

**City of Menlo Park**

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**Tree Report**  
**Intersection Improvements**  
**El Camino Real at Ravenswood Avenue**

*Prepared for:*  
**City of Menlo Park**  
**Department of Public Works**  
**701 Laurel Street**  
**Menlo Park CA 94025**

*Prepared by:*  
**HortScience, Inc.**  
**325 Ray Street**  
**Pleasanton, CA 94566**

**July 2015**



**Tree Report**  
Intersection Improvements  
El Camino Real at Ravenswood Avenue  
Menlo Park CA

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**Attachments**

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***Tree Assessment Form***

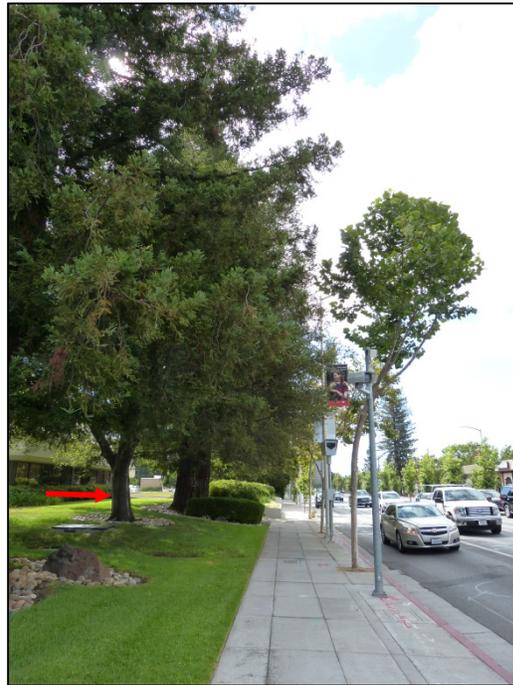
***Tree Location Map***

### ***Introduction and Overview***

The City of Menlo Park is planning to improve a section of El Camino Real in the area of Ravenswood Avenue. The City of Menlo Park requested that HortScience, Inc. prepare a **Tree Report** for 13 trees that could be impacted by the project (Photo 1). This report provides the following information:

1. An assessment of the health and structural condition of the 13 trees.
2. An assessment of the impacts of constructing the proposed project alternatives on the trees.
3. Recommendations for action.
4. Guidelines for tree preservation during the design, construction and maintenance phases of development.

**Photo 1.** Looking south along El Camino Real near Ravenswood Avenue. Coast live oak #285 is in the left center (red arrow).



### ***Assessment Methods***

Trees were assessed in July 2015. The assessment was limited to 13 trees identified by the City of Menlo Park. All were located at 1000 El Camino Real, site of the Menlo Park Office Center. The assessment procedure consisted of the following steps:

1. Identify the tree to genus and species.
2. Attach a numerically coded metal tag to the trunk of each tree.
3. Measure the trunk diameter at a point 54" above grade.
4. Determine if any trees met the City of Menlo Park's criteria for Heritage status.
5. Evaluate the health and structural condition using a scale of 0 – 5 where 0 = dead, 1 = poor and 5 = excellent condition.
6. Measure the distance of the edge of the tree trunk to the face of curb.
7. Comment on presence of defects in structure, insects or diseases and other aspects of development.
8. Assess the tree's suitability for preservation as low, moderate or high.

Results of the assessment are located in the ***Tree Assessment Form*** (see **Attachments**).

### **Description of Trees**

Among the 13 trees were 9 coast redwoods (*Sequoia sempervirens*) and 4 coast live oak (*Quercus agrifolia*). All trees had been planted as part of landscape development at the Menlo Park Office Center. Although both species are native to the Menlo Park area, none of the trees appeared to be indigenous to the site.

Coast live oaks #275, 276 and 277 were located at the south end of the Office Center (Photo 2). All three trees had been pruned many times to remove interior branches and foliage and reduce overall tree size. As a result, the trees had something of a sheared appearance.

**Photo 2.** Looking east across El Camino at coast live oaks #275 (right), 276 and 277 (left).



Trees #275 and 276 were adjacent to one another in a small planting area south of the driveway. Both were in good condition with dense canopies of foliage and the form and structure that is typical of the species. Tree #277 was on the north side of the driveway. The trunk was bowed, i.e., curved to the north but overall form was typical. The canopy was much thinner than that of #275 and 276. There was pronounced witch's broom development throughout the canopy. These distorted and discolored shoots reduced the overall appeal of the tree. These oaks ranged from 15' (#275) to 25' (276, 277) from the face of curb.

Coast redwoods #278 – 281 formed a row (Photo 3). This planting condition affected tree development. Trunk diameters ranged from 33" to 39". The two end trees, #278 and 281, were larger in diameter and in excellent condition. Both had somewhat one-sided crowns to the south or north as a result of competition with the interior trees. Trees #279 and 280 were in good condition. Their crowns were flattened to the east and west. Surface and large buttress roots were present. Trees were 28' to 32' from the face of curb.



**Photo 3.** Looking north along El Camino Real at coast redwoods #278 (right) to #281 (left).

Coast redwoods #282 – 284 also formed a small group (Photo 4). The two end trees (#282, 284) were in excellent condition although somewhat one-sided in form. Trunk diameters were 37" and 36" respectively. The interior tree was 33" and in good condition with a form that was somewhat flat to the east and west. Surface and large buttress roots were present. Trees were 22' to 25' from the face of curb.



**Photo 4.** Coast redwoods #282 (right), 283 (center) and 284 (left). Note large utility vaults.

A number of utility vaults were located near the trees, between the trunks and the curb (Photo 4). For example, a telephone vault was 8' from the trunk of #283 while a PG&E vault was 4' from the trunk of #284.

Coast redwoods #286 and 287 were at the north end of the landscape near Ravenswood Avenue (Photo 5). Trees were relatively close together. Both were in excellent condition. Tree #286 was 43" in diameter while #287 was 35". Redwood #286 was 24' from the face of curb; #287 was 33'.



**Photo 5.** Coast redwoods #286 (right) and 287 (left).

Coast live oak #285 was located between coast redwoods #284 and 286. It was 26" in diameter. The main trunk divided into 3 stems at 7'. The crown was somewhat vase-shaped as it had been lifted and tipped back by pruning. Overall development was also constrained by competition with the nearby redwoods. Tree condition was fair and the canopy was somewhat thin.

**Photo 6.** Looking east at coast live oak #285.

The City of Menlo Park defines a Heritage trees as having a trunk diameter of 15" or greater; for native oaks, 10" or greater. Using the City's criteria, I determined that all 13 trees had Heritage status.



Description of individual trees is found on the enclosed ***Tree Assessment Form***. Both are included as **Attachments**.

### ***Suitability for Preservation***

Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape. Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. Evaluation of suitability for preservation considers several factors:

- **Tree health**  
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.
- **Structural integrity**  
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.
- **Species response**  
There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, for example, both coast redwood and coast live oak are tolerant of site disturbance.
- **Tree age and longevity**  
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.
- **Species invasiveness**  
Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (<http://www.cal-ipc.org/paf>) lists species identified as invasive by the California Invasive Plant Council. Neither coast live oak nor coast redwoods has identified as having being invasive.

Tree condition (health and structure) is the starting point for assessing suitability for preservation. In addition, suitability for preservation considers species response to impacts and invasiveness.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 1).

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**Table 1. Tree suitability for preservation. Intersection improvements. El Camino Real at Ravenswood Avenue. Menlo Park CA.**

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<b>High</b>	Trees in good condition that have the potential for longevity at the site. Coast redwoods #278, 281, 282, 284, 286 and 287 were rated as having high suitability for preservation.
<b>Moderate</b>	Trees in fair health and/or possessing structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Coast live oaks #275, 276, 277, 285 and coast redwoods #279, 280, 283 were rated as having moderate suitability for preservation.
<b>Low</b>	Trees in poor health or possessing significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. No (0) trees were rated as having low suitability for preservation.

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We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

***Evaluation of Impacts and Recommendations for Action***

Appropriate tree retention develops a practical match among proposed project plans, the location and intensity of construction activities, and the quality and health of trees. The tree assessment was the reference points for tree condition and quality. Impacts from the proposed project were assessed using the site plan prepared by the City of Menlo Park. Plans were illustrative in nature indicating how various project alternatives would change the existing street alignment. Additional project documents were reviewed at <http://www.menlopark.org/806/Project-Documents>.

Four project alternatives are being considered:

0. Retain existing condition (No project).
1. Continuous 6 lanes of traffic. Adds a new vehicle lane, approximately 12' wide.
2. Buffered bike lanes. Adds new vehicle and bike lanes, approximately 18' wide.
3. Separated bike facility. Adds a protected bicycle lane, approximately 9' wide.

With proposed widening in each of the alternatives, the existing sidewalk must be replaced. For purposes of this report, I've assumed the new sidewalk would be 8' wide, maintaining the width of the existing sidewalk.

Impacts to trees will occur in a variety of ways. First, demolition of existing improvements such as buildings and infrastructure could directly damage tree roots and crowns. As significantly, grading and other construction activities may also damage trees, through both direct mechanical injury and indirectly by altering drainage.

All three alternatives would enlarge the road section and replace the sidewalk. The primary impact to trees would be to construct new improvements close to the trunk. While both coast live oak and coast redwood are tolerant of root severance, there is a limit. Root severance would occur on only one side of the tree with the area between tree and building remaining in place. Secondary impacts would be associated with grade change as the trees at a higher elevation than the roadway and sidewalk. Another impact involves the removal of existing infrastructure such as the utility vaults and entry planter.

For each option, I estimated how close the improvements plus new 8' sidewalk would be to the edge of each tree trunk (Table 3). For example, the trunk of coast live oak #275 is currently 15' from the face of curb. Adding a new 12' wide traffic lane and replacing the 8' sidewalk (alternative #1) would locate the tree 5' inside the new sidewalk. In contrast, coast redwood #287 is 33' from the face of curb. Alternative #1 would result in this tree being 13' from the edge of the new curb.

Using the above approach, I recommend proposed action for each of the trees under each alternative. Given the excellent species response to root severance and the good to excellent tree condition, this group of trees can be expected to survive impacts that would typically be beyond the tolerance of most trees. My recommendations for action for each alternative are:

0. Retain existing condition (No project). Preserve all 13 trees.
1. Continuous 6 lanes of traffic. Remove 4 trees (#275, 283, 284, 286) and preserve 9.
2. Buffered bike lanes. Remove 10 trees (#275, 276, 277, 280 – 286) and preserve 3 trees.
3. Separated bike facility. Remove tree #275 and preserve 12 trees.

In each of the 3 alternatives, one or more trees are noted as "preserve?" In these cases, a final decision about retention should be made after an alternative is selected and improvements are staked in the field.

**Table 2. Assessment of impacts and proposed action. Intersection Improvements. El Camino Real at Ravenswood Avenue Menlo Park CA.**

Tree No.	Species	Trunk Diameter (in.)	Condition 1=poor 5=excellent	Existing	Tree Trunk to Edge of New Improvements (ft.)					
					Continuous 6 lanes Vehicle (12') + sidewalk (8')	Proposed action	Buffered bike lane Vehicle (12') + bike (6') + sidewalk (8')	Proposed action	Separated bicycle facility Bike (9') + sidewalk (8')	Proposed action
275	Coast live oak	18	4	15	-5	Remove	-9	Remove	-2	Remove
276	Coast live oak	23	4	25	5	Preserve	1	Remove	8	Preserve
277	Coast live oak	24	3	25	5	Preserve	1	Remove	8	Preserve
278	Coast redwood	39	5	29	9	Preserve	5	Preserve?	22	Preserve
279	Coast redwood	36	4	32	12	Preserve	7	Preserve	15	Preserve
280	Coast redwood	33	4	28	8	Preserve	4	Remove	11	Preserve
281	Coast redwood	38	5	28	8	Preserve	4	Remove	11	Preserve
282	Coast redwood	37	5	25	5	Preserve?	1	Remove	8	Preserve
283	Coast redwood	33	4	22	2	Remove	-2	Remove	5	Preserve?
284	Coast redwood	36	5	23	3	Remove	-1	Remove	6	Preserve?
285	Coast live oak	26	3	26	6	Preserve?	2	Remove	9	Preserve
286	Coast redwood	46	5	24	4	Remove	0	Remove	7	Preserve
287	Coast redwood	35	5	33	13	Preserve	9	Preserve	16	Preserve

### ***Tree Preservation Guidelines***

The following are recommendations for design and construction phases that will assist in successful tree preservation.

#### **Design recommendations**

1. Establish the horizontal and vertical elevation of the trunk of all trees. Include trunk locations and tree tag numbers on all plans.
2. Design grading plans to employ block walls to match grades rather than cutting into the existing slope.
3. Establish a **TREE PROTECTION ZONE** around each tree to be preserved. For design purposes, the **TREE PROTECTION ZONE** shall be 1' behind the edge of new sidewalk and 25' in all other directions. No grading, excavation, construction or storage of materials shall occur within that zone.
4. Install protection around all trees to be preserved. No entry is permitted into a tree protection zone without permission of the project superintendent.
5. Design a temporary irrigation system for use during demolition and construction. Design should prohibit trenching within the **TREE PROTECTION ZONE**.

#### **Pre-construction and demolition treatments and recommendations**

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Trees to be preserved may require pruning to provide adequate clearance from construction activities and improve tree structure. All pruning shall be performed by a licensed State of California contractor possessing the C61 classification license and the D49 specification. All pruning shall adhere to the latest editions of the American National Standards Institute Z133 and A300 standards.

#### **Tree protection during construction**

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. Any grading, construction, demolition or other work that is expected to encounter tree roots should be monitored by the Consulting Arborist.
3. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
4. Fences will be erected to protect trees to be preserved. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the project superintendent.
5. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
6. No materials, equipment, spoil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).

7. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.
8. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

**HortScience, Inc.**



James R. Clark, Ph.D.  
Certified Arborist WE-0846  
Registered Consulting Arborist #357

## **ATTACHMENTS**

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***Tree Assessment Form***

***Tree Location Map***

# Tree Assessment

El Camino near Ravenswood  
Menlo Park CA  
July 2015



TREE No.	SPECIES	TRUNK DIAMETER (in.)	HERITAGE TREE?	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	TRUNK to FACE of CURB (ft.)	COMMENTS
275	Coast live oak	18	Yes	4	Moderate	15	Partly corrected lean & one-sided to W.; small crown due to pruning; codominant trunks @ 7' with included bark; codominant again @ 8'; dense canopy; oak moth; canopy extends to curb, 8' above ground.
276	Coast live oak	23	Yes	4	Moderate	25	3½' from driveway curb; multiple attachments @ 6'; closed wound on lower trunk on S.; small rounded crown due to pruning; dense canopy; oak moth.
277	Coast live oak	24	Yes	3	Moderate	25	3' from driveway curb; codominant @ 5' with included bark; codominant again; interior branches removed; extensive witches brooming on new growth; bowed N. from base.
278	Coast redwood	39	Yes	5	High	29	Good form & structure: one-side to S.
279	Coast redwood	36	Yes	4	Moderate	32	Interior; flat form to E./W.; otherwise good; large buttress roots.
280	Coast redwood	33	Yes	4	Moderate	28	Interior; flat form to E./W.; otherwise good.
281	Coast redwood	38	Yes	5	High	28	Adj. to planter; good form & structure; one-sided to N.; large buttress roots; canopy extends to edge of sidewalk.
282	Coast redwood	37	Yes	5	High	25	Adj. to planter; good form & structure; one-sided to S.; large surface roots.
283	Coast redwood	33	Yes	4	Moderate	22	Interior; flat form to E./W.; otherwise good; PacTel vault 8' from trunk on W.
284	Coast redwood	36	Yes	5	High	23	Good form & structure: one-side to N.; large surface roots; 4' to PG&E vault on W.

# Tree Assessment

El Camino near Ravenswood  
 Menlo Park CA  
 July 2015



TREE No.	SPECIES	TRUNK DIAMETER (in.)	HERITAGE TREE?	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	TRUNK to FACE of CURB (ft.)	COMMENTS
285	Coast live oak	26	Yes	3	Moderate	26	Multiple attachments @ 7'; 3 stems; smaller crown due to pruning; suppressed by redwoods on N. & S.; thin canopy; 7' to PG&E vault on N.
286	Coast redwood	46	Yes	5	High	24	Good form & structure: one-sided to SW.
287	Coast redwood	35	Yes	5	High	33	Good form & structure; one-sided to NE.

# Tree Assessment Plan

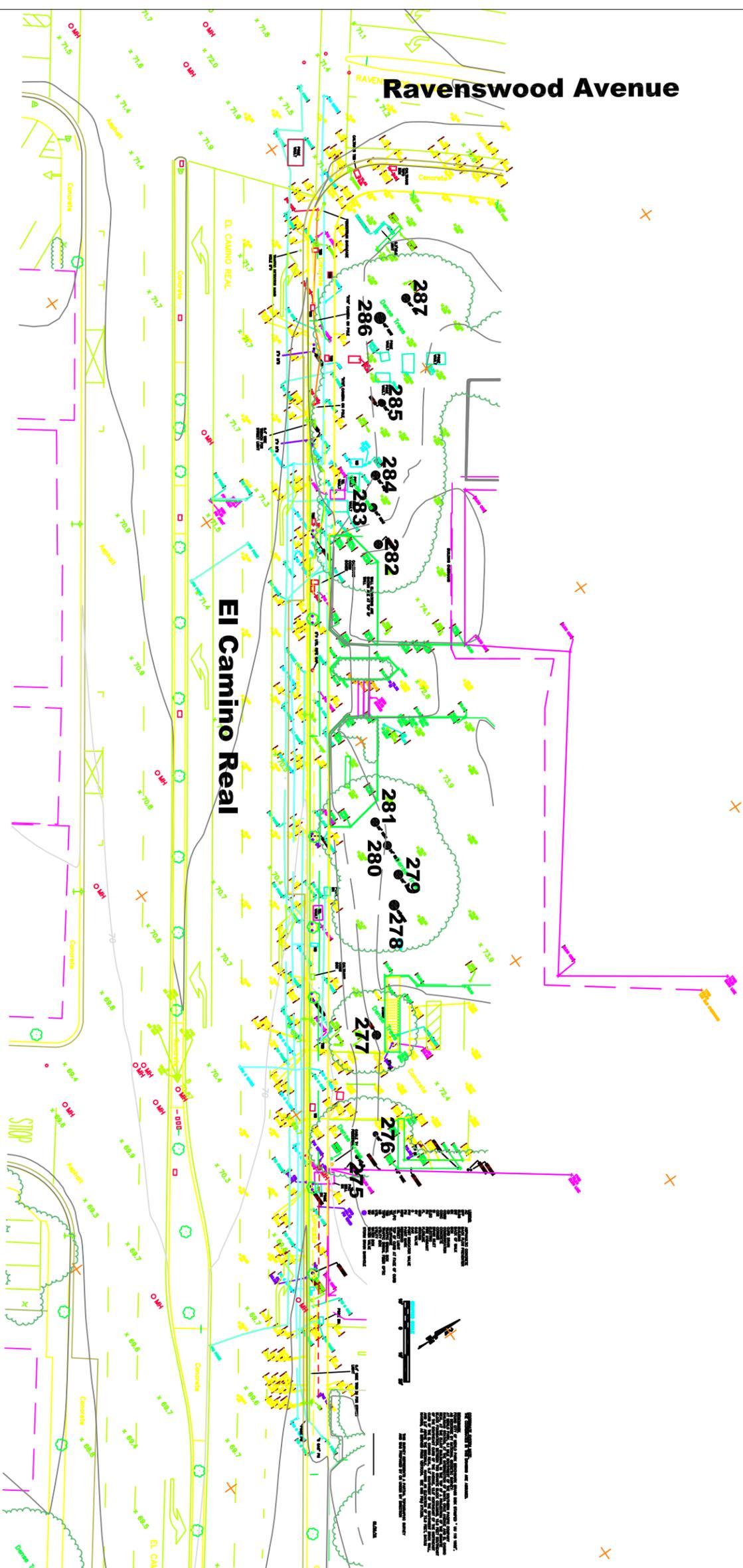
El Camino Real and  
Ravenswood Avenue  
Menlo Park, CA

Prepared for:  
City of Menlo Park  
Menlo Park, CA

July 2015

No Scale

Notes:  
Base map provided by:  
BKF Engineers  
Redwood City, CA  
Numbered tree locations  
are approximate.



325 Ray Street  
Pleasanton, CA 94566  
Phone 925.484.0211  
Fax 925.484.0596  
www.hortscience.com