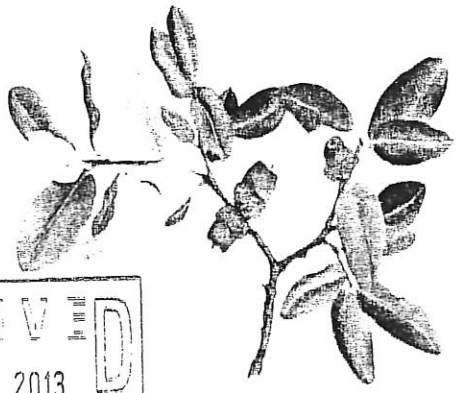
ATTACHMENT J

Maureen Hamb-WCISA Certified Arborist WE2280
Professional Consulting Services



March 26, 2013

Monterey County Planning Department
Attention: Delinda Robinson

Project: 1170 Signal Hill Road
Phase: Replacement Tree Planting

On March 6, 2013 we met at 1170 Signal Hill Road in Pebble Beach to review planting areas for the two 48-inch box Monterey cypress trees required by the Planning Department and the Monterey County Board of Supervisors.

Prior to your arrival on site I completed minor excavation of the planting area adjacent to the stump of tree "C1". Several small diameter roots were unearthed (less than one inch in diameter); they were soft and black in coloration. This type of root degradation is similar to conditions found when seedlings planted in the area died.

Soil borne fungus similar to *Phytophthora* was suspected. This type of fungi can survive in the soil for many years and enter plants through the crown or roots and is produces no fruiting bodies visible to the naked eye. The softening of root tissue is not caused by the fungus itself but is a result of secondary organisms that colonize the diseased roots. (Pests of Landscape Trees and Shrubs published by the University of California 1994).

On March 21, 2013 the replacement trees were brought to the site. Prior to planting the stump from the "C1" tree was ground to 12-24 inches below natural grade. The area was examined and additional smaller woody roots with symptoms of disease were found.

As a result of this condition the "C1" replacement tree was installed to the east of the stump in the area discussed. The replacement tree for the "C2" tree was planted north of the original tree in the position we discussed.

Photographs documenting the tree installation are shown on the following page. Please call my office with any questions regarding the trees on this site.

Respectfully,

Maureen Hamb-Certified Arborist WE2280

849 Almar Ave. Suite C #319
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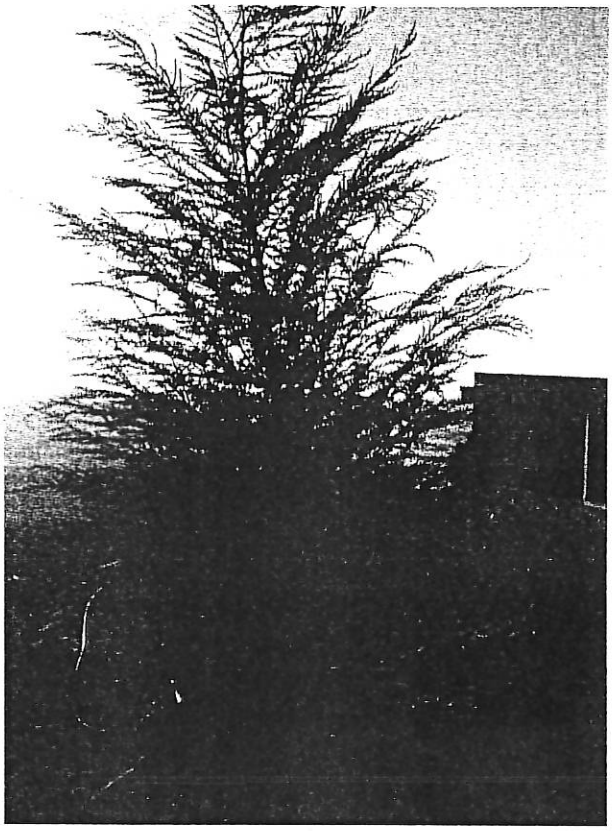
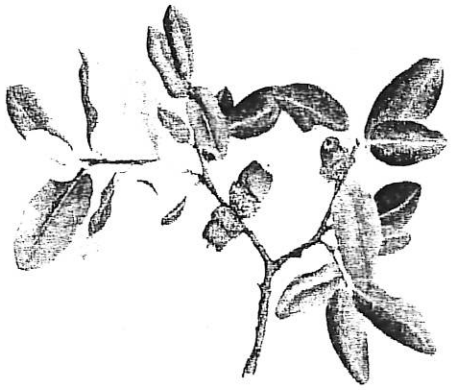


"C1" Replacement Tree

"C2' Replacement Tree

Maureen Hamb- Certified Arborist WE2280
Professional Consulting Services



April 1, 2013

Massy Mehdipour
1425 Dana Avenue
Palo Alto, CA 94301

Project: 1170 Signal Hill Road
Phase: Replacement Tree Planting

As you requested I have inspected the replacement Monterey cypress planted on your Signal Hill property as required by Monterey County.

The replacement for the C2 tree has been properly installed less than 20 feet from the stump of the original tree (pictured at right).

I measured the location of the C1 replacement tree by staking the location of the original stump. This was completed using measurements taken previously.

One stake was placed at the southern edge of the stump location another placed at the eastern edge of the stump location.

A compass was placed within the staked areas and the new tree location measured from these points.

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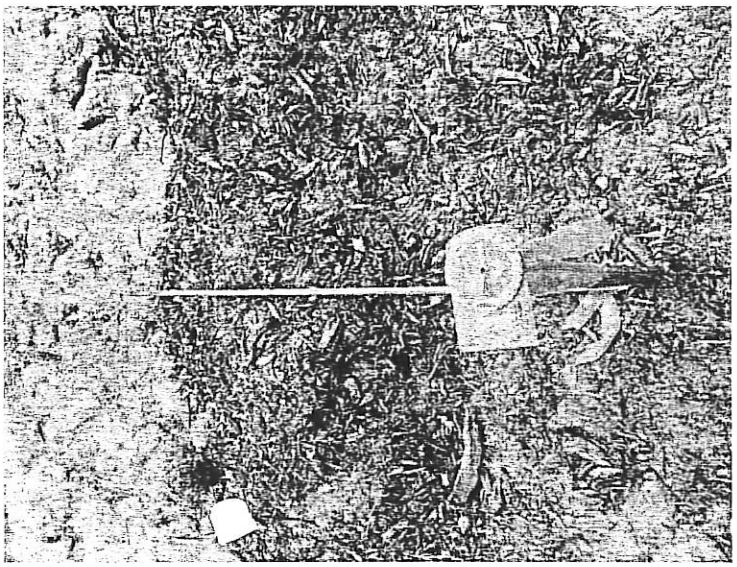
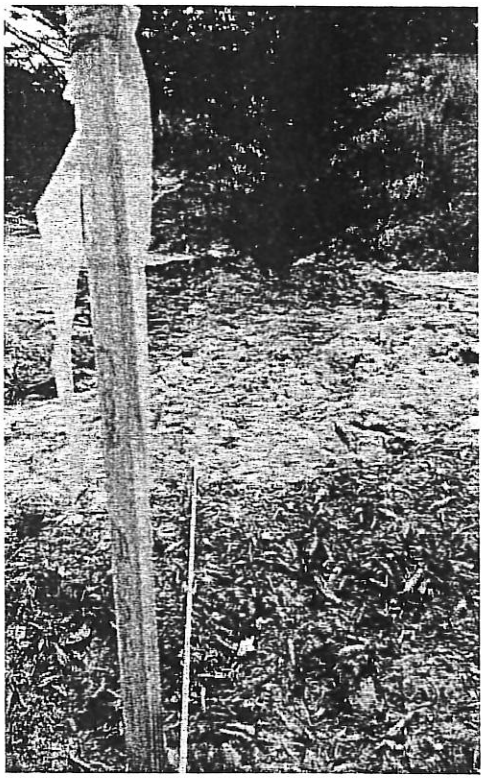
The stake shown on the ground is pointing directly east toward the replacement tree. Continuing the line in an easterly direction the trunk of the tree is five feet and approximately 15 degrees from direct east.





When measured from the stump staking the trunk of the replacement tree is 20 feet away.

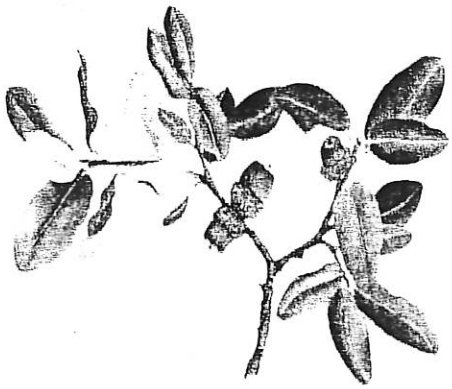
All measurements and compass directions were obtained using field type methods, as no survey points were available. The location of the tree is appropriate from an arboricultural perspective and substantionally conforms to the requirements of Monterey County Planning.

Please call my office with any questions.

Respectfully,

Maureen Hamb-certified Arborist WE2280

Maureen Hamb- Certified Arborist WE2281
Professional Consulting Services



April 30, 2013

Massy Mehdipour
1425 Dana Avenue
Palo Alto, CA 93953

Project: 1170 Signal Hill Road
Phase: Replacement Tree Planting

Planting Site Feasibility
As required, I have studied the feasibility of planting a replacement tree in the same position of a previously removed tree on your Signal Hill Property.

In 2011, I planted three seedlings in areas three to five feet from the original stump of tree C1. I provided irrigation to the trees and monitored their condition and growth. In September 2011, I found the seedlings in a declining condition. The lower stem and branching was discolored (black) and moisture was oozing from the stem. I unearthed the small root structures from the growing site, found that the roots were black, and appeared saturated. Deeper excavation into the planting site revealed woody roots one to two inches in diameter that had originated from the stump of the C1 tree. As with the seedlings, the larger roots were discolored.

The symptoms described are consistent with *Phytophthora*, a species of soil inhabiting pathogens. Monterey cypress is a susceptible host for this disease (Pests of Landscape Trees and Shrubs, University of California Publication 3359). The attached University of California Publication 74133 describes the symptoms, biology, and management of this pathogen.

The description of the multiple visual symptoms within the professional publications (various types of foliar discoloration, darkened areas in the bark at the root crown and upper roots, dark sap oozing from the bark, reddish brown streaks under the bark) have lead to the conclusion that *Phytophthora* is present in the planting site and was responsible for the death of the seedlings. The irrigation I provided to keep the trees alive was likely the medium needed to germinate dormant spores.

The *Phytophthora* species produces resting spores that survive for years in moist soil where no host is present. When the soil is dry the spores can only survive a few months, the introduction of a nearby host and free water in the soil allows the spores germinate and infect the host.

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Planting a replacement tree in the area where the original C1 tree and the seedlings were installed is not feasible due to the potential for infection. Trees require irrigation for survival; the introduction of moisture to the site can germinate dormant sports and allow for inoculation of the new tree. The area where spores could be present cannot be determined.

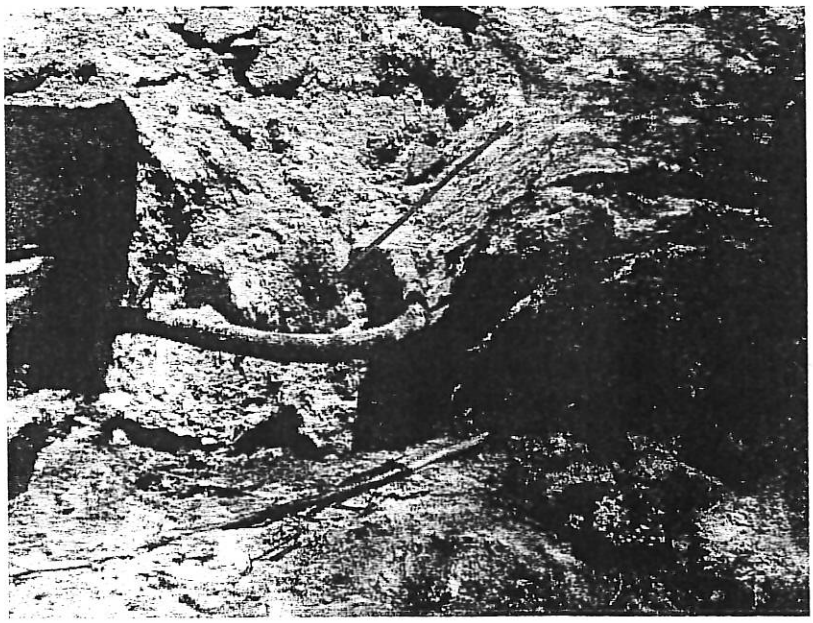
Replacement Tree Location
On April 1, 2013, I documented the locations of the two Monterey cypress replacement trees (C1 and C2).

I documented the location of the C1 replacement tree measuring from the original stump. After a review by Monterey County Planning it was determined that the tree would require relocation at least five feet to the north and no further than 20 feet from the stump.

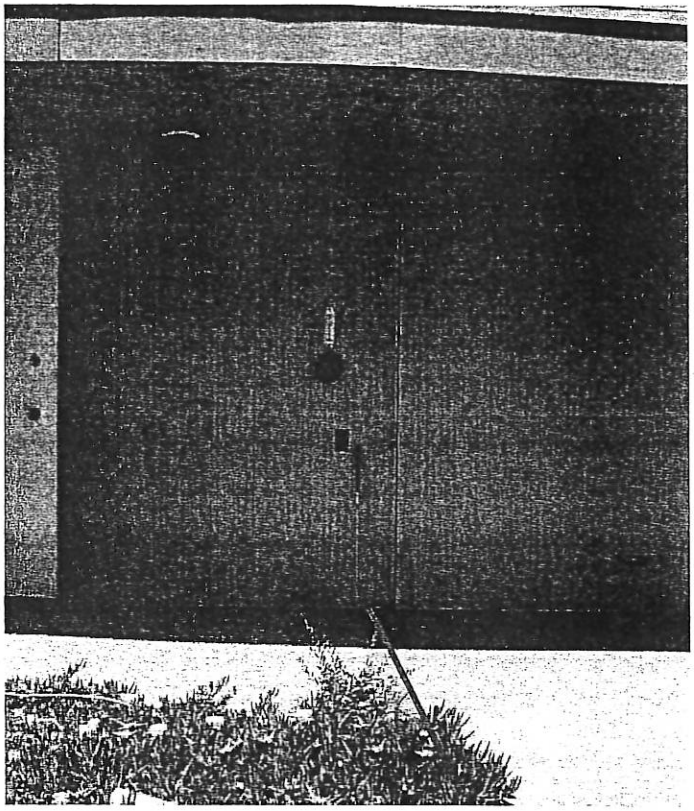
On April 30, 2013, I returned to the site with the tree planting crew from TreeMovers, a licensed contractor specializing in installing large trees. A small area of asphalt required removal to excavate the planting site. While digging, the backhoe encountered an underground electrical conduit, damaging the pipe and causing an electrical shortage that caused sparking and smoke to pour from the damaged area. The site had been scanned previously by USA to locate any underground utilities; there was no indication that the utility was present.

Following an electrical shut down by PG & E personnel, the area was photographed and the potential for a new planting area evaluated.

The electrical supply line is under the center of the asphalt driveway and turns to the north at a right angle toward the electrical meter located on the house.



The electrical meter is shown in the photo at right; the red line indicates the location of the underground supply line.

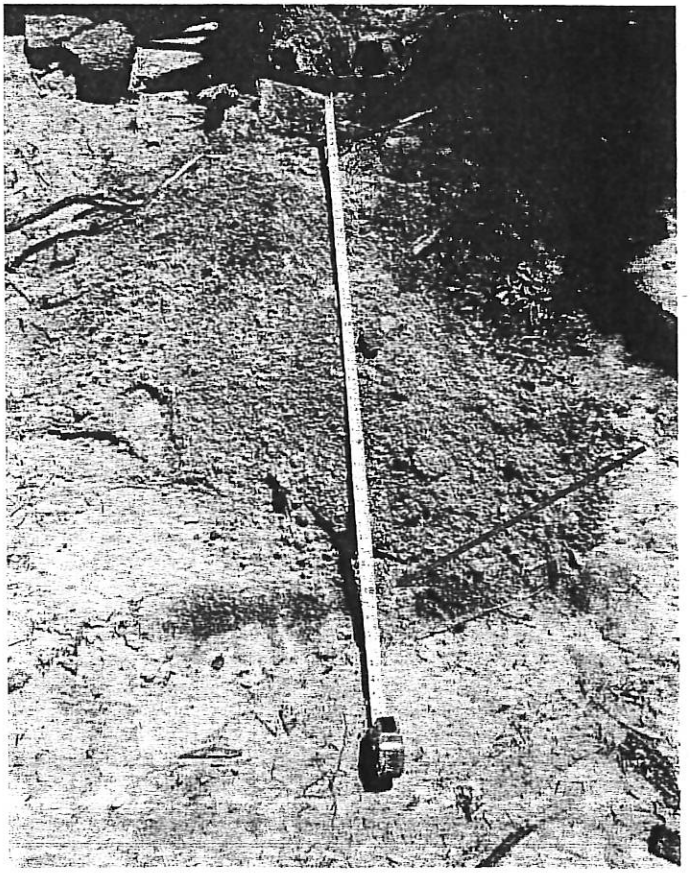


The tree cannot be planted in the area required by Monterey County as the electrical supply line is within the planting site.

PG & E will not allow trees or excavation adjacent to high voltage supply sources. In addition, it is professionally irresponsible to install trees where eventual root development can damage underground utility lines. Woody roots are known to damage and break service lines.

The excavation for the planting site cannot be completed within five feet of the source. This prevents the tree from being planted on either side of the line within a five-foot buffer from the root zone.

The five-foot buffer from the pipe is shown at right. The arrow is located at the five-foot mark.



This point is seven feet from the eastern edge of the original stump. The tree cannot be planted here due to the potential for infection by *Phytophthora.*

Conclusion
I recommend the replacement tree for C1 remain in its current position. There are no feasible planting areas available due to the presence of disease causing organisms and underground utilities.

Please call my office with any additional questions or concerns.

Respectfully,

Maureen Hamb-Certified Arborist WE2280

PHYTOPHTHORA ROOT AND CROWN ROT IN THE GARDEN

Integrated Pest Management for Home Gardeners and Landscape Professionals

Several species of soilborne pathogens in the genus *Phytophthora* cause crown and root rot diseases of herbaceous and woody plants. Almost all fruit and nut trees, as well as most ornamental trees and shrubs (including many California natives), can develop Phytophthora rot if soil around the base of the plant remains wet for prolonged periods, or when planted too deeply (Fig. 1). Tomatoes, peppers, eggplant, and other vegetable crops can also be affected by Phytophthora rot. In trees and shrubs, the pathogen kills plants by growing from the roots up through the root crown and into the lower trunk, where it kills the inner bark and causes a browning of the outer layer of sapwood. In many of these crops, different species of *Phytophthora* are involved. Losses to *Phytophthora* are minimized by providing good soil drainage and selecting the most tolerant rootstocks or varieties available. In general, *Phytophthora* requires warm, moist soils in order to cause disease. Another species of *Phytophthora, Phytophthora ramorum,* causes sudden oak death, which has very different symptoms and management than the species discussed here. See *Pest Note: Sudden Oak Death in California,* available online at http://www.ipm.ucdavis.edu.

SYMPTOMS

The leaves of plants affected by Phytophthora rot appear drought stressed. Trees or plants often wilt and die rapidly with the first warm weather of the season. Leaves may turn dull green, yellow, or in some cases red or purplish. Often, only plants in the most poorly drained area of the field or garden are affected. *Phytophthora* infections typically kill young trees, because their root systems and crown areas are small compared to those of mature trees.

Symptoms may develop first on one branch or stem then spread to the rest of a tree or plant. Trees may decline over a period of years before finally dying or they may be killed in a single season. Slow decline occurs when the roots are attacked; rapid decline occurs when the crown or basal stem is attacked and girdled, the damage completely encircling the stem in a single season.

Symptoms on roots and crowns may vary somewhat depending on the species of *Phytophthora* involved, the plant being attacked, the resistance of the plant variety, and soil moisture and temperature. In general, trees affected by *Phytophthora* develop darkened areas in the bark around the crown and upper roots. Gum or dark sap may ooze from the margins of the diseased trunk area. If bark tissue is carefully cut away, reddish brown streaks or zones can be seen in the inner bark and outer layer of wood. No mycelium (slender filaments of a fungus body) is visible in between the bark and wood in trees affected by *Phytophthora,* distinguishing this disease from Armillaria root rot, which is caused by a true fungus.

When tomatoes and eggplants are affected by Phytophthora root rot, roots of all sizes develop water-soaked spots that dry out and turn a chocolate brown as the disease becomes advanced. Early infections, caused by *Phytophthora* and other pathogens that cause damping-off diseases, kill seedlings. For more information on damping-off diseases, see Suggested Reading, *Pest Notes: Damping-Off Diseases in the Garden.* Later infections reduce plant vigor and may cause collapse and death of the plant. If you cut infected tap roots in cross section, you will see

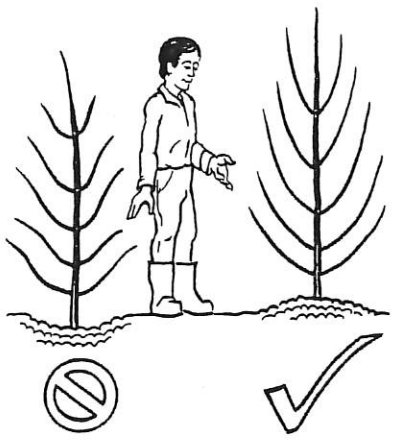


Figure 1. Avoid planting in a hole or a low-lying area, except when planting in sandy soils.

that the stele (central core of conducting tissue) is brownish above the rot lesions. Stele discoloration may extend into the lower stem.

BIOLOGY

Phytophthora species are soil-inhabiting pathogens that are favored by wet conditions. Although previously considered fungi, *Phytophthora* species are now considered to be in a separate classification called oomycetes. Species of *Phytophthora* produce resting spores that survive for years in moist soil in the absence of a suitable host. However, if the soil is completely dried out, these spores are less likely to survive for more than a few months. When a host is nearby and free water (water in soil pore spaces) is present in the soil, resting spores germinate to produce motile spores that can directly penetrate roots, branches, or crowns as long as free water is present. Wounds are not required for infection. Resting spores, decaying host tissue in the soil, and active cankers (disease-infected dead, sunken lesions in plant parts) can all be

PEST NOTES Publication 74133

University of California
Agriculture and Natural Resources

October 2006

sources for new infections. The pathogen can be spread in splashing rain or irrigation water, in surface irrigation, and runoff water, and by movement of contaminated soil, equipment, or plant parts. Flooded and saturated soil favors the spread of *Phytophthora* to healthy plants.

Some *Phytophthora* species are favored by warm weather, some by cool weather. Root rot of avocado, citrus, and tomato are favored by warm conditions, developing most extensively in late spring and early summer. Decay of crown, trunk, and branches of other tree species are favored by cool, wet conditions. These decays develop most rapidly in late fall and early spring.

MANAGEMENT

The most important factor in reducing the threat of Phytophthora rot is good water management (Fig. 2). Avoid prolonged saturation of the soil or standing water around the base of trees or other susceptible plants. Irrigate only as much and as often as necessary; in an orchard, keep track of the soil moisture around each tree and water only when necessary. If you irrigate trees with sprinklers, use low-angle sprinkler heads and splitters to avoid wetting the trunk and lower branches. If using a drip system, place the emitters at least a foot away from the trunk. Avoid planting susceptible species on poorly drained or shallow soils. Water stress and/or salinity make some plant species more susceptible to infection when wetted subsequently by irrigation or rains.

For all vegetable and orchard plants, provide good soil drainage. Good soil drainage is best provided before planting. Drainage should be plentiful to the rooting depth of the plants, generally 3 to 6 feet for trees, 2 to 4 feet for shrubs, and 1 to 2 feet for bedding plants. During favorable weather you do not want the roots and crown of a plant to remain wet for the 4 to 8 hours that are required for *Phytophthora* to infect the plant.

Provide adequate drainage by breaking through soil compaction and hardpan. In poorly drained soils, or in an area where you know *Phytophthora* is present, consider planting trees and shrubs on mounds. The mounds should be 8 to 10 inches high. Planting depth after settling should be no deeper than as received from the nursery, with the upper roots near the soil level and the graft union well above the soil line. Do not install irrigated turf around the base of trees, remove all weeds, and do not water the crown area directly. Never cover the graft union with soil or mulch. If you are not sure where the graft union is, ask someone at the nursery to show you and mark it. Raised beds provide good drainage in vegetable garden situations also. Group plants according to their irrigation needs. Separate those needing frequent, light irrigations, such as potatoes and strawberries, from those needing infrequent, deep irrigations, such as tomatoes and melons.

At the first signs of aboveground symptoms, examine the tree at the soil line for crown rot. Carefully cut away bark that looks affected. If crown rot is present, trees can sometimes be saved by removing soil from the base of the tree down to the top of the main roots and allowing the crown tissue to dry out.

Sanitation

It may be possible to slow the spread of *Phytophthora* within an orchard by avoiding movement of infested soil, water, and plant parts from an area where Phytophthora rot has developed. Surface and subsurface drainage water and anything that can move moist soil can carry the pathogen to a new area, including boots, car tires, and tools. If the physical setting allows drainage water to flow from infested to uninfected areas within the garden during wet weather, consider putting in drains to channel the water away from healthy plants.

Selection of planting stock

Plant only certified nursery stock from a reputable source, and choose the most resistant rootstocks or varieties available for your area. Less susceptible

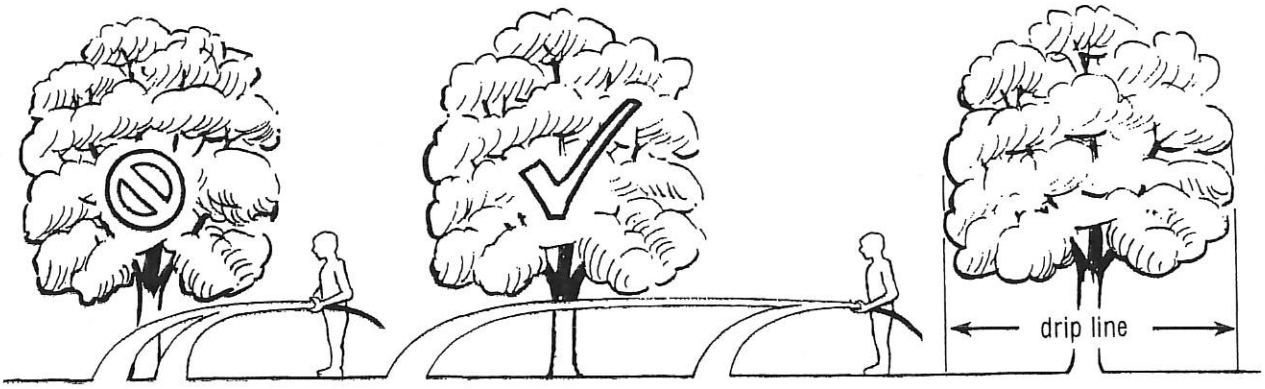


Figure. 2. Do not water established trees and shrubs near their trunks, as this promotes root and crown disease. Water plants when needed around the drip line and beyond. Adjust sprinklers or install deflectors to prevent wetting of trunk bases. Move drip emitters away from the base of the trunk after plants are established.

rootstocks or varieties are available for almonds and stone fruit, apples, cauliflower, and strawberries. Carefully select individual plants that are free of symptoms and/or that come from healthy lots of material.

Rotation

If tomatoes have been affected by *Phytophthora* root rot, avoid planting tomatoes or other susceptible plants such as eggplant or peppers in the same soil for at least one or two seasons. Plant a resistant crop such as corn instead, or leave the soil unplanted and do not irrigate, but keep it well worked to allow the soil to dry as deeply as possible. Different species of *Phytophthora* attack beans and cole crops, so these plants can be substituted as well. Consult a nursery or farm advisor for possible alternatives in your area.

Chemical control

The most effective way of preventing Phytophthora rot diseases is to provide good drainage and to practice good water management. Along with the appropriate cultural controls, the fungicide fosetyl-al (Aliette) may be used on a number of ornamental plant species to help prevent *Phytophthora* infections. When applied as a foliar spray it is absorbed by foliage and moves into roots. However, do not rely on fungicide applications alone to control root and crown rot diseases.

SUGGESTED READING

Pest Notes: Damping-Off Diseases in the Garden. Aug. 2006. Perry, E. J. Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 74132 UC Statewide IPM Program. Also available online at http://www.ipm.ucdavis.edu.

Pests of the Garden and Small Farm: A Grower's Guide to Using Less Pesticide. 1998. Flint, M. L. Oakland: Univ. Calif. Agric. Nat. Res. Publication 3332.

Pests of Landscape Trees and Shrubs. 2004. Dreistadt, S. H. Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 3359. ❖

For more information contact the University of California Cooperative Extension in your county. See your telephone directory for addresses and phone numbers.

AUTHOR: E. J. Perry, UC Cooperative Extension, Stanislaus Co.
TECHNICAL EDITOR: M. L. Flint
COORDINATION & PRODUCTION: P. N. Galin
ILLUSTRATIONS: **Fig. 1 & 2:** *Pests of Landscape Trees and Shrubs.* 2004. Oakland: Univ. Calif. Agric. Nat. Res. Publication 3359.

Produced by IPM Education & Publications, UC Statewide IPM Program, University of California, Davis, CA 95616-8620

This Pest Note is available on the World Wide Web (www.ipm.ucdavis.edu)

This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Pest Management.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

This material is partially based upon work supported by the Extension Service, U.S. Department of Agriculture, under special project Section 3(d), Integrated Pest Management.

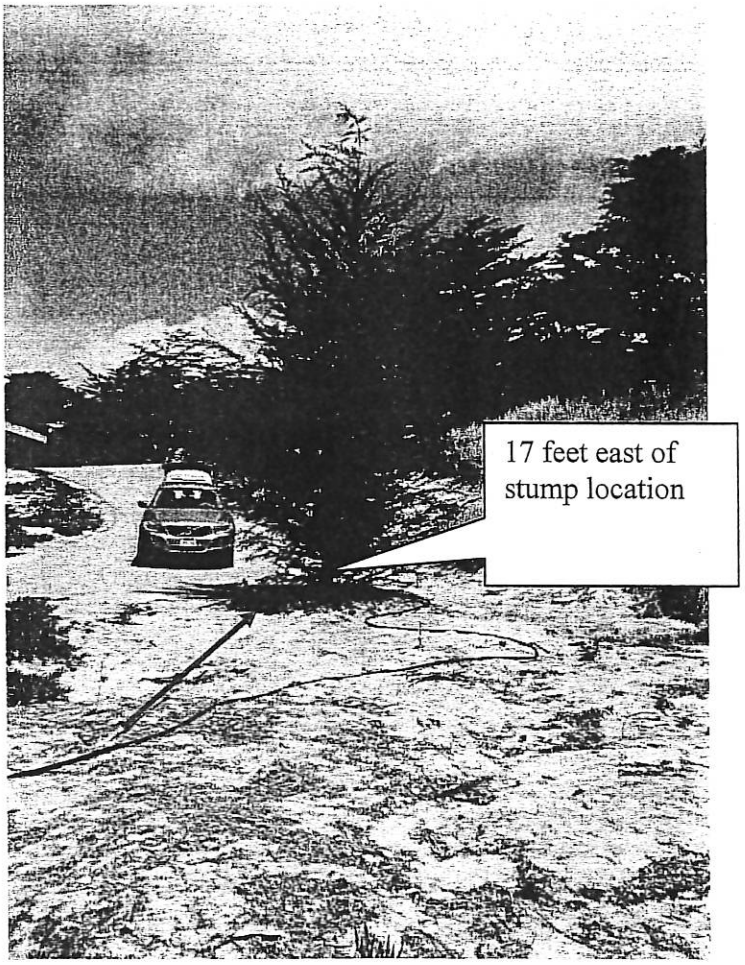
Maureen Humb- Certified Arborist #WE2280
Professional Consulting Services

May 22, 2013

Massy Mehdipour
1425 Dana Avenue
Palo Alto, CA 94301

Project: 1170 Signal Hill Road
Phase: Replacement Tree Planting

As you requested I have inspected the new location of the C1 replacement tree. The tree has been relocated five feet to the north and is now directly east of the C1 stump location (pictured at right).



The C1 and C2 replacement tree locations were surveyed by Whitson Engineering and are documented on the attached site plan. In addition, the underground utilities (electrical and propane) were professionally located and are documented on the plans.

The location of the C1 stump was staked using the field measurements I had taken previously. The stump was 14 feet from the residence, 11 feet from the edge of the asphalt driveway and 27 feet from the fence surrounding the propone tank. These measurements are shown on the attached site plan.

The new C1 tree is 17 feet directly east of the center of the field located stump.

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Planting Site Feasibility

I have researched and documented the feasibility of the C1 planting site since the original replacement seedlings died in 2011. The symptoms observed on the seedlings were consistent with the fungal pathogen *Phytophthora.*

Replacement of the soil surrounding the stump area cannot be considered a solution to remediating the planting site. The area that would require excavation would need to be at least 40 wide and more than five feet in depth. Even with this extensive removal, there are no assurances that all spores would be eliminated.

In addition, the underground utilities would interfere with this process and the sensitive dune habitat would be disturbed.

The use of phosphonate type fungicides may be effective in managing fungal diseases but the disease must first be present on the plant, they are not used on the plant as a preventative.

The use of these chemicals to sanitize the entire growing site may not be affective as the spores remain dormant and can move to the plant when conditions are suitable. Use of chemicals adjacent to an ESHA is not appropriate; phosphonates can kill spores of beneficial soil fungus as well as disease causing fungus.

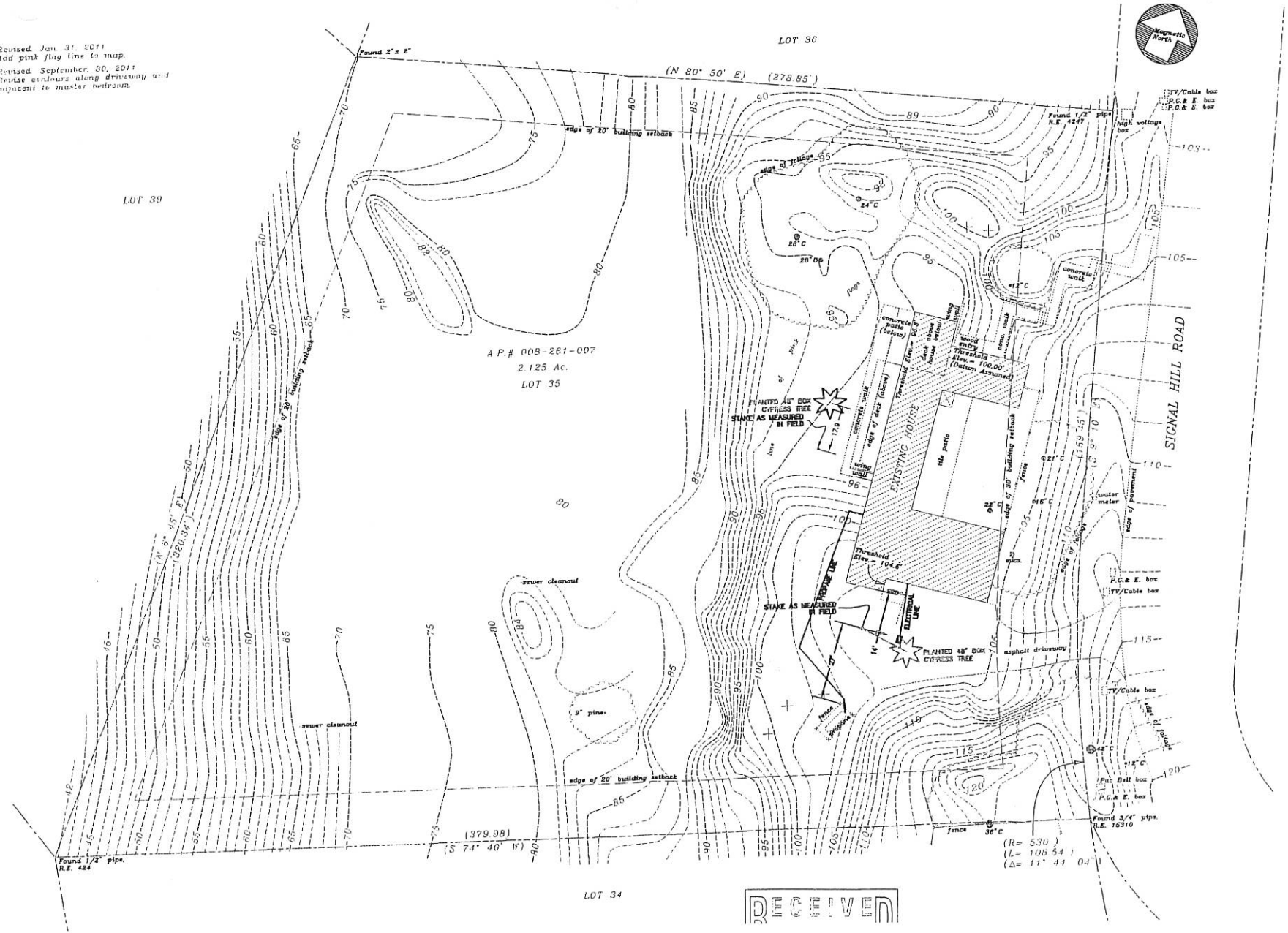
Please call my office with any additional questions regarding the replacement trees on this site.

Respectfully

Maureen Hamb-Certified Arborist WE2280

Revised Jan. 31, 2011
Add pink flag line to map.

Revised September 30, 2011
Revise contours along driveway and adjacent to master bedroom.



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