the intersection operations under cumulative traffic conditions, both with and without the project. Chapter 7 describes operational issues associated with the proposed project, including parking, site access and circulation. Chapter 7 also presents the results of the peak-hour signal warrant evaluation for the unsignalized intersection. Chapter 8 presents the conclusions of the Transportation Impact Analysis.

2. Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the project site, including the roadway network, transit service, and bicycle and pedestrian facilities. Also included are the existing levels of service of the three study intersections.

Existing Roadway Network

Regional access to the project site is provided by State Route 17 (SR 17). Local access to the project site is provided via Los Gatos-Saratoga Road (SR 9), N. Santa Cruz Avenue, University Avenue, Almendra Avenue, Tait Avenue and Massol Avenue. These facilities are described below.

SR 17 is a four-lane freeway in the vicinity of the study area. It extends south to Santa Cruz and north to I-280 in San Jose, at which point it makes a transition into I-880, which extends to Oakland. Access to the project site is provided via SR 17's interchange with Los Gatos-Saratoga Road (SR 9).

Los Gatos-Saratoga Road (SR 9) is a four lane arterial roadway adjacent to the project site. In the vicinity of the project site, Los Gatos-Saratoga Road includes Class II bike lanes and has a speed limit of 35 mph. It extends from Los Gatos Boulevard in a northwesterly direction. At the town boundary of Los Gatos and Monte Sereno, it changes names to Saratoga-Los Gatos Road. Saratoga-Los Gatos Road transitions to Saratoga-Sunnyvale Road at the intersection of Big Basin Way (which is the continuation of SR 9) and Saratoga Avenue. Los Gatos-Saratoga Road has a median that begins east of the SR 17 interchange and continues to Massol Avenue. In the vicinity of the project site, this arterial serves commercial uses and does not include any on-street parking.

N. Santa Cruz Avenue is a two-lane roadway that runs in a north-south direction and serves as the primary commercial street in downtown Los Gatos. Santa Cruz Avenue extends from SR 17 in the south to Blossom Hill Road, where it transitions to Winchester Boulevard, which continues north as a four-lane arterial through Los Gatos, Campbell, and San Jose to its terminus in Santa Clara. Within the Los Gatos central business district, N. Santa Cruz Avenue has two lanes, a 15 mph speed limit, and on-street parking.

University Avenue is a two-lane roadway that runs parallel to N. Santa Cruz Avenue. It extends from Main Street to Lark Avenue. It is primarily a residential street, except for the two blocks closest to Main Street, where it serves commercial uses. The speed limit is 25 mph, and on-street parking is allowed along the residential frontages, except on the blocks immediately north and south of Los Gatos-Saratoga Road.

Almendra Avenue is an east-west two-lane local street that runs parallel to Los Gatos-Sunnyvale Road, one block south of the project site. It extends between N. Santa Cruz Avenue and Massol Avenue and serves mostly residences and a few businesses near N. Santa Cruz Avenue. It includes on-street parking and has a 25 mph speed limit. There is a parking permit program in the residential neighborhood that includes

Almendra Avenue, Tait Avenue, and Massol Avenue. Only vehicles with a permit are allowed to park on the street between the hours of 6:00 PM and 9:00 AM. Between 9:00 AM and 6:00 PM, there is a 2-hour parking limit.

Tait Avenue is a north-south two-lane local street that extends between Main Street and Los Gatos-Saratoga Road one block west of N. Santa Cruz Avenue. It is primarily a residential street with a 25 mph speed limit and on-street parking. Because of the median on Los Gatos-Saratoga Road, it is not possible for northbound traffic on Tait to turn left onto Los Gatos-Saratoga Road or for westbound traffic on Los Gatos-Saratoga Road to turn left onto Tait Avenue.

Massol Avenue is a north-south two-lane local street that also runs parallel to N. Santa Cruz Avenue, two blocks west of the project site. It is a residential street with a 25 mph speed limit and on-street parking. Because of a break in the median, northbound traffic on Massol is able to turn left onto Los Gatos-Saratoga Road, and westbound traffic on Los Gatos-Saratoga Road is able to turn left onto Massol Avenue. However, because of the presence of a pork chop island, there is not adequate space for westbound traffic to make a U-turn at Massol Avenue.

Existing Transit Services

Existing transit service to the project site is provided by the Santa Clara Valley Transportation Authority (VTA). VTA provides bus service to the immediate project area via Route 48.

Local Route 48 provides service between the Los Gatos Civic Center and the Winchester Transit Center in Campbell. It runs on N. Santa Cruz Avenue in the southbound direction and on University Avenue and Los Gatos-Saratoga Road in the northbound direction, as shown on Figure 4. Route 48 operates with 30-minute headways in the AM and PM peak hours and 60-minute headways during the mid-day and on weekends. The route operates between approximately 6:30 AM and 8:00 PM on weekdays.

There are bus stops for Route 48 in both directions at the intersection of Los Gatos-Saratoga Road and N. Santa Cruz Avenue (see Figure 4). Pedestrian access to these bus stops is adequate, since there are sidewalks and crosswalks connecting them to the project site. Transit riders using the southbound bus could board or alight at the bus stop north of Los Gatos-Saratoga Road and then use the pedestrian-activated signal and crosswalk to cross the street to the project. Transit riders using the northbound bus could board or alight at the bus stop on the north side of Los Gatos-Saratoga Road, just east of Santa Cruz Avenue. Pedestrian-activated signals and crosswalks are present to facilitate crossing both Los Gatos-Saratoga Road and Santa Cruz Avenue to access that bus stop.

The Winchester Transit Center, the northern terminus of Route 48, is a station for VTA's light rail transit (LRT) service. The LRT line that terminates at the Winchester Transit Center provides service to downtown Mountain View, via downtown San Jose, Santa Clara, and Sunnyvale.

Existing Bicycle and Pedestrian Facilities

A Class I bicycle trail, the Los Gatos Creek Trail, is located near the project site, running in a north-south direction just west of Highway 17, as shown on Figure 5. A Class II bikeway (defined as a striped bike lane on the street) is present on Los Gatos-Saratoga Road (SR 9), beginning just east of the University Avenue intersection. Bike lanes are also present on:

- Winchester Boulevard between Lark Avenue and Daves Avenue,
- Main Street and Los Gatos Boulevard between the Los Gatos Creek Trail and Blossom Hill Road,
- Blossom Hill Road between N. Santa Cruz Avenue and Short Road, and
- University Avenue, between Blossom Hill Road and Farley West.

Although none of the residential streets near the project site are designated as bike routes, due to their low traffic volumes, many of them are conducive to bicycle usage.

Pedestrian facilities consist mostly of sidewalks along both the commercial and residential streets in the immediate vicinity of the project site. Crosswalks with pedestrian signal heads and push buttons are located at all of the signalized intersections in the study area. In addition, the crosswalk across Los Gatos-Saratoga Road at Massol Avenue (which is an unsignalized intersection) near the project site has warning lights that can be activated by pedestrians wishing to cross the street. Although the study intersections at Santa Cruz Avenue and at Massol Avenue include ramps and paths through the pork chop islands for wheelchair users, they do not meet current ADA standards. The study intersection at University Avenue, which was modified in early 2015, appears to meet current ADA standards. Overall, the existing sidewalks in the area have good connectivity and provide pedestrians with safe routes to all of the surrounding land uses in the area.

In downtown Los Gatos, N. Santa Cruz Avenue has crosswalks with bulb-outs at all intersections and some mid-block locations, and amenities such as street benches, attractive landscaping, trash receptacles and ample street lighting. Downtown Los Gatos has been designed as and currently functions as an extremely pedestrian-friendly environment.

A gap in bicycle and pedestrian facilities near the project site exists on Los Gatos-Saratoga Road (SR 9) between University Avenue and Los Gatos Boulevard. Improved connectivity between the Los Gatos Creek Trail and Los Gatos-Saratoga Road has also been identified as a need. Both of these connectivity improvements have been included in the list of projects prepared by the Town of Los Gatos as eligible for funding from the Town's Traffic Impact Fee. The proposed project would be subject to the Town's Traffic Impact Fee. More information on this fee is included in Chapter 5.

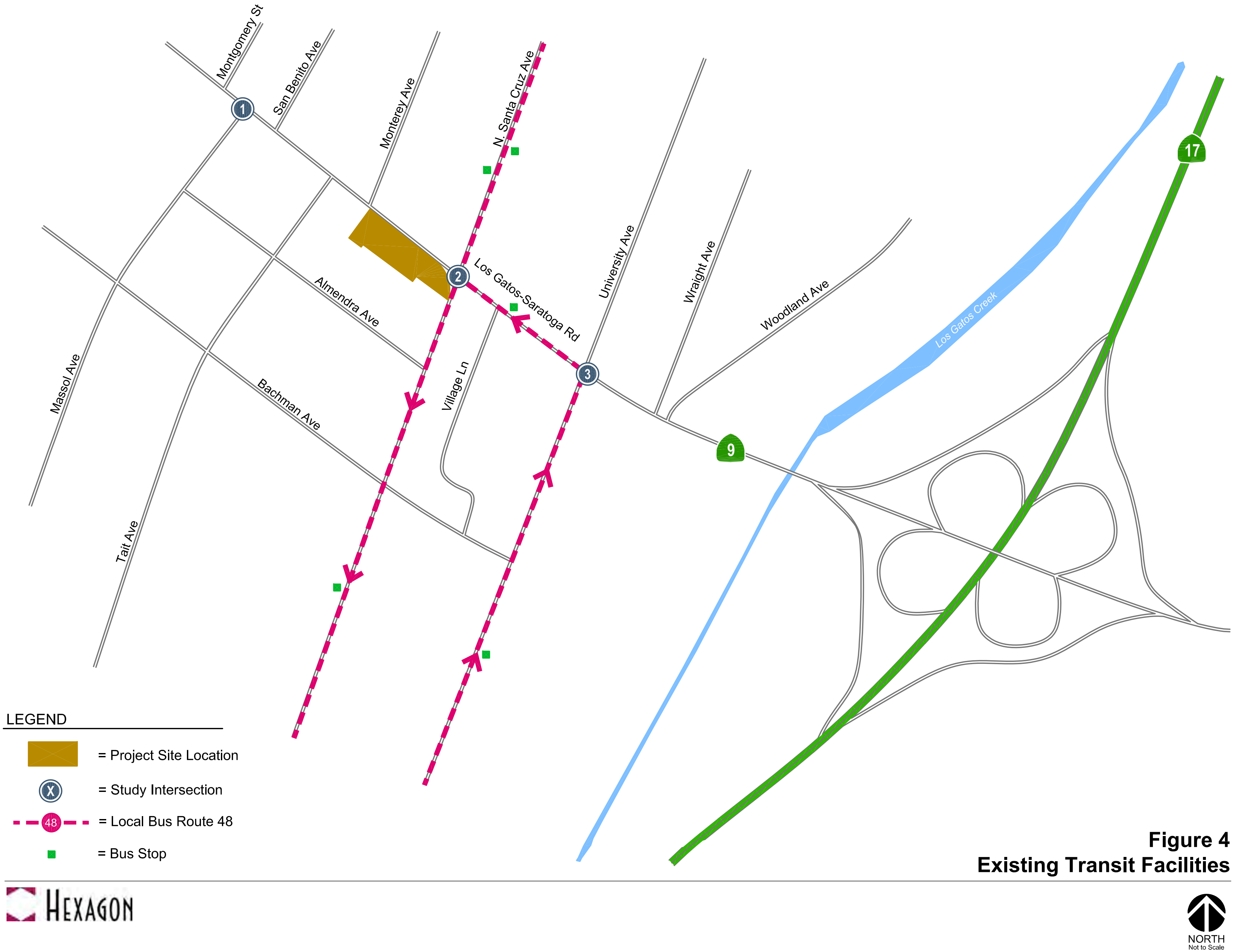


Figure 4
Existing Transit Facilities

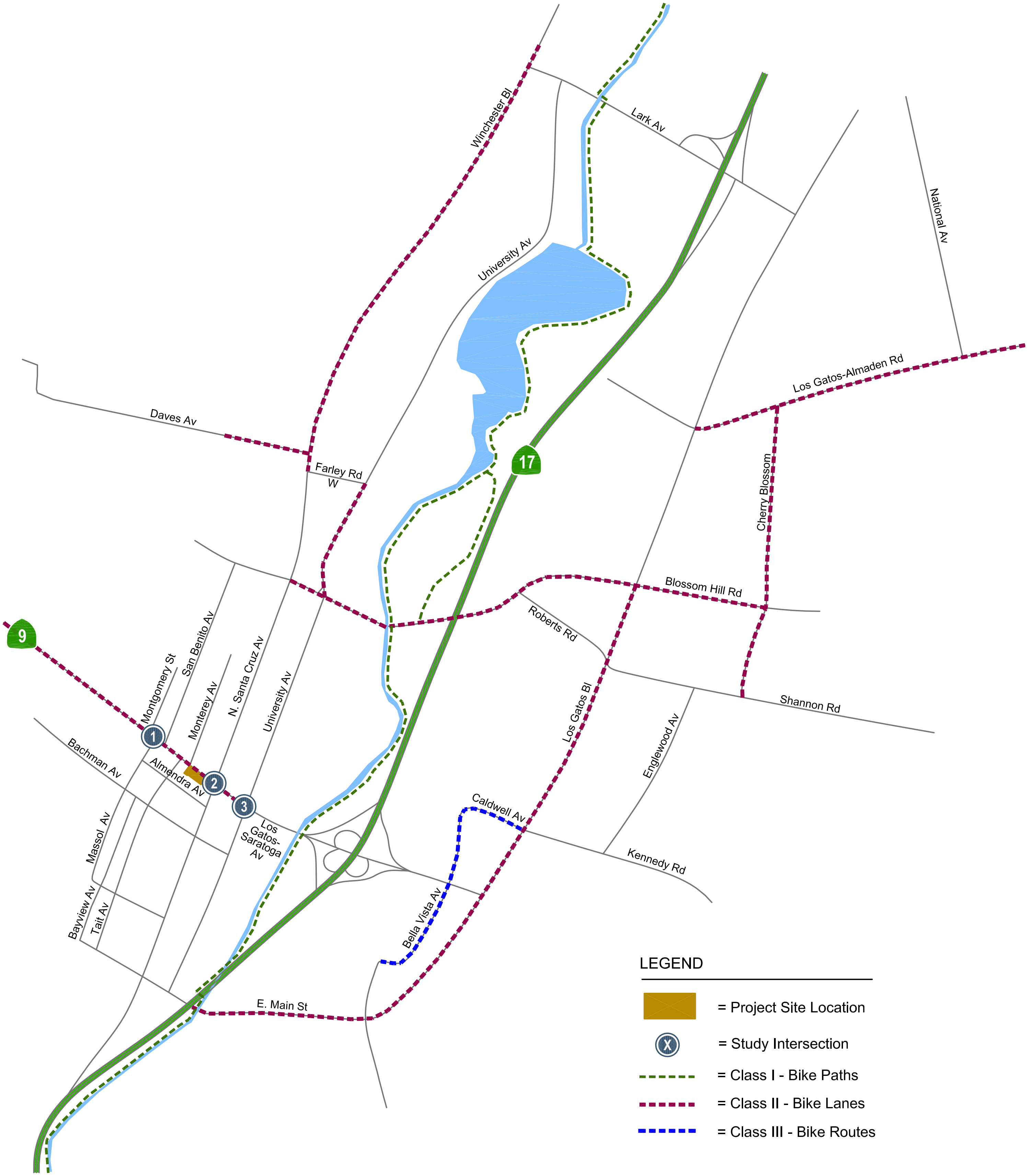


Figure 5
Existing Bicycle Facilities

NORTH
Not to Scale

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were confirmed by observations in the field and are shown on Figure 6. Improvements constructed in early 2015 at the intersection of University Avenue and Los Gatos-Saratoga Road include the addition of a second left turn lane on the north approach and a separate right turn lane on the south approach. These improvements, plus the changes made in signal controls and phasing so that all left turns are protected, have been incorporated into the TRAFFIX analysis for this intersection.

We note that the 2014 CMP database counts were conducted prior to the completion of these modifications at University Avenue and Los Gatos-Saratoga Road and so do not reflect the current lane configuration and signal phasing. Thus, in order to accurately reflect current conditions, the lane geometry and signal phasing used in the Level of Service analysis at the University Avenue intersection do not correspond to the 2014 CMP database. In addition, Caltrans has re-timed the signals at both of the CMP intersections several times since 2014 in order to improve signal coordination and facilitate traffic flow, so signal cycle lengths in TRAFFIX have also been updated.

Existing Traffic Volumes

Existing weekday AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak hour traffic volumes were obtained from manual turning-movement counts conducted at all three study intersections on Wednesday, March 2, 2016.

As noted above, both of the signalized intersections in this study are CMP intersections. Typically, a TIA uses PM peak-hour traffic volumes for CMP intersections from the most recent CMP database. The counts for the most recent CMP database were conducted in September 2014. Counts were also conducted at these intersections in January 2015 and March 2016 for purposes of preparing TIAs. Because of local concerns that eastbound traffic on SR 9 during the PM peak hour has increased since 2014, we compared the three PM peak hour counts at these two CMP intersections.

The eastbound volume entering the intersection of Los Gatos-Saratoga Road and N. Santa Cruz Avenue during the PM peak hour increased from 1,217 vehicles in the 2014 CMP count to 1,319 vehicles in the 2015 count to 1,417 vehicles in the 2016 count. Basically, the eastbound volume in the PM peak hour increased by approximately 100 vehicles per year at this intersection over this time period. At the intersection of Los Gatos-Saratoga Road and University Avenue, the eastbound traffic entering the intersection during the PM peak hour increased from 1,175 in the 2014 CMP count to 1,182 in the 2015 count to 1,278 in the 2016 count. Although the increase between 2014 and 2015 was negligible, the 2016 count showed an increase of approximately 100 vehicles over the 2014 and 2015 counts. Due to the local concerns over increased traffic on SR 9, it was decided to use the 2016 counts for Existing Conditions to more accurately reflect current traffic levels.

The existing peak hour traffic volumes are shown graphically on Figure 7. New count data are included in Appendix A. Appendix A also includes a table showing a comparison of recent counts at the study intersections.

Existing Intersection Levels of Service

The results of the intersection level of service analysis show that, measured against the Town of Los Gatos and CMP level of service standards, both signalized intersections currently operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic. The results of the intersection level of service analysis under existing conditions are summarized in Table 4.

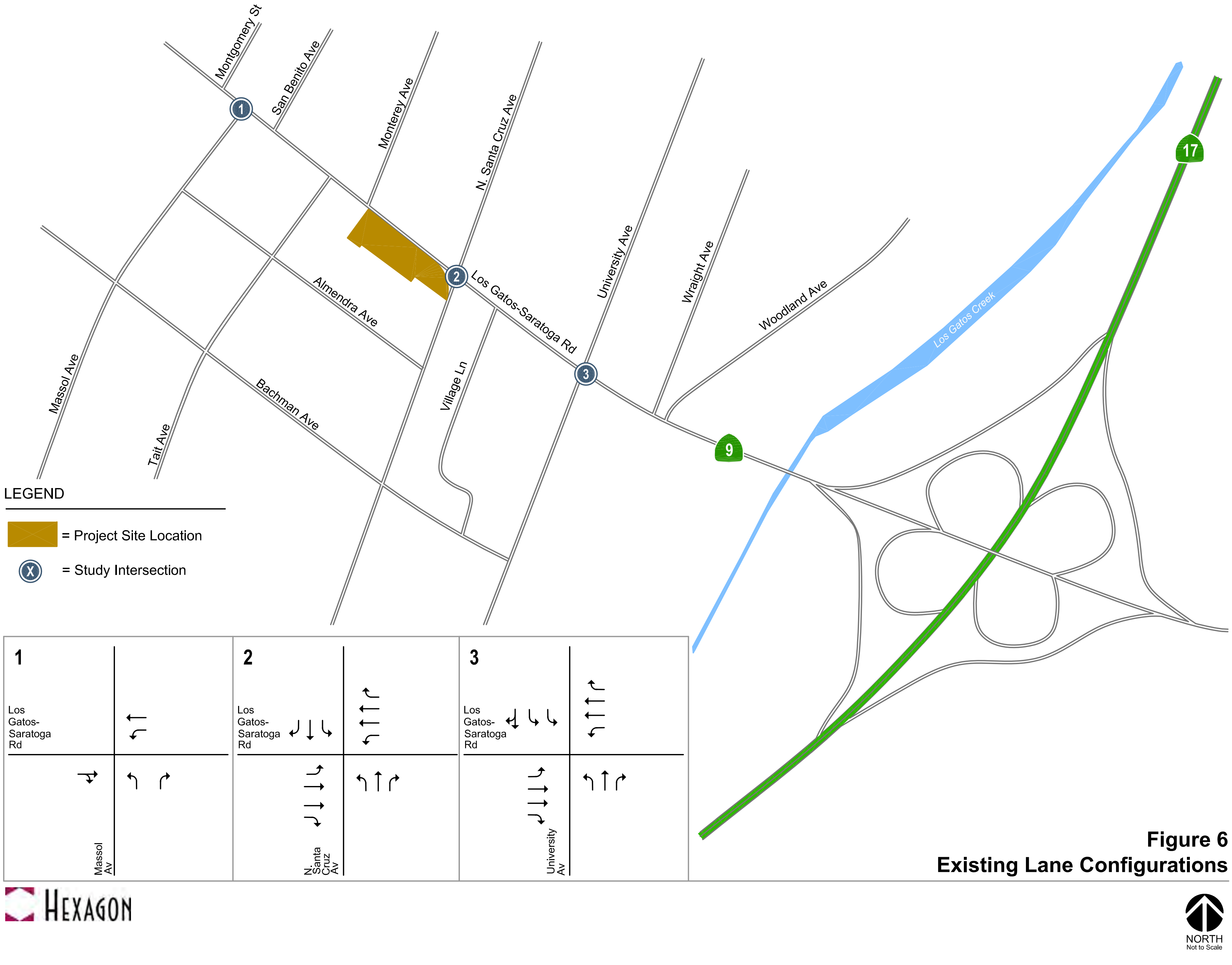


Figure 6
Existing Lane Configurations

HEXAGON

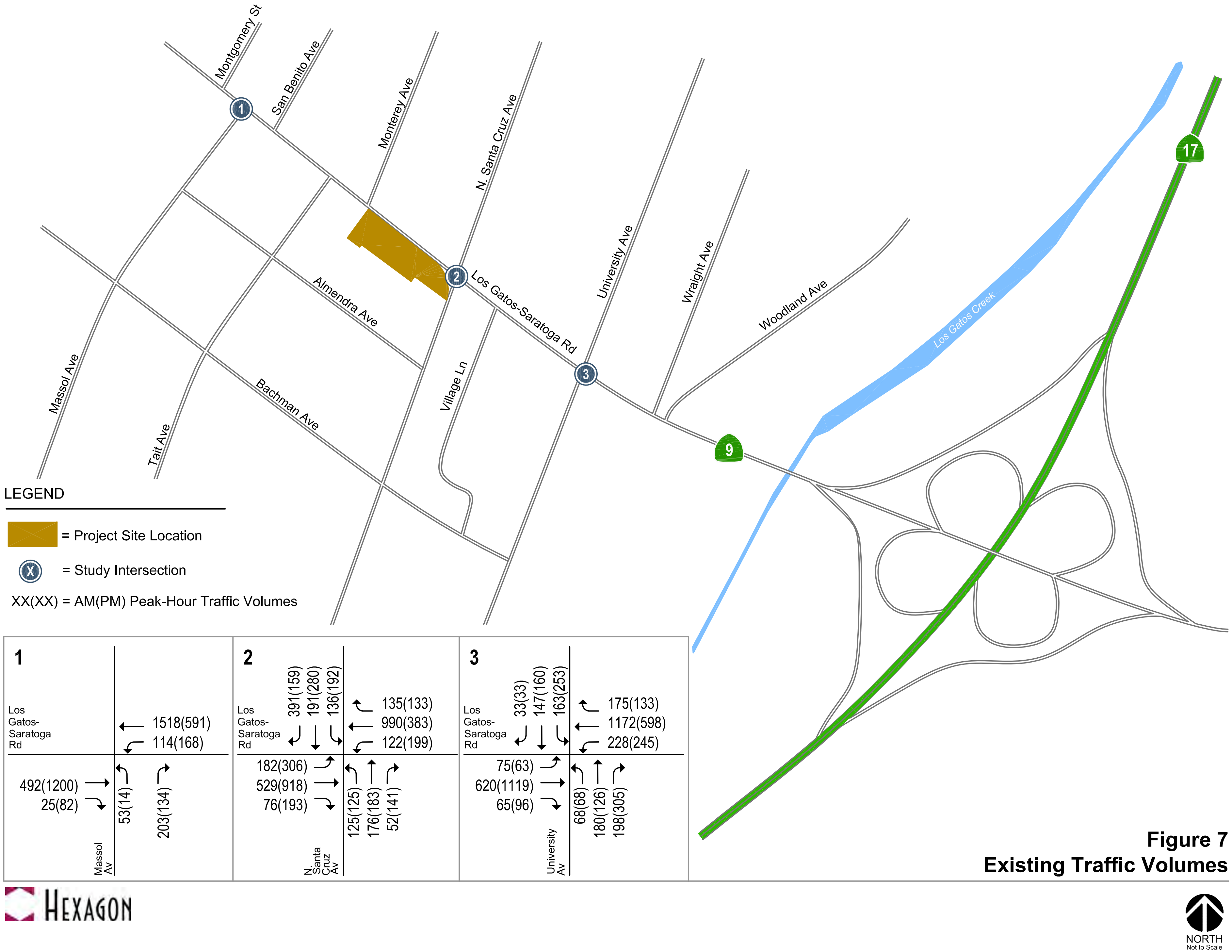


Figure 7
Existing Traffic Volumes

HEXAGON

For the unsignalized intersection, the delay for both the northbound left turn and the westbound left turn movements are shown. The northbound left turn from Massol Avenue onto westbound Los Gatos-Saratoga Road is the only stop-controlled approach and therefore is the worst approach at this intersection. The level of service for this turning movement is LOS F in both the AM and PM peak hours. This movement was analyzed using both TRAFFIX and Synchro software, but it was not possible to accurately estimate the number of seconds of delay because it exceeds the calculation parameters of the HCM method. It is an artifact of the HCM method that when delay for a given movement exceeds approximately two minutes, the calculated delay becomes less accurate. For all operating conditions in both the AM and PM peak hours, both with and without the project, the delay was estimated to be over two minutes for this movement. As discussed below, field observations confirmed that there are extremely long delays for that turning movement. However, because Los Gatos does not have a level of service standard for unsignalized intersections, this result is shown for information purposes only.

The westbound left turn movement does not have a stop sign, but drivers must wait for a sufficient gap in eastbound traffic to make their left turn. The level of service for that movement is LOS A in the AM peak hour and LOS B in the PM peak hour, which is consistent with the fact that eastbound traffic volumes are much higher during the evening commute period.

The intersection level of service calculation sheets are included in Appendix D.

Table 4
Existing Intersection Levels of Service

Study Number	Intersection	Peak Hour	Count Date	Average Delay (sec)	LOS
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	3/2/2016	**>120**	**F**
				8.9	A
		PM.	3/2/2016	**>120**	**F**
				14.4	B
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	3/2/2016	41.5	D
		PM	3/2/2016	48.3	D
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	3/2/2016	33.7	C
		PM	3/2/2016	39.7	D

Notes:

* Denotes a CMP intersection

** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. Delay and level of service for the westbound left-turn movement are shown second.

BOLD indicates a substandard level of service

Observed Existing Traffic Conditions

Traffic conditions were observed in the field to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to level of service, (2) to identify any locations where the level of service analysis does not accurately reflect actual existing traffic conditions and (3) to respond to comments received from Caltrans. Field observations were conducted on five occasions: in January, April, and June of 2015 and in March and July of 2016. Although the earlier observations enhanced Hexagon's understanding of the study intersections, the following discussion is based solely on the most recent set of observations, conducted on July 21, 2016.

N. Santa Cruz Avenue and Los Gatos-Saratoga Road (SR 9)

During the PM peak period, there is very heavy traffic flow in the eastbound direction, heading towards Highway 17, on Los Gatos-Saratoga Road. Because the intersections at University Avenue and at N. Santa

Cruz Avenue are only approximately 500 feet apart, there is potential for eastbound “spillback” from University Avenue at the N. Santa Cruz Avenue intersection during the PM peak hour. Spillback can occur between closely spaced intersections when there is insufficient storage space for all the queued vehicles at a downstream intersection, thereby preventing vehicles from an upstream intersection from proceeding during their green phase. During the most recent field observations, however, no spillback issues were observed. With the current signal timing implemented by Caltrans, all movements cleared within one signal cycle.

University Avenue and Los Gatos-Saratoga Road (SR 9)

During the AM peak hour, there is very heavy traffic flow in the westbound direction on Los Gatos-Saratoga Road. Therefore, spillback from the N. Santa Cruz Avenue intersection is more likely to occur at the University Avenue intersection during the morning peak period. However, no spillback issues were observed during the most recent field observations at this intersection.

Massol Avenue and Los Gatos-Saratoga Road (SR 9)

As mentioned above, the eastbound traffic flow on Los Gatos-Saratoga Road is very heavy during the PM peak period. Furthermore, because there are no signalized intersections west of the intersection at Massol Avenue, there are very few gaps in the eastbound traffic flow, making it difficult to turn left from westbound Los Gatos-Saratoga Road onto southbound Massol Avenue. In order to make the left turn during the PM peak hour, drivers have to take advantage of very small gaps in traffic and trust that the oncoming eastbound traffic will slow down sufficiently to allow them to complete the turn. Some eastbound drivers were observed to slow down substantially as they approached the intersection in order to allow a left-turning vehicle a long enough gap to turn in front of them. Most of the left turns observed by Hexagon during the PM peak hour occurred during very small gaps in eastbound traffic. When a driver was unwilling to turn left into such a small gap and waited for a larger gap, a queue of several vehicles was observed to develop in the left turn pocket.

Left turns from northbound Massol Avenue onto westbound Los Gatos-Saratoga Road are even more difficult during the heaviest part of the PM peak hour, since they require a gap in traffic in both directions. In 2015, Hexagon observed one car wait for a long time for a gap in both directions that would allow it to turn left, and then give up; the driver backed up so he could access the right turn lane on the other side of the pork chop island and turned right instead. Field observations in July 2016 indicated that northbound left turns frequently were made when a driver in the eastbound through direction deliberately paused at the intersection approach to allow a driver to turn left from Massol Avenue. Thus, although both the TRAFFIX analysis and Synchro analysis of this intersection indicate that this turning movement has a delay of over two minutes in both the AM and PM peak hours, a few drivers were observed to make this turn with shorter delays, due to the courtesy of other drivers.

The implication for this study is that if the pork chop island were moved so that westbound drivers on Los Gatos-Saratoga Road could make a U-turn in order to access the project site’s driveway, the heavy PM peak hour eastbound traffic would make such U-turns very difficult, because U-turns take longer to complete – and a larger gap in traffic – than left turns. Vehicles waiting for a sufficient gap to safely make a U-turn could cause even longer queues in the left-turn pocket in the PM peak hour than now occur. On the other hand, waiting for a sufficient gap in eastbound traffic to make a U-turn during the AM peak and non-peak periods would not be difficult.

N. Santa Cruz Avenue and Bachman Avenue

Although the intersection of N. Santa Cruz Avenue and Bachman Avenue was not initially included as a study intersection, Hexagon conducted field observations at this intersection during the AM and PM peak periods in 2015 and again in July 2016, based on a comment received from Caltrans on an earlier version of this TIA. This intersection is located in downtown Los Gatos, south of SR 9. It has two-way stop control on the Bachman Avenue approaches and bulb-outs for pedestrian crossings at all four corners. Hexagon observed no operational issues at this intersection during the AM or PM peak periods. No significant queuing was observed at any of the approaches. Sufficient gaps in traffic for all four left-turn movements were available without undue delay. Through movements on Bachman Avenue were also observed, and could be made without undue delay.

The heaviest volume observed was during the PM peak period in the southbound direction on N. Santa Cruz Avenue. Volumes in the AM peak period were much lighter in both directions, which is in accord with the fact that many shops and restaurants in the downtown area do not open until after the morning peak period has ended. Since traffic is uncontrolled on N. Santa Cruz Avenue at Bachman Avenue, the only time drivers stop is when a pedestrian crosses N. Santa Cruz Avenue or when a driver wants to turn left and the vehicles behind them must wait until the driver has completed the left turn. Despite the heavy southbound traffic flow on N. Santa Cruz Avenue during the PM peak period, Hexagon did not observe any queuing issues that affected SR 9. Since Hexagon assumes that most project-generated trips during the PM peak period would access the site by turning right from southbound N. Santa Cruz Avenue at Almendra Avenue, rather than Bachman Avenue, the project would have a negligible effect on this intersection.

SR 17 and SR 9 Interchange

Hexagon also conducted field observations at all of the on-ramps and off-ramps at the interchange connecting SR 17 and SR 9 (Los Gatos-Saratoga Road). A large volume of vehicles was observed exiting southbound SR 17 onto westbound SR 9 during the AM peak period. The first signalized intersection west of that off-ramp is at University Avenue. In July 2016, after Caltrans had adjusted the signal timing at University Avenue, the westbound queue from University Avenue did not extend as far as the SR 17 off-ramp. Vehicles were able to exit the off-ramp in order to travel west on SR 9 without any delay.

We note that none of the proposed project options would add a significant number of trips to the critical movement at this interchange, southbound SR 17 to westbound SR 9 during the AM peak hour. Specifically, the project is estimated to generate only 8 trips in the AM peak hour that would use the exit ramp from southbound SR 17 to westbound SR 9 and then drive to the project site. Such a small number of trips would have a negligible effect on this critical movement in the AM peak hour.

Los Gatos-Saratoga Road and Existing Site Driveway

The project site is currently served by two driveways on Los Gatos-Saratoga Road, one of which is close to the Santa Cruz Avenue intersection and in the same location that the proposed driveway would be. Due to the median on Los Gatos-Saratoga Road, drivers can only turn right when exiting this driveway. There are currently two thru lanes, one left-turn lane, and a short right-turn lane where this driveway intersects Los Gatos-Saratoga Road.

In order to determine if there are any operational problems related to this driveway location under existing conditions, Hexagon observed this driveway during the PM peak hour when eastbound traffic is heaviest. When exiting the site, all except one of the 30 observed outbound vehicles turned into the right-turn lane or into the through lane closest to the curb. One vehicle turned into the through lane further from the curb after the green phase at the signal had allowed all eastbound vehicles to clear and there was a gap in the traffic flow. No vehicles attempted to access the left turn lane.

In fact, due to the heavy eastbound traffic volumes in the PM peak hour, it was generally not possible for outbound vehicles to access the left-turn lane with the current signal phasing at the intersection. The eastbound left turn receives a green phase before the eastbound through movement. When the green phase for the left turns has allowed the left-turn pocket to clear, the vehicles in the through lanes are still waiting for a green phase and block access from the driveway to the left-turn pocket. By the time that the green phase for the eastbound through vehicles has allowed the through lanes to clear, the left-turn pocket usually already had several vehicles in it, so it was not possible for a vehicle to join the end of the queue from the driveway.

Accident Analysis

Based on data obtained from the Statewide Integrated Traffic Records System (SWITRS), there were five accidents at the intersection of SR 9 and University Avenue and three accidents at the intersection of SR 9 and Santa Cruz Avenue in the 3-year period between 10/1/2011 and 9/30/2014. The collision rate for these two intersections, calculated as the number of collisions per million vehicles entering the intersection, are 0.15 and 0.07, respectively. The statewide average collision rate for signalized 4-way intersections in suburban areas is 0.43, indicating that both of these intersections have an accident rate well below the statewide average. There were three accidents at the intersection of SR 9 and Massol Avenue during that same 3-year period, resulting in a collision rate of 0.11. The statewide average collision rate for unsignalized 3-way (tee) intersections in suburban areas is 0.14, indicating that this intersection also has a lower accident rate than the statewide average for similar types of intersections.

3.
Existing Plus Project Conditions

This chapter describes existing plus project traffic conditions, including the method by which project traffic is estimated. Existing plus project traffic conditions could potentially occur if the project were to be occupied prior to the other approved projects in the area.

Transportation Network Under Existing Plus Project Conditions

It is assumed in this analysis that the transportation network under existing plus project conditions would be the same as the existing transportation network.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours for the project option that would generate the most trips. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets. These procedures are described further in the following sections.

Trip Generation

As noted in Chapter 1, the trip generation estimates developed for this TIA were based on the project's proposed square footage as of January 2016: 4,622 s.f. for the corner building and 16,000 s.f. for the second building. As of July 2016, the proposed square footage of these buildings is a bit smaller: 4,200 s.f. and 15,500 s.f, respectively. As a result of reducing the total square footage by 922 s.f., the trip generation estimates included in this study are slightly overstated.

Because it is not yet known precisely what land uses would occupy the two proposed buildings, the combination of uses that would generate the greatest number of trips was used as a basis for this TIA. If a different combination of uses ultimately occupies the site, the site would generate fewer trips than estimated in this study.

The building on the corner may include a restaurant or retail space. Since restaurants generate more trips than retail uses, this study assumes that the 4,622 s.f. corner building will include a restaurant. The ITE category "high turnover sit-down restaurant" was used for the restaurant space because that results in a higher trip estimate than "quality restaurant," which also represents a sit-down facility. The ITE category "fast-food restaurant" has an even higher trip generation rate, but that is not representative of the type of restaurant that is proposed for the site.

The site plan also shows a 1,400 square foot dining patio in front of the corner building. This area would not be used if the corner building were to be occupied by a retail business. However, it could be used by a restaurant. This traffic study does not count the dining patio as part of the restaurant square-footage for the purposes of trip generation. Therefore, if the patio were to be used for dining, it is assumed that an equivalent number of seats would be removed from the interior portion of the restaurant. The Parking section of this report provides additional discussion of the dining patio.

The second building may include general office space, medical/dental office space, and/or up to 4,000 s.f. for a bank. Since banks generate more trips than medical offices, and medical offices generate more trips than general offices, the second building is assumed to include a 4,000 s.f. bank (the maximum bank size proposed) and 12,000 s.f. of medical office space.

Trips generated by any new development can be estimated based on counts of existing development of the same land use type. For the high-turnover sit-down restaurant and the medical/dental office space, Hexagon has used trip generation rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition*, 2012, in order to estimate the number of trips that would be generated by those land uses, as shown in Table 5.

The ITE PM peak hour rate for banks without a drive-through window (ITE land use 911) is based on an extremely small sample size.[3] An AM peak hour rate is not even provided by ITE for banks without a drive-through window. As an alternative, Hexagon has used the trip generation rates developed by the San Diego Association of Governments (SANDAG), which provides daily rates, AM peak hour rates, and PM peak hour rates for banks without a drive-through window.

Table 5
Project Trip Generation Estimates

						AM Peak Hour				PM Peak Hour			
Land Use	ITE Code	Size		Daily Rate	Daily Trips	Peak Rate	Trips In	Trips Out	Total Trips	Peak Rate	Trips In	Trips Out	Total Trips
Existing Use [1]													
Office Space and Retail		11,472	s.f.				12	1	13		33	35	68
Proposed Use with highest trip generation rates													
High-Turnover Restaurant [2]	932	4,622	s.f.	127.15	588	10.81	28	22	50	9.85	28	18	46
PM Pass-by reduction [4]											-6	-3	-9
Bank [3]	SANDAG	4,000	s.f.	150.00	600	6.00	17	7	24	12.00	19	29	48
PM Pass-by reduction [4]											-5	-7	-12
Medical Office Space [2]	720	12,000	s.f.	36.13	434	2.39	23	6	29	3.57	12	31	43
Proposed Use TOTAL					1622		68	35	103		48	68	116
Net Trips (Proposed Use less Existing Use)							**56**	**34**	**90**		**15**	**33**	**48**

Notes:
(1) Existing Use trips based on peak period driveway counts conducted on 1/21/15 and 1/22/15. Trips shown are the average of the peak hour volumes for two days.
(2) Trip rates for high-turnover sit-down restaurant and medical office space are from Institute of Transportation Engineers' *Trip Generation Manual, 9th Edition*, 2012. Average rates used for land uses 932 and 720.
(3) Trip rates for bank (without a drive-up window) was developed by San Diego Association of Governments (SANDAG). Source: City of San Diego, *Trip Generation Manual*, 2003.
(4) PM Peak Pass-By Reduction percentages are from City of San Diego, *Trip Generation Manual,* 2003, as follows: High-Turnover Restaurant: 20%; Bank: 25%. Totals may not add due to rounding.

[3] VTA's TIA Guidelines specifically note that when ITE data is based on a small sample size, an alternative source of trip generation rates should be used. The SANDAG trip generation rates are identified as an alternate source.

Pass-By Reductions

The restaurant and bank uses will attract some of their customers from people who are passing by the site on Los Gatos-Saratoga Road or on Santa Cruz Avenue and will not need to make a separate vehicle trip to get there. Because both of the roadways adjacent to the project site are major arterials, there is significant potential for pass-by trips at this location. Pass-by reductions are typically only applied to the PM peak hour.

Hexagon used the following pass-by reductions developed by SANDAG for these land uses:

- High-Turnover Sit-down Restaurant: 20%
- Bank: 25%

Since the CMP *Transportation Impact Analysis Guidelines* published in October 2014 state that the pass-by trip reduction should generally not be more than 30%, these pass-by rates are in accordance with those guidelines.

Trip Generation from Existing Uses

The analysis of the proposed project includes the application of a credit for the existing office and retail uses on the site. Traffic counts were done at the project driveways on two weekdays (Tuesday, January 20, 2015 and Wednesday, January 21, 2015) during the AM and PM peak periods to determine the number of peak hour trips generated by the existing uses. Based on the 2-day average of these driveway counts, the existing uses are generating a total of 13 trips in the AM peak hour and 68 trips during the PM peak hour.

Net Project Trips

Table 5 shows the project trip generation for the proposed combination of uses that would generate the greatest number of peak hour trips. Based on the ITE trip generation rates for medical office space and high-turnover sit-down restaurants, the SANDAG trip generation rates for banks without a drive-through window, and the pass-by rates recommended by SANDAG, the project would generate a total of 103 AM peak hour trips and 116 PM peak hour trips. After applying credit for the existing uses on the site, the net project trips are estimated as 90 additional AM peak hour trips (56 inbound and 34 outbound trips) and 48 additional PM peak hour trips (15 inbound and 33 outbound trips).

Trip Distribution

Two trip distribution patterns for the project were developed based on existing travel patterns on the surrounding roadway system, the locations of complementary land uses, and the projected geographic area from which each land use is likely to draw.

A general office or medical office is likely to draw employees from a fairly large area, many of whom would access the study area via SR 17, although most patients are likely to come from a more localized area. Figure 8 shows the trip distribution pattern for the space that would be used as a medical office or general office.

By contrast, it is assumed that few customers of the high-turnover sit-down restaurant or the bank would come from very far away, so the distribution for those uses assumes those customers would be drawn from a more localized area and that fewer would arrive via SR 17. Figure 9 presents the trip distribution pattern for the restaurant use and the bank. If the corner building were occupied by a retail use, it would also likely follow the same more localized distribution as a restaurant.

Trip Assignment

The gross and net peak hour trips generated by the project were assigned to the roadway system in accordance with the two trip distribution patterns. The trip assignment reflects the different routes that drivers may use the enter and exit the project site, given that the project driveway has only right-turn-in and right-turn-out access. Figure 10 shows the assignment of gross project trips during the AM and PM peak hours at each study intersection for the project. Figure 11 shows the assignment of trips generated by the existing uses on the site. Figure 12 shows the net project trip assignment, i.e., the gross project trips minus the trips from the existing uses. In addition, the following three additional intersections that would experience the greatest number of project trips going around the block through the residential neighborhood to enter or exit the project site are shown in these three figures:

- N. Santa Cruz Avenue and Almendra Avenue
- Tait Avenue and Almendra Avenue
- Tait Avenue and Los Gatos-Saratoga Road

Trip Assignment for Inbound Trips

The proposed U-turn at Massol Avenue is not included in the inbound trip assignment during the AM or PM peak hours. Accordingly, all inbound trips from the north and the east are assumed to travel "around the block" on N. Santa Cruz Avenue, Almendra Avenue, and Tait Avenue (or on University Avenue, Bachman Avenue and Tait Avenue), and then eastbound SR 9 in order to enter the project driveway. Figure 13 shows the routes that trips entering the site may use, when approaching from the north and the east.

For inbound vehicles coming from southbound University Avenue, it is assumed that some vehicles will turn right on SR 9, then left on Santa Cruz Avenue, and then access the site by going around the block on Almendra and Tait Avenues, and then turning right on SR 9. But, some vehicles were assigned to an alternate route of continuing south on University past SR 9, and then using Bachman Avenue and Tait Avenue to access the site. Although this route is longer, it allows a driver to avoid waiting at the Santa Cruz Avenue signal. Both of these routes are shown in Figure 13. Similarly, the trip assignment assumes that some drivers coming from westbound SR 9 will turn left at Santa Cruz Avenue to access the site and some will turn left at University Avenue (and avoid waiting at a second signal). Office workers who drive to the site every day from Highway 17 or from further east on SR 9 can be assumed to become familiar with the local street network and will realize that, depending on the signal phase when they approach University Avenue, they would be able to turn left at University and take the alternate route with less delay than waiting for a second signal at Santa Cruz Avenue.

Trip Assignment for Outbound Trips

Due to the difficulty that outbound trips from the site would have in making a left turn or U-turn at N. Santa Cruz Avenue during the PM peak period, different trip assignments were used for the AM and PM peak hours for drivers exiting the site and then heading north or west. Because the proposed driveway is located near the intersection of SR 9 and N. Santa Cruz Avenue and because of the heavy eastbound traffic volumes in the PM peak hour, it would not be possible for drivers to exit the driveway and cross the through lanes in order to gain access to the left-turn lane. As noted in the field observations discussed in Chapter 2, no vehicles attempted to access the left-turn lane during the PM peak hour because of the length of the queue in the left-turn pocket and the fact that eastbound through vehicles blocked access to it during the left-turn green phase. During most of the signal cycle, the left-turn queue extended beyond the point where the project driveway intersects SR 9, such that exiting drivers were not able to join the queue. Accordingly, the PM project trip assignment assumes that none of the drivers exiting the driveway would make a left-turn or a U-turn during the PM peak hour, and all would use an alternate route to proceed north on Santa Cruz Avenue or west on SR 9. The AM trip assignment assumes, however, that drivers exiting the project driveway would be able to access the left-turn lane during the AM peak hour in order to make a left-turn or U-turn.

Figure 14 shows several routes that drivers leaving the site during the PM peak hour may use, when heading north or west. One route includes going around the block on Almendra Avenue, Tait Avenue, and Bachman Avenue and then making a left turn onto northbound Santa Cruz Avenue. Upon reaching SR 9, the driver can go straight to head north or turn left to head west. This route may be taken in a clockwise or counter-clockwise direction, but, for simplicity, the assignment assumes all vehicles would turn right on Almendra and then left on Tait and go around the block in a counter-clockwise direction. Some drivers may also simply make a right turn on Almendra or Bachman Avenue and make a 3-point turn to turn around and then make a left turn onto Santa Cruz Avenue. Other routes include going "around the block" on University Avenue, Bachman Avenue, and Santa Cruz Avenue (again, this could be done in a clockwise or counter-clockwise direction). Making a U-turn at University Avenue is another possible route, but we assume that very few drivers would choose to make a U-turn at University Avenue, because, after crossing N. Santa Cruz Avenue, the left lane of SR 9 is typically much more congested than the right lane. All of these routes allow the driver to make a left turn or U-turn at a signalized intersection with protected left turns.

Another possible route for outbound trips would include a right turn at the project driveway, a right turn at Santa Cruz Avenue, a right turn at Almendra Avenue, a right turn at Massol Avenue, and then a left turn at Los Gatos-Saratoga Road. However, it is extremely difficult to make a left turn onto Los Gatos-Saratoga Road from northbound Massol Avenue during the PM peak hour, as noted in Chapter 2 under field observations and as described in greater detail in Chapter 7. Because this trip assignment is for the PM peak hour, it is assumed that no one would choose a route that includes a northbound left turn at that unsignalized intersection when there is very heavy eastbound traffic.

Existing Plus Project Traffic Volumes

The net project trips were added to existing traffic volumes to obtain existing plus project traffic volumes (see Figure 15). Traffic volumes for all components of traffic are tabulated in Appendix C.

Intersection Levels of Service Under Existing Plus Project Conditions

The results of the intersection level of service analysis under existing plus project conditions show that, measured against the Town of Los Gatos and CMP level of service standards, both signalized intersections would continue to operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic (see Table 6). Therefore, under existing plus project conditions, neither of the signalized intersections would be significantly impacted by the project.

Table 6
Existing Plus Project Intersection Levels of Service

			Existing		Existing + Project			
Study Number	Intersection	Peak Hour	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Change in Critical Delay (sec)	Change in Critical V/C
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	**>120**	**F**	**>120**	**F**	-	-
			8.8	A	8.8	A	-	-
		PM	**>120**	**F**	**>120**	**F**	-	-
			14.4	B	14.5	B	-	-
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	41.5	D	41.9	D	2.3	-0.005
		PM	48.3	D	48.6	D	0.5	0.013
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	33.7	C	34.3	C	0.9	0.012
		PM	39.7	D	39.9	D	-0.1	0.002

Notes:
* Denotes a CMP intersection
** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. Delay and level of service for the westbound left-turn movement are shown second.
BOLD indicates a substandard level of service

For the unsignalized intersection, the level of service for the worst approach (left turns from Massol Avenue onto westbound SR 9) would continue to be LOS F under existing plus project conditions. The project is not projected to add any trips to the left-turn movement from Massol Avenue onto westbound SR 9. However, because the project would add trips to Los Gatos-Saratoga Road, the delay for that turning movement would increase with the project.

Table 6 also presents the delay estimated for the westbound left turn movement at the intersection of Massol Avenue and Los Gatos-Saratoga Road. The westbound left turn movement is uncontrolled, but vehicles must wait for a gap in eastbound traffic in order to turn left. The westbound left-turn movement would operate at LOS A and LOS B in the AM and PM peak hours, respectively, under existing plus project conditions.

Because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, these results are shown for information purposes only. The intersection level of service calculation sheets are included in Appendix D.

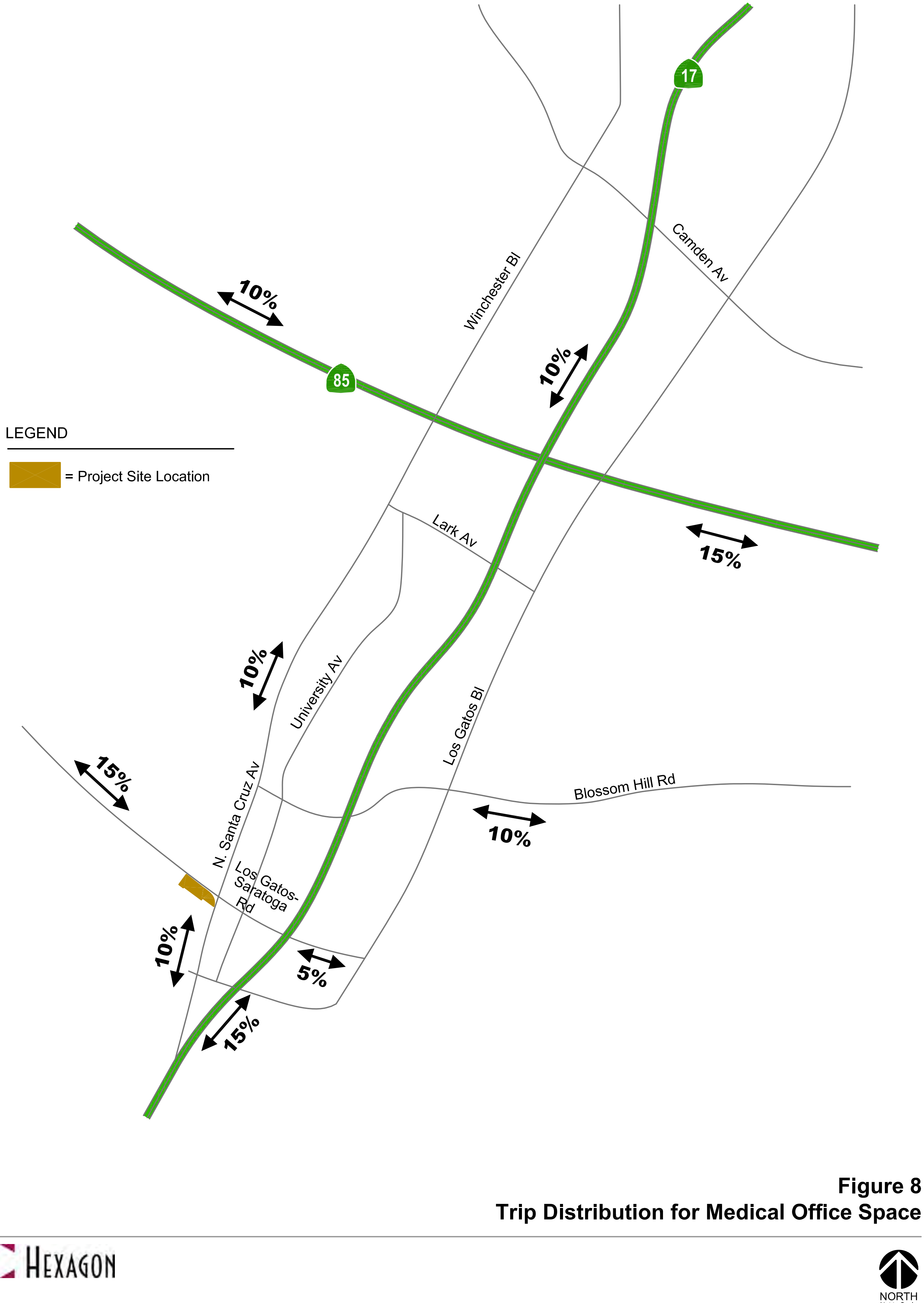


Figure 8
Trip Distribution for Medical Office Space

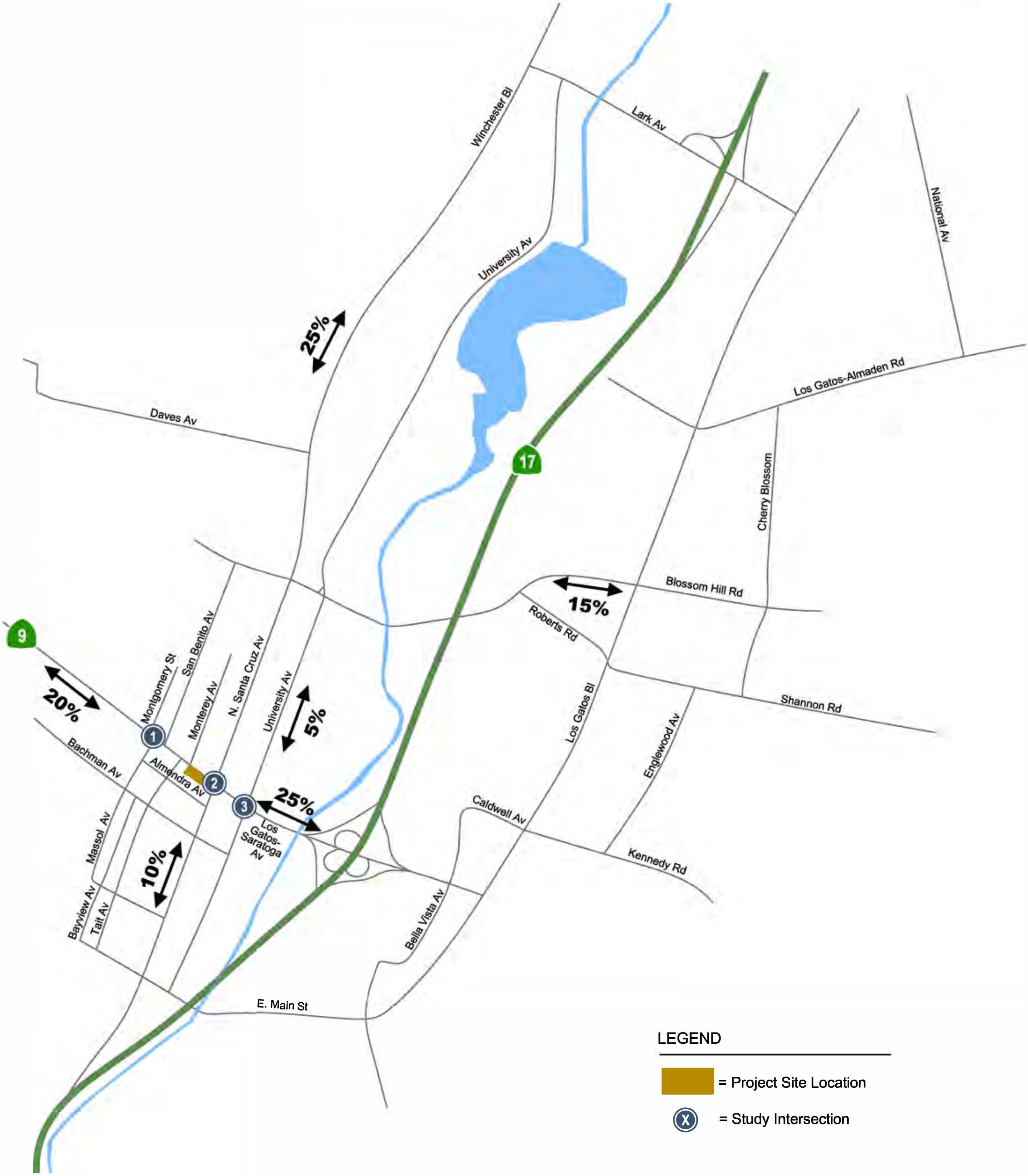


Figure 9
Trip Distribution for Restaurant and Bank

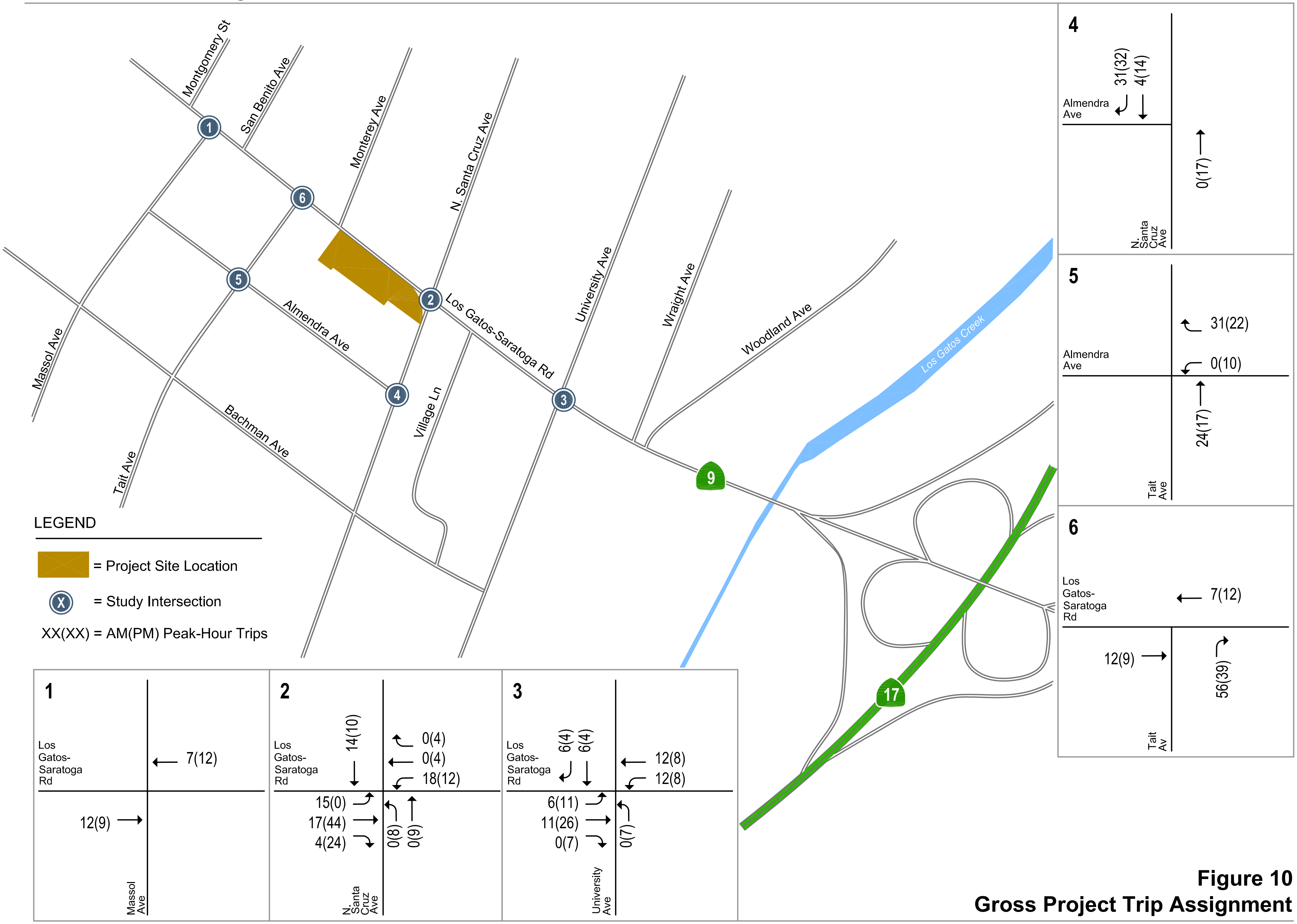


Figure 10
Gross Project Trip Assignment

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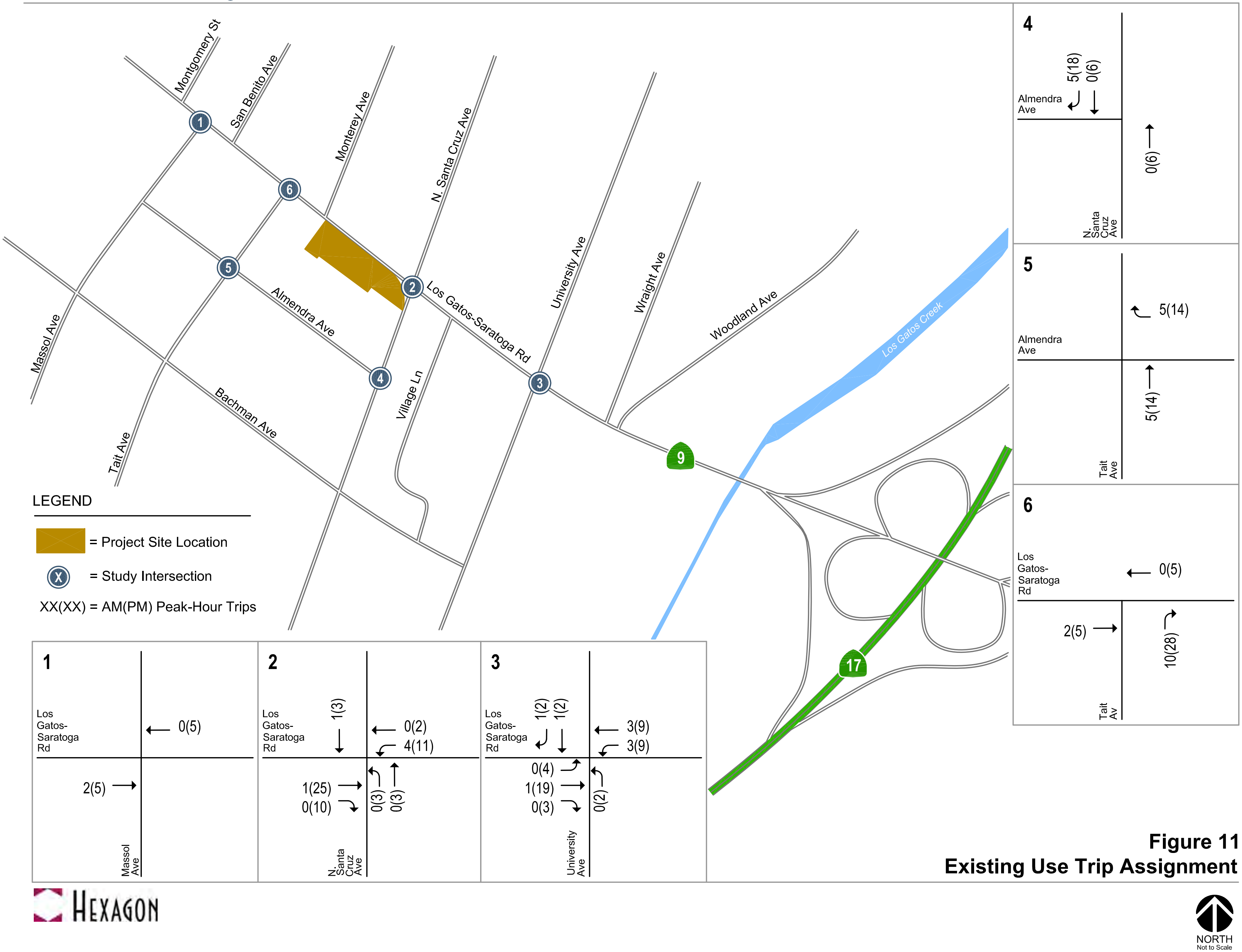

Figure 11
Existing Use Trip Assignment

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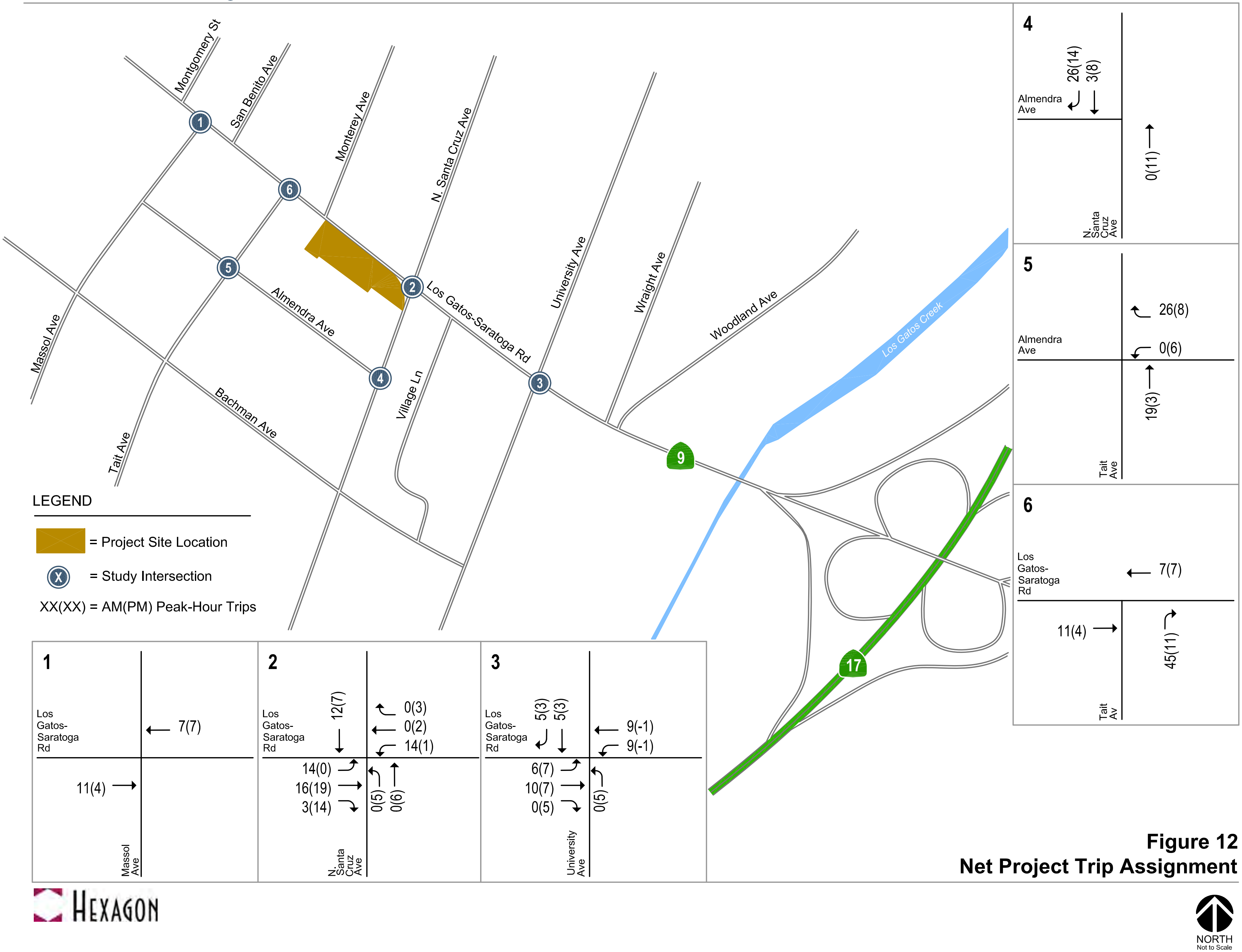

Figure 12
Net Project Trip Assignment

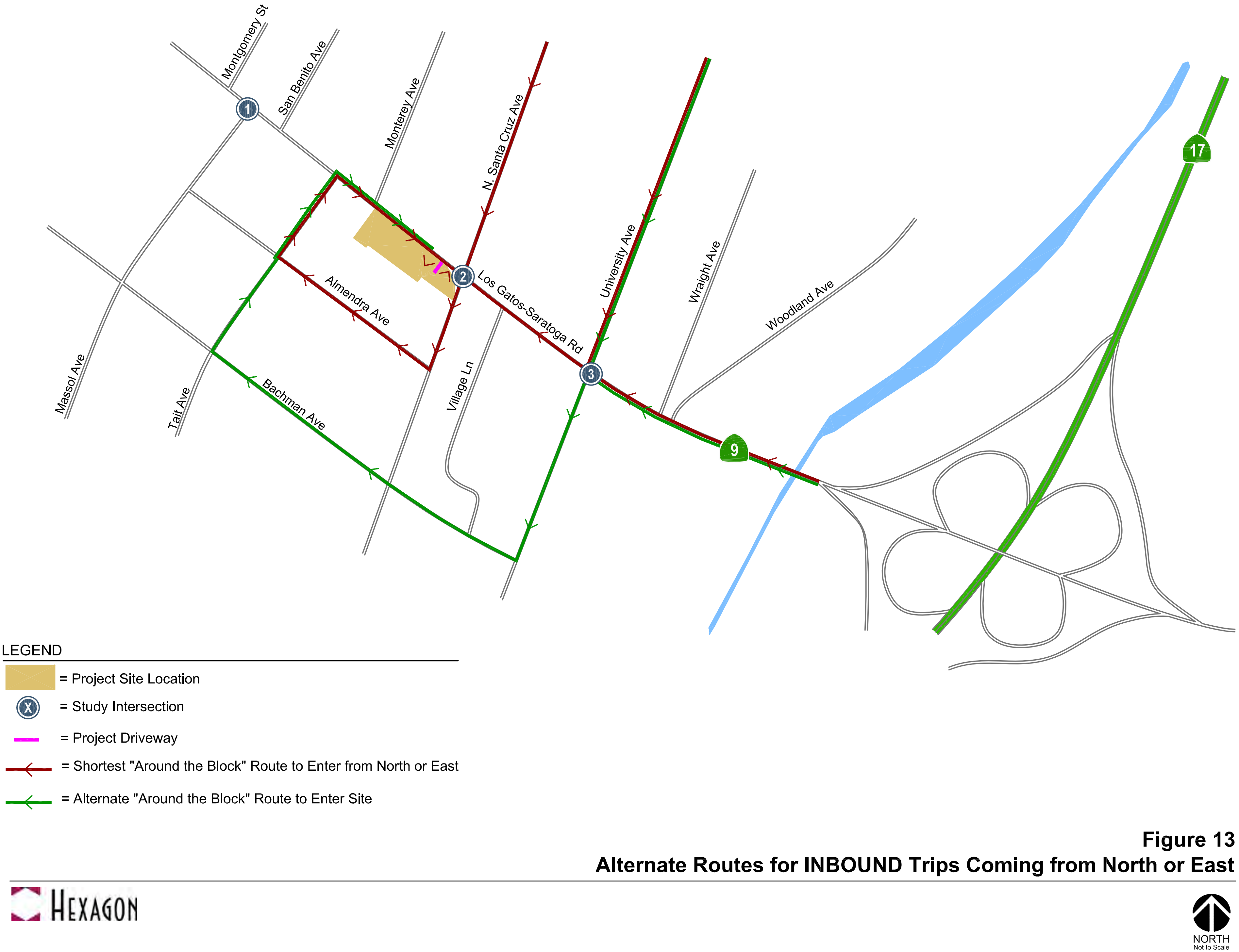

Figure 13
Alternate Routes for INBOUND Trips Coming from North or East

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Figure 14
Alternate Routes for OUTBOUND Trips Heading North or West in PM Peak-Hour

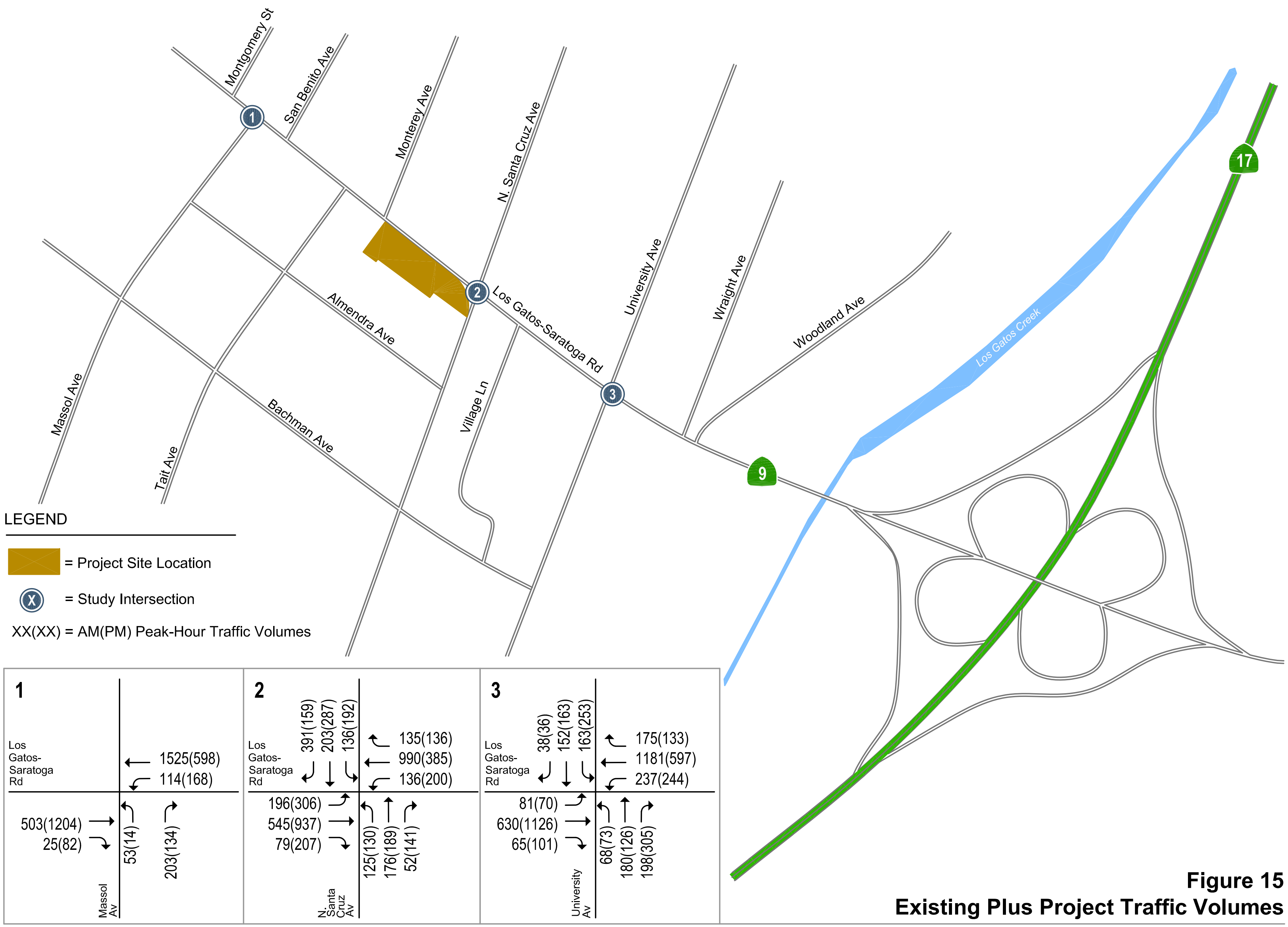

Figure 15
Existing Plus Project Traffic Volumes

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NORTH
Not to Scale

4. Background Conditions

This chapter presents background traffic conditions, which are defined as conditions just prior to completion of the proposed project. Traffic volumes for background conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions. The background scenario predicts a realistic traffic condition that would occur as approved development projects get built and occupied.

Background Transportation Network

It was assumed in this analysis that the transportation network under background conditions would be the same as the existing network.

Background Traffic Volumes

Approved developments are those developments that have been approved by local agencies, are under construction, or are built but not yet occupied. The approved project list was obtained from the Town of Los Gatos and is listed below in its entirety and included in Appendix B.

1. Albright Way: Replace 250,000 s.f. of office with 485,000 s.f. of office
2. 620 Blossom Hill Road: Increase square footage of auto dealer from 26,085 to 31,909 s.f.
3. 146 Gemini Court: 3-home subdivision
4. 20 High School Court: Improvements at high school; increase enrollment by 200 students
5. 550 Hubbell Way: 4 single-family homes
6. 375 Knowles Drive: 33 single-family homes
7. North 40 Specific Plan on Los Gatos Boulevard: Construct residential units, hotel, retail space, medical/dental offices, and general offices.
8. 55 Los Gatos-Saratoga Road: Demolish 3 hotel rooms and add retail, office and restaurant
9. 400 More Avenue: Renovation of Santa Clara Valley Water District's Rinconada Plant
10. Placer Oaks Road: 10-unit residential subdivision
11. 100 Prospect Avenue: Demolish convent and construct 17 single-family homes
12. 15700 Shady Lane: New residential subdivision

Based on a review of traffic studies prepared for these projects, a recent TRAFFIX file provided by the Town of Los Gatos, the types and sizes of these developments, and their distances from the project site, Hexagon determined which of these approved developments would add traffic to at least one of the study intersections during at least one of the peak hour periods. Background peak hour traffic volumes were calculated by adding to existing volumes the estimated traffic from the approved developments that were projected to add

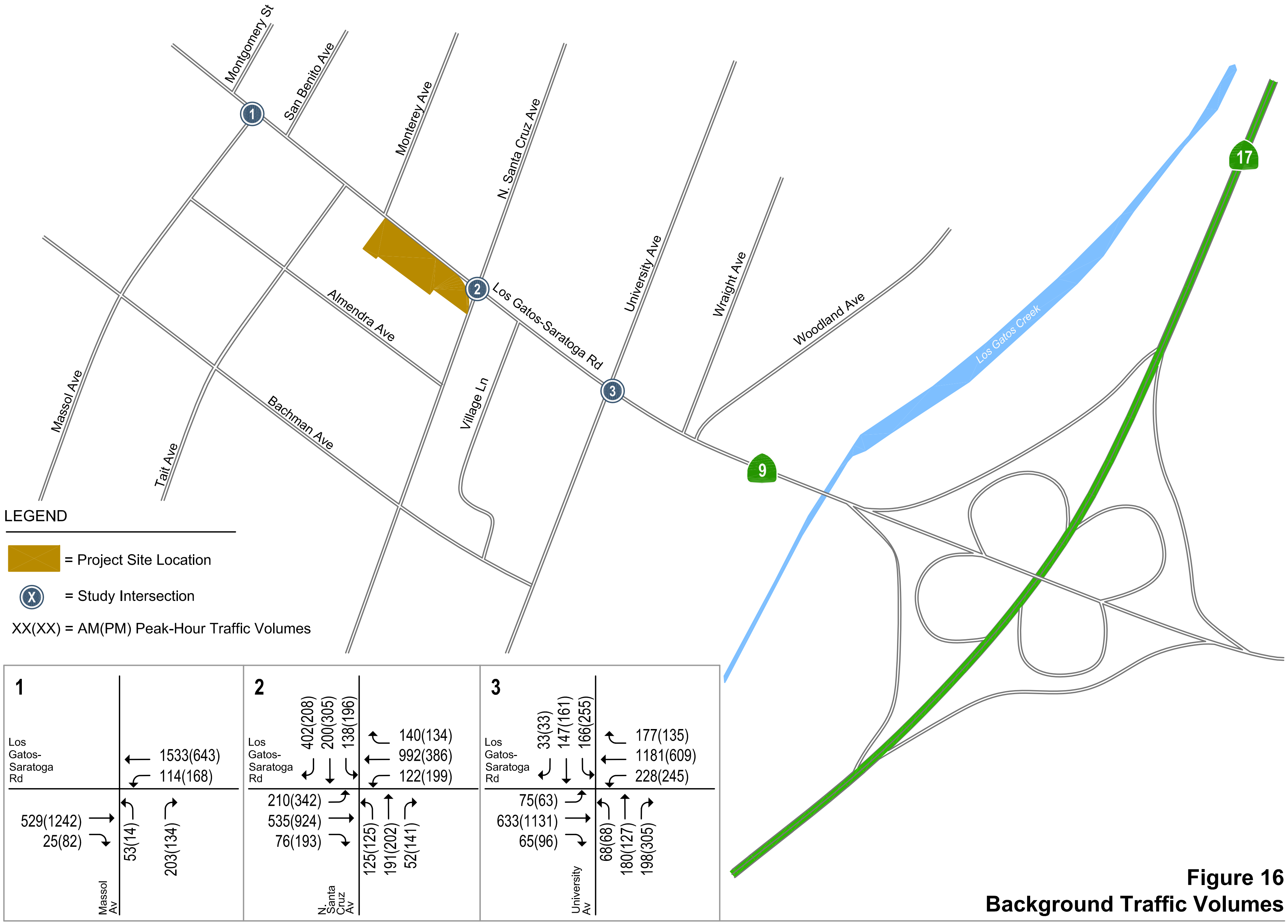

Figure 16
Background Traffic Volumes

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trips to one or more of the study intersections. Vehicle trips from each of the approved projects were obtained from the TRAFFIX file provided by the Town of Los Gatos or from the project's traffic impact study. The estimated trips were assigned to the study intersections according to the distributions and assignments identified in the Town's TRAFFIX file or the relevant traffic studies. Background traffic volumes are shown graphically on Figure 16.

Intersection Levels of Service Under Background Conditions

The results of the intersection level of service analysis under background conditions are shown in Table 7. The results show that both signalized intersections would operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic under background conditions.

For the unsignalized intersection, the level of service for the worst approach (left turns from Massol Avenue onto westbound SR 9) is projected to be LOS F under background conditions in both the AM and PM peak hours. The level of service for the westbound left turn movement would operate at LOS A and LOS C in the AM and PM peak hours, respectively, under background conditions. However, because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, these result are shown for information purposes only.

The intersection level of service calculation sheets are included in Appendix D.

Table 7
Background Intersection Levels of Service

Study Number	Intersection	Peak Hour	Existing Average Delay (sec)	Existing LOS	Background Average Delay (sec)	Background LOS
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	**>120**	**F**	**>120**	**F**
			8.8	A	8.9	A
		PM	**>120**	**F**	**>120**	**F**
			14.4	B	15.0	C
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	41.5	D	42.0	D
		PM	48.3	D	48.6	D
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	33.7	C	33.7	C
		PM	39.7	D	39.7	D

Notes:

* Denotes a CMP intersection

** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. Delay and level of service for the westbound left-turn movement are shown second.

BOLD indicates a substandard level of service

5.
Background Plus Project Conditions

This chapter describes near-term traffic conditions that most likely would occur when the project is complete. Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts. This traffic scenario represents a more congested traffic condition than the existing plus project scenario, since it includes traffic generated by approved but not yet built projects in the area.

Transportation Network Under Background Plus Project Conditions

It is assumed in this analysis that the transportation network under background plus project conditions would be the same as the existing transportation network.

Background Plus Project Traffic Volumes

The net peak hour trips generated by the project were added to background traffic volumes to obtain background plus project traffic volumes (see Figure 17). The net project trips generated by the project option that would generate the greatest number of trips and the trip distribution patterns used to assign those trips to the roadway system were discussed in Chapter 3. Traffic volumes for all components of traffic are tabulated in Appendix C.

Intersection LOS Under Background Plus Project Conditions

The results of the intersection level of service analysis under background plus project conditions show that, measured against the Town of Los Gatos and CMP level of service standards, both signalized intersections would continue to operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic (see Table 8). Therefore, under background plus project conditions, neither of the signalized intersections would be significantly impacted by the project.

For the unsignalized intersection, the level of service for the worst approach (left turns from Massol Avenue onto westbound SR 9) are shown. The level of service for that turning movement would continue to be LOS F under background plus project conditions in both the AM and PM peak hours. The project is not projected to add any trips to the left-turn movement from Massol Avenue onto westbound SR 9. However, because the project would add trips to Los Gatos-Saratoga Road, the delay for that turning movement would increase with the project.

Table 8 also presents the delay estimated for the westbound left turn movement at the intersection of Massol Avenue and Los Gatos-Saratoga Road. The westbound left turn movement is uncontrolled, but vehicles must wait for a gap in eastbound traffic in order to turn left. The westbound left-turn movement would operate at LOS A and LOS C in the AM and PM peak hours, respectively, under background plus project conditions.

Because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, these results are shown for information purposes only.

The intersection level of service calculation sheets are included in Appendix D.

Table 8
Background Plus Project Intersection Levels of Service

Study Number	Intersection	Peak Hour	Background: Average Delay (sec)	Background: LOS	Background + Project: Average Delay (sec)	Background + Project: LOS	Background + Project: Change in Critical Delay (sec)	Background + Project: Change in Critical V/C
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	**>120**	**F**	**>120**	**F**	-	-
			8.9	A	9.0	A	-	-
		PM	**>120**	**F**	**>120**	**F**	-	-
			15.0	C	15.0	C	-	-
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	42.0	D	42.5	D	0.6	0.009
		PM	48.6	D	48.8	D	0.5	0.013
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	33.7	C	34.3	C	1.0	0.013
		PM	39.7	D	39.9	D	-0.1	0.001

Notes:
* Denotes a CMP intersection
** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. Delay and level of service for the westbound left-turn movement are shown second.

BOLD indicates a substandard level of service

Even though the project would not have a significant impact on the study intersections, it would be required to pay a Traffic Impact Fee, as does all new development in the Town of Los Gatos, if it generates more daily trips than the existing uses on the site. The Town's Traffic Impact Fee is unrelated to whether or not a project has any impacts under CEQA, and is required of all new development projects that generate additional trips on the Town's roadway network. The Traffic Impact Fee would therefore apply if the project option selected generates more daily trips than the existing uses, based on the ITE daily trip generation rates. The current fee is $879 per new average daily trip generated. The purpose of the fee is to help fund transportation projects that are needed to accommodate vehicle trip growth. Among the projects that will be funded with Traffic Impact Fees are three that are on SR 9, near the project site:

- Intersection Improvements at SR 9 and N. Santa Cruz Avenue;
- SR 9 -Los Gatos Creek Trail connector – New path and bridge for bikes and pedestrians;
- Complete Street Improvements – SR 9 from University Avenue to Los Gatos Blvd.

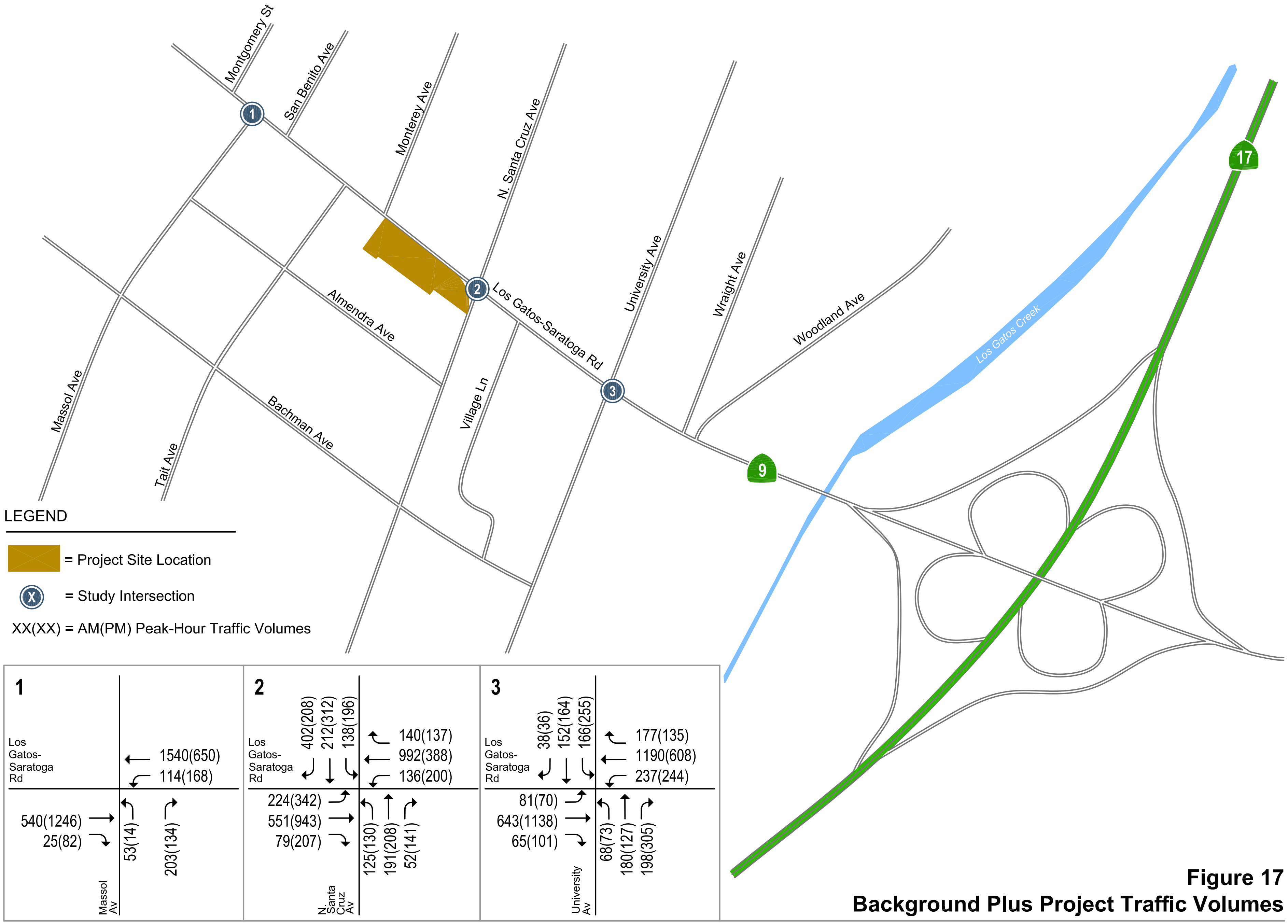

Figure 17
Background Plus Project Traffic Volumes

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6.
Cumulative Conditions

This chapter describes cumulative traffic conditions both with and without the proposed project. Cumulative conditions reflect the traffic conditions that are projected to occur in the future if all of the development projects that have been proposed in the study area were constructed and occupied. Cumulative traffic volumes reflect traffic generated by the approved development projects (as included in the Background scenario) and other proposed but not yet approved (pending) development projects. This chapter describes the procedure used to determine cumulative traffic volumes and the resulting traffic conditions, as well as the cumulative plus project conditions.

Roadway Network

It is assumed in this analysis that the transportation network under cumulative conditions would be the same as that described under existing conditions.

Pending Developments

Pending developments are those that have been proposed to local agencies but have not been approved. The following pending project list was obtained from the Town of Los Gatos and is listed below in its entirety and included in Appendix B.

1. Housing Element Affordable Housing Overlay Zone (AHOZ): Residential projects at 4 locations
2. 401 Alberto Way: Replace 30,000 s.f. office with 93,500 s.f. office complex
3. Dell Avenue Area Plan (Campbell): Add approx. 3 million s.f. office
4. 16845 Hicks Road: Increase square footage of existing church
5. 16151 Los Gatos Boulevard: Add 1,097 s.f. to auto dealer
6. 15600 and 15650 Los Gatos Blvd: Demolish auto dealership and build commercial buildings
7. 15380 Los Gatos Blvd: Replace convenience store at existing gas station with larger one
8. 16212 Los Gatos Blvd: Construct 11 single-family homes
9. 15500 Los Gatos Blvd: Buick site redevelopment
10. 101 Newall Ave: Demolish lodge and construct 4 single-family homes
11. Samaritan Drive: Net increase of 365,000 s.f. medical office (475,000 s.f. total)
12. 15215 Shannon Rd: 5-lot subdivision on vacant lot
13. Twin Oaks Drive: Construct 10 single-family homes
14. 15975 Union Ave: 3-home subdivision with net increase of 2 homes
15. 258 Union Avenue: Construct 7 single-family homes on vacant lot
16. 15860 Winchester: Demolish 4 homes and construct 30,680 s.f. office

Based on a review of traffic studies prepared for these projects, a recent TRAFFIX file provided by the Town of Los Gatos, the types and sizes of these developments, and their distances from the project site, Hexagon determined which of these pending projects would add traffic to at least one of the study intersections during at least one of the peak hour periods.

Cumulative (No Project) Traffic Volumes

Cumulative peak hour traffic volumes were calculated by adding to background volumes the estimated traffic from the pending developments that were projected to add trips to one or more of the study intersections. Vehicle trips for each of the pending projects were obtained from the TRAFFIX file provided by the Town of Los Gatos or from the project's traffic impact study. The estimated trips were assigned to the study intersections according to the distributions and assignments identified in the Town's TRAFFIX file or the relevant traffic studies. Cumulative traffic volumes are shown graphically on Figure 18.

Cumulative (No Project) Intersection Levels of Service

The results of the intersection level of service analysis under cumulative conditions without the proposed project are summarized in Table 9. The level of service calculation sheets are included in Appendix D. Under cumulative conditions, the intersection of Santa Cruz Avenue and Los Gatos-Saratoga Road would operate at LOS D during both the AM and PM peak hours. The intersection of University Avenue and Los Gatos-Saratoga Road would operate at LOS C during the AM peak hour and at LOS D during the PM peak hour.

Table 9
Intersection Levels of Service Under Cumulative Conditions, With and Without the Project

			Cumulative		Cumulative + Project			
Study Number	Intersection	Peak Hour	Average Delay (sec)	LOS	Average Delay (sec)	LOS	Change in Critical Delay (sec)	Change in Critical V/C
1	Massol Ave and Los Gatos-Saratoga Rd **	AM	**>120**	**F**	**>120**	**F**	-	-
			9.1	A	9.1	A	-	-
		PM	**>120**	**F**	**>120**	**F**	-	-
			15.0	C	15.1	C	-	-
2	Santa Cruz Ave and Los Gatos-Saratoga Rd.*	AM	43.7	D	44.2	D	0.6	0.009
		PM	50.0	D	50.3	D	0.6	0.013
3	University Ave. and Los Gatos-Saratoga Rd.*	AM	33.6	C	34.2	C	1.0	0.013
		PM	39.6	D	39.8	D	-0.1	0.001

Notes:
* Denotes a CMP intersection

** For the unsignalized intersection, the level of service for the worst approach (left turns from Massol) is shown first. Exact amount of delay not shown because delay exceeds calculation parameters. The delay and level of service for the westbound left-turn movement are shown second.

BOLD indicates a substandard level of service

Cumulative Plus Project Traffic Volumes

The net peak hour trips generated by the project were added to cumulative traffic volumes to obtain cumulative plus project traffic volumes (see Figure 19). The net project trips generated by the project and the trip distribution patterns used to assign them to the roadway system were discussed in Chapter 3. Traffic volumes for all components of traffic are tabulated in Appendix C.

Intersection LOS Under Cumulative Plus Project Conditions

The results of the intersection level of service analysis under cumulative plus project conditions show that, measured against the Town of Los Gatos and CMP level of service standards, both signalized intersections would continue to operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours of traffic (see Table 9). Therefore, under cumulative plus project conditions, neither of the signalized intersections would be significantly impacted by the project.

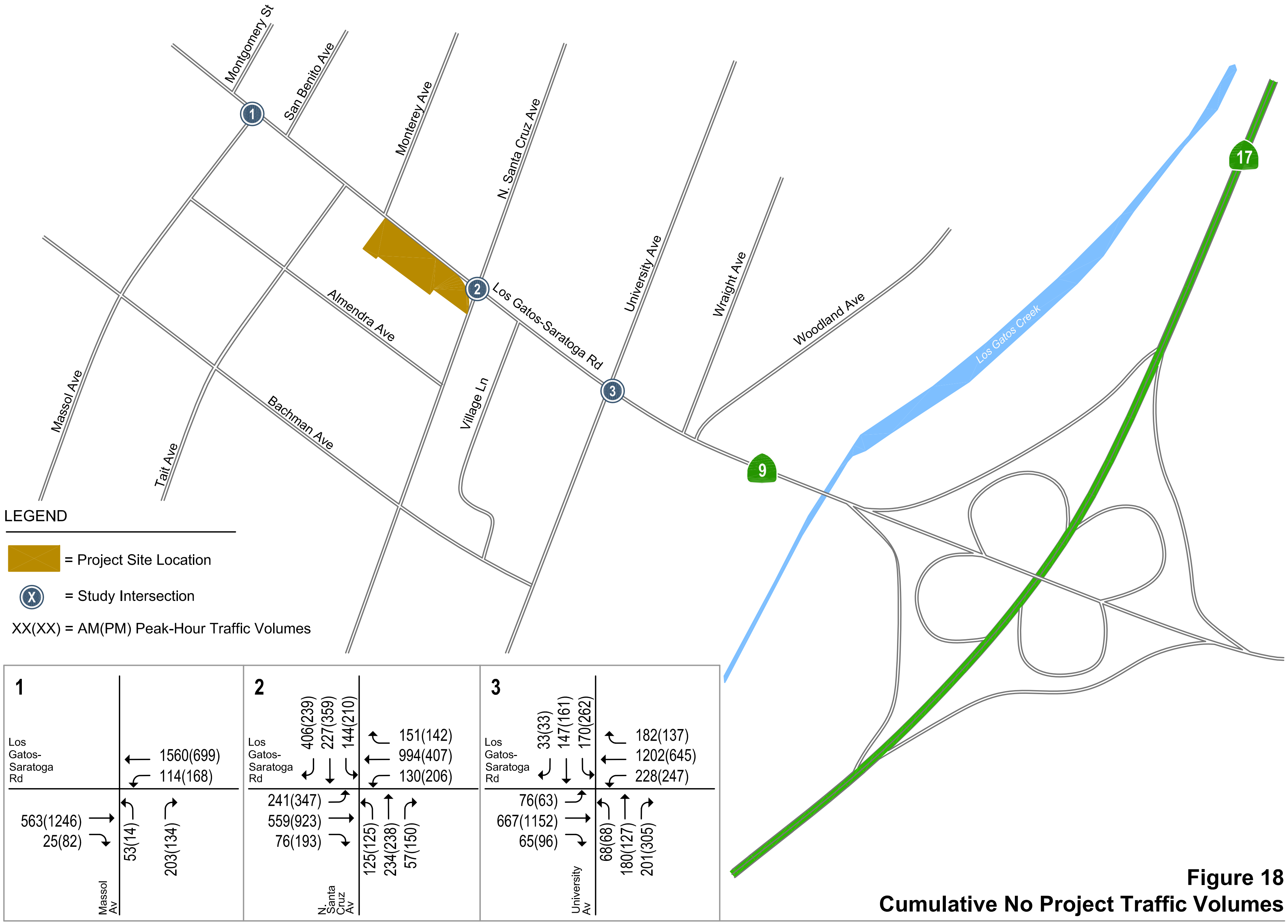


Figure 18
Cumulative No Project Traffic Volumes

HEXAGON

NORTH
Not to Scale

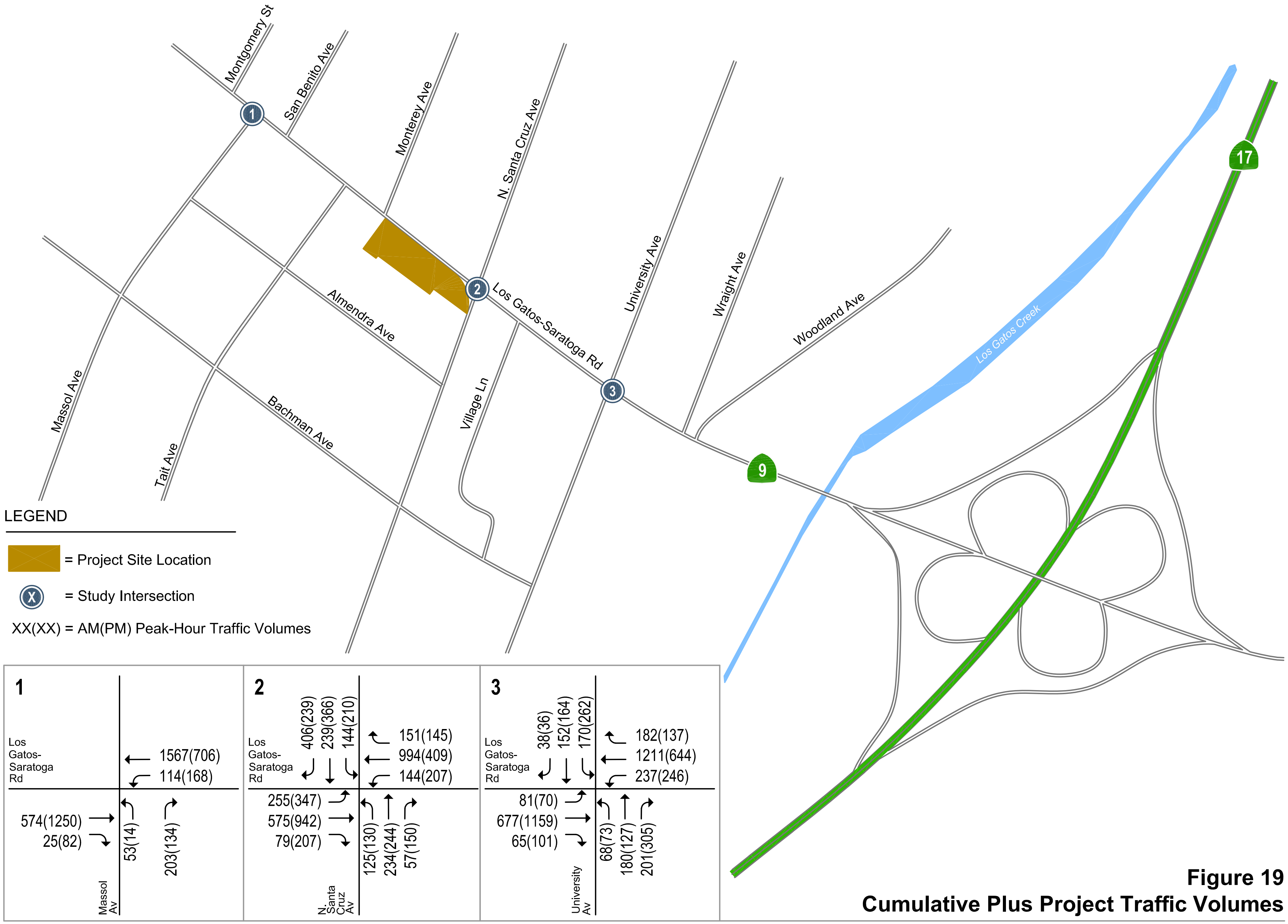


Figure 19
Cumulative Plus Project Traffic Volumes

HEXAGON

For the unsignalized intersection, the level of service for the worst approach (left turns from Massol Avenue onto westbound SR 9) would continue to be LOS F under cumulative plus project conditions. The project is not projected to add any trips to the left-turn movement from Massol Avenue onto westbound SR 9. However, because the project would add trips to Los Gatos-Saratoga Road, the delay for that turning movement would increase with the project.

Table 9 also presents the delay estimated for the westbound left turn movement at the intersection of Massol Avenue and Los Gatos-Saratoga Road. The westbound left turn movement is uncontrolled, but vehicles must wait for a gap in eastbound traffic in order to turn left. The westbound left-turn movement would operate at LOS A and LOS C in the AM and PM peak hours, respectively, under cumulative plus project conditions.

Because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, this result is shown for information purposes only.

The intersection level of service calculation sheets are included in Appendix D.

Even though the project would not have a significant impact on the study intersections, it would be required to pay a Traffic Impact Fee, as does all new development in the Town of Los Gatos, if it generates more daily trips than the existing uses on the site. The Town's Traffic Impact Fee is unrelated to whether or not a project has any impacts under CEQA, and is required of all new development projects that generate additional trips on the Town's roadway network. The Traffic Impact Fee would therefore apply if the project option selected generates more daily trips than the existing uses, based on the ITE daily trip generation rate. The current fee is $879 per new average daily trip generated. The purpose of the fee is to help fund transportation projects that are needed to accommodate vehicle trip growth. Among the projects that will be funded with Traffic Impact Fees are three that are on SR 9, near the project site:

- Intersection Improvements at SR 9 and N. Santa Cruz Avenue;
- SR 9 - Los Gatos Creek Trail connector – New path and bridge for bikes and pedestrians;
- Complete Street Improvements – SR 9 from University Avenue to Los Gatos Blvd.

7. Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project, including:

- Modifications at the N. Santa Cruz Avenue and Los Gatos-Saratoga Road intersection
- Site access and on-site circulation
- Modifications to Massol Avenue to permit U-turns from westbound SR 9
- Queuing analysis at selected intersections
- Parking analysis
- Potential project impacts to transit, bicycle, and pedestrian facilities

Unlike the level of service impact methodology, which is adopted by the Town Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Modifications at N. Santa Cruz Avenue Intersection

The Town of Los Gatos plans to make modifications to the intersection of Los Gatos-Saratoga Road (SR 9) and N. Santa Cruz Avenue. Figure 20 presents a conceptual drawing of these planned improvements. The Town proposes elimination of the existing pork chop islands and "squaring off" three of the corners, which would enhance pedestrian safety. Reducing the radius of the curves on the corners would require drivers to slow down more when making a right turn, which would provide more opportunity for them to see pedestrians in the crosswalk. ADA-compliant ramps would also be added at each of the four corners.

The Town also proposes to add two additional lanes to the eastbound intersection approach: a right-turn lane and a second left-turn lane.. The eastbound right-turn lane would be directly adjacent to the project site. As shown on Figure 20, a narrow strip of right-of-way would be taken from the project site in order to widen the roadway sufficently to add two additional eastbound lanes to this intersection approach. A preliminary check of the Town's conceptual drawing of the modifications indicates that the right-of-way that would be taken would not include the footprint of the proposed corner building. We recommend, however, that the applicant's architect work with the Town to ensure that the building does not encroach into the necessary right-of-way for the roadway widening.

In order to make room for two additional lanes, the median on the west approach would be narrowed and moved so that the eastbound lanes could be shifted north slightly. Modifications would also be needed to the median on the east approach so that the receiving lanes would line up properly.

The project's site plan appears to be compatible with these improvements, as shown on Figure 20, although we recommend that the project architect confirm this point. The project would pay a fair share towards the cost of these intersection improvements through the Town's Traffic Impact Fee.

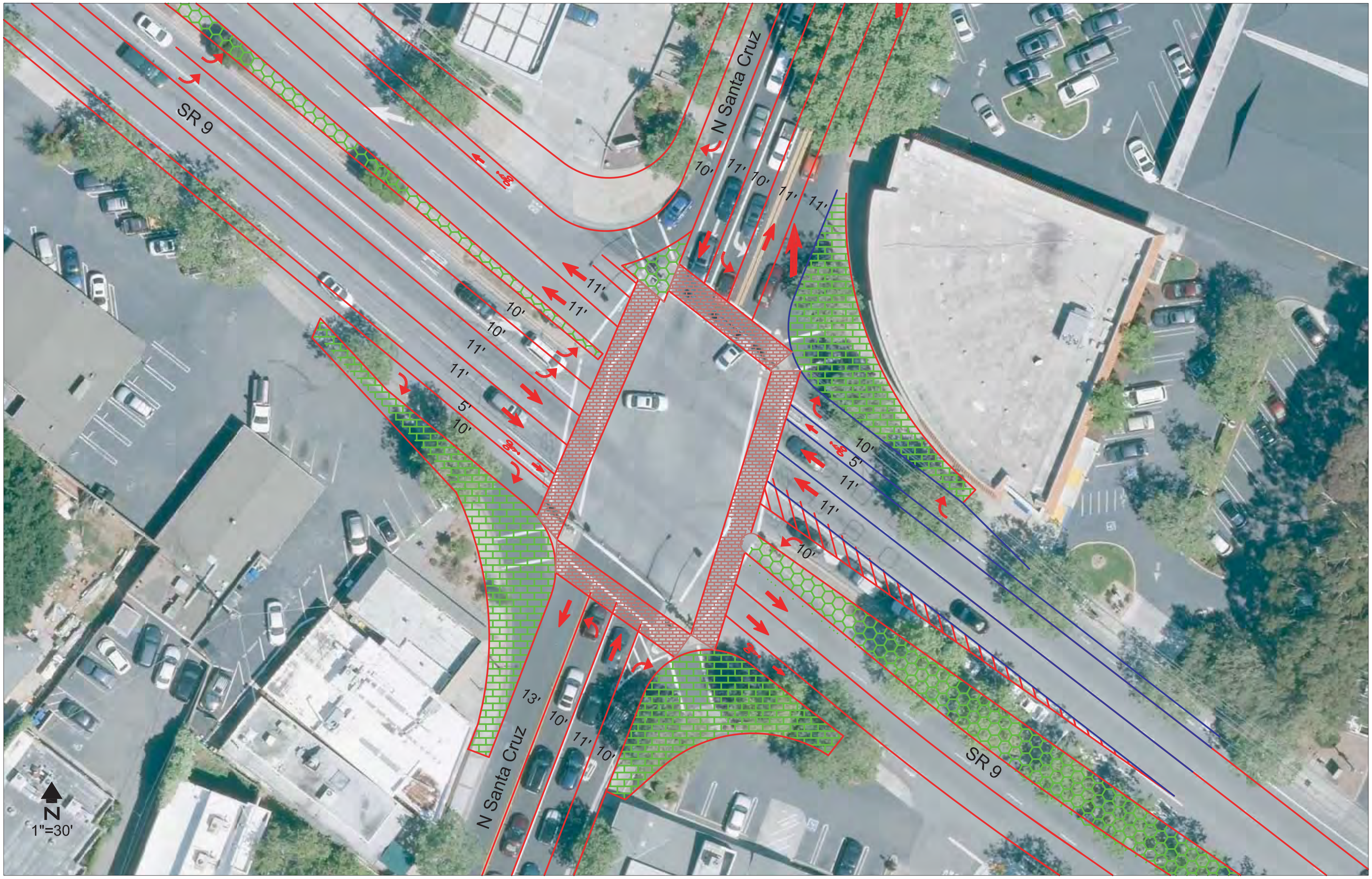


Figure 20
Conceptual Improvement Plan for Los Gatos-Saratoga Road and N. Santa Cruz Avenue

Site Access and Circulation

The site access and circulation evaluation is based on the site plan dated July 12, 2016, prepared by Kenneth Rodrigues & Partners, Inc. (see Figure 3). This site plan applies to all of the potential land use options proposed for the site. On-site vehicular circulation was reviewed in accordance with generally accepted traffic engineering standards.

Project Driveway

Vehicular access to the project site would be provided via a single driveway on Los Gatos-Saratoga Road. Due to the median on Los Gatos-Saratoga Road, access to the driveway would be possible only from eastbound Los Gatos-Saratoga Road, and the driveway would be right-turn-in and right-turn-out only.

The driveway would serve both inbound and outbound trips for both buildings. The total (gross) number of trips that would enter and exit the site at the driveway is shown in Figure 21. As shown on the site plan (Figure 3), the driveway would provide access to a surface parking lot between the two buildings, the ramp leading to and from a below-grade parking garage, the project's trash and recycling enclosure, and three parking stalls for an adjacent property.

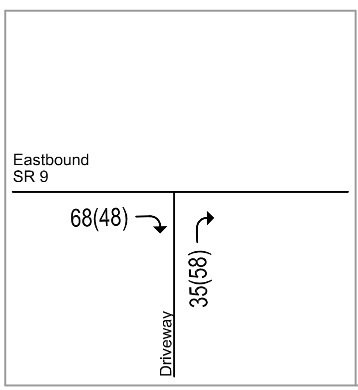
The proposed driveway would be in approximately the same location as one of the existing driveways that now serves the site. From a traffic operations standpoint, it would be preferable to place the driveway farther from the Santa Cruz Avenue intersection in order to provide a greater distance for outbound drivers to enter a traffic lane before reaching the intersection, However, because an adjacent parcel has requested access to the rear of their property, it is not feasible to place the driveway on the other end of the project site. Providing access to the adjacent property's three parking spaces (see Figure 3) represents a significant design constraint for the site plan.

As discussed in Chapter 3 regarding the project trip assignment, the proximity of the driveway to the intersection at Santa Cruz Avenue would make it extremely difficult for drivers exiting the site to access the left-turn lane during the PM peak period when eastbound traffic volumes are high. Because the queue in the left-turn pocket extended past the point where the driveway intersects SR 9 during much of the PM peak hour, drivers would not be able to enter the left-turn queue. As noted in the field observations in Chapter 2, however, no operational problems were noted with the existing driveway. Out of 30 drivers exiting the site from the existing driveway, no one was observed to attempt to access the left-turn lane during the PM peak hour. Most vehicles entered the right-turn lane and turned right onto Santa Cruz Avenue, and all but one of the others entered the through lane closest to the curb. One vehicle entered the through lane further from the curb immediately after the signal had cleared the through lanes. Thus, during the PM peak hour, drivers leaving the site would only be able to turn right or go straight through the intersection. Earlier in the day, when eastbound traffic volumes are not as great, drivers would be able to wait for gaps in eastbound traffic in order to access the left-turn lane.

Project Access

Because of the median on Los Gatos-Saratoga Road, the key access issue for the project site relates to site access for vehicles on westbound Los Gatos-Saratoga Road. The median extends from N. Santa Cruz Avenue to Massol Avenue. However, because of the presence of a pork chop island on Massol Avenue, it is not currently possible to make a U-turn from westbound Los Gatos-Saratoga Road at Massol Avenue. Furthermore, there are no other opportunities for a U-turn further west. Thus, vehicles traveling west on Los Gatos-Saratoga Road past the project site have no opportunity under existing conditions to make a U-turn in order to enter the site.

Thus, as explained in the trip assignment discussion in Chapter 3, under current conditions, the most direct route for a vehicle coming from east of the project site to enter the project's driveway would be to turn left from westbound Los Gatos-Saratoga Road onto southbound N. Santa Cruz Avenue, turn right on Almendra Avenue, turn right on Tait Avenue, and then turn right on Los Gatos-Saratoga Road (see Figure 13). Similarly, vehicles approaching the site from the north on N. Santa Cruz Avenue would likely proceed straight through the intersection at SR 9, and then follow the same "around



LEGEND

= Project Site Location

= Study Intersection

XX(XX) = AM(PM) Peak-Hour Trips

= Project Driveway

Figure 21
Total Project Trips at Project Driveways

NORTH
Not to Scale

the block" route on Almendra Avenue, Tait Avenue, and then eastbound SR 9. Clearly, many other routes are possible to approach the site from westbound SR 9, including using the residential streets of Bachmann Avenue and Massol Avenue, and the trip assignment for this study assumes that some drivers would prefer to avoid the signal at Santa Cruz Avenue by taking University Avenue and Bachman Avenue to access the site.

Since the existing buildings on the site have the same access issue, we estimate that the project would result in approximately 45 additional trips using the nearby residential streets during the AM peak hour. During the PM peak hour, we estimate an additional 11 trips going around the block to enter the site. Based on our field observations, Almendra, Bachman, and Tait Avenues have ample capacity to accommodate those additional around the block trips, and there would be no operational problems due to those trips.

Allowing U-Turns at Massol Avenue

The advantage of facilitating a U-turn at Massol Avenue is that it would provide an access route to the project site for those inbound vehicles without entering the residential neighborhood on Almendra, Bachman, or Tait Avenues. (Note that vehicles coming from downtown Los Gatos and heading northbound on Santa Cruz Avenue would likely turn left on Bachmann Avenue or Almendra Avenue before reaching SR 9, and the option of making a U-turn at Massol Avenue would not change their route.)

As noted previously, the 3-legged intersection of Los Gatos-Saratoga Road and Massol Avenue is a one-way stop controlled intersection; traffic on Los Gatos-Saratoga Road is uncontrolled An important feature of this intersection is that Los Gatos-Saratoga Road has a single eastbound lane west of Massol Avenue (i.e., at the west approach), and a second eastbound lane is added east of the Massol Avenue intersection. Thus, vehicles turning right from Massol Avenue have direct access to that additional lane after proceeding past the pork chop island, and do not need to wait for gaps in eastbound traffic in order to turn right onto Los Gatos-Saratoga Avenue. The pork chop island serves to protect the additional eastbound lane on SR 9 from eastbound through traffic on SR 9, so that right turns from Massol Avenue do not need to wait for a gap in eastbound traffic.

As shown on Figure 22, it would be possible to move the pork chop island on Massol Avenue so that U-turns could be made from westbound SR 9. By moving the pork chop island westward, so that it is as close as possible to the right side of the Massol Avenue left-turn lane, vehicles would have enough space to make a U-turn from westbound SR 9. A portion of the median on SR 9 (the tip of the median next to the westbound left-turn pocket) would also need be removed so that vehicles could begin their turning movement from the pocket earlier. The crosswalk and lane striping would also need to be repainted to correspond to the new location of the pork chop island. In addition, a sign should be posted to require vehicles turning right from Massol Avenue onto eastbound SR 9 to yield to vehicles making U-turns from westbound SR 9. With these changes, all vehicles except large trucks (i.e, semi-trailers with three or more axles) would be able to make the U-turn from westbound SR 9 to eastbound SR 9.

By making this change at Massol Avenue, vehicles going to the project site would be able to make a U-turn to reach the project's driveway and would not need to use either of the around the block routes described above (on N. Santa Cruz Avenue, Almendra Avenue, and Tait Avenue or on University Avenue, Bachman Avenue, and Tait Avenue) and shown on Figure 13.

Hexagon evaluated the level of service for the westbound left-turn movement on SR 9, with and without U-turns. The delay and level of service for that movement with the existing lane geometry (no U-turns allowed) is shown in Table 10 and summarizes the findings for that movement, as presented in the previous level of service tables in this report. To analyze the effect of allowing U-turns, it was assumed that both project trips and non-project-related trips would make U-turns if it were possible to do so. Hexagon doubled the gross number of project trips that would make the U-turn in order to estimate the number of non-project-related trips that would also make the U-turn. The existing, background, and cumulative "no project" scenarios assume that trips from the existing uses on the site and non-project-related trips would make the U-turn if it were allowed.

Table 10 shows the delay and level of service for all operating scenarios when the U-turns are added to the left-turn volume for westbound Los Gatos-Saratoga Road at Massol Avenue. The level of service evaluation indicates that if U-turns were permitted, this movement would operate at LOS A in the AM peak hour and LOS C in the PM peak hour under all operating scenarios.[4]

Table 10
Level of Service for Westbound Left Turn Movement at Massol Avenue With and Without U-Turns

Scenario	Peak Hour	WBL Without U-Turns Avg. Delay (sec/veh)	WBL Without U-Turns LOS	WBL With U-Turns Avg. Delay (sec/veh)	WBL With U-Turns LOS
Existing [1]	AM	8.8	A	9.0	A
	PM	14.4	B	16.1	C
Existing + Project [2]	AM	8.8	A	9.3	A
	PM	14.5	B	16.5	C
Background [1]	AM	8.9	A	9.2	A
	PM	15.0	C	16.8	C
Background + Project [2]	AM	9.0	A	9.5	A
	PM	15.0	C	17.2	C
Cumulative [1]	AM	9.1	A	9.4	A
	PM	15.0	C	16.8	C
Cumulative + Project [2]	AM	9.1	A	9.6	A
	PM	15.1	C	17.3	C

Notes:
[1] It is assumed that if U-turns were allowed under "No Project" scenarios, trips from the existing uses on the site and non-project-related trips would make U-turns.
[2] It is assumed that if U-turns were allowed under "Plus Project" scenarios, project trips and non-project-related trips would make U-turns.

As described in Chapter 2, Hexagon's field observations and the traffic counts indicate that such a U-turn would not be difficult during the morning, mid-day, and late evening hours, and most drivers coming southbound on Santa Cruz Avenue or westbound on SR 9 would choose a route that includes such a U-turn to access the site, except during the PM peak hour. During the PM peak hour, there is very heavy traffic in the eastbound direction, making left turns from westbound Los Gatos-Saratoga Road onto Massol Avenue difficult.[5] Since there are no signals west of Massol Avenue, the eastbound traffic approaches the intersection in a steady continuous flow, rather than in platoons. Since a U-turn requires more time and a longer gap in traffic than a left turn, U-turns would be more difficult during the portions of the PM commute period with the heaviest eastbound traffic. Based on our field observations, many left turns onto Massol Avenue during the PM peak hour are currently facilitated by eastbound drivers who slow down to allow a driver to turn left in front of them. As discussed further below, however, the Town may wish to limit U-turns during the PM peak period if U-turns cause operational issues when the eastbound traffic flow is heavy.

[4] Hexagon conducted this evaluation using both the TRAFFIX and Synchro 9 software packages, which yielded the same level of service results. Both software packages treat U-turns as additional left turns and do not account for the fact that U-turns take longer than left turns to complete. Therefore, the average seconds of delay presented in Table 10 understates the delay that would actually occur if U-turns were allowed.

[5] The intersection counts conducted in March 2016 document that traffic flows are far heavier in the eastbound direction in the evening than in the morning. Eastbound thru volume on SR 9 at Massol was 492 vehicles in the AM peak hour and 1,200 vehicles in the PM peak hour.

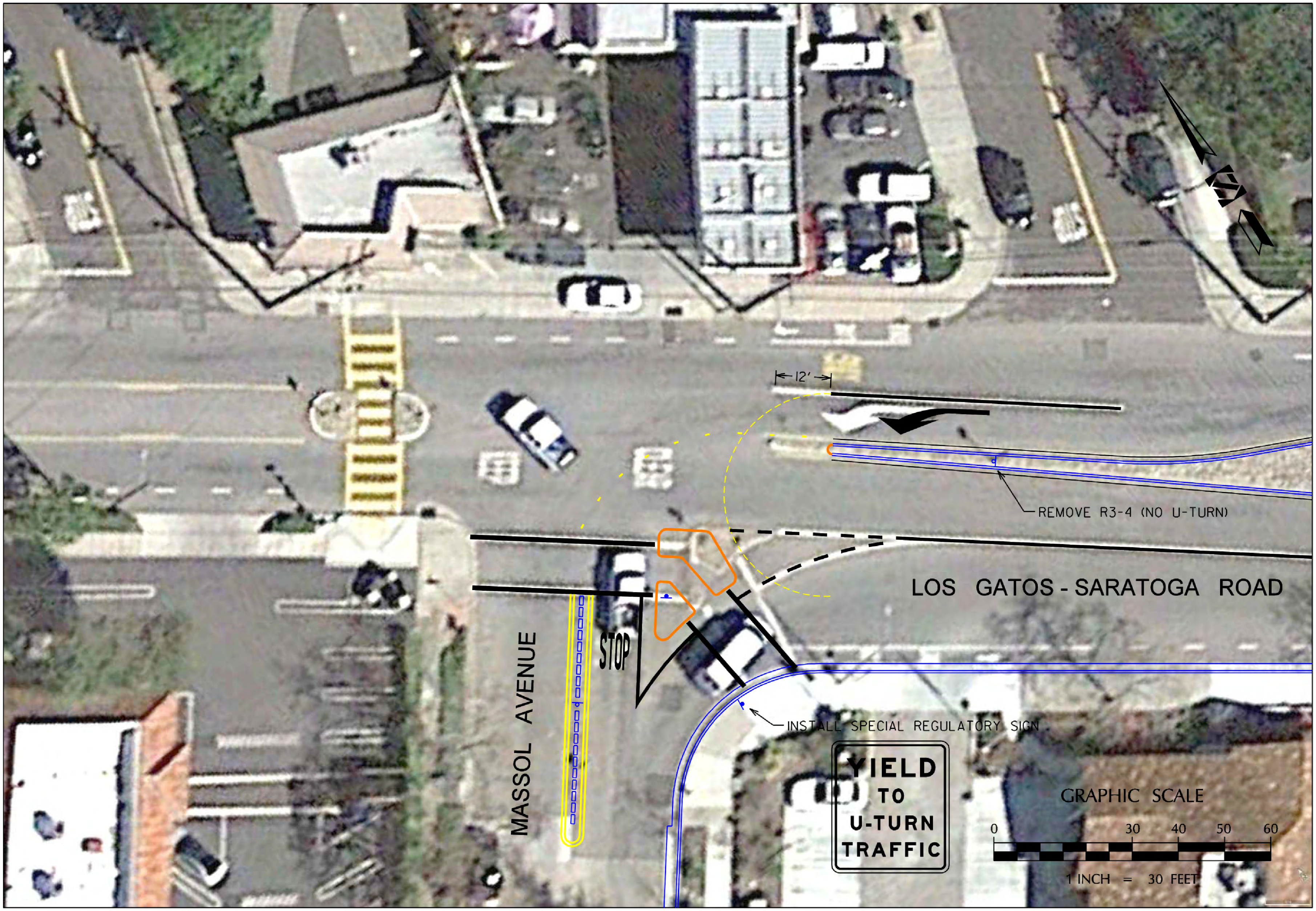


Figure 22
Massol Avenue Modification

NORTH
Not to Scale

Traffic Signal Check at Massol Avenue

One way to address the difficulty of left turns and U-turns during the PM peak hour would be to install a signal at this intersection and provide a protected left turn phase for the westbound SR 9 left turn lane. A signal would also benefit drivers wishing to turn left from Massol Avenue onto westbound SR 9. Hexagon conducted a signal warrant check for this intersection under background plus project conditions, but the traffic volume and pedestrian volume on Massol Avenue are not sufficient to meet the peak hour volume warrant for a traffic signal.

The delay for left turns from Massol Avenue onto westbound SR 9 were calculated by TRAFFIX to be over two minutes in both the AM and PM peak hours under existing conditions. Because left turns from Massol Avenue require a gap in both directions of traffic on SR 9, this result is consistent with Hexagon's field observations in both the AM and PM peak hours. During both time periods, Hexagon observed a vehicle give up on making a left turn onto westbound SR 9, back up, and make a right turn instead. Hexagon also observed vehicles pull out to begin their left turn from Massol Avenue during a gap in eastbound traffic, and then wait in the intersection for a small gap in the westbound direction.

However, despite the very long delays for drivers wishing to make a left turn from Massol Avenue onto westbound SR 9 during AM and PM peak hours, Hexagon does not recommend a signal at this intersection, due to the low northbound left-turn volume**.** Right turns from Massol Avenue were excluded from the signal warrant volume because they currently experience no delay when making their turn. Although it may be theoretically possible for a right-turning vehicle to experience delay because of an extremely long queue of left-turning vehicles and the presence of parked vehicles on Massol Avenue, Hexagon did not observe this to occur during any of our field observations. Even though Massol Avenue has only one northbound lane, the roadway is wide enough near the intersection for vehicles wishing to make a right turn to pass a short queue of vehicles waiting to make a left turn. Therefore, the right-turning volumes were not included in the signal warrant check.

Adding a signal at this location would also create the potential for spillback issues between Santa Cruz Avenue and Massol Avenue during times of high traffic volumes. Because it is important to traffic flow on SR 9 that the signals at University Avenue and Santa Cruz Avenue be well coordinated to avoid spillback issues, adding a third signal in close proximity is not recommended. In addition, adding a signal at this location would encourage more traffic to use Massol Avenue instead of N. Santa Cruz Avenue. In general, it is preferable to implement traffic controls that encourage drivers to stay on arterials rather than use local streets. See Appendix E for the signal warrant worksheets.

Residential Neighborhood Traffic from Trips Entering the Project Site

Modifications at Massol Avenue so that U-turns would be possible would improve access for drivers entering the project site (inbound project trips). In order to evaluate the impact that allowing U-turns at Massol Avenue would have on the residential neighborhood streets, Hexagon compared the estimated daily site-related traffic that currently must use those streets to access the site and the estimated daily traffic generated by the project that would use those streets if U-turns could be made at Massol Avenue. We also estimated the number of additional trips that would likely go through the residential neighborhood when leaving the project site because they would not be able to access the left-turn lane during the PM peak hour.

The first step in that comparison is to develop an estimate of the number of site-related vehicles that are currently going around the block to enter the site, as shown on Figure 13. Based on the number of AM and PM peak hour inbound trips generated by the existing uses on the site (12 and 33, respectively, as shown in Table 5), Hexagon estimates that daily inbound traffic generated by the site is approximately 230 trips. Applying the trip distribution developed for office space, approximately 75% of those inbound trips likely approach the site from westbound Los Gatos-Saratoga Road or from southbound Santa Cruz Avenue and would need to go around the block to enter the site's existing driveways. Thus, we estimate that approximately 173 vehicles per day are currently going through the residential neighborhood to enter the project site. (Although vehicles traveling to other destinations on Los Gatos-Saratoga Road between Massol Avenue and N. Santa Cruz Avenue are also currently going around the block, this analysis is limited to project site-related traffic.)

If the pork chop island at Massol Avenue were moved so that U-turns could be made from westbound Los Gatos-Saratoga Avenue, we estimate that only 34 vehicles per day would enter the residential neighborhood in order to enter the project site. This estimate is based on the assumption that if U-turns were possible at Massol Avenue, virtually all the trips accessing the site from westbound Los Gatos-Saratoga Avenue and southbound Santa Cruz Avenue would choose to do so, except during the PM peak hour when heavy eastbound traffic would make such a U-turn difficult. During the PM peak hour, drivers would likely prefer to use the existing around the block route to enter the site, if they are coming from the north or the east.

Based on the estimate of 48 gross inbound trips generated by the project during the PM peak hour (as shown on Table 5) and applying the trip distribution patterns for the land uses, there would be an estimated 34 inbound trips that would enter the residential neighborhood during the PM peak hour rather than make a U-turn at Massol Avenue. In practice, there may be a small percentage of drivers during the day who continue to go around the block rather than use the U-turn route and there may be a small percentage during the PM peak hour who use the U-turn route rather than go around the block, but these would likely cancel each other out. If one of the other possible land uses with a lower trip generation rate than the uses assumed for this study (e.g. retail instead of a restaurant in the corner building or general offices instead or medical offices in the second building) occupied the site, there would be even fewer than 34 trips through the residential neighborhood by drivers wishing to enter the site.

Residential Neighborhood Traffic from Trips Leaving the Project Site

In addition to the drivers that would continue to go around the block during the PM peak hour in order to enter the site, the project would also generate additional trips that would go around the block through the residential neighborhood during the PM peak hour when leaving the site. This is because the project driveway is so close to the intersection that all drivers exiting the site would need to go straight or turn right, because they would not be able to access the left-turn lane during the PM peak hour. Since the existing outbound driveway for the site is in approximately the same location as the proposed project driveway, outbound vehicles currently experience the same issue of accessing the eastbound left-turn lane during the PM peak hour under existing conditions.

Assuming left turns and U-turns would not be feasible during the PM peak hour for drivers exiting the project driveway, there are several possible routes that a driver might take instead in order to head north on N. Santa Cruz Avenue or west on SR 9. Several of these alternate routes were shown on Figure 14 and described in Chapter 3.

Since the site has the same issue for outbound trips in the PM peak hour under existing conditions, the only increase in residential neighborhood traffic would be due to the net new outbound trips (proposed use less existing use). We estimate that approximately 6 additional outbound trips from the project site during the PM peak hour would take a route that uses the residential streets of Almendra, Tait and/or Bachman Avenues.

Residential Neighborhood Traffic from All Project Trips

Combining the estimated 34 inbound trips and the 6 outbound trips yields approximately 40 project trips that would enter the residential neighborhood if U-turns were possible at Massol Avenue. This is far fewer than the 173 vehicles per day that are estimated to be going around the block under current conditions to enter and leave the site. Even if the number of project trips were doubled to account for the two-hour PM peak period, rather than just the single PM peak hour, there would still be fewer trips through the neighborhood on a daily basis if U-turns were allowed at Massol Avenue than under current conditions.

Since all traffic – not just project-related traffic – must now enter the residential neighborhood to go around the block, allowing U-turns at Massol Avenue would likely reduce traffic in the nearby residential neighborhood beyond the numbers presented above, which are based only on project-related traffic.

Allowing U-turns at Massol Avenue would also increase the volume of vehicles in the left-turn pocket on Los Gatos-Saratoga Road, since vehicles that used to use an around the block route would instead proceed west on SR 9 and make a U-turn at Massol Avenue. The potential for queues that exceed the capacity of the left-turn pocket is addressed separately in the queuing analysis below.

Sight Distance

The project driveway on Los Gatos-Saratoga Road should be free and clear of any obstructions in order to optimize sight distance, so that vehicles exiting the site can see approaching eastbound vehicles and bicyclists. No parking zones have already been established adjacent to the project driveway, in order to provide space for the bike lane. Because the driveway is centered in a small parking area and would not be right next to a building, drivers exiting the site would also be able to see pedestrians in both directions on the sidewalk.

We recommend that all landscaping and signage related to the project be placed so as to ensure that adequate sight distance is maintained at the driveway. Care should be also taken in constructing the new driveway to ensure that the bike lane on Los Gatos-Saratoga Road remains clearly defined and that drivers entering and exiting the site can easily see approaching bicyclists in the eastbound direction and pedestrians on the sidewalk in both directions. Adequate corner sight distance (sight distance triangles) should be provided in accordance with the Town's standards. Sight distance triangles for the final site plan should be measured approximately 15 feet back from the traveled way.

Sight distance requirements vary, depending on roadway speeds. The speed limit on Los Gatos-Saratoga Road is 35 mph. The stopping sight distance recommended by Caltrans in the *Highway Design Manual* for 35 mph is 250 feet.

On-Site Circulation and Parking Garage Access

On-site vehicular circulation was reviewed for the project in accordance with generally accepted traffic engineering standards. The surface parking area would include 11 perpendicular parking spaces, five on the east side of the project driveway and six on the west side of the project driveway (see site plan in Figure 3). The drive aisle between the parking stalls would be 27 feet wide, which would allow adequate space for vehicles to exit their parking stall easily. The drive aisle leads to a ramp for the below-grade parking garage. Drivers would make a right turn to enter the ramp and a left turn to exit. The ramp is shown to be 24 feet wide at its entry point, which would allow adequate space for turning when entering and leaving the garage ramp.

After descending the ramp into the garage, the driver would make another right turn. The perpendicular drive aisle at the bottom of the ramp is shown to be 27 feet wide, again providing adequate space for that turning movement (see Figure 23). The primary drive aisle would be 28 feet wide, which is adequate for perpendicular parking stalls.

The garage includes 58 parking spaces, of which 8 would be tandem parking stalls that can accommodate two vehicles. In addition, a turn-around stall is provided at the end of the drive aisle, so that vehicles in the last tandem parking stalls can turn around in order to exit.

The Town's requirement for standard spaces is that they be at least 8 feet 6 inches (8'6") by 18 feet (18'). The site plan indicates that, with the exception of the tandem stalls, the parking stalls in the garage would be 9 feet wide and 20 feet long, which exceeds the Town's requirements. The tandem stalls would be 9 feet wide and 25 feet long each, for a total length of 50 feet for each tandem space. All parking stalls on the surface lot would be 9 feet wide by 18 feet long (some of the stalls have a two-foot overhang into landscaping), which meets the Town's requirements. .

The trash/recycling enclosure is on the southeast corner of the site, where trucks would have adequate access to it, via a 26 foot wide drive aisle. That drive aisle would also provide access to three parking spaces on an adjacent parcel. On-site circulation for trash trucks would be facilitated by the garage driveway, which would allow a truck to back up, complete a 3-point turn, and then drive forward out of the project driveway. Because the driveway and all drive aisles are at least 25 feet wide, they would be adequate for emergency vehicle access. The Town does not require loading zones for retail uses less than 10,000 s.f., and the only proposed retail use would be in the corner building that includes 4,200 s.f.

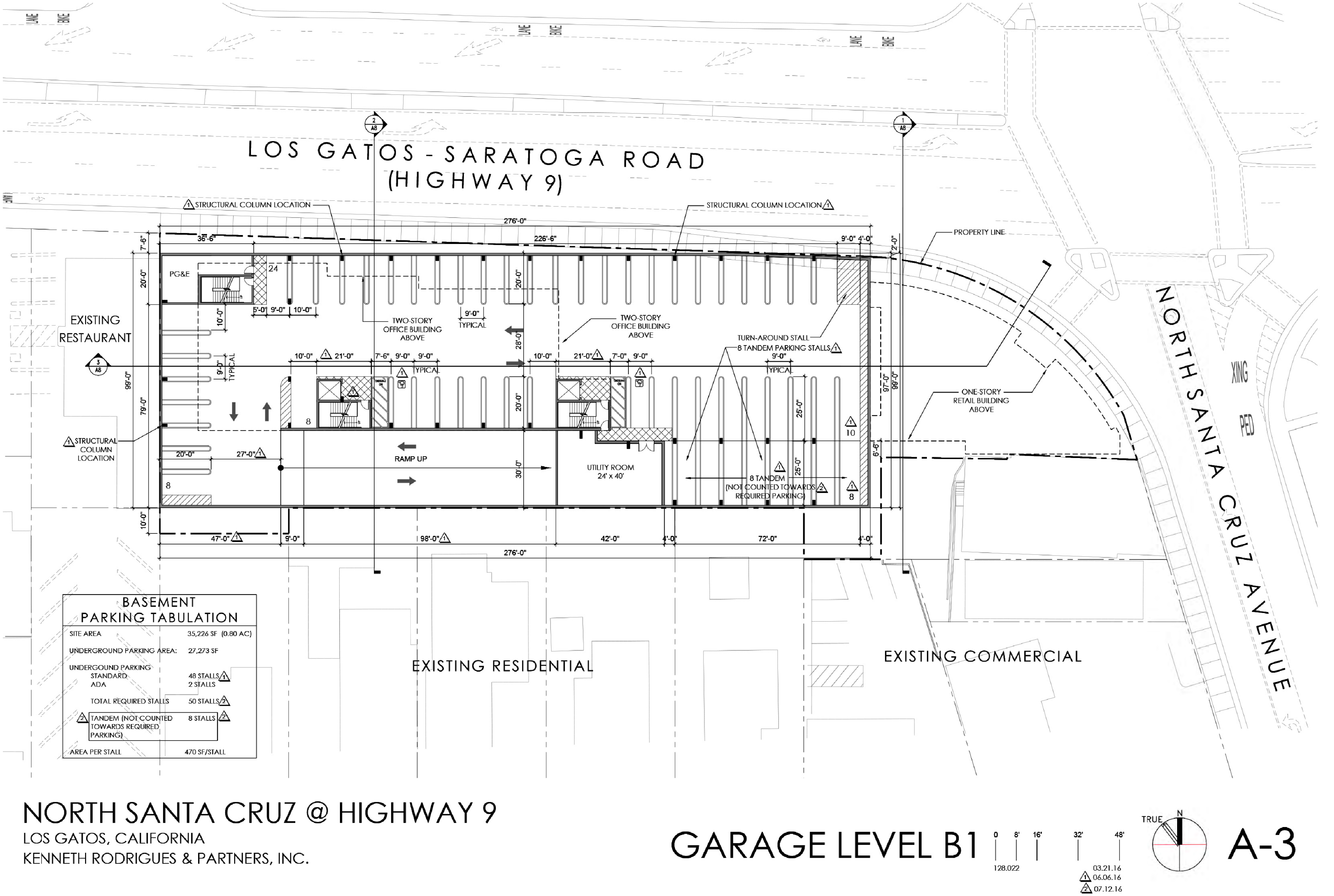


Figure 23
Site Plan for Garage

Hexagon

NORTH
Not to Scale

Intersection Queuing Analysis

The operations analysis is based on vehicle queuing for high-demand left-turn movements at intersections where 10 or more project trips were added. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of "n" vehicles for a vehicle movement using the following formula:

$$P(x = n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

P (x = n) = probability of "n" vehicles in queue per lane

n = number of vehicles in the queue per lane

λ = Average number of vehicles in the queue per lane (vehicles per hour per lane/signal cycles per hour)

Using a Poisson probability distribution, the basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement to determine if adequate storage is available to accommodate the 95th percentile queues. This analysis thus provides a basis for determining whether the addition of project trips would exacerbate peak hour queues and delays, as well as estimating future storage requirements at intersections.

The 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95 percent of the signal cycles. Or, a queue length larger than the 95th percentile queue would only occur on 5 percent of the signal cycles (about one cycle during the peak hours at the signalized study intersections, which run at a 150-second cycle length). Therefore, left-turn storage pocket designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time.

The following turn movements were analyzed for vehicular queues:

- N. Santa Cruz Avenue and Los Gatos-Saratoga Road – the eastbound left-turn movement in the AM peak hour. This movement would experience additional trips in the AM peak hour, but it is assumed no project trips would access the left-turn lane in the PM peak hour.
- N. Santa Cruz Avenue and Los Gatos-Saratoga Road – the westbound left-turn movement in the AM peak hour. This movement would experience additional trips from inbound vehicles if no U-turns were allowed at Massol Avenue.
- University Avenue and Los Gatos-Saratoga Road – the westbound left-turn movement in the AM peak hour. This movement would experience additional trips from inbound vehicles if no U-turns were allowed at Massol Avenue
- Massol Avenue and Los Gatos-Saratoga Road – the westbound left and U-turn movement. This movement would experience inbound project trips and other non-project trips if U-turns were allowed at Massol Avenue. If U-turns were not allowed, the project would not add any trips to this movement.

Vehicle queuing estimates are provided in Table 11 and are generally consistent with the field observations of existing conditions presented in Chapter 2, although the westbound left-turn pocket at Massol Avenue was observed to exceed its storage capacity during the PM peak hour somewhat more often than suggested by this analysis.

Table 11
Queuing Analysis

	N. Santa Cruz & Los Gatos-Saratoga Rd		University Ave & Los Gatos-Saratoga Rd	Massol Ave & Los Gatos-Saratoga Rd (No WB U-turns allowed)		Massol Ave & Los Gatos-Saratoga Rd (With WB U-turns allowed) [3]	
	EBL	WBL	WBL	WBL	WBL	WBL	WBL
Measurement	AM	AM	AM	AM	PM	AM	PM
Existing							
Cycle/Delay[1] (sec)	150	150	150	8.8	14.4	9.0	16.1
Volume (vph)	182	122	228	114	168	170	225
Avg. Queue (veh)	7.6	5.1	9.5	0.3	0.7	0.4	1.0
Avg. Queue (ft.)	190	127	238	7	17	11	25
95th %. Queue (veh)	12	9	15	1	2	2	3
95th %. Queue (ft.)	300	225	375	25	50	50	75
Storage	425	225	300	75	75	75	75
Adequate (Y/N)	Y	Y	**N**	Y	Y	Y	Y
Existing Plus Project							
Cycle/Delay[1] (sec)	150	150	150	8.8	14.5	9.3	16.5
Volume (vph)	196	136	237	114	168	209	235
Avg. Queue (veh)	8.2	5.7	9.9	0.3	0.7	0.5	1.1
Avg. Queue (ft.)	204	142	247	7	17	13	27
95th %. Queue (veh)	13	10	15	1	2	2	3
95th %. Queue (ft.)	325	250	375	25	50	50	75
Storage	425	225	300	75	75	75	75
Adequate (Y/N)	Y	**N**	**N**	Y	Y	Y	Y
Background							
Cycle/Delay[1] (sec)	150	150	150	8.9	15.0	9.2	16.8
Volume (vph)	210	122	228	114	168	170	225
Avg. Queue (veh)	8.8	5.1	9.5	0.3	0.7	0.4	1.1
Avg. Queue (ft.)	219	127	238	7	18	11	26
95th %. Queue (veh)	14	9	15	1	2	2	3
95th %. Queue (ft.)	350	225	375	25	50	50	75
Storage	425	225	300	75	75	75	75
Adequate (Y/N)	Y	Y	**N**	Y	Y	Y	Y.
Background Plus Project							
Cycle/Delay[1] (sec)	150	150	150	9.0	15.0	9.5	17.2
Volume (vph)	224	136	237	114	168	209	235
Avg. Queue (veh)	9.3	5.7	9.9	0.3	0.7	0.6	1.1
Avg. Queue (ft.)	233	142	247	7	18	14	28
95th %. Queue (veh)	15	10	15	1	2	2	3
95th %. Queue (ft.)	375	250	375	25	50	50	75
Storage	425	225	300	75	75	75	75
Adequate (Y/N)	Y	**N**	**N**	Y	Y	Y	Y

[1] Vehicle queue calculations based on cycle length for signalized intersections, and movement delay for unsignalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued
[3] Existing and Background scenarios assume non-project-related trips and trips from existing use would make U-turns if they were allowed. Existing Plus Project and Background Plus Project scenarios assume non-project-related trips and project trips would make U-turns if they were allowed.

The storage length for the eastbound left-turn pocket at the Santa Cruz Avenue intersection assumes the existing lane configuration with a single left turn lane. The Town has proposed adding a second eastbound left turn lane, as discussed above and shown in Figure 20, but the total storage capacity of that proposed modification is not known.

The eastbound right-turn movement in the PM peak hour at the intersection of N. Santa Cruz Avenue and Los Gatos-Saratoga Road would also experience more than 10 additional trips because outbound vehicles would not be able to access the left turn lane. Hexagon observed many eastbound right-turn drivers to turn “right on red.” Therefore, these right-turning vehicles did not generally experience the full cycle length delay that is assumed in the Poisson queuing analysis, so this right turn movement was not analyzed in Table 11. Also, as discussed above and shown in Figure 20, the Town has already proposed to construct a longer eastbound right-turn lane at this intersection.

Under existing and background conditions, volumes for the westbound left turn at the intersection of N. Santa Cruz Avenue and Los Gatos-Saratoga Road in the AM peak hour are contained within the provided storage space. However, under existing plus project and background plus project conditions, the 95th percentile queues at this intersection would exceed the provided storage space.

Under all examined scenarios, 95th percentile queues for the westbound left turn at the intersection of University Avenue and Los Gatos-Saratoga Road in the AM peak hour would exceed the provided storage length. However, because the signal at this intersection operates on a fully-actuated lead-lag progression, there can be times when the left-turn queue exceeds the storage capacity of the pocket and extends into the leftmost through lane, but all left-turning vehicles are still able to clear the intersection during the westbound left-turn phase.

The trips that the project would add to the westbound left-turns at both of these intersections would be inbound trips to the project site that must go around the block to access the project driveway. If U-turns were allowed at Massol Avenue, these trips would not need to make these left-turn movements in the AM peak hour, and the project would not add any volume to these movements.

The westbound left-turn pocket was also examined at the intersection of Massol Avenue and Los Gatos-Saratoga Road, both with and without U-turns allowed. Based on the delay for that movement calculated by the TRAFFIX software, the 95th percentile queue would not exceed the storage capacity of that left-turn pocket even with the addition of U-turns from inbound project trips and from non-project-related trips. (Hexagon doubled the number of gross project trips estimated to make a U-turn in order to approximate the number of non-project-related trips that would also make a U-turn.) This result indicates that modifying this intersection to facilitate U-turns would adequately address the issue of overflowing westbound turn pockets at the Santa Cruz Avenue and University Avenue intersections.

However, Hexagon's field observations noted that the westbound left-turn pocket at Massol Avenue does overflow occasionally during the PM peak hour. The queuing analysis seems to somewhat understate the potential for long queues when eastbound traffic is heavy. During most times of the day, adding more trips to the left-turn pocket would not present a problem, since both left turns and U-turns could be made without undue delay, and long queues would not be expected. However, during the PM peak hour, when left turns are difficult due to the heavy eastbound traffic flow, our observations suggest that adding U-turn trips to the left-turn pocket at Massol Avenue could create lengthy queues. Also, since making a U-turn would require a longer gap in eastbound traffic than a left turn, adding even a few U-turns to the pocket has the potential to increase the left-turn queue disproportionately to the U-turn volume. We recommend that the Town carefully monitor the queues if U-turns are allowed and consider prohibiting U-turns during certain hours if queuing becomes a problem when eastbound traffic volumes would require drivers to wait longer for an adequate gap in which to complete a U-turn.

Parking

The project would provide 69 parking spaces on the site: 58 in the below-grade garage and 11 in the surface parking area. In addition, the site has 15 parking spaces in the parking assessment district, for a total of 84 spaces. However, because 8 of these 84 spaces would be in tandem stalls (see Figure 23) and cannot be counted towards meeting the Town's parking requirement for the project, there would be 76 spaces that may be counted towards the parking requirement.

Hexagon has calculated the number of parking spaces that would be required under the Town of Los Gatos municipal code Sec. 29.10.150 for each of the potential land uses that might occupy the site. The Town has different parking requirements for some land uses downtown than for the rest of the town.

The Town requires one parking space per 250 square feet for office space and banks in the downtown area. Medical or dental offices are required to provide one parking space per 250 square feet or six spaces per doctor, whichever is more restrictive. We have assumed that if the second building were occupied by a medical office, it would use the same parking requirement as general offices (one space per 250 square feet). Thus, since all three possible uses of the 15,500 square foot building (bank, professional office, and/or medical office) would need one space per 250 square feet, that bulding would require 62 parking spaces.

Retail space is required to provide one space per 300 square feet. For restaurants, the Town requires one parking space per four seats (assuming there is no separate bar), and we have converted the number of parking spaces provided to a maximum number of seats that would be allowed in a restaurant.

If the 4,200 s.f. corner building were occupied by retail space, 14 parking spaces would be required . If it were occupied by a restaurant, those 14 spaces would indicate that a total of 56 seats would be permitted in the restaurant combined with the dining patio, based on a parking ratio of one space per four seats.

If the corner building were occupied by retail space, then the total parking requirement for the entire site would be 76 spaces (14 + 62 = 76). If the corner building were occupied by a restaurant with 56 seats (including the dining patio), then the total parking requirement for the site would be the same. In either case, the 76 spaces provided (61 non-tandem spaces provided on-site plus the 15 spaces in the parking assessment district), would meet the Town's parking requirement.

As noted above, there would actually be 69 spaces provided on-site (84 total, including the 15 in the parking assessment district) because the garage includes eight tandem stalls which could hold 16 vehicles, not just the eight counted towards the Town's requirement. If the second building is ultimately fully or partially occupied by medical/dental offices or professional offices, the tandem stalls may be most suitable for use by employees of the medical/dental or professional offices, most of whom would likely park for the entire day. If office employees used the tandem spaces, then the medical/dental patients and the patrons of the bank, restaurant, or retail uses could self-park as they arrive for shorter periods of time. If the corner building is occupied by a restaurant, there would be an excellent opportunity for shared parking after about 5:00 PM and on weekends, when most of the office and/or bank employees and patrons would have vacated their parking spaces.

Per the California Building Code (CBC) Section 11B-208, one accessible parking space is required for parking facilities with 1 – 25 spaces and three accessible parking spaces are required for parking facilities with 51 – 75 spaces. Thus, the surface parking lot with 11 spaces would need to include one accessible space. The garage with 58 spaces counted towards the Town's requirement would need to include three accessible spaces. Since the total accessible space requirement is less than six spaces, none of them are required to be van accessible. If the building were to be used for rehabilitation or outpatient physical therapy, however, a higher requirement of 20 percent of patient parking would apply.

The current site plan shows three accessible spaces on the surface parking lot and two accessible spaces in the parking garage. Therefore, the five accessible spaces provided exceeds the required number by one accessible space.

The site plan does not show how many bicycle parking spaces would be provided. Once it is known what land uses would occupy the site, the site plan should be revised to include the appropriate number of bicycle spaces in accordance with the Town's bicycle parking requirements. Since the Town of Los Gatos does not have its own bicycle parking requirements, VTA's bicycle parking guidelines should be used.

Pedestrian and Bicycle Facilities

Pedestrian facilities consist of sidewalks along all of the streets in the study area. Crosswalks with pedestrian signal heads and push buttons are located at all of the signalized intersections in the study area. In addition, the crosswalk across Los Gatos-Saratoga Road at Massol Avenue has warning lights that can be activated by pedestrians wishing to cross the street. In downtown Los Gatos, N. Santa Cruz Avenue has crosswalks with bulb-outs at all intersections and some mid-block locations. Thus, the project site enjoys excellent pedestrian accessibility and is located in a pedestrian-friendly downtown area.

As discussed earlier in this chapter, the Town plans to make modifications to the intersection of N. Santa Cruz Avenue and Los Gatos-Saratoga Road that would enhance pedestrian safety. The current design of the intersection requires pedestrians to cross a right-turn lane to access a pork chop island, but the radius of the curve at each corner allows drivers to make right turns at fairly high speeds. The Town plans to eliminate the existing pork chop islands and square off the corners, as shown in Figure 20. Reducing the radius of the curves on the corners would require drivers to slow down more when making a right turn, which would provide more opportunity for them to see pedestrians in the crosswalk. ADA-compliant ramps would also be added at each of the four corners. The project would contribute its fair share towards the cost of these intersection improvements through the Town's Traffic Impact Fee.

Los Gatos-Saratoga Road includes a Class II bike lane immediately adjacent to the project site. That bike lane continues west on Los Gatos-Saratoga Road (SR 9) and provides good bicycle access to the project site from the west. Additional bike lanes are present on Winchester Boulevard, Main Street/Los Gatos Boulevard, Blossom Hill Road, and University Avenue. A Class I bike trail, the Los Gatos Creek Trail, is close to the project site and provides excellent bicycle access from the north and south. The project site enjoys good bicycle access, and the project is expected to generate only a minor number of bicycle trips. Therefore, no improvements are needed to the existing bicycle facilities in conjunction with the project.

As noted in Chapter 2, a gap in the Town's pedestrian/bicycle faciliites exists on Los Gatos-Saratoga Road (SR 9) between University Avenue and Los Gatos Boulevard. One of the projects that would be funded by Traffic Impact Fees collected by the Town of Los Gatos is a "Complete Streets" improvement to SR 9 between University Avenue and Los Gatos Boulevard to address that gap. Another project on the Town's list of improvements to be funded with Traffic Impact Fees is a new path and bridge for pedestrians and bicyclists between SR 9 and the Los Gatos Creek Trail. Thus, through the Traffic Impact Fees paid by the proposed project to the Town of Los Gatos, it will participate in improving the bicycle and pedestrian facilities in the study area.

Transit Services

Employees and customers of the proposed uses for the site may use VTA Local Route 48. As noted in Chapter 2, Route 48 provides service to the Winchester Transit Center, where connections to VTA's light rail transit service are available. The presence of bus stops in both directions at the intersection of N. Santa Cruz Avenue and Los Gatos-Saratoga Road makes transit extremely convenient to the project site and should encourage transit usage.

We assume that the mode split for most of the proposed uses (restaurant, retail, a bank, and professional or medical offices) would be the same as the mode split for the downtown area of Los Gatos generally. It is estimated that the new riders for any of the proposed uses could be accommodated by the current available capacities of the bus service and LRT service in the area.

Transportation Demand Management

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle trips to help relieve traffic congestion, parking demand, and air pollution problems. The purpose of TDM is to promote more efficient utilization of existing transportation facilities and to ensure that new developments are designed to maximize the potential for sustainable transportation usage.

The purpose of a TDM Plan for a specific site is to develop TDM measures that are tailored to a project's location, size, and land use in order to promote alternative modes of travel, such as riding transit, bicycling, walking, and carpooling. Given this project site's proximity to bus stops, bike lanes, and a highly pedestrian-friendly downtown environment, the location lends itself well to usage of alternative modes of transportation.

Because this project includes less than 20,000 s.f., its size should be considered in developing measures that are appropriate for it; some measures that are typical for very large projects may not be reasonable for a project of this size.. Also, a project's land uses should be considered. Since the project may include a restaurant, retail space, and/or a bank, it would generate both employee trips and customer trips. If it includes a medical office, it would also generate patient trips. Although some TDM measures can apply to both customers and employees, other measures, such as transit ticket subsidies, would make sense only for employees.

The following TDM measures reflect current best practices in the TDM field and would be appropriate for this site:

- Transit Ticket Subsidies: Transit ticket subsidies encourage employees to commute via transit by offering discounted fares. Subsidized ticket prices along with the project's location close to a bus stop improve the convenience of riding public transit for employees.
- Preferential parking for ridesharing vehicles: Preferential parking provides reserved parking in a desirable priority location. The initiative encourages employees to rideshare by making it more convenient for users, and reduces the demand for parking.
- Bike racks and lockers: Bike lockers provide safe storage for employees' bicycles. By offering accessible and safe storage, employees who live nearby can commute by bicycle. Bike racks provide a convenient location for customers to park their bikes, and raises the visibility of the project's commitment to alternative transportation.
- Showers and changing rooms for employees who bicycle: Providing showers enables active commuters to arrive early and prepare for the day without hygienic concerns.
- "Online Kiosk" website for project site with information on alternative transportation modes, such as:
    - Maps of nearby bike routes, information on taking bikes on transit, etc.
    - Information on Park-and-Ride lots for use by carpool participants
    - Links to VTA and transit schedules
    - Information about 511.org and other ridematching services
- EV charge stations: An EV charge station in the garage would not reduce the number of single-occupant vehicle trips generated by the project, but may contribute to the Town's goal to reduce greenhouse gas emisssions.

Vehicle Miles Traveled

In accordance with SB 743, daily VMT for projects in Los Gatos versus the average of the San Francisco Bay area are presented based on the Metropolitan Transportation Commission (MTC) travel demand forecast model (http://analytics.mtc.ca.gov/foswiki/Main/VmtPerWorker). MTC has provided information on VMT by household, which would be relevant for residential projects, and VMT by workplace, which is relevant for employee trips at the proposed project. MTC has not provided comparative data that would apply to customer trips.

The proposed project is a combination of uses that would generate both employee trips for all potential uses and customer trips for the restaurant, retail space, and/or bank. Because of the location of the project site and the fact that the customer-oriented uses would likely draw from a fairly localized area, the VMT for customer trips is likely to be less than the Bay Area average. For employees who work at the site, MTC's forecasted daily VMT is 28.5 miles per worker employed in this area of Los Gatos, while the San Francisco Bay Area average daily VMT is 23.8 miles per worker. However, some office employees who currently commute longer distances to locations elsewhere in Silicon Valley may welcome the opportunity to reduce their commute by working closer to home if they live in or near Los Gatos or "over the hill" in Scotts Valley or Santa Cruz.

Given that no standard approach or guidelines have been finalized under SB 743, the VMT presented in this report is for informational purposes only. It is not intended to provide any indication of the transportation impacts of the project under SB 743.

8. Conclusions

Several land uses have been proposed for the site at 201-225 Los Gatos-Saratoga Road, including a restaurant, retail space, a bank, professional office space, and medical/dental office space. The potential impacts of the combination of uses that would generate the greatest number of peak hour trips were evaluated in accordance with the standards set forth by the Town of Los Gatos and the Congestion Management Program (CMP) of Santa Clara County. The study included the analysis of AM and PM peak hour traffic conditions for two signalized intersections, one unsignalized intersection, and two freeway segments. Project impacts on other transportation facilities, such as bicycle facilities and transit services, were determined on the basis of engineering judgment.

Intersection Level of Service Analysis

The results of the intersection level of service analysis show that, measured against the Town of Los Gatos and CMP level of service impact criteria, neither of the signalized study intersections would be significantly impacted by the project. The intersection of Santa Cruz Avenue and Los Gatos-Saratoga Road would continue to operate at LOS D during both the AM and PM peak hours under all operating scenarios. The intersection of University Avenue and Los Gatos-Saratoga Road would continue to operate at LOS C in the AM peak hour and at LOS D in the PM peak hour under all operating scenarios.

At the unsignalized intersection of Massol Avenue and Los Gatos-Saratoga Road, the northbound left turn movement (from Massol Avenue to westbound SR 9) currently operates at LOS F during both the AM and PM peak hours and would continue to operate at LOS F under all operating scenarios. The westbound left turn movement (from SR 9 onto Massol Avenue) is not stop-controlled, but drivers must wait for a gap in eastbound traffic in order to complete their turn. With the existing lane configuration (no U-turns allowed), this movement would operate at LOS A in the AM peak hour and at LOS C in the PM peak hour under background plus project and cumulative plus project conditions. If the intersection were modified to allow U-turns, this movement was projected to continue to operate at LOS A in the AM peak hour and LOS C in the PM peak hour. Because Los Gatos does not have a level of service standard or significant impact criteria for unsignalized intersections, these results are shown for information purposes only.

Freeway Segment Capacity Evaluation

According to CMP guidelines, an analysis of freeway segment levels of service is only required if a project is estimated to add trips to a freeway segment equal to or greater than one percent of the capacity of that segment. Since the number of project trips added to the freeways in the area is estimated to be well below the one percent threshold, a detailed analysis of freeway segment levels of service was not performed.

Site Access and Circulation

Site access and on-site circulation would be adequate. Due to the median on Los Gatos-Saratoga Road (SR 9), site access from westbound Los Gatos-Saratoga Road was analyzed and the feasibility of permitting U-turns from westbound Los Gatos-Saratoga Road at Massol Avenue was evaluated. The first break in the median after passing the project site in the westbound direction is at Massol Avenue, but the presence of a pork chop island currently prevents vehicles from making a U-turn at that location. However, if the pork chop island were moved and the tip of the median next to the westbound left-turn pocket on SR 9 were shortened, it would be possible for vehicles to make a U-turn from westbound SR 9 to eastbound SR 9 at Massol Avenue, improving access to the project site and reducing the number of trips that would need to enter the residential neighborhood along Almendra Avenue in order to access the project driveway.

Hexagon estimates that approximately 173 vehicles per day are currently going around the block on Santa Cruz Avenue, Almendra Avenue, and Tait Avenue in order to access the site. With the project and with U-turns permitted, Hexagon estimates that number would be reduced to only approximately 40 trips entering the residential neighborhood.

- **Recommendation:** Hexagon recommends making modifications to the 3-legged intersection of Los Gatos-Saratoga Road and Massol Avenue so that U-turns can be made from westbound Los Gatos-Saratoga Road. The pork chop island on the southeast corner of this intersection should be moved to provide adequate space for the U-turns to be completed. A portion of the median next to the left turn pocket on Los Gatos-Saratoga Road would need to be removed, and the crosswalk and lane striping would need to be repainted to correspond to the new location of the pork chop island. In addition, a sign should be posted to require vehicles turning right from Massol Avenue onto eastbound SR 9 to yield to vehicles making U-turns from westbound SR 9.
- **Recommendation:** Hexagon further recommends that if U-turns are allowed at Massol Avenue that the Town monitor the queues in the westbound left-turn pocket to see if they overflow its capacity during the PM peak hour. Although the TRAFFIX analysis and the queuing analysis indicate that adding U-turns at this location would not cause operational problems, our field observations suggest that the Town may wish to prohibit U-turns during certain hours if queuing becomes a problem when eastbound traffic is heavy.

The project driveway on Los Gatos-Saratoga Road should be free and clear of any obstructions in order to optimize sight distance, so that vehicles exiting the site can see approaching eastbound vehicles and bicyclists and pedestrians in both directions.

- **Recommendation:** Hexagon recommends that all landscaping and signage related to the project be placed to ensure that adequate sight distances are maintained at the driveway. Care should be taken in constructing the new driveway to the site to ensure that drivers entering and exiting the site can easily see approaching bicyclists and vehicles in the eastbound direction and pedestrians on the sidewalk in both directions. Adequate corner sight distance (sight distance triangles) should be provided in accordance with the Town's standards.

Queuing Analysis

An analysis of potential queuing issues indicated that the 95th percentile queue at the westbound left turn movement in the AM peak hour at N. Santa Cruz Avenue would exceed the storage capacity of the left turn pockets at that intersection under existing plus project and background plus project conditions, if no U-turns were allowed at Massol Avenue. The 95th percentile queue for the westbound left turn at University Avenue in the AM peak hour would also exceed that intersection's left turn pocket capacity if no U-turns were allowed at Massol Avenue. However, if U-turns were allowed at Massol Avenue, the drivers who would be making those left turns at N. Santa Cruz and University Avenues would make a U-turn at Massol Avenue instead, and the project would not result in any additional vehicles in those left turn lanes in the AM peak hour.

Parking

The site plan states that the project would provide a total of 84 parking spaces: 11 ground-level spaces, 58 spaces in a below-grade garage, and 15 spaces in the Parking Assessment District. Of the 58 spaces in the below-grade area, 8 would be tandem spaces (i.e., the second space in a 50-foot long tandem parking stall) and may not be counted towards the Town's parking requirements. Thus, the project would provide a total of 76 spaces that may be counted towards the Town's parking requirement (11 surface spaces, 50 garage spaces, and 15 Parking District spaces).

An analysis of the Town's parking requirements for the potential land uses that may occupy the site found that if the corner bulding were occupied by retail space, 76 parking spaces would be required for the entire site. If that bulding were occupied by a restaurant, 76 spaces would also be required for the entire site, if the restaurant included 56 seats (including the dining patio). Thus, the 76 non-tandem spaces provided would meet the Town's parking requirement.

- **Recommendation**: The current site plan does not show the number of bicycle parking spaces that would be provided. The site plan should be revised to present the appropriate number of bicycle parking spaces in accordance with the Town's bicycle parking requirements.

Transit, Bicycle, and Pedestrian Facilities

The existing transit, bicycle, and pedestrian facilities in the study area are adequate to serve the site. No improvements are needed. Through the Town's Traffic Impact Fee program, if the land uses that ultimately occupy the site would generate more daily trips than the existing uses on the site, the project will contribute towards several projects that would make improvements to the bicycle and pedestrian facilities in the study area.

Transportation Demand Management

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle trips to help relieve traffic congestion, parking demand, and air pollution problems. The purpose of a TDM Plan for a specific site is to develop TDM measures that are tailored to a project's location, size, and land use in order to promote alternative modes of travel, such as riding transit, bicycling, walking, and carpooling. We recommend that the applicant develop a TDM Plan that focuses primarily on reducing employee trips to the site, through such measures as transit ticket subsidies, the inclusion of bike racks and lockers for bicyclists, and provision of current information on alternative transportation modes.

201-225 Los Gatos-Saratoga Road

Transportation Impact Analysis

Technical Appendices

Appendix A

New Traffic Counts

Appendix B

Town of Los Gatos Approved and Pending Projects

Appendix C

Volume Summary Tables

Appendix D

Intersection Level of Service Calculations

Appendix E

Signal Warrant Worksheets

Appendix F

VTA Auto Trip Reduction Statement