Walter Levison
CONSULTING ARBORIST

ISA Qualified Tree Risk Assessor | ASCA Registered Consulting Arborist #401 | ISA Certified Arborist #WC-3172

Assessment of and Recommendations for Fifty-Two (52) Trees at and adjacent to

675 Almanor
Sunnyvale, CA

Prepared at the Request of:

Chang Architecture

Site Visit:

Walter Levison, Consulting Arborist (WLCA)

8/28/2015

Report:

(WLCA)

10/5/2015
Revised 9/20/2016

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1 Summary

A total of fifty-two (52) regulated size trees were assessed by Walter Levison, Consulting Arborist (WLCA) on an existing developed commercial property proposed to be redeveloped per the proposed site plan shown on the WLCA tree location map markup in section 12 of this report.

All trees in this initial study exhibit at least one (1) main stem measuring 3 inches diameter or more at 48 inches above mean grade elevation. Refer to the WLCA tree map, WLCA tree data charts, WLCA appraisal worksheet, and WLCA digital images of the trees or tree groupings below in this report for more information.

The following matrix shows trees expected to be removed, retained, impacted, etc. The matrix groups trees by protection status as "protected" and "non-protected" for ease of reference. Trees to remain are highlighted in yellow on page 4:

Tree Group Description	Tree Count	Tree Tag Numbers	Municipal Protection Status	Disposition	Maintenance & Protection Recommendations Summary
(Total tree study by WLCA)	(52)	#1 through #52	Protected & Non-protected	----------	Note: Most important trees on site to retain and protect: #7, 11, 12, 13 (off-site), 14 (off-site), 49.
(Total trees with protected status in study by WLCA)	(34)	#7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 25, 26, 29, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52.	Protected	----------	----------
Trees to be removed due to direct conflicts and very poor tree condition.	(22)	#8, 10, 15, 16, 17, 20, 25, 26, 32, 33, 34, 35, 36, 37, 44, 45, 47, 48, 49, 50, 51, 52	Protected	To be removed	----------
Trees to be removed due to direct conflicts and/or very poor tree condition.	(16)	#2, 3, 4, 5, 6, 9, 19, 21, 22, 23, 24, 27, 30, 31, 40, 41	Non-Protected	To be removed	----------
Trees recommended to be removed by WLCA due to structural and/or health issues	(2)	#15, 17 (already noted in the count above)	Protected	To be removed	----------

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Tree Group Description	Tree Count	Tree Tag Numbers	Municipal Protection Status	Disposition	Maintenance & Protection Recommendations Summary
Trees expected to be damaged by site plan work	(3)	#38, 39, 46	Protected	To remain	Other protected size trees may also experience significant negative impacts during site work, depending on use of protective fencing, buffers, and heavy temporary irrigation during the work.
Trees expected to be damaged by site plan work	Various	Various	Non-protected		
Trees to remain (require protection and maintenance)	(12)	#7, 11, 12, 13 (off-site), 14 (off-site), 18, 29, 38, 39, 42, 43, 46.	Protected	Retain	Temporary heavy irrigation min. 1x/week, plus trunk buffer wrapping and steel chain link fence panels.
Trees to remain (require protection and maintenance)	(2)	#1, 28	Non-protected	Retain	Temporary heavy irrigation min. 1x/week, plus trunk buffer wrapping and steel chain link fence panels.
---	---	---	---	---	---
Trees requiring special arborist maintenance measures if retained	(4)	#7, 10, 15, 43	Protected	#7, 43 to be retained. #10, 15 proposed to be removed.	#7: Will require cabling or removal of one of two codominant mainstems at fork at 80 feet above grade. #10: Would require cabling and/or through-bolt bracing per ANSI A300 standards for tree support systems. (Tree is currently slated for removal per project team.) #15: Monitor tree for decline, and remove entire tree if tree declines to "poor" overall condition (i.e. below its current overall condition rating of 50% "fair", which is only 1 percent above the 49% threshold between "fair" and "poor"). #43: Will require cabling per ANSI A300 standards for tree support systems.

RECAP: 52 Total Trees Surveyed.
Removals: 22 protected size trees, and 16 non-protected size trees, for a total of 38 removals.
Retain: 12 protected size trees, and 2 non-protected size trees, for a total of 14 trees being retained.

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Tree Condition (as of October 2015 survey date):

Site Issues

(1) Soil Moisture Deficit: Coast redwoods (*Sequoia sempervirens*), evergreen ash (*Fraxinus uhdei*), and European birch (*Betula pendula*) need very heavy periodic supplemental irrigation year round in the Bay Area to maintain good vigor, especially at South Bay locations such as this site where the ambient air is relatively dry, and summer rains are non-existent. This winter and spring we received well below the normal average for natural rainfall.

I would suggest not planting *Betula pendula* in the south bay due to its inappropriateness for this climate. Good birch alternatives exist in the wholesale nursery trade such as 'Dura Heat' birch and Heritage river birch (*Betula nigra* 'Heritage') which are much more drought resistant than European birch.

Alternatives for coast redwood include drought tolerant cedar species such as Atlas cedar (*Cedrus atlantica*) and deodar cedar (*Cedrus deodara*).

(2) Insect Issues / Drought / Pitch Canker: Monterey pine (*Pinus radiata*) #15 could fall into a rapid spiral of decline initiated by bark beetles which are attracted to pines under stress from soil moisture deficit (drought stress). Beetle presence can cause tree decline very rapidly, and the beetles are also the vector for transmission of pine pitch canker fungus, which in itself can be fatal or cause rapid decline in Monterey pines. I suggest considering this tree for removal, or at the very least monitoring its condition, and slating it for removal if it declines to 49% overall condition (poor) which would be only a single digit drop from its current overall rating of 50% (fair).

(3) Heavy Limb Endweight & Crowded Limbs: As is common with open-grown trees in commercial settings such as the 675 Almanor site, scaffold limbs and branches achieve extended form due to the lack of normal, crowded forest conditions in which the trees would normally be growing in their natural range. This results in trees that are over-extended and are prone to splitout from excessive load forces acting on the limb and branch attachments. Many of the trees at site could benefit from structural renovation pruning under the direct monitoring and guidance of an ISA Certified Arborist to remove crowded stems and reduce the endweights of heavy limb systems by selectively removing branch endweight per ANSI A300 pruning standards. This mainly involves removal of the outermost portions of limbs to reduce their lengths. This technique is far to infrequently performed in the Bay Area, but has been scientifically proven to reduce risk of limb and branch splitouts if performed correctly.

(4) Codominant Mainstem Cabling or Bracing: Many of the coast redwoods at this site exhibit codominant mainstems with narrow forks that present a structural defect. Coast beefwood also exhibit this trait. Trees being retained such as #7 and 43 will require cabling and/or bracing with through-bolt cables if the trees are being retained. Alternatively, one of two codominant mainstems on certain trees such as #7 could be removed at the fork to avoid cabling or bracing (see the last row of information in the matrix above).

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2 Assignment and Background

The author Walter Levison, Consulting Arborist (WLCA) was retained by the Client to tag and assess all regulated trees on and adjacent to the subject property that appeared would be affected by proposed site plan work at 675 Almanor. WLCA was also requested to prepare a formal written arborist report per City of Sunnyvale standards.

This document contains tree data charts, appraisal (valuation) charts which determine the dollar value of each tree per the most current edition of the *Guide for Plant Appraisal* and the *Western Chapter ISA publication* known as *"Species Classification and Group Assignment (2004 edition)*, digital images of each tree or tree groupings, a tree location map mark-up (using landscape sheets L1.0 and L1.1 by Reed Associates Landscape Architecture as a base sheet) showing all fifty-two tree trunk locations noted by numeric designation "1" through "52", discussion of existing site conditions and expected negative impacts related to current proposed construction work, and recommendations for protection and maintenance of trees that (preliminarily) appear to be retainable based on the current proposed scope of commercial site plan construction.

The WLCA tree data charts attached to this report include recommendations for tree maintenance and protection listed as codes. These are a quick reference for project team members working on the pre-construction, construction, and post-construction phases of the project.

Appraisal data is contained in a separate worksheet with most or all data used in the calculations shown transparently. The worksheet also contains an extensive legend and notes section for reference.

The entire document, including the tree data charts and tree protection map, were revised on 9/20/2016 per direction by the project architect, in order to conform to the most recent set of submittal plans. The latest plan iteration removes all site trees within the Hetch Hetchy (SFPUC) water delivery system right-of-way which spans across the property in an east-west trajectory.

3 Protected Trees

The City of Sunnyvale, California protects private trees with a single main stem measuring at least 12.1 inches diameter at 48 inches above grade, and private multi-stem trees with stems totaling at least 36 inches diameter at 48 inches above grade.

Per this definition, there are 34 protected trees and 18 non-protected trees at the site. See the tree disposition matrix above in the summary section of this report for details.

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4 Discussion – Construction Impacts

WLCA reviewed only the proposed bird's-eye site plan document used to create the tree location map attached to the end of this report. Therefore, the following discussion is preliminary only:

1. Smaller trees: Trees with minimal offsets from the existing office complex footprint appear to be retainable, such as trees #1, 21, 22, 23, 24. However, renovation of existing concrete walkway, patio, retaining wall, and other related landscape work in these areas may require that some of these smaller diameter, less valuable trees end up being removed, even though the team will make an effort to protect and retain these trees.

2. Important trees: Trees that need to be retained given their high value per my appraisal worksheet include coast redwoods and cedars such as trees #7, 11, 12, 13 (off-site), and 14 (off-site). Tree #49 was also a high value specimen, but is now to be removed due to its location on the SFPUC water delivery right-of-way.

   Special construction specifications, methods, and materials should be used when renovating the planter areas, asphalt parking lot surfacing and baserock, in order to avoid causing damage to root systems of these trees that may be quite extensive. Some of these trees may have lateral roots that extend horizontally as far as 40 to 50 feet radius out from trunk through the parking lot baserock, just under the asphalt surfacing, which is actually quite common with larger mature trees such as these. Also helpful will be arborist monitoring of the work, which may or may not be required as a City condition of approval for this project. Nevertheless, arborist involvement before, during, and after construction can help avoid tree decline, tree death, etc. by limiting work in critical root zone areas, and by verifying with a soil moisture meter/probe that heavy irrigation is being applied to the trees' root zones during construction.

3. Increasing open soil areas around trees: Some large trees are experiencing problems due to curbs and other hardscape that is limiting their root extension laterally, and causing the trees to remain stressed, stunted, or otherwise in decline due to their inability to gain adequate soil moisture.

   Trees such as redwoods being retained along the Almanor street frontage (e.g. trees #7, 11, and #12) could significantly benefit from enlargement of open soil areas by carefully shallow-peeling the existing curb and asphalt surfacing off from their root zones within zero to 25 feet of the trunks under direct arborist guidance on site during demolition. The project team did redesign the planter areas and sidewalks in these areas which will result in better preservation of the existing open soil root zones of the trees. Toward this end, the sidewalks will meander in half-moon shaped arcs toward the parking lot, which will require that an easement be granted to allow the City walk to encroach into the private land of this site.

5 Appraisal Methodology

All fifty-two (52) off-site and on-site trees were considered larger than replaceable size given that replacement trees in the nursery trade are 48" box size max. Therefore, the correct methodology for determination of tree value was use of the trunk formula method or TFM.

Trunk cross sectional area data from the *Guide for Plant Appraisal* and the WC-ISA pamphlet on species data and group assignment data were inserted into an Excel spreadsheet in a transparent manner.

Trees with multiple mainstems were treated by summing up the cross sectional areas of all main stems to determine basic value. These trees are noted in the appraisal worksheet with bold black to indicate that

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WLCA manually adjusted the TA using data from the *Guide*. Trunk cross sectional area data is also bolded black. WLCA rounded down when determining multi-stem cross sectional area totals, for reasonableness.

Per appraisal protocol, main stems measuring greater than 30 inches diameter were reduced by using the Guide's "adjusted trunk area" data which reduces the cross sectional area for larger trees, achieving more reasonable basic values for larger landscape trees. These trees are also noted in the appraisal worksheet with bold black to indicate that WLCA adjusted the trunk cross section data downward per the Guide, and the trunk area in square inches is also bolded black. Again, WLCA rounded all mainstem diameters down for reasonableness when calculating the individual cross sectional areas for single stem and multi-stem trees with stems larger than 30 inches diameter each.

For "location" data determination (site + contribution + placement / 3), WLCA used "0.85" for the "site" factor for all 52 trees. Contribution and placement were determined on a tree by tree basis.

Final dollar values are shown in the right hand column of the appraisal charts, with values rounded down to the nearest $100 for trees valued over $5,000 and rounded to the nearest $10 for specimens valued less than $5,000, per the Guide.

The total value of all 52 on-site and off-site trees in this initial study was determined to be **$270,250**. Refer to the attached appraisal worksheet for more information. Note that the appraisal table was not revised during the 9/20/2016 update.

6 Recommendations

PRE-PROJECT ITEMS

1. Project Arborist:

   Retain an official project arborist or "PA" to the project to perform initial signoff inspection to verify trunk buffer and chain link fencing installation prior to start of demolition, and (if required) perform periodic signoff inspections and written letter style reports to planning division, root zone soil moisture monitoring, demolition monitoring, etc. The PA should be an ASCA Registered Consulting Arborist with extensive experience in construction monitoring such as Walter Levison, Consulting Arborist, or another consultant with similar background and experience.

2. High Risk Trees:

   Monterey pine #15 will be removed from the landscape as a low value, higher risk type tree.

3. Design / Trenching:

   Align any and all proposed utility and landscape excavation trenches (e.g. landscape irrigation piping, TV, water, fire water, storm water, sanitary sewer, gas, low voltage electric, high voltage electric, etc.) such that there is a 15 to 25 foot minimum horizontal offset between trench edges and trunk edges of trees being retained.

   The PA should verify that all final building set plan sheets comply with the recommendations outlined in this arborist report.

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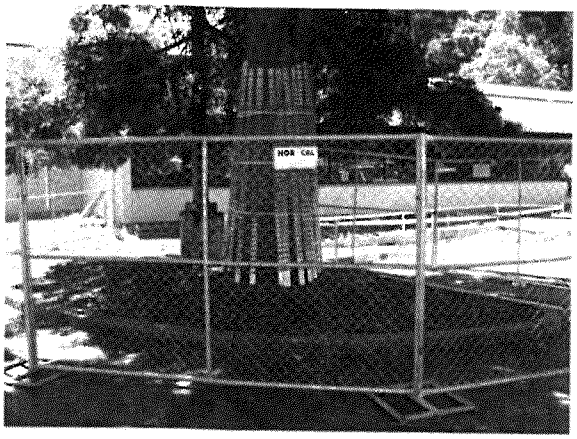
4. Design / Important Trees:

   Design all new landscaping, hardscape, curbs, irrigation lines, utilities, lighting conduit, etc. to be at least 15 to 25 feet offset from important large high value trees being retained such as **trees #7, 11, 12, 13, and 14.**

   The PA should verify that all final building set plan sheets comply with the recommendations outlined in this arborist report.



5. Root Protection Zone / Chain link:

   Install chain link fence panels to be set in place with wires and rebar or other heavy duty pins around **all trees to be retained** (see images at right). This fencing shall be known as the root protection zone or "RPZ". WLCA will work with the project general contractor to determine the actual final routing for the chain link RPZs. Current minimum recommended distance from trunk edges to fence lines is 15 to 25 feet radius (i.e. the "canopy driplines" before any pruning has been performed).

   Fencing material used for all protective fences must be steel chain-link panels.

   Use straw erosion control wattles pinned down with a wooden dowel every two horizontal feet along the bottom edges of the panels to control liquid waste encroachment into the RPZs (see images above right).

   The protective fencing must not be temporarily moved during construction. Materials, tools, excavated soil, liquids, substances, etc. shall not be placed or dumped, even temporarily, inside the RPZ. Storage, staging, work, or other activities shall not occur inside the RPZ without the expressed written (emailed) permission from the assigned project arborist.

6. Signage:

   The TPZ fencing should have one sign affixed with UV-stabilized zip ties to the chain link at eye level for every 20-linear feet of fencing, minimum 8"X11" size each, plastic laminated or otherwise waterproofed, stating:

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ROOT PROTECTION ZONE FENCE
ZONA DE PROTECCION PARA ARBOLES

-NO ENTRE SIN PERMISO. LLAME EL ARBOLISTA WALTER LEVISON-

DO NOT MOVE OR REMOVE WITHOUT AUTHORIZATION FROM
WALTER LEVISON, PROJECT ARBORIST

CALL OR EMAIL 48-HRS ADVANCE FOR PERMISSION

TELEFONO CELL 415-203-0990 / EMAIL DRTREE@SBCGLOBAL.NET

7. Trunk Buffer:

   Affix a trunk buffer around the trunks of all trees being retained prior to demolition commencement. See image below right for sample spec.

   Best Management Practice for tree protection of **all trees to remain on site** is to wrap an entire roll of orange fencing around the lower 8 feet of trunk of each tree, and affix 2X4 or 1X4 boards (or waste wood of similar dimensions) around the circumference of the trunk, and secure with duct tape on the outside (do not use wires). See specification image at right, which shows a tree wrapped with high grade stiff red plastic fencing material from White Cap rather than the more commonly available orange snow fencing from Home Depot which is more flexible and less protective.

DURING-PROJECT ITEMS

8. Demolition1 / Arborist Monitor:

   Call the project arborist to monitor during special periods when heavy demolition, excavation, etc. are occurring in close proximity to trees, such as during demolition of existing walkways and foundation materials within 15 to 25 feet of large mature trees being retained.

9. Demolition2 / Leave It Alone:

   Avoid removal of any concrete, asphalt, or metal materials that are currently located in the subgrade (root systems) within 10 horizontal feet of the trunk edge of any tree being retained, to avoid causing irreversible damage to fine roots, woody roots, and root crown areas of trees being retained. If necessary, saw cut the materials using a circular saw with a diamond or carbide demolition blade at 10 horizontal feet out from trunk edges of the trees, and leave the remaining materials as-is between zero and 10 feet out from the trunks to avoid damaging the root systems.

   As noted above in this report, retain Walter Levison or another consulting arborist to monitor demolition, and verify that fencing protection is placed immediately after, and heavy irrigation applied immediately after, root zones of trees being retained are opened up during demolition. Tree root zones under old hardscape being

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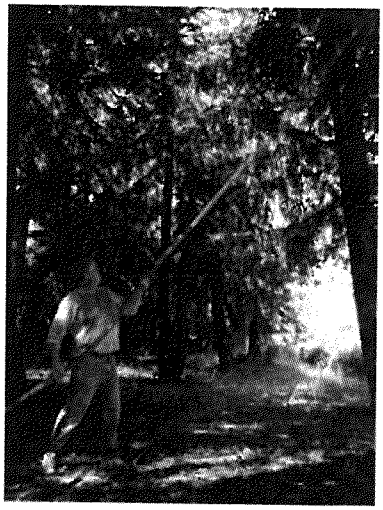
removed are subject to desiccation and damage when the surfacing hardscape is removed, since that hardscape previously acted as an anti-desiccant and soil protection "buffer".

10. Water Spray:

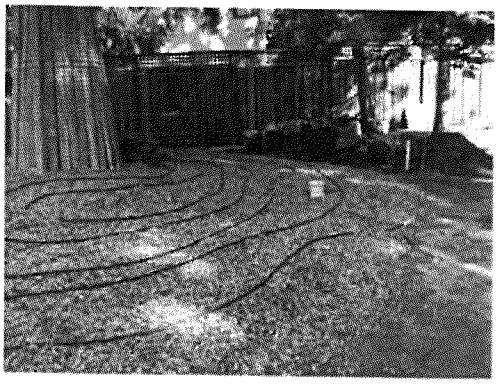
If standard pressure water is available on site, spray off foliage of all trees being retained on a 1x/month basis using a high power garden hose to wash both the upper and lower surfaces of the foliage. This helps keep the gas portals (stomata) unclogged for better gas exchange which is crucial for normal tree function (see image above right).



11. Irrigation / Temporary:

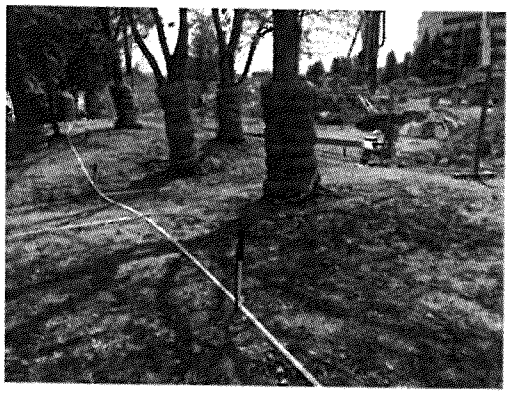
Provide heavy periodic supplemental irrigation on a schedule to be determined by the PA (see sample images at right). The PA will probe the soil during site inspections to determine if irrigation is necessary, and if so, at what frequency, duration, and location(s). Typical irrigation for high water use type trees such as coast redwoods on construction sites is heavy 1x/week irrigation, approximating **50 to 100 gallons, per tree, 1x/week minimum, on a single day.**

The most beneficial construction period irrigation locations are typically out at the RPZ fencelines where tree root systems will be damaged or destroyed by vehicle traffic, excavation, trenching, and other subgrade work.



Application method(s) can include, but are not limited to:

- Water tank/spray system.
- Domestic water supply with garden hose system and/or soaker hose and/or emitter lines snaked throughout the RPZ areas with extra hose sections laid along the actual RPZ fencelines themselves
- On-site tank with gravity feed hose.
- Over-grade PVC irrigation piping build over the soil surface and affixed with high volume adjustable type flood bubblers (see image at right).



A four-inch thick layer of chipper truck type wood chip mulch often allows for better downward movement of surface applied irrigation water down into the root zones of trees (see spec images above right).

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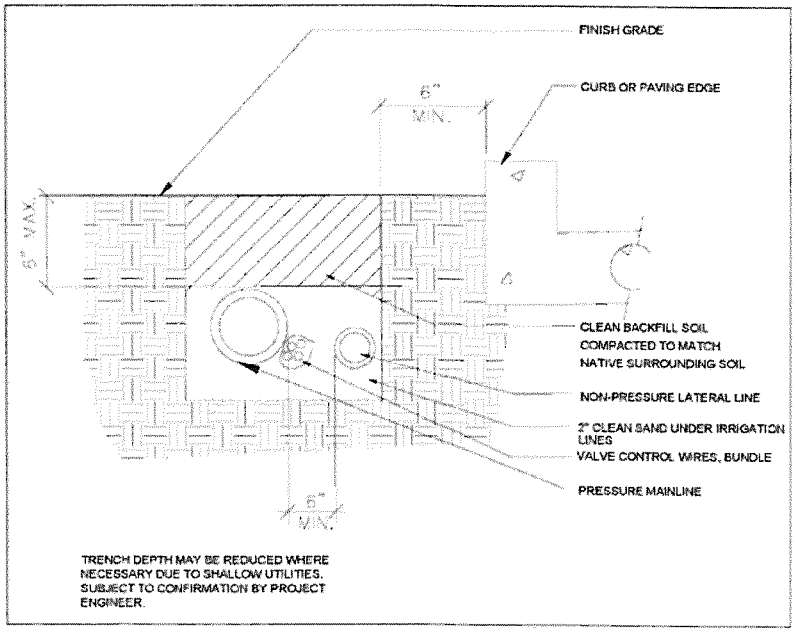
12. Irrigation / Permanent:

Type: It is suggested that all permanent irrigation for existing trees be built either over grade (e.g. poly tubing with adjustable flood bubblers, over-grade PVC "floating system" as shown in image on page 10 above) or in very shallow trenches with maximum 3 to 6 inches of cover over pipe top elevations (see image at right, copyright Sandis Civil 2015):



Horizontal Encroachment Limits:

Avoid all PVC irrigation pipe trench cuts within 15 to 25 horizontal feet of any tree being retained, if possible.

Depth: Avoid all cuts below 6 inches depth of total cut below existing grade elevations.

Spray Limits: Avoid irrigation spray contact onto the trunk bark of any tree.

Redwood Irrigation: Provide coast redwood specimens with heavy periodic irrigation throughout the year in an attempt to boost the trees' vigor. Coast redwoods require year-round heavy supplemental irrigation on at least a once-weekly basis.

13. Pruning (may be performed prior to commencement of site work):

Retain a qualified ISA-Certified Arborist to perform or directly monitor and advise on site:

- Removal of selected crowded branches and limbs on trees being retained per ANSI-A300 pruning standards for thinning (section 5.6.2.1 "thinning should result in an even distribution of branches on individual limbs and throughout the crown" (i.e. it is NOT lion-tailing). Section 5.6.2.2 "not more than 25 percent of the crown should be removed within an annual growing season".

- Reduction of branch endweight as necessary on trees being retained, to reduce load forces on branch attachments, per ANSI A300 pruning standards.

- Trees #7 and #43 should have cables and/or through-bolt bracing installed between upright codominant mainstems and large diameter limbs, per ANSI A300 standards for tree support systems and the ISA companion publication "*Best Management Practices - Tree Support Systems: Cabling, Bracing, and Guying*" (or 2nd alternative for redwood #7 is to remove one of the two codominant mainstems at the fork at 80 feet above grade which would avoid the need to install arbor cables).

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Do not perform topping, shearing, lion-tailing (removal of inner and lower wood), or thinning pruning which are contrary to the American National Standard Institute A-300 Standard for Tree Care / Tree Shrub and Other Woody Plant Maintenance / Pruning.

The tree care contractor retained for this work shall contact the project arborist via phone 48 hours minimum prior to pruning to allow the PA to monitor portions of this work. Refer to the approved vendor list in this report for local tree care contractors.

7 Consultant's Qualifications

- Contract Town Arborist, Town of Los Gatos, Planning Division.
  11/15-present
- ISA Qualified Tree Risk Assessor
- ISA Qualified Tree Risk Assessor Course, Palo Alto, CA. 2013
- ISA Certified Tree Risk Assessor Course graduate, 2009 (TRAQ)
  Vancouver, B.C., Canada and Palo Alto, California.
- ASCA Registered Consulting Arborist (RCA) #401
- Millbrae Community Preservation Commission (Tree Board)
  2001-2006
- ASCA Arboriculture Consulting Academy graduate, class of 2000
- ISA Certified Arborist (CA) #WC-3172
- B.A. Environmental Studies/Soil and Water Resources
  UC Santa Cruz, Santa Cruz, California 1990
- Peace Corps Soil and Water Conservation Extension Agent
  Chiangmai Province, Thailand 1991-1993
- Associate Consulting Arborist
  Barrie D. Coate and Associates
  4/99-8/99
- Contract City Arborist to the City of Belmont Department of Planning and Community Development
  5/99-present
- Continued education through attendance of arboriculture lectures and forums sponsored by The American Society of Consulting Arborists, The International Society of Arboriculture (Western Chapter), and various governmental and non-governmental entities.

(My full curriculum vitae is available upon request)

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8 Assumptions and Limiting Conditions

Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised and evaluated as through free and clean, under responsible ownership and competent management.

It is assumed that any property is not in violation of any applicable codes, ordinance, statutes, or other government regulations.

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

Unless required by law otherwise, the possession of this report or a copy thereof does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

Unless required by law otherwise, neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initiated designation conferred upon the consultant/appraiser as stated in his qualifications.

This report and any values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Sketches, drawings, and photographs in this report, being intended for visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise. The reproduction of any information generated by engineers, architects, or other consultants on any sketches, drawings, or photographs is for the express purpose of coordination and ease of reference only. Inclusion of said information on any drawings or other documents does not constitute a representation by Walter Levison to the sufficiency or accuracy of said information.

Unless expressed otherwise:

a. information contained in this report covers only those items that were examined and reflects the conditions of those items at the time of inspection; and
b. the inspection 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.

Loss or alteration of any part of this report invalidates the entire report.

Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

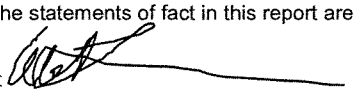
Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Tree are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate the trees.

9 Certification

I hereby certify that all the statements of fact in this report are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signature of Consultant 

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Cell (415) 203-0990 / Email: drtree@sbcglobal.net

Walter Levison
CONSULTING ARBORIST

ISA Qualified Tree Risk Assessor | ASCA Registered Consulting Arborist #401 | ISA Certified Arborist #WC-3172

10 Approved Vendors List

Service	Company	What they offer	Contact
Transplanting	Tree Movers Inc.	Large specimen trees, transplant services.	650-968-6117
	Valley Crest Tree Co. tree moving division	Large specimen trees, transplant services.	818-223-8500
Pruning	Advanced Tree Care	Pruning, root crown excavation, fertilization, tree installation, support systems for high risk trees, SOD phosphate sprays.	650-839-9539
	Maguire Tree Care	Pruning performed directly by an ISA Certified Arborist	650-245-2620
	Trees 360	Pruning performed directly by an ISA Certified Arborist (upon request).	408-866-1010
Special Tree Sources	Specialty Oaks Lower Lake, CA	California native oak species	www.specialtyoaks.com
	Oracle Nursery	Various oaks and hybrid elms. Only local purveyor of hard to find Italian oak (*Q. frainetto* 'Forest Green')	www.oracleoaknursery.com
	Sweet Lane Wholesale Nursery Santa Rosa, CA	Can import rare oaks such as the fantastic Forest Green Hungarian oak, from Oregon growers. Also may be able to request the excellent Cathedral live oak (*Quercus virginiana* 'Cathedral')	www.sweetlanenursery.com
	L.E. Cooke Nursery Visalia, CA	Only source of *Platanus* 'Roberts' (Roberts sycamore) in California that I am aware of. An excellent tree for use in parking lots and other urban situations.	**L.E. Cooke Co** **26333 Road 140** **Visalia, CA 93292** **Phone:** 559-732-9146 **Toll Free:** 800-845-5193 **Fax:** 559-732-3702

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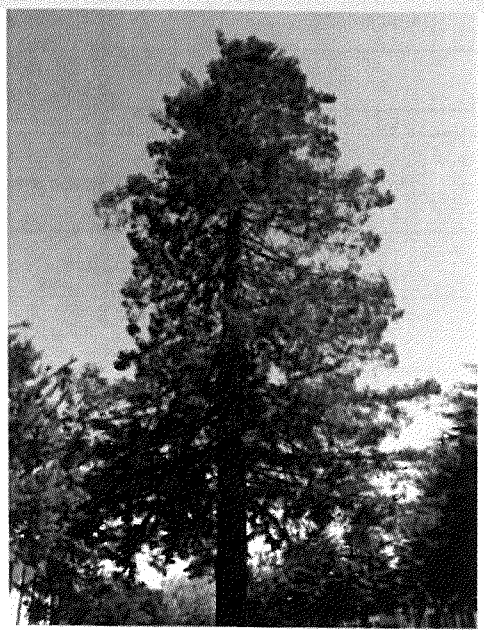
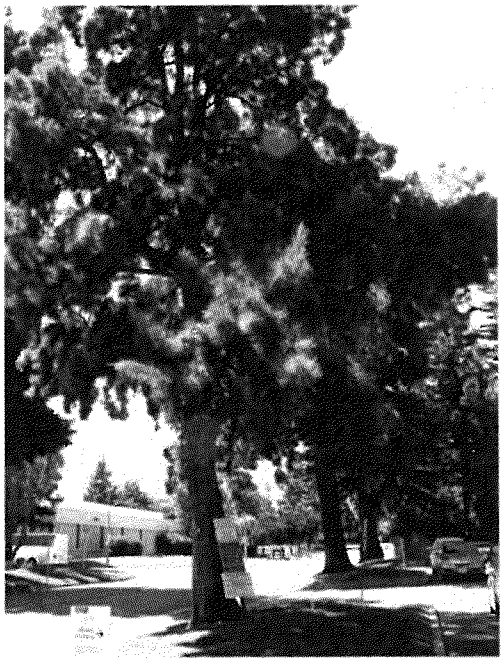
11 Images 8/28/2015 (Note: Some trees not shown)

Tree Tag Number	Image	Tree Tag Number	Image
Left side: 9 Center: 7		7	
10		11	

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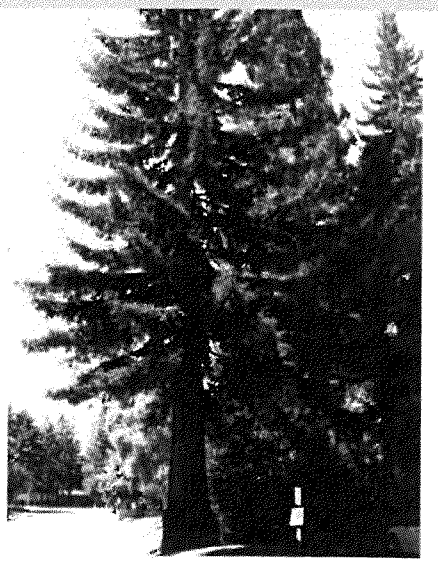
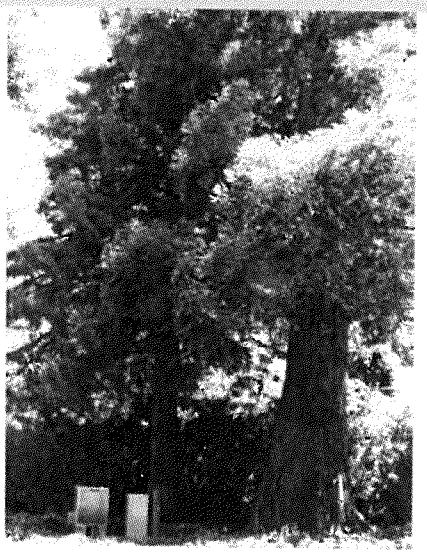
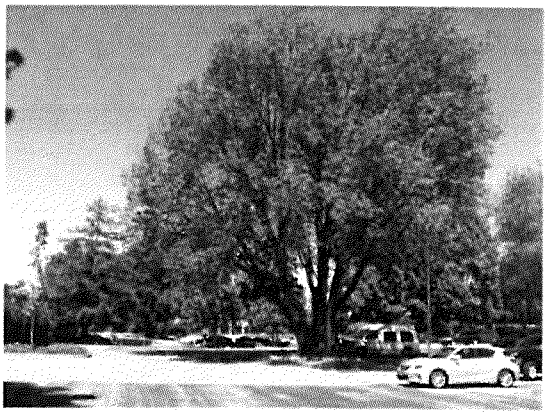
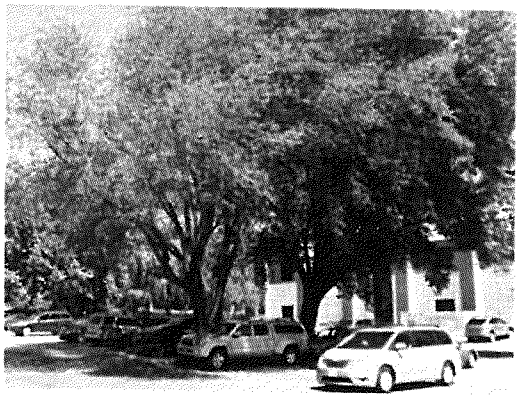
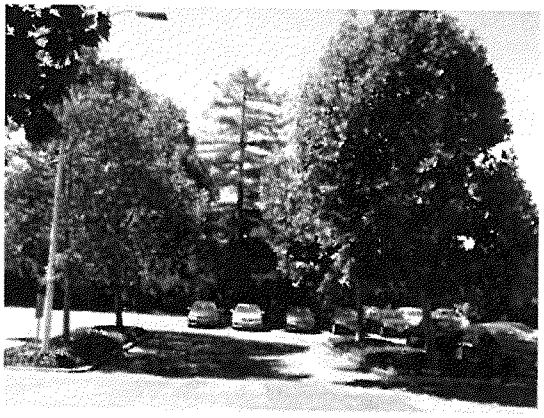
Tree Tag Number	Image	Tree Tag Number	Image
12		R to L 13 & 14	
16		L to R 17 & 18	
Right side: 25 & 26		Left: 27 & 28 Right: 30 & 31	

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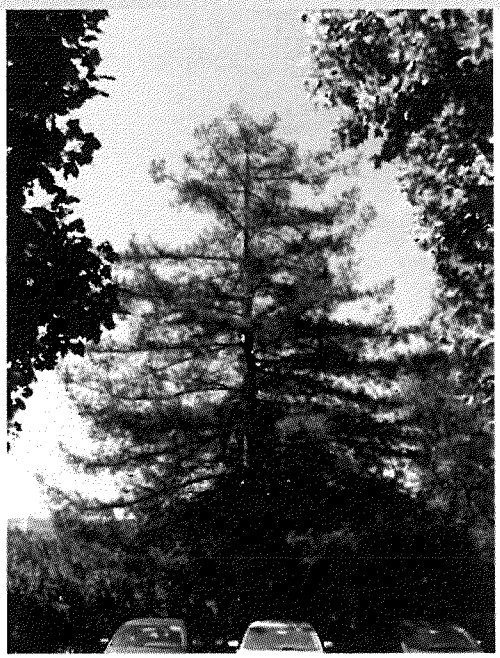
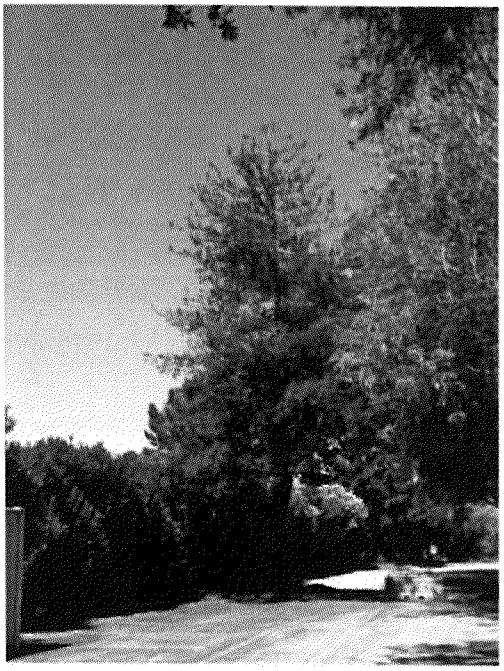
Tree Tag Number	Image	Tree Tag Number	Image
29		L to R 32, 33, 34	
L to R 33, 34, 35, 36		37	

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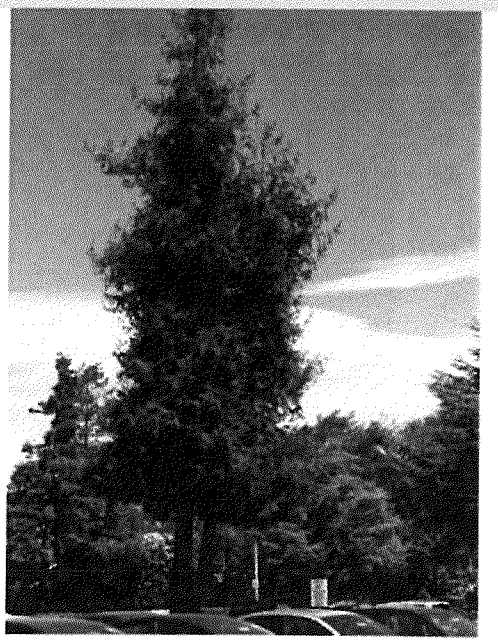
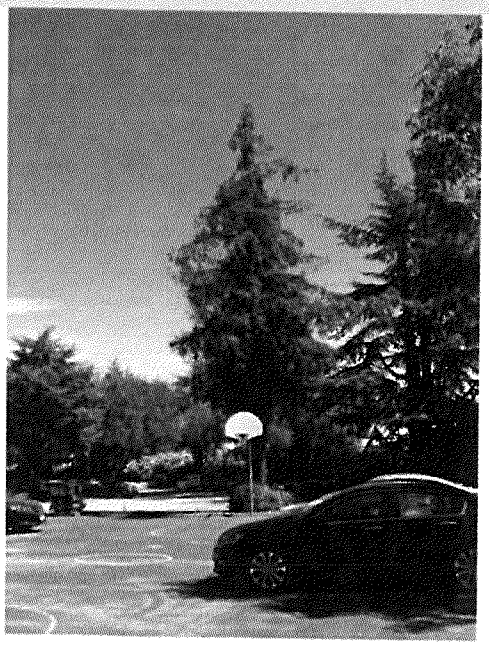
Tree Tag Number	Image	Tree Tag Number	Image
38		39	
Center: 42 & 43 looking east		L to R 44 & 45 Looking east	

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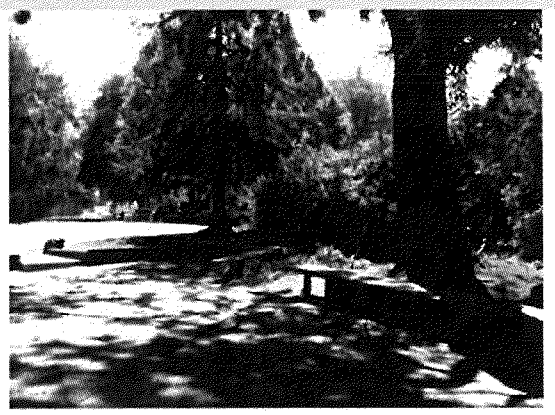
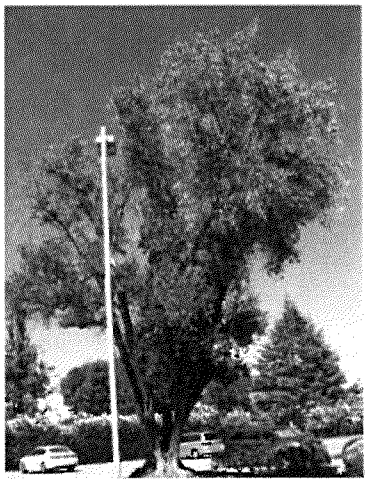
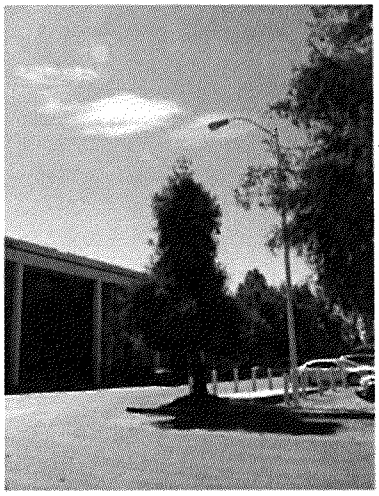
Tree Tag Number	Image	Tree Tag Number	Image
L to R 46 & 47 looking southwest		49	
50		51	
52			

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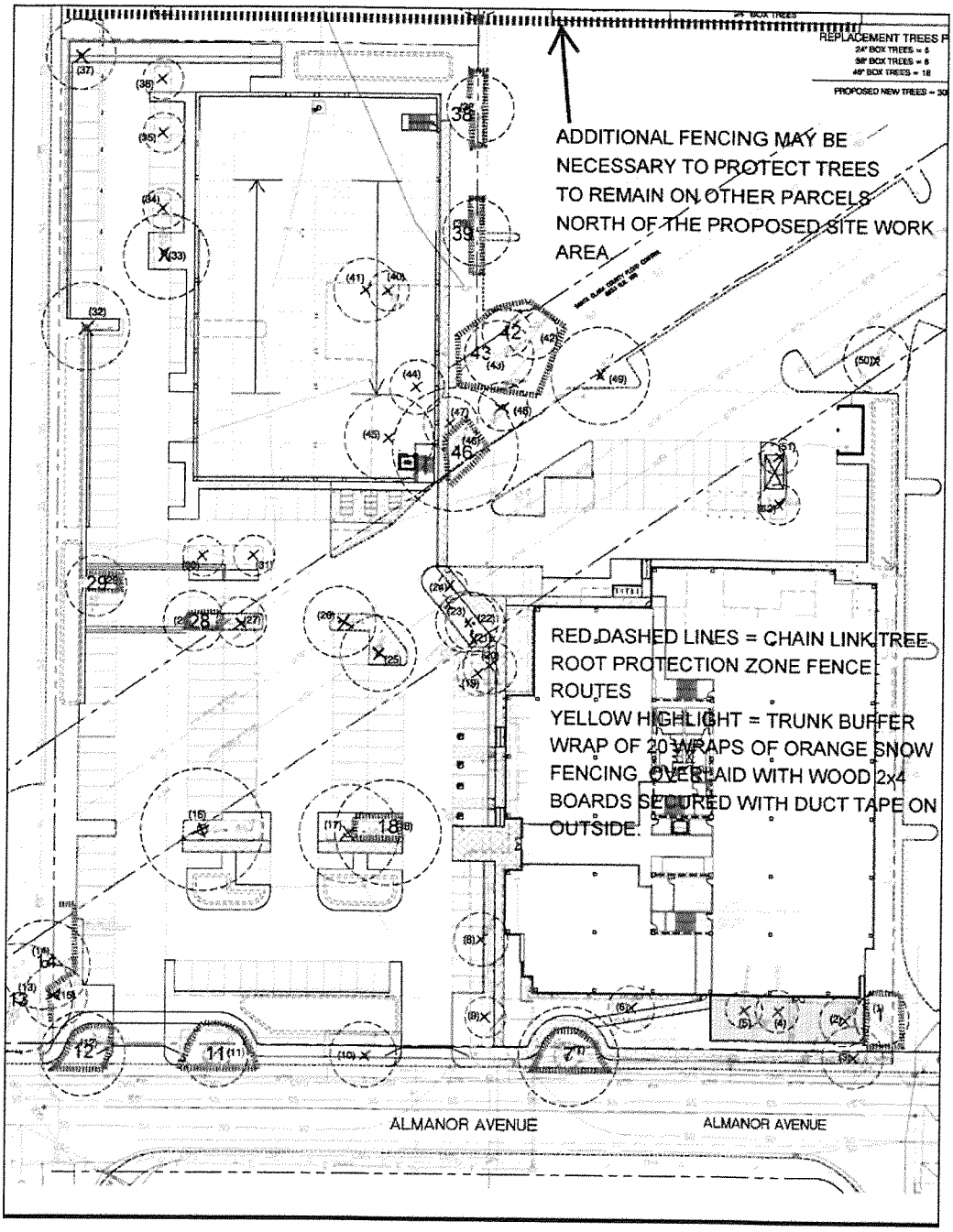
12 Tree Location Map Revised 9/20/2016 (WLCA)



Trees to be retained are shown in large type, with red dashing indicating WLCA's suggested minimum chain link root protection zone routing, and yellow highlight indicating trunk buffer wrap around each tree trunk as redundant protection for the above-ground trunk tissues. Recent 2016 decisions dictated that all trees located on the Hetch Hetchy water delivery system (SFPUC) right-of-way be indicated as to be removed.

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13 Appraisal Worksheet (WLCA), Attached
14 Tree Data Charts Revised 9/20/2016 (WLCA), Attached

Site Address: 675 Almanor, Sunnyvale, California
Version: 9/20/2016

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Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values
1	Lh	19	78%	7	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	38.47	38.47		36.375	$ 3,358.04	$ 1,453.69	**$1,450**
2	Lh	19	79%	7.6	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	45.34	45.34		43.2516	$ 3,927.56	$ 1,722.04	**$1,720**
3	Qr	31	85%	6.3	63%	85%	20%	85%	2	70%	2.24	$172.73	$172.73	$345.46	$77.04	31.16	31.16		28.9167	$ 2,573.20	$ 969.67	**$970**
4	Lh	19	70%	**multi stem**	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	94.00	**94.00**		91.91	$ 7,957.45	$ 3,091.47	**$3,090**
5	Lh	19	66%	**multi stem**	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	35.00	**35.00**		32.91	$ 3,071.07	$ 1,124.93	**$1,120**
6	Lh	19	70%	**multi stem**	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	59.00	**59.00**		56.91	$ 5,058.75	$ 1,965.32	**$1,970**
7	Ss	34	75%	**61.1**	83%	85%	80%	85%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	1894.00		**1894**	1889.25	$ 69,038.59	$ 30,204.38	**$30,200**
8	Bp	6	35%	16.8	63%	85%	25%	80%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	221.56	221.56		217.758	$ 10,244.76	$ 681.28	**$680**
9	Lh	19	25%	7.9	62%	85%	15%	85%	1	90%	2.09	$172.73	$172.73	$345.46	$82.82	48.99	48.99		46.9019	$ 4,229.87	$ 586.89	**$590**
10	Cs	8	50%	24.6	72%	85%	45%	85%	3	50%	3.8	$172.73	$172.73	$345.46	$45.46	475.05	475.05		471.251	$ 21,768.51	$ 3,900.19	**$3,900**
11	Ss	34	75%	**41.8**	82%	85%	80%	80%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	1191.00		**1191**	1186.25	$ 43,477.51	$ 18,640.98	**$18,600**
12	Ss	34	79%	**61.8**	78%	85%	80%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	1711.00		**see note #4**	1706.25	$ 62,384.71	$ 27,024.02	**$27,000**
13	Ss	34	80%	**75.7**	65%	85%	30%	80%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	2226.00		**2226**	2221.25	$ 81,110.11	$ 29,524.08	**$29,500**
14	Ss	34	75%	**36.5**	68%	85%	40%	80%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	974.00		**974**	969.25	$ 35,587.39	$ 12,766.98	**$12,800**

Walter Levison
CONSULTING ARBORIST

Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values
15	Pr	25	50%	24	60%	85%	15%	80%	4	10%	4.75	$172.73	$172.73	$345.46	$36.36	452.16	452.16		447.41	$ 16,613.29	$ 498.40	**$500**
16	Fu	16	53%	**73**	68%	85%	50%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	2187.00		**2187**	2182.25	$ 79,692.07	$ 8,658.54	**$8,700**
17	Fu	16	35%	**43.1**	68%	85%	50%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	1273.00		**1273**	1268.25	$ 46,459.03	$ 3,333.44	**$3,300**
18	Fu	16	55%	**43.3**	68%	85%	50%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	1273.00		**1273**	1268.25	$ 46,459.03	$ 5,238.26	**$5,200**
19	Bp	6	70%	**multi stem**	63%	85%	15%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	60.00	**60.00**		56.2	$ 2,900.31	$ 385.74	**$390**
20	Bp	6	53%	12.7	63%	85%	15%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	126.61	126.61		122.813	$ 5,928.52	$ 597.00	**$600**
21	Bp	6	50%	**multi stem**	63%	85%	15%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	125.00	**125.00**		121.2	$ 5,855.21	$ 556.25	**$560**
22	Bp	6	57%	7.5	63%	85%	15%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	44.16	44.16		40.3563	$ 2,180.06	$ 236.10	**$240**
23	Bp	6	50%	**multi stem**	67%	85%	25%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	174.00	**174.00**		170.2	$ 8,082.75	$ 808.28	**$810**
24	Bp	6	65%	7	67%	85%	25%	90%	3	30%	3.8	$172.73	$172.73	$345.46	$45.46	38.47	38.47		34.665	$ 1,921.33	$ 249.77	**$250**
25	Pa	26	78%	18	73%	85%	55%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	254.34	254.34		250.54	$ 11,735.01	$ 5,369.94	**$5,400**
26	Pa	26	75%	14.7	70%	85%	45%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	169.63	169.63		165.831	$ 7,884.12	$ 3,311.33	**$3,300**
27	Pa	26	67%	7.4	63%	85%	25%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	42.99	42.99		39.1866	$ 2,126.88	$ 722.01	**$720**
28	Pa	26	80%	11	68%	85%	40%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	94.99	94.99		91.185	$ 4,490.73	$ 1,963.95	**$1,960**
29	Ss	34	40%	**30.4**	63%	85%	35%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	707.00		**707**	702.25	$ 25,879.27	$ 4,589.26	**$4,590**
30	Pa	26	75%	10.8	70%	85%	45%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	91.56	91.56		87.7624	$ 4,335.14	$ 1,820.76	**$1,820**

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Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Gm Bk" Group	"Gm Bk" Species	"Gm Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values
31	Pa	26	78%	9.7	70%	85%	45%	80%	3	80%	3.8	$172.73	$172.73	$345.46	$45.46	73.86	73.86		70.0607	$ 3,530.42	$ 1,542.09	**$1,540**
32	Fu	16	45%	**multi stem**	70%	85%	55%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	871.00		**871**	866.25	$ 31,842.31	$ 3,009.10	**$3,010**
33	Fu	16	64%	**43.1**	70%	85%	45%	80%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	1273.00		**1273**	1268.25	$ 46,459.03	$ 6,244.09	**$6,200**
34	Fu	16	55%	**38.8**	68%	85%	50%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	1063.00		**1063**	1058.25	$ 38,823.43	$ 4,377.34	**$4,380**
35	Fu	16	20%	**33.7**	58%	85%	20%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	835.00		**835**	830.25	$ 30,533.35	$ 1,068.67	**$1,070**
36	Fu	16	45%	**39.2**	63%	85%	35%	70%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	1106.00		**1106**	1101.25	$ 40,386.91	$ 3,453.08	**$3,450**
37	Ss	34	70%	26.3	63%	85%	35%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	542.98	542.98		538.227	$ 19,915.38	$ 6,180.41	**$6,200**
38	Ss	34	75%	28.2	63%	85%	35%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	624.26	624.26		619.513	$ 22,870.97	$ 7,604.60	**$7,600**
39	Ss	34	35%	**multi stem**	58%	85%	20%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	340.00	**340.00**		335.25	$ 12,535.15	$ 1,791.48	**$1,790**
40	Fu	16	78%	6.8	58%	85%	10%	80%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	36.30	36.30		31.5484	$ 1,492.56	$ 203.73	**$200**
41	Fu	16	75%	8.4	58%	85%	10%	80%	4	30%	4.75	$172.73	$172.73	$345.46	$36.36	55.39	55.39		50.6396	$ 2,186.72	$ 287.01	**$290**
42	Ss	34	55%	15.7	72%	85%	40%	90%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	193.49	193.49		188.745	$ 7,208.22	$ 1,988.87	**$1,990**
43	Ss	34	70%	**multi stem**	75%	85%	50%	90%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	1087.00	**1087.00**		1082.25	$ 39,696.07	$ 14,588.31	**$14,600**
44	Ss	34	68%	26.4	72%	85%	40%	90%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	547.11	547.11		542.364	$ 20,065.80	$ 6,845.11	**$6,800**

Walter Levison
CONSULTING ARBORIST

Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values
45	Gr	17	35%	**34.1**	67%	85%	35%	80%	2	30%	2.24	$172.73	$172.73	$345.46	$77.04	882.00		**882**	879.76	$ 68,122.17	$ 4,768.55	**$4,770**
46	Ss	34	40%	15.8	73%	85%	45%	90%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	195.97	195.97		191.217	$ 7,298.12	$ 1,498.55	**$1,500**
47	Gr	17	44%	**31.8**	70%	85%	45%	80%	2	30%	2.24	$172.73	$172.73	$345.46	$77.04	739.00		**739**	736.76	$ 57,105.45	$ 5,276.54	**$5,300**
48	Gr	17	25%	20.8	58%	85%	10%	80%	2	30%	2.24	$172.73	$172.73	$345.46	$77.04	339.62	339.62		337.382	$ 26,337.40	$ 1,152.26	**$1,150**
49	Ca	8	84%	29.3	78%	85%	60%	90%	3	90%	3.8	$172.73	$172.73	$345.46	$45.46	673.91	673.91		670.115	$ 30,808.87	$ 18,245.01	**$18,200**
50	Oe	22	37%	**multi stem**	70%	85%	35%	90%	3	90%	3.8	$172.73	$172.73	$345.46	$45.46	396.00	**396.00**		392.2	$ 18,174.87	$ 4,236.56	**$4,240**
51	Ss	34	35%	25.6	60%	85%	25%	70%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	514.46	514.46		509.708	$ 18,878.43	$ 2,775.13	**$2,780**
52	Ss	34	60%	12.8	62%	85%	10%	90%	4	70%	4.75	$172.73	$172.73	$345.46	$36.36	128.61	128.61		123.864	$ 4,849.17	$ 1,255.93	**$1,260**
																					Total value of all 52 trees in this study	**$270,250**

Walter Levison
CONSULTING ARBORIST

Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values

Notes:

1. Trees measuring greater than 30 inches diameter each were calculated using "adjusted trunk area" for reasonableness, which reduced the trunk cross sectional area of each tree. The adjusted cross sectional area numbers are bolded above for reference. Trunks measuring more than 30 inches were also rounded down to the whole number, using the adjusted trunk area conversion table on page 39 of the 9th edition Guide.

2. Trunk cross sectional area for a tree with multiple mainstems was calculated by adding the individual trunk cross sectional areas together. Those total numbers are bolded above for easy reference. Cross sectional area of each stem of a multi-stem tree was rounded down for reasonableness when calculating cross sectional area totals.

Author's side note: Page 48 of the *Guide for Plant Appraisal 9th edition* does allow for amalgamation of all stem cross sectional areas, as long as each stem contributes its proportionate share to the canopy.

3. Some trees were measured at the narrow points on the lower trunk bole areas between 2.5 and 3.0 feet above grade, per direction from Guide 9th edition, for reasonableness. This resulted in each tree having a single mainstem diameter, as opposed to a multiple stem amalgamation of cross sectional areas which would have increased the appraised value of each tree to an unreasonable level.

4. Tree #12 diameter was reduced further by 6 inches diameter, for reasonableness, due to a significant "bulge" at the 4.0 feet elevation location where the original 61.8 inch diameter reading was taken during field survey. As described above in these notes, adjusted trunk area was used (a 55 inch diameter trunk cross section is 2,375 sq. inches. Adjusted trunk area per the Guide is 1,711 sq. inches: the number used to calculate value for this tree in the chart above).

Walter Levison
CONSULTING ARBORIST

Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values

Appraisal Legend

Per the CTLA Guide for Plant Appraisal (9th ed, 2000), pp. 70-71.

CTLA = Council of Tree and Landscape Appraisers (a concensus group of seven green industry organizations: ISA, NAA, ASCA, ANLA, ALCA, ACF, and ASLA).

Note: the CTLA calls for the development of locally relevant species and nursery data by a Regional Plant Appraisal Committee.

Note: ISA is the publisher of the GPA, and local ISA chapters have developed the regional data -- in our area, the Western Chapter ISA (WC-ISA) (see "Green Book" below).

Ln # = Line number on worksheet published in The Guide..

Tree # = per Tree Chart & Tree Map in this report.

"Green Book" = colloquial name for the Species Classification & Group Assignment (used to have a green cover); refers to standard publication required for local reference, published by WC-ISA.

Condition = from Tree Chart in this report.

Diameter = from Tree Chart in this report.

Location = guided by the Guide, derived by averaging the ratings for Site, Contribution, and Placement.

Green Bk Group = Group assigned by the committee/authors of "Green Book".

Green Bk Species = Species classification assigned by the committee/authors of "Green Book".

Green Bk TAr = Replacement tree trunk area specified for the group assigned by the committee/authors of "Green Book".

Green Book Replacement Cost = Cost to acquire largest "commonly available" (48"-box) at local nursery, averaged out by "Green Book" committee.

Green Book Installation Cost = Cost, averaged out by "Green Book" committee, to transport from nursery to site, prep hole & plant, stake, water, overhead, profit, etc..

Installed Tree Cost = Sum of two previous lines (replacement + installation).

Unit Tree Cost = Calculated for each "Group" by "Green Book" committee.

(A)TAa = (Adjusted) Trunk Area of the Appraised tree. Sum of the cross sectional areas of all trunks that contribute to the canopy in equal percentages.

TAa = Trunk Area of the Appraised tree. Calculated directly from the trunk diameter (hence trunk formula method) by the formula: d2 X 0.785.

ATAa = Adjusted Trunk Area of Appraised tree, if over 30" dbh, adjusted by CTLA formula to compensate for the "rate-of-tree-value increase of a large tree being less than its rate of increase in TA".

TAincr = Trunk Area Increase. Arithmetic difference between the Trunk Area of the Appraised tree and the Replacement tree (Line 11 minus Line 6).

Note: If calculation for "Trunk Area Increase" yields a negative number (due to small tree size), then next column, "Basic Tree Cost", uses cost to acquire & plant a smaller specimen from a nursery.

Basic Tree Cost = Sum of the Installed Tree Cost plus the quotient derived from multiplying the Unit Tree Cost times the Trunk Area Increase (Ln 12 X Ln 10 + Ln 9).

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CONSULTING ARBORIST

Appraisal Worksheet, 675 Almanor, Sunnyvale, California 10/5/2015

	Ln 1		Ln 2	Ln 3	Ln 4	..... Location....				Ln 5	Ln 6	Ln 7	Ln 8	Ln 9	Ln 10	Ln 11	Ln 11.1	Ln 11.2	Line 12	Line 13	Line 14	Line 15
Tree #	Name (Initials)	"Green Book" Page	Condition	Diameter	Location %	Site	Contribution	Placement	"Grn Bk" Group	"Grn Bk" Species	"Grn Bk" TA_r	"Green Book" Replacement Cost	"Green Book" Installation Cost	Installed Tree Cost	Unit Tree Cost	(A)TAa	<30" TAa	>30" ATAa	Ta_{incr}	Basic Tree Cost	Appraised Value	Rounded-off Appraised Values
Appraised Value = Calculated by reducing the Basic Tree Cost by the Species, Condition, and Location factors (Ln 13 X Ln 5 X Ln 2 X Ln 4)																						
Rounded-off Appraised Value = Appraised Value rounded to nearest $10, if less than $5000. Else rounding to nearest $100, if equal to or more than $5000.																						
Note = for existing trees which are still smaller than the typical nursery's 24-inch-box specimen, the smaller nursery specimen's cost has been substituted into the "Basic Tree Cost" cell.																						

TREE DATA
8/25/2016

Tree Tag #	To Be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Trunk 4 (in.)	Trunk 5 (in.)	Trunk 6 (in.)	Adjusted Trunk Diameter (Sum of 1^2+2^2+3^2+4^2+5^2+6^2)^0.5 (1+2+3+4+5)	"Protected Tree" per City of Sunnyvale Ordinance (≥1.1" single, or 36" multistem, at 48" above grade)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Integrity (0=100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout (Note Elevation)	Topped or Severely Pruned in Past	Buried Root Crown (BRC) or Girdling Roots (GR)	Stem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusions (Note Height)	Root Extension Restricted in Planter	Roots Damaged on Grade from Mowing	Soil Moisture Deficit ("Drought Stress")	Notes	Recommendations
1			7.0						7.0	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	20/13	80/70	78% good	good						2 feet			X		Roots damaged on grade.	W, TB, RPZ
2	X		7.6						7.6	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	20/15	80/75	79% good	good									X		Roots damaged on grade.	———
3	X		6.3						6.3	no	oak species (probably Quercus rubra which is red oak)	*Quercus sp. (likely Q. rubra)*	18/16	90/77	85% good	good											Needs structural training pruning if tree is retained.	———
4	X		5.0	5.0	4.0	3.0	3.0	3.0	23.0	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	20/13	80/60	70% good	good							at 6 inches elevation					———
5	X		3.0	3.0	3.0	3.0	3.0		15.0	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	18/10	80/55	66% fair	good							at 6 inches elevation					———
6	X		4.0	4.0	4.0	4.0	3.0		19.0	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	23/11	80/60	70% good	good							at 6 inches elevation					———
7			61.1						61.1	yes	coast redwood	*Sequoia sempervirens*	115/45	75/75	75% good	moderate to good									X	X	X	Wide codominant mainstems fork at 80 feet. Suggest install cable or remove one of the two mainstems at the fork. Increase irrigation. Note roots damaged on grade.	Cable, or remove one of two main stems at 80 feet W, TB, RPZ
8	X		16.8						16.8	yes	European birch	*Betula pendula*	30/25	35/35	35% poor	poor		SE								X	Located in irrigated turf.	———
9	X	X	7.9						7.9	no	crepe myrtle hybrid	*Lagerstroemia* (Cult)	24/20	80/20	25% very poor	moderate	W						at 5 feet				High risk of codominant mainstem splitout. Recommend remove tree.	———
10	X		24.6						24.6	yes	coast beefwood	*Casuarina stricta*	65/35	80/40	50% fair	good							at 30 feet		X	X	Tree in irrigated turf. Roots damaged on grade. Use cabling and/or though-bolt bracing if tree is retained.	———
11			41.8						41.8	yes	coast redwood	*Sequoia sempervirens*	85/35	80/70	75% good	moderate to good	S								X	X	Tree in irrigated turf. Roots damaged on grade.	W, TB, RPZ
12			61.9						61.9	yes (note this tree measured at bulge which increased the apparent trunk diameter at 4.8 feet elevation)	coast redwood	*Sequoia sempervirens*	105/35	80/75	79% good	moderate to good									X	X	Tree in irrigated turf. Roots damaged on grade.	W, TB, RPZ
13			75.7						75.7	yes	coast redwood	*Sequoia sempervirens*	125/30	85/80	89% good	good	W	SE								X	Located in irrigated ivy groundcover area (Hetch Hetchy System Easement)	Maintain existing fence protection and irrigation. May need to augment fencing with additional chain link panels.

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Trunk 4 (in.)	Trunk 5 (in.)	Trunk 6 (in.)	Adjusted Trunk Diameter Inches @ 54" A.G. (1+2+3+4+5)	"Protected Tree" per City of Sunnyvale Ordinance (12.1" single, or 38" multistem, at 48" above grade)	Common Name	Scientific Name (*Genus, species*)	Height and Canopy Spread (ft.)	Health & Structural Ratings (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Evidence (Note Elevation)	Topped or Severely Pruned in Past	Buried Root Crown (BRC) or Girdling Roots (GR)	Stem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Roots Damaged on Grade from Mowing	Soil Moisture Deficit ("Drought Stress")	Notes	Recommendations
14			38.5						38.5	yes	coast redwood	*Sequoia sempervirens*	110/30	75/75	75% good	moderate to good										X	Located in irrigated ivy groundcover area (Hetch Hetchy System Easement)	Maintain existing fence protection and irrigation. May need to augment fencing with additional chain link panels.
15	X	(suggest removal)	est. 24						est. 24	yes	Monterey pine	*Pinus radiata*	45/30	50/50	50% fair	poor to moderate		E								X	Recommend removal of tree if condition declines below current 50% overall condition rating.	—
16	X		36.0	36.0	30.0				102.0	yes	shamel ash	*Fraxinus uhdei*	45/55	55/50	53% fair	poor to moderate							3 feet			X		—
17	X	X	43.1						43.1	yes	shamel ash	*Fraxinus uhdei*	45/45	30/40	35% poor	poor					GR					X		—
18			43.3						43.3	yes	shamel ash	*Fraxinus uhdei*	45/35	60/50	55% fair	moderate	E	E								X	Crowded codominant mainstems fork at 8 feet.	W, TB, RPZ
19	X		8.8	6.5					12.3	no	European birch	*Betula pendula*	35/10	70/70	70% good	moderate								X		X	Tree is irrigated. Roots damaged on grade.	—
20	X		12.7						12.7	yes	European birch	*Betula pendula*	45/17	65/45	53% fair	moderate							at 11 feet	X		X		—
21	X		9.8	8.1					17.9	no	European birch	*Betula pendula*	35/20	60/45	50% fair	moderate	S	S					at grade elevation	X		X		—
22	X		7.5						7.5	no	European birch	*Betula pendula*	30/12	60/55	57% fair	moderate	E	E						X		X		—
23	X		11.6	10.7					22.3	no	European birch	*Betula pendula*	40/20	65/35	50% fair	moderate	W						at 12 inches elevation	X		X		—
24	X		7.0						7.0	no	European birch	*Betula pendula*	30/13	65/65	59% fair	moderate								X		X		—
25	X		18.0						18.0	yes	London plane cultivar	*Platanus x acerifolia* (Cult.)	35/35	80/75	78% good	moderate											Summer powdery mildew fungus is occurring on this tree, indicating that this cultivar of plane tree is susceptible to this disease.	—
26	X		14.7						14.7	yes	London plane cultivar	*Platanus x acerifolia* (Cult.)	30/30	75/75	75% good	moderate								X			Summer powdery mildew fungus is occurring on this tree, indicating that this cultivar of plane tree is susceptible to this disease.	—
27	X		7.4						7.4	no	London plane cultivar	*Platanus x acerifolia* (Cult.)	25/20	60/70	57% fair	poor											Summer powdery mildew fungus is occurring on this tree, indicating that this cultivar of plane tree is susceptible to this disease.	—

TREE DATA
8/29/2019

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Trunk 4 (in.)	Trunk 5 (in.)	Trunk 6 (in.)	Adjusted Trunk Diameter (Sum of 1-6 D.C.E. [1+2+3+4+5])	"Protected Tree" per City Ordinance (Trunk 12.1" single, or 38" multitrunk, at 48" above grade)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Ratings (x/100, each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout (Note Elevation)	Topped or Severely Pruned in Past	Buried Root Crown (BRC) or Girdling Roots (GR)	Stem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusions (Note Height)	Root Extension Restricted in Planter	Roots Damaged on Grade from Mowing	Soil Moisture Deficit ("Drought Stress")	Notes	Recommendations
28			11.0						11.0	no	London plane cultivar	*Platanus x acerifolia* (Cult.)	28/25	80/80	90% good	moderate to good												W, TB, RPZ
29			30.4						30.4	yes	coast redwood	*Sequoia sempervirens*	35/30	40/40	40% poor	poor								X		X	Extreme soil moisture deficit. Tree could improve if break out the pavement and curb materials, provide the tree with larger open soil root zone area, and heavily irrigate the root zone from now onward.	W, TB, RPZ
30	X		10.8						10.8	no	London plane cultivar	*Platanus x acerifolia* (Cult.)	30/25	75/75	75% good	moderate	E										Summer powdery mildew fungus is occurring on this tree, indicating that this cultivar of plane tree is susceptible to this disease.	---
31	X		9.7						9.7	no	London plane cultivar	*Platanus x acerifolia* (Cult.)	30/25	80/75	78% good	moderate	E										Summer powdery mildew fungus is occurring on this tree, indicating that this cultivar of plane tree is susceptible to this disease.	---
32	X		24.9	22.4					47.3	yes	shamel ash	*Fraxinus uhdei*	40/40	45/45	45% poor	poor							at 2 feet and other elevations above grade.			X	Tree could improve if break out the pavement and curb materials, provide the tree with larger open soil root zone area, and heavily irrigate the root zone from now onward.	---
33	X		43.1						43.1	yes	shamel ash	*Fraxinus uhdei*	45/55	65/60	64% Fair	moderate to good	S						various elevations			X		---
34	X		38.8						38.8	yes	shamel ash	*Fraxinus uhdei*	45/55	60/59	55% fair	poor to moderate										X		---
35	X	X	33.7						33.7	yes	shamel ash	*Fraxinus uhdei*	45/45	20/20	20% very poor	very poor						throughout tree				X	Author recommends removal due to very poor overall condition rating. Tree to be removed per site plan.	---
36	X		39.2						39.2	yes	shamel ash	*Fraxinus uhdei*	50/55	45/45	45% poor	poor						throughout tree				X		---
37	X		26.3						26.3	yes	coast redwood	*Sequoia sempervirens*	40/25	75/65	70% good	moderate		S								X		---
38			28.2						28.2	yes	coast redwood	*Sequoia sempervirens*	45/20	75/75	75% good	moderate										X	New exterior footprint will be approx. 10 to 12 feet from trunk edge, which may result in severe impacts to this tree in terms of above and below ground tree damages. May need to remove tree.	W, TB, RPZ
39			17.2	12.8					30.0	yes	coast redwood	*Sequoia sempervirens*	40/19	35/35	35% poor	poor						throughout tree	zero to 3 feet elevation above grade			X	New exterior footprint will be approx. 10 to 12 feet from trunk edge, which may result in severe impacts to this tree in terms of above and below ground tree damages. May need to remove tree.	W, TB, RPZ
40	X		6.8						6.8	no	shamel ash	*Fraxinus uhdei*	23/9	85/75	78% good	good												----------
41	X		8.4						8.4	no	shamel ash	*Fraxinus uhdei*	23/9	85/75	78% good	good												----------

TREE DATA
9/29/2015

Tree Tag #	To be Removed Per Current Site Plan	Author Recommends Removal Due to Very Poor Condition or Elevated Risk of Failure	Trunk 1 (in.)	Trunk 2 (in.)	Trunk 3 (in.)	Trunk 4 (in.)	Trunk 5 (in.)	Trunk 6 (in.)	Adjusted Trunk Diameter (Added @ 34" DBH, (1+2+3+4+5)	"Protected Tree" per City of Sunnyvale Ordinance (12.1" single, or 38" multistem, at 48" above grade)	Common Name	Scientific Name (Genus, species)	Height and Canopy Spread (ft.)	Health & Structural Integrity (0-100% each)	Overall Condition Rating (0-100%)	Live Twig Density (Very Poor, Poor, Mod, Good, Exc.)	Lopsided Canopy (Direction Noted)	Trunk Lean (Direction Noted)	Historical Stem Splitout Events (Note Elevation)	Topped or Severely Pruned in Past	Buried Root Crown (BRC) or Girdling Roots (GR)	Stem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusions (Note Height)	Root Extension Restricted (in Feet)	Roots Damaged on Grade from Mowing	Soil Moisture Deficit ("Drought Stress")	Notes	Recommendations
42			15.7						15.7	yes	coast redwood	*Sequoia sempervirens*	55/19	55/55	55% fair	poor to moderate	N	N								X		W, TB, RPZ
43			est. 30	est. 22					est. 52	yes	coast redwood	*Sequoia sempervirens*	58/22	75/80	70% good	moderate to good							zero to 5 feet elevation above grade				Use of arborist cables may be beneficial for this tree.	W, TB, RPZ, Cable installation by an ISA Certified Arborist
44	X		26.4						26.4	yes	coast redwood	*Sequoia sempervirens*	50/18	70/65	68% fair	poor to moderate								7		X	Sweeps southeast (sweep trunk form).	———
45	X	X	34.1						34.1	yes	silk oak	*Grevillea robusta*	55/35	65/30	35% poor	poor to moderate	SW		X	X				X			Poor specimen that should be removed from site, even if the project is not built.	———
46			15.8						15.8	yes	coast redwood	*Sequoia sempervirens*	35/19	40/40	40% poor	poor										X	Tree appears to be unirrigated. To be removed per plan.	W, TB, RPZ
47	X		31.8						31.8	yes	silk oak	*Grevillea robusta*	50/30	40/50	44% poor	poor to moderate			X	X						X	Poor specimen that should be removed from site, even if the project is not built.	———
48	X	X	20.9						20.9	yes	silk oak	*Grevillea robusta*	50/25	30/20	25% very poor	poor			X	X	GR					X	Very poor specimen that should be removed from site, even if the project is not built.	———
49	X		29.3						29.3	yes (measured at 3 feet elevation)	atlas cedar	*Cedrus atlantica*	50/35	85/80	84% good	good												———
50	X		11.0	10.0	10.0	10.0	9.0		50.0	yes	European olive	*Olea europaea*	30/25	40/35	37% poor	poor to moderate	S			X		throughout tree				X	Tree experiencing severe dieback, assumably associated with lack of proper irrigation, and extended drought conditions. WLCA did not test soil for relative moisture content as part of this initial tree study assignment, but if retained for construction period monitoring, WLCA will be testing soil moisture and making specific recommendations accordingly.	———
51	X		25.6						25.6	yes	coast redwood	*Sequoia sempervirens*	45/20	35/35	35% poor	poor								X		X	Tree could improve if break out the pavement and curb materials, provide the tree with larger open soil root zone area, and heavily irrigate the root zone from now onward.	———
52	X		12.8						12.8	yes	coast redwood	*Sequoia sempervirens*	20/10	75/55	68% fair	moderate								X		X	Tree could improve if break out the pavement and curb materials, provide the tree with larger open soil root zone area, and heavily irrigate the root zone from now onward.	———

Notes:

1. WLCA surveyed only those tree specimens within the bounded area denoted by a heavy black line on the tree map markup attached to the arborist report.

2. Diameters were measured at 4.0 feet above grade using a forestry D-tape that converts circumference to an average diameter. Multi-stem specimens such as the crepe myrtles were estimated visually.

3. Heights fo the taller specimens were measured using a Nikon 550 Forestry Pro digital hypsometer.

4. Appraisal valuation was performed using trunk formula method and western chapter International Society of Arboriculture texts for species classification data and group assignment data, etc. See attached appraisal worksheet for transparent calculation data.

Protection and Maintenance Specification Codes (If Applicable):

RPZ: Root protection zone fence, chain link, with 2" diameter iron posts driven 24" into the ground, 6 to 8 feet on center max. spacing.
RB: Root buffer consisting of wood chip mulch lain over existing soil as a 12 inch thick layer, overlain with 1 inch or greater plywood strapped together with metal plates. This root buffer or soil buffer should be placed over the entire width of the construction corridor between tree trunks and construction.
RP: Root pruning. Prune woody roots measuring greater than or equal to 1 inch diameter by carefully back-digging into the soil around each root using small hand tools until an area is reached where the root is undamaged. Cleanly cut through the root at right angle to the root growth direction, using professional grade pruning equipment and/or a Sawzall with wood pruning blade. Backfill around the cut root immediately (same day), and thoroughly irrigate the area to saturate the uppermost 24 inches of the soil profile.
TB: Trunk buffer consists of 20-40 wraps of orange plastic snow fencing to create a 2 inch thick buffer over the lowest 8 feet of tree trunk (usually takes at least an entire roll of orange fencing). Lay 2X4 wood boards vertically, side by side, around the entire circumference of the trunk. Secure buffer using duct tape (not wires).
F: Fertilization with Greenbelt 22-14-14 tree formula.
M: 4-inch thick layer of wood chip mulch (Lyngso, self pickup). Do not use bark chips or shredded redwood bark.
W: Irrigate using various methods to be determined through discussion with General Contractor. Irrigation frequency and duration to be determined through discussion.
P: Pruning per specifications noted elsewhere. All pruning must be performed only under direct site supervision of an ISA Certified Arborist, or performed directly by an ISA Certified Arborist, and shall conform to all ANSI A300 standards.
MON: Project Arborist must be present to monitor specific work as noted in the notes box for each tree.