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 in City of Sunnyvale is 12.1" diameter single-stem, or 36" diameter (multi-stem total), measured 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)	Severely Pruned in Past (topping, lionTailing, shearing)	Buried Root Crown (BRC) or Girdling Roots (GR)	Twig, Branch, Limb, Mainstem Decay (Note Elevation)	Codominant Mainstems with Severe Bark Inclusion(s) (Note Height)	Root Extension Restricted in Planter	Insect Pest or Disease Affecting	Notes	Maintenance and Protection Recommendations
1			7.7						7.7		London plane tree cultivar	*Platanus x acerifolia* (Cult.)	35/18	75/65	70% Good	Good	South	South							X	This cultivar is susceptible to powdery mildew fungus, which is now negatively affecting the foliage.	
2			8.9						8.9		Evergreen pear	*Pyrus kawakamii*	23/25	50/50	50% Fair	Mod	East	East							X	Fireblight affecting foliage and twigs.	
3			3.0						3.0 at 4 feet		crape myrtle	*Lagerstroemia hybrid*	15/11	70/70	70% Good	Mod									X	Sooty mold fungus affecting. Probably due to soil moisture deficit.	
4			3.5						3.5 at 4 feet		crape myrtle	*Lagerstroemia hybrid*	15/11	70/70	70% Good	Mod		West							X	Sooty mold fungus affecting. Probably due to soil moisture deficit.	
5			3.1						3.1		crape myrtle	*Lagerstroemia hybrid*	15/9	85/85	85% Good	Good											
6			3.8						3.8		crape myrtle	*Lagerstroemia hybrid*	15/9	85/85	85% Good	Good											
7			3.6						3.6		crape myrtle	*Lagerstroemia hybrid*	16/9	80/70	76% Good	Good											
8			3.7						3.7		crape myrtle	*Lagerstroemia hybrid*	17/10	80/80	80% Good	Good											
9			3.2						3.2		crape myrtle	*Lagerstroemia hybrid*	15/9	80/75	78% Good	Good											
10			4.0						4.0		crape myrtle	*Lagerstroemia hybrid*	16/10	85/85	85% Good	Good											
11			4.0						4.0		crape myrtle	*Lagerstroemia hybrid*	16/9	85/85	85% Good	Good											X
12			3.9						3.9 at 4 feet		crape myrtle	*Lagerstroemia hybrid*	17/9	85/80	83% Good	Good											
13			2.4						2.4		crape myrtle	*Lagerstroemia hybrid*	14/7	85/85	85% Good	Good											
14			14.5						14.5		Evergreen pear	*Pyrus kawakamii*	28/30	75/55	65% Fair	Mod to Good						Mainstem decay at 9 feet, from old pruning cut wound.			X	Bacterial fireblight.	

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15			11.5						11.5		Evergreen pear	*Pyrus kawakamii*	25/24	35/40	38% Poor	Poor to Mod	North					X			X	Severe fireblight infection.	
16			3.0						3.0		crape myrtle	*Lagerstroemia hybrid*	16/9	85/85	85% Good	Good											
17			3.3						3.3		crape myrtle	*Lagerstroemia hybrid*	17/10	85/85	85% Good	Good											
18			11.5						11.5		Evergreen pear	*Pyrus kawakamii*	25/25	60/70	66% Fair	Good	South					X			X	Fireblight.	
19			7.0						7.0		Evergreen pear	*Pyrus kawakamii*	20/16	35/35	35% Poor	Mod		East		X		X				Moderate fireblight.	
20			3.0						3.0		crape myrtle	*Lagerstroemia hybrid*	15/8	80/80	80% Good	Good											
21			Est. 23						Est. 23	X	Mexican fan palm	*Washingtonia robusta*	45/14	85/85	85% Good	Good										40 feet of clear trunk (vertical).	
22			3.0						3.0		crape myrtle	*Lagerstroemia hybrid*	15/9	85/85	85% Good	Good											
23			3.1						3.1		crape myrtle	*Lagerstroemia hybrid*	15/9	85/85	85% Good	Good											
24			3.0						3.0		crape myrtle	*Lagerstroemia hybrid*	16/9	85/85	85% Good	Good											
25			12.7						12.7		Evergreen pear	*Pyrus kawakamii*	25/30	65/60	63% Fair	Mod to Good											Prune to remove deadwood.
26			4.3						4.3		crape myrtle	*Lagerstroemia hybrid*	17/7	70/60	65% Poor	Mod										Tree in shade of the north side of the existing bldg. Tree going into an early Fall leaf drop ("senescence").	
27			4.6						4.6		crape myrtle	*Lagerstroemia hybrid*	17/10	75/65	70% Good	Mod										Tree in shade of the north side of the existing bldg. Tree going into an early Fall leaf drop ("senescence").	

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28			5.0						5.0		crape myrtle	*Lagerstroemia hybrid*	17/9	70/65	67% Fair	Mod										Tree in shade of the north side of the existing bldg. Tree going into an early Fall leaf drop ("senescence").	
29			5.5						5.5		crape myrtle	*Lagerstroemia hybrid*	18/10	65/85	75% Good	Mod										Tree in shade of the north side of the existing bldg. Tree going into an early Fall leaf drop ("senescence").	
30			10.3						10.3		Evergreen pear	*Pyrus kawakamii*	32/25	80/60	70% Good	Mod	North	North							X	Minimal fireblight infection.	
31			9.2	8.7	7.0				24.9		Privet species	*Ligustrum sp.*	30/22	70/60	65% Fair	Mod	North	North									
32			13.2						13.2	X	lemon-scented gum	*Eucalyptus citriodora*	70/30	75/60	67% Fair	Mod		East								S-bend in trunk at 25-feet elevation above grade.	
33			18.7						18.7	X	lemon-scented gum	*Eucalyptus citriodora*	70/35	75/45	60% Fair	Mod							Bark inclusion at 6 to 10 feet above grade.			Tree will need a through-bolt brace system to be installed at the bark inclusion, if this tree is to be retained.	
34			15.0						15.0	X	lemon-scented gum	*Eucalyptus citriodora*	70/25	75/65	70% Good	Mod	North	East									
35			13.5						13.5	X	lemon-scented gum	*Eucalyptus citriodora*	70/30	65/60	63% Fair	Poor to Mod		(North)*								Trunk initially leans north, but then corrects to vertical.	

NOTES:

1. Only on-site trees were included in this study. All trees of all diameters were included in the study except for a single new planting measuring less than 1-inch diameter.

Walter Levison
CONSULTING ARBORIST

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

Tree Impact Analysis

Sunnyvale Town Center Block 3
Landscape and Parking Lot Plan Set
Iteration 12/19/2016

Prepared at the Request of:

Devcon Construction, Inc.

Report:

WLCA

1/9/2017

Registered Member, American Society of Consulting Arborists and Member of the International Society of Arboriculture

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Table of Contents

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1.0 Background & Discussion

Assignment

The author Walter Levison, Consulting Arborist (WLCA) was requested to review and provide a set of tree protection and maintenance recommendations for the new 12/19/2016 plan set iteration for Sunnyvale Town Center Block 3 “Interim Parking Lot” prepared by The Guzzardo Partnership, Inc. (project landscape architect of record).

Site Work

Demolition of older, partially-completed structures occurred in 2016 by Devcon Construction, and is now complete. WLCA has been the project arborist monitor for a number of years during a lull period when no construction was occurring around six (6) coast redwood (*Sequoia sempervirens*) specimens #1 through #6 protected and preserved at this Sunnyvale Town Center location. WLCA is the also the project arborist for the recent demolition phase (2016) and for the upcoming new construction phase (2017).

Maps

WLCA has included a marked-up version of the proposed landscape layout plan sheet L2.1 below which shows the plot locations of trees #1 through #6.

Note however that the root protection zone (RPZ) temporary chain link fencing as shown on this landscape architect rendered sheet is not entirely correct. The actual on-the-ground fence routing is approximately 50 feet width east to west orientation along the areas adjacent to trees #4, 5, and #6, contrary to the narrow fence routing shown on the map which indicates a distance of only approximately 25 to 30 feet.

The importance of this distinction between actual fencing on-site versus the map-shown fencing is that the true area of redwood tree root zone currently being preserved at the site is quite large in comparison to that shown on the plans. This means that a significant portion of the redwood trees’ root zones may be damaged or destroyed during parking lot and landscape development.

Irrigation

Current irrigation is applied using an older set of PVC pipes buried in the root protection zone area of the redwood grove. These pipes have risers connected to sprayheads that spray irrigation water once weekly for 1 hour per week, keeping the root zones of the trees moist year round.

The proposed plan for this site will keep this existing redwood grove irrigation system active and running to provide soil moisture for the subject trees. However, there are areas where proposed new irrigation pipe trenching will encroach to within 25 feet of tree #1 at the south end of the grove, per proposed landscape sheet L5.1. Typically, with larger trees such as these mature coast redwoods, all irrigation within 25 feet of a trunk edge is kept over-grade to avoid trenching that would necessarily destroy the root systems of the trees. Over-grade irrigation types include Netafim, Agrifim, etc. ½” diameter poly tubing laid over soil grade and buried under wood chip mulch.

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WLCA suggests using over-grade type irrigation systems only, within 25 feet of tree #1, to avoid unnecessary root loss or root damage to the tree that will occur if standard PVC pipe trench/burial methods are used per plan.

Asphalt Path

A proposed asphalt walking path is shown on the proposed plans as a 6-inch total cut below soil grade elevations. From review of the plan set, it is not clear if contour grading will occur to the extent that it would radically alter existing soil grade prior to the asphalt path baserock excavation cuts, or if existing redwood tree root zone soil grades will remain as-is. For the purposes of this report, WLCA assumes that extensive soil contour grading will occur as a part of the proposed landscape renovation work in order to better smooth out the existing radical grade differentials that exist between the redwood tree root zone areas, and surrounding land.

Weeds and Wood Chips

As noted in WLCA's monthly arborist inspection reports sent to Devcon and others, weeds have started to proliferate throughout the redwood grove, pushing up through the degraded wood chip mulch which is now composted down to almost zero inches thickness throughout the fenced-off root protection zone (RPZ) area.

Extensive weeding will need to be accomplished prior to wood chip mulch being laid down.

One issue when managing tree root zones is that the soil microbiology benefits greatly from addition of chipper truck type wood chip mulch (not bark chips) which degrade into black carbon as bacteria, etc. break down the wood cells during their digestion of wood, and defecate micronutrients which are beneficial to trees. The problem is that most landscapers try to block all weeds from pushing up through the wood chips, and will place a weed barrier fabric layer over the soil surface prior to laying wood chips down on the ground. This effectively blocks all wood chip degradation (i.e. "compost") from reaching the tree root zone soil, and vastly diminishes any benefit that might be derived from the broken down wood chip mulch. The solution to this problem is to simply place wood chips down over the soil, and to manage weeds as they try to push their way through the chip layer.

WLCA recommends that wood chips be laid (if possible) directly over the soil with no weed barrier, to allow degrading wood chip mulch to directly benefit the soil microbiology below grade, increasing carbon content and micronutrient content of the soil over time.

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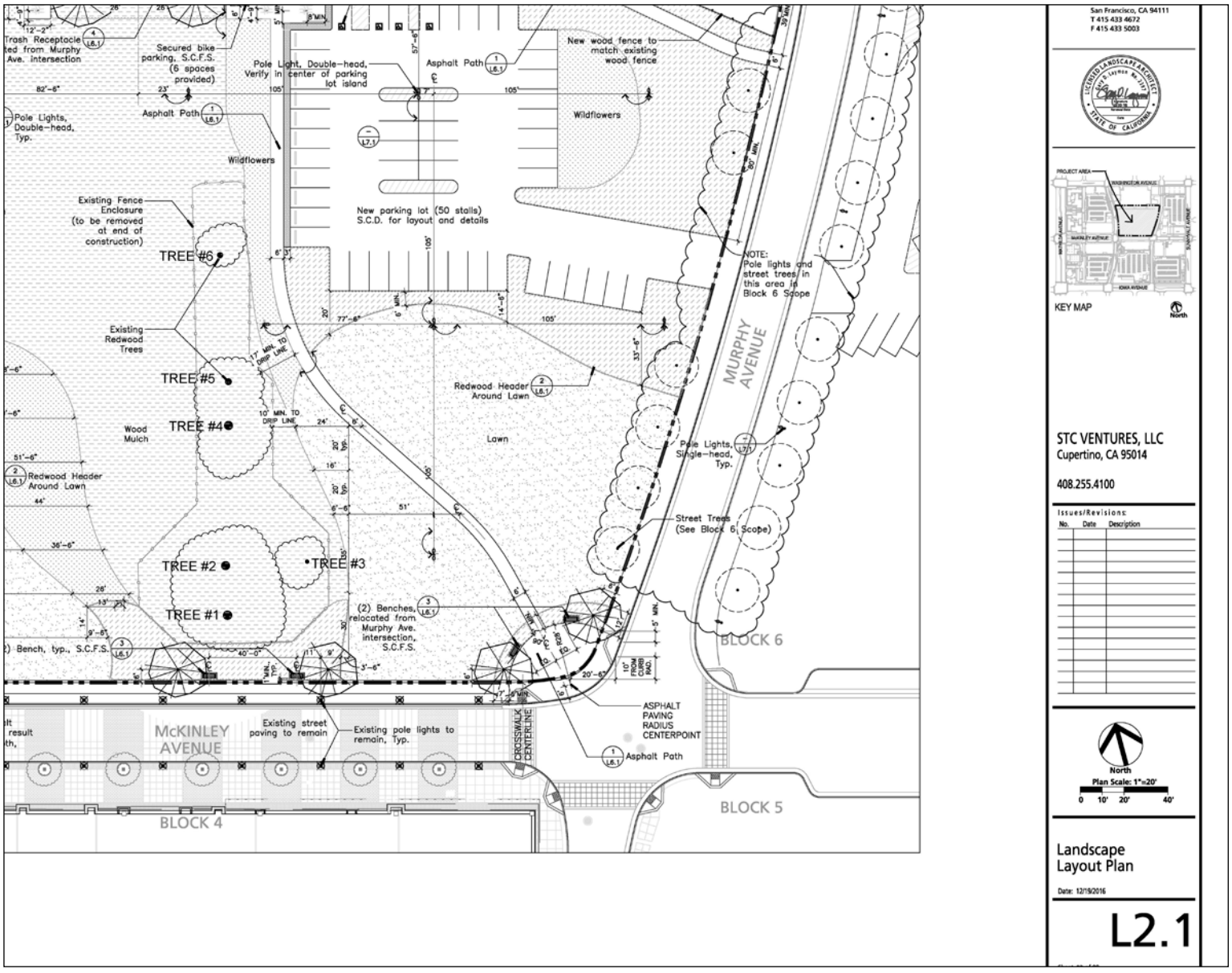
2.0 Proposed Plan with Tree Location Mark-Up



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3.0 Recommendations

a. Fencing: Keep temporary chain link fencing "as-is" for as long as possible (i.e. throughout the construction period) around the coast redwood tree grove, until final landscape development work requires moving or removing the fencing.

No construction shall be allowed within the fenced off root protection zone area.

No paints, concrete slurry, or other phytotoxic wastes shall be dumped adjacent to the fenced protection zone area.

No access by construction personnel shall be allowed inside the fenced protection zone area, except for purposes of landscape plan finalization.

b. Weed Abatement: Use both hand-pull technique and spot treatment with herbicide chemical spray** (e.g. glyphosate) to remove profuse noxious weed growth arising through the mulch layer within the existing root zone area of the redwood grove (i.e. the portion of the remaining unadulterated root zone area that is to be protected "as-is").

**Maintain caution while using a backpack spray apparatus, as herbicide contact with tree sprouts arising from the basal trunk "lignotubers" may cause uptake of the herbicide systemically into the trees, causing decline or death. Spray only during calm windless conditions. Keep all spray a good distance offset from the basal trunk sprouts surrounding each tree.

c. Wood Chips: It is suggested that the natural chipper truck wood chip mulch layer on the redwood grove soil be augmented with an additional 4-inch thick layer of new chips spread out over the entire fence-protected root zone area. Do not use "bark chips". Use only chipper truck type wood chips which consist of chipped hardwood and softwood, such as the material sold as natural chips by Lyngo Garden Supply of Redwood City and other local landscape material suppliers.

Note: Do not bury the trunk bases or buttress root flares surrounding each subject tree trunk with any wood chip materials. Keep mulch offset from each trunk edge by approximately 12 horizontal inches.

d. Irrigation (Existing): Keep all existing piped irrigation spray active and running at the existing frequency and duration within the redwood grove (i.e. 1x/week, 60 minute activation).

e. Irrigation (New): Adjust proposed new PVC piped irrigation water delivery systems such that there are no new trenching cuts within approximately 25 linear feet of the trunk edge of any redwood specimen being preserved at the grove. The current proposed plan sheet L5.1 irrigation plan shows new irrigation pipe trench cuts within this distance south of tree #1. WLCA suggests that this be modified to eliminate or reduce trenching in redwood grove root zone areas to be preserved.

The worst-case scenario would be an offset distance of 15 linear feet between redwood trunk edge and new irrigation pipe trench edge, as measured along soil grade from the trunk edge of tree #1.

For areas within 25 feet of trees, WLCA recommends use of over-grade type irrigation solutions such as Agrifim or Netafim ½" diameter emitter lines or poly tubing with individually inserted bubblers.

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f. Irrigation Timer: Do not adjust the existing redwood grove irrigation timer. WLCA will monitor the battery power and functioning of this timer system on a once-monthly basis (approximate, or as-needed) to verify that the system is functioning correctly.

g. Asphalt Path & Parking Lot (Proposed New): Keep all new baserock base section excavation cuts, compaction lifts, and grading cuts, to maximum of 6-inches total cut depth below original soil grade, when working within 25 linear feet of the trunk of any redwood grove specimen tree.

The current iteration of the landscape plan does not specify grading cut elevations within this distance of the trees being preserved. Therefore, WLCA had to assume that some grading would occur within 25 feet of the trees, such as where the proposed new asphalt path encroaches to approximately 20 linear feet from the trunk edge of tree #6 (see tree map in this report).

If areas within 25 feet of trees being retained are required to be excavated or graded more than 6 vertical inches below current grades, then contact WLCA to set up a site meeting to discuss available options for the most tree root-friendly methods of construction. Often, certain “field adjustments” can be made to avoid severe root loss during site plan work around specimen trees being retained.

h. Root Pruning: Prune all roots measuring 1-inch diameter each or greater, when encountered within 35 feet of any redwood specimen being retained. Root pruning shall be performed using sharp professional grade loppers, shears, chain saw, or reticulating saw such as a “Sawzall” affixed with a large-tooth blade specifically labeled for “wood pruning” (see images below).

Prune all roots at right angle to the root growth direction (i.e. cut “square” per the images below).

Backfill immediately (same day) with parent soil and water thoroughly to saturate the uppermost 24-inches of the soil profile.

If a root is shattered or broken, then back-dig around the root using a small hand tool until a clean unbroken section of root is visible, and prune the root at that location to remove all shattered material (see images below).

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4.0 Consultant's Qualifications

- Contract Town Arborist, Town of Los Gatos, California
  2015-present
- ISA Qualified Tree Risk Assessor since 2009
- Certified Tree Risk Assessor Course Graduate, 2009 (Vancouver, B.C.) and TRAQ Course Graduate 2013 (Palo Alto, CA)
- ASCA Registered Consulting Arborist #401
- Millbrae Community Preservation Commission (Tree Board)
  2001-2006
- ASCA Arboriculture Consulting Academy graduate, class of 2000
- ISA Certified Arborist #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 (Planning Arborist) to the City of Belmont, California
  Planning and Community Development Department
  5/99-present

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- 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)

5.0 Bay Area Vendors

Advanced Tree Care (Rob Weatherill) cell 650-839-9539

Maguire Tree Care (Paul Maguire) cell 650-245-2620

(The above sources have been known to provide high-quality arboriculture services in the past. They are not guaranteed or endorsed by the author).

6.0 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.

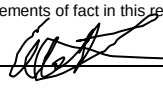
Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Tree are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborist cannot guarantee that a tree will be healthy or safe under 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.

7.0 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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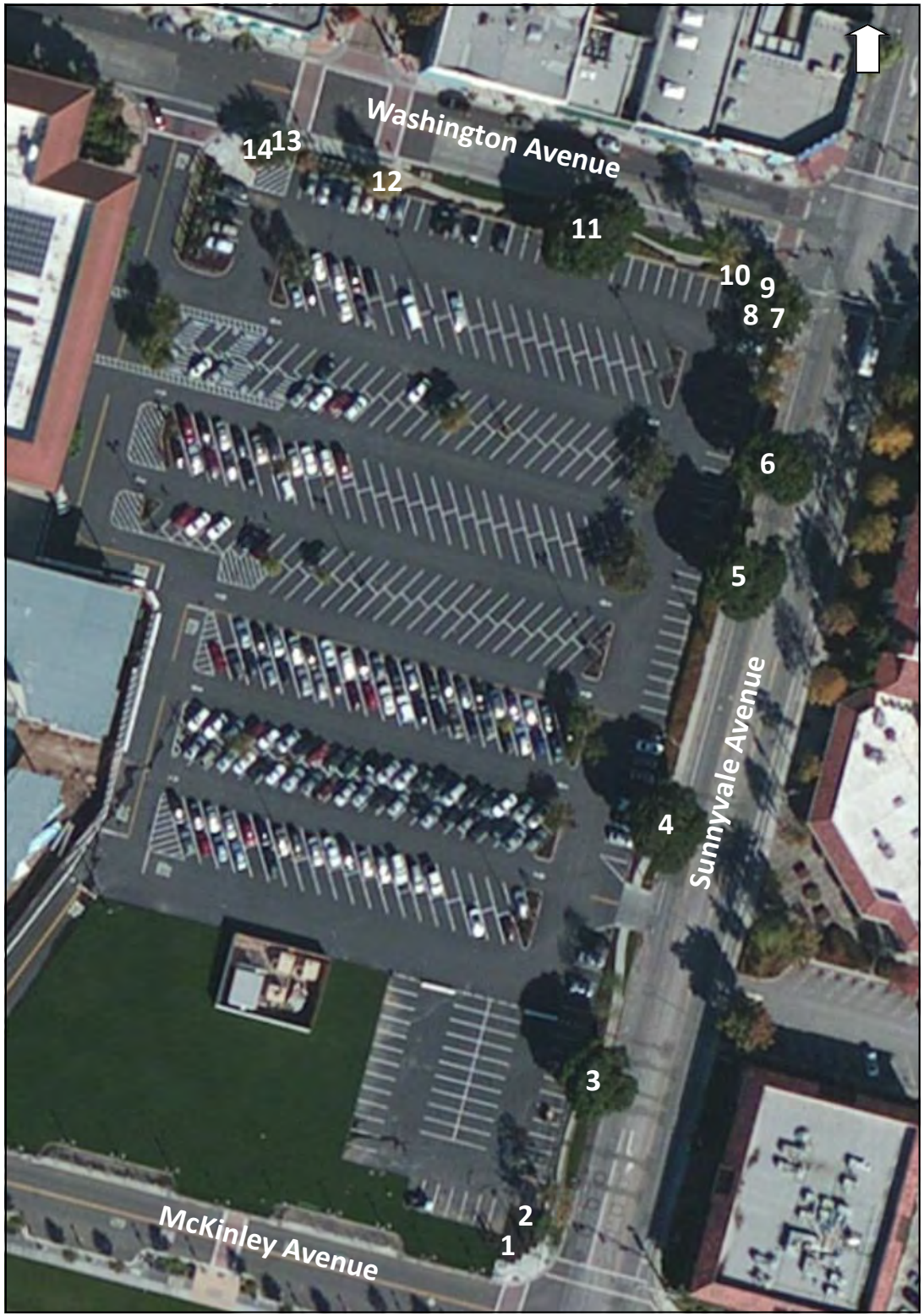

Tree Assessment Plan

Cityline
Sunnyvale, CA

Prepared for:
Sares Regis
San Mateo, CA

October 2017

No Scale

Notes:

Base map provided by:
ESRI

Numbered tree locations are approximate

HORT SCIENCE
325 Ray Street
Pleasanton, California 94566
Phone 925.484.0211
Fax 925.484.0596

Tree Assessment

Cityline
Sunnyvale, California
October 2017

HORT SCIENCE

TREE No.	SPECIES	TRUNK DIAMETER (in.)	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	COMMENTS	Driplines (ft.) South	Driplines (ft.) West
1	Southern magnolia	12	4	High	Multiple attachments at 6'; low branch E. cracked; one sided E.; a little crowded by #2.	--	8
2	Tulip tree	17	3	Moderate	One sided SE.; dieback in upper canopy; displaced asphalt 3".	--	12
3	Italian stone pine	48	3	Moderate	Strong lean S.; codominant trunks at 10'; heavy laterals S.; displacing sidewall 3".	--	25
4	Italian stone pine	35	3	Moderate	Multiple attachments at 15'; heavy/long lateral S.; 4" broken branch N.; displacing sidewalk 2".	--	21
5	Italian stone pine	43	4	Moderate	Slight lean & one sided S.; codominant trunks at 8'; heavy laterals E.; displacing sidewall 2".	--	20
6	Italian stone pine	44	4	Moderate	Street tree; slightly one sided SE.; codominant trunks at 5' w/ narrow attachment; heavy lateral SE.; displacing	--	28
7	Southern magnolia	19	3	Moderate	Multiple attachments at 5'; one sided S.; crowded by neighbors.	20	18
8	Southern magnolia	11	3	Moderate	Small canopy; very one sided SW.; crowded by neighbors.	18	14
9	Southern magnolia	13	4	Moderate	Good form; slightly one sided N.; crowded by neighbors.	15	10
10	Southern magnolia	11	3	Moderate	Fair form and structure; slightly one sided NW.; crowded by neighbors.	13	12
11	Italian stone pine	50	4	Moderate	Big tree; codominant trunks at 10' & 15'; stem to SW. forms a heavy laterals; 3" broken branch S.	35	--
12	Tulip tree	14	2	Low	Good form but serious scale/powdery mildew; twig dieback; crushed water box SE.	15	--

Tree Assessment

Cityline
Sunnyvale, California
October 2017

TREE No.	SPECIES	TRUNK DIAMETER (in.)	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	COMMENTS	Driplines (ft.) South	Driplines (ft.) West
13	Southern magnolia	12	4	Moderate	Multiple attachments at 6'; slightly one sided NE.; crowded by neighbors.	15	--
14	Southern magnolia	12	4	Moderate	Multiple attachments at 6'; slightly one sided SW.; crowded by neighbors.	12	--

DRAFT Tree Inventory Report

Macy's, Sunnyvale

Prepared for:
Sares Regis
901 Mariners Island Blvd, Ste. 700
San Mateo, CA 94404

Prepared by:
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August 2018

HORT SCIENCE
BARTLETT CONSULTING

DRAFT Tree Inventory Report

Macy's
Sunnyvale CA

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Introduction and Overview
Sares Regis is proposing to redevelop the Macy's property located at 200 W. Washington Ave., in Sunnyvale CA. The site currently contains a commercial building, a parking lot and perimeter landscaping. HortScience, Inc. was asked to prepare a ***Tree Inventory Report*** for the site for submission to the City of Sunnyvale.

This report provides the following information:

1. An evaluation of the health and structural condition of the trees within the proposed project area based on a visual inspection from the ground.
2. An assessment of the trees suitability for preservation based on its health, structure and potential longevity.
3. The appraised value of each tree.

Tree Assessment Methods
Trees were assessed on August 6, 2018. The survey included all trees 4" in diameter and greater, located within and immediately adjacent to the proposed project area, per Sunnyvale Tree Preservation ordinance 19.94. The assessment procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with an identifying number and recording its location on a map;
3. Measuring the trunk diameter at the 54" above grade;
4. Evaluating the health and structural condition using a scale of 1 – 5:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
   - ***3*** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
   - ***2*** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
   - ***1*** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.
   - ***High***: Trees with good health and structural stability that have the potential for longevity at the site.
   - ***Moderate***: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.
   - ***Low***: Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

Thirty-two (32) trees were evaluated, representing five species. Seven (7) street trees (#295-301) along W. Washington and S. Taaffe St. were included in the assessment. Descriptions of each tree are found in the ***Tree Assessment Form*** and approximate locations are shown on the ***Tree Assessment Map*** (see Exhibits).

All of the trees were planted as part of the Macy's landscape. No species was native to the Sunnyvale area and no trees were indigenous to the site.

Twenty (20) Brazilian peppers had been planted in the landscape bed along the northern edge of the building. They ranged in size from 8" to 22" in trunk diameter and most leaned or had one-sided crowns to the north as they reached for light (Photo 1). In addition, most had been pruned and topped on the south side for building clearance. Sixteen (16) of the Brazilian peppers were in fair condition, 6 were in poor and none were in good.

Photo 1: Looking west at Brazilian pepper #286. The tree was typical of the Brazilian peppers growing along the north side of the Macy's building. It leaned and had a one-sided crown to the north as a result of pruning/topping for building clearance and phototropism.

Four (4) African fern pines had been planted in raised beds on the east side of the building. These were semi-mature, with trunk diameters from 9" to 13". Condition was fair for all of the African fern pines and they also had one-sided crowns but as a result of competition among themselves.

A lone 9" diameter white birch (#294) had been planted adjacent to the northwest corner of the building. The tree was in fair condition but had also been topped for building clearance and had a completely one-sided crown to the northwest.

The 7 street trees included the following:

- Four (4) coast live oaks, including 3 young trees on W. Washington (5" to 8" in diameter) and one semi-mature tree on S. Taaffe St. (#301). Two of the young trees were in fair condition, with their trunks already growing against the metal grates surrounding the trees. The other two coast live oaks were in good condition.

- Three (3) water gums located on S. Taaffe Street. These were all young trees (5" to 6" in diameter) and 2 were in good condition and one was in fair.

Table 1. Condition ratings and frequency of occurrence of trees Macy's - Sunnyvale, CA

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
African fern pine	*Afrocarpus falcatus*	-	4	-	4
White birch	*Betula pendula*	-	1	-	1
Coast live oak	*Quercus agrifolia*	-	2	2	4
Brazilian pepper	*Schinus terebinthifolius*	4	16	-	20
Water gun	*Tristaniopsis laurina*	-	1	2	3
Total		**4**	**24**	**4**	**32**
		13%	75%	12.50%	100%

Overall, 24 trees were in fair condition, 4 were in good and 4 were in poor (Table 1). The City of Sunnyvale Tree Preservation Ordinance 2623-99, Chapter 19.94 defines any single-trunk tree with a trunk diameter of 12" or greater or any multi-trunked tree with a cumulative diameter of 38" or greater as *Protected*. By this definition, 15 of the trees evaluated qualified as *Protected*. *Protected* status of individual trees is provided in the ***Tree Assessment Form***.

Suitability for Preservation

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

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees. Trees in good condition are in better health than those in poor condition.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Brazilian pepper #276, which has a fruiting body of the heart rot fungus *Ganoderma applanatum* at the base is an example off such a tree.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, African fern pine and coast live oak are relatively tolerant of construction impacts while Brazilian pepper is less so.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Species invasiveness**
  Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (http://www.cal-ipc.org/paf/) lists species identified as having being invasive. Sunnyvale is part of the Central West Floristic Province. None of the species assessed at the Macy's site were listed as invasive.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 2).

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

Table 2. Tree suitability for preservation.
Macy's - Sunnyvale, CA

High	Trees with good health and structural stability that have the potential for longevity at the site. Water gums #298 and 299 were rated as having high suitability for preservation.
Moderate	Trees in fair health and/or possessing structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Ten (10) trees were rated as having moderate suitability for preservation; including African fern pines #270, 272 and 273, Brazilian peppers #274 and 293, coast live oaks 295-297 and 301, and water gum #300.
Low	Trees in poor health or possessing significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Twenty (20) of the trees were rated as having low suitability for preservation; including African fern pine #271 and 19 of the Brazilian peppers.

Estimate of Value

The City of Sunnyvale requires that the value of all of the surveyed trees be established. To accomplish this, I used the standard methods found in *Guide for Plant Appraisal*, 9th edition (published in 2000 by the International Society of Arboriculture, Champaign IL). In addition, I referred to *Species Classification and Group Assignment* (2004), a publication of the Western Chapter of the International Society of Arboriculture. These two documents outline the methods employed in tree appraisal.

The value of landscape trees is based upon four factors: size, species, condition and location. Size is measured as trunk diameter, normally 54" above grade. The species factor considers the adaptability and appropriateness of the plant in the South Bay area. The *Species Classification and Group Assignmen*t lists recommended species ratings and evaluations. Condition reflects the health and structural integrity of the individual, as noted in the ***Tree Assessment Form***. Location factor considers the site, placement, and contribution of the tree in its surrounding landscape.

The estimated value of the 32 trees assessed at the Macy's site was $44,100 (Table 3).

Table 3. Appraised value of trees
Macy's - Sunnyvale, CA

Tree No.	Common Name	Size (in.)	Protected	Appraised Value ($)
270	African fern pine	10,9,9,9	Yes	3,900
271	African fern pine	11	No	1,400
272	African fern pine	13	Yes	1,950
273	African fern pine	12	Yes	1,650
274	Brazilian pepper	20	Yes	3,250
275	Brazilian pepper	9	No	400
276	Brazilian pepper	14	Yes	950
277	Brazilian pepper	18	Yes	2,650
278	Brazilian pepper	15	Yes	1,850
279	Brazilian pepper	8	No	550
280	Brazilian pepper	15	Yes	1,850
281	Brazilian pepper	11	No	1,000
282	Brazilian pepper	8	No	300
283	Brazilian pepper	12	Yes	1,200
284	Brazilian pepper	11	No	1,000
285	Brazilian pepper	15	Yes	1,850
286	Brazilian pepper	22	Yes	3,900
287	Brazilian pepper	11	No	1,000
288	Brazilian pepper	12	Yes	1,200
289	Brazilian pepper	15	Yes	1,850
290	Brazilian pepper	11	No	1,000
291	Brazilian pepper	14	Yes	1,600
292	Brazilian pepper	9	No	400
293	Brazilian pepper	16	Yes	2,100
294	White birch	9	No	400
295	Coast live oak	8	No	700
296	Coast live oak	5	No	450
297	Coast live oak	5	No	300
298	Water gun	6	No	700
299	Water gun	6	No	650
300	Water gun	5	No	350
301	Coast live oak	10	No	1,750
Total				**44,100**

Summary

Thirty-two (32) trees 4" and greater in diameter were evaluated at the Macy's site, in Sunnyvale. Seven (7) street trees (#295-301) along W. Washington and S. Taaffe St. were included in assessment.

Twenty (20) Brazilian peppers had been planted in the landscape bed along the north side of the building. They were primarily in fair condition, with one-sided crowns to the north and a history of pruning/topping for building clearance.

Four (4) African fern pines had been planted in raised beds on the east side of the building. They were all on fair condition and also had one-sided crowns.

White birch #294 had been planted adjacent to the northwest corner of the building. It was in fair condition with a similar history of pruning/topping as the Brazilian peppers.

The 7 street trees included 4 young to semi-mature coast live oaks in fair to good condition and 3 young water gums in good to fair condition.

Overall, tree condition was fair (41%), with 12.5% of the population in fair condition and 12% in good (Table 1, page 3).

Two (2) trees were highly suitable for preservation, 10 were of moderate suitability and 20 were of low suitability (Table 2, page 4).

Fifteen (15)of the trees evaluated qualified as *Protected* under the City of Sunnyvale Tree Preservation Ordinance 2623-99, Chapter 19.94. *Protected* status of individual trees is provided in the ***Tree Assessment Form***.

Preliminary Tree Preservation Guidelines

The following recommendations will help reduce impacts to trees from development as well as maintain and improve their health and vitality through the clearing, grading and construction phases. The key elements of a tree preservation plan for the 42021 Osgood Rd. site would include:

- Retaining select trees with high or moderate suitability for preservation, including perimeter coast live oaks and water gums.

- Establishing **Tree Protection Zones** for each tree to be preserved. **Tree Protection Zones** are identified by the Consulting Arborist based on species tolerances, tree condition, trunk diameters and the nature and proximity of the proposed disturbance.

- Providing supplemental irrigation prior to and during the demolition and construction phases, especially for any of the coast redwoods identified for preservation.

Design recommendations

1. All plans affecting trees shall be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, demolition plans, grading and utility plans, landscape and irrigation plans.

2. For trees identified for preservation, designate a **Tree Protection Zone** in which no construction, grading and underground services including utilities, sub-drains, water or sewer will be located. For design purposes, the **Tree Protection Zone** should be either the dripline or edge of proposed construction, whichever is larger. Depending in the tree to be preserved, additional space beyond the dripline may be required.

3. No grading, excavation, construction or storage of materials shall occur within that zone.

4. No underground services including utilities, sub-drains, water or sewer shall be placed in the **Tree Protection Zone**.

5. Irrigation systems must be designed so that no trenching will occur within the **Tree Protection Zone**.

6. As trees withdraw water from the soil, expansive soils may shrink within the root area. Therefore, foundations, footings and pavements on expansive soils near trees should be designed to withstand differential displacement.

Pre-construction treatments and recommendations

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.

2. Where possible, cap and abandon all existing underground utilities within the **TPZ** in place. Removal of utility boxes by hand is acceptable but no trenching should be performed within the **TPZ** in an effort to remove utilities, irrigation lines, etc.

3. Fence all trees to be retained to completely enclose the **Tree Protection Zone** prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by the Consulting Arborist. Fences are to remain until all grading and construction is completed.

4. Prune trees to be preserved to clean the crown of dead branches 1" and larger in diameter and raise canopies as needed for construction activities. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300). The Consulting Arborist will provide pruning specifications prior to site demolition. Branches extending into the work area that can remain following demolition shall be tied back and protected from damage.

5. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. Tree pruning and removal should be scheduled outside of the breeding season to avoid scheduling delays. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.

6. Tree(s) to be removed that have branches extending into the canopy of tree(s) to remain must be removed by a qualified arborist and not by construction contractors. The qualified arborist shall remove the tree in a manner that causes no damage to the tree(s) and understory to remain. Tree stumps shall be ground 12" below ground surface.

7. Any brush clearing required within the **Tree Protection Zone** shall be accomplished with hand-operated equipment.

8. Trees to be removed shall be felled so as to fall away from **Tree Protection Zone** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.

9. All down brush and trees shall be removed from the **Tree Protection Zone** either by hand, or with equipment sitting outside the **Tree Protection Zone**. Extraction shall occur by lifting the material out, not by skidding across the ground.

10. Apply and maintain 4-6" of wood chip mulch within the **Tree Protection Zone.**

Recommendations for tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.

2. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.

3. Any grading, construction, demolition or other work that is expected to encounter tree roots should be monitored by the Consulting Arborist.

4. Tree protection fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the Consulting Arborist.

5. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.

6. Prior to grading, pad preparation, excavation for foundations/footings/walls, trenching, trees may require root pruning outside the **Tree Protection Zone** by cutting all roots cleanly to the depth of the excavation. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, with a vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment. The Consulting Arborist will identify where root pruning is required and monitor all root pruning activities.

7. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

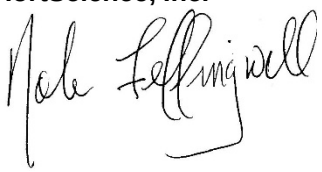
8. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **Tree Protection Zone**.

9. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

10. All trees shall be irrigated on a schedule to be determined by the Consulting Arborist (every 3 to 6 weeks April through October is typical). Each irrigation shall wet the soil within the **Tree Protection Zone** to a depth of 24".

Maintenance of impacted trees
Preserved trees will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, annual inspection for structural condition is recommended.

HortScience, Inc.



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Exhibits

Tree Assessment Form

Tree Assessment Map

Tree Assessment

Cityline
Sunnyvale, California
August 2018

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TREE No.	SPECIES	TRUNK DIAMETER (in.)	PROTECTED	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	COMMENTS	Driplines (ft.) North	South	East	West
270	African fern pine	10,9,9,9	Yes	3	Moderate	Multiple attachments at 3'; in raised planter; one sided S.; recent branch failure.	15	18	15	10
271	African fern pine	11	No	3	Low	In raised planter; poor form and structure; one sided N.	12	7	15	10
272	African fern pine	13	Yes	3	Moderate	Multiple attachments at 4'; in raised planter; one sided SE.; a little sparse.	8	12	15	10
273	African fern pine	12	Yes	3	Moderate	Multiple attachments at 4'; in raised planter; one sided SE.; a little sparse.	15	8	15	10
274	Brazilian pepper	20	Yes	3	Moderate	Multiple attachments at 10'; one sided E.	15	15	20	8
275	Brazilian pepper	9	No	2	Low	Suppressed; narrow form.	12	15	10	5
276	Brazilian pepper	14	Yes	2	Low	Multiple attachments at 10'; leans S.; crown very one sided E. away from bldg.; ganoderma at base S.	15	22	15	0
277	Brazilian pepper	18	Yes	3	Low	Codominant trunks at 10'; leans N.; crown one sided E.	18	22	15	8
278	Brazilian pepper	15	Yes	3	Low	Codominant trunks at 8'; topped for	15	10	15	12
279	Brazilian pepper	8	No	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	7	15
280	Brazilian pepper	15	Yes	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	15	15
281	Brazilian pepper	11	No	3	Low	Topped/pruned for bldg. clearance; small crown completely one sided NW.	20	0	5	20
282	Brazilian pepper	8	No	2	Low	Topped/pruned for bldg. clearance; trunk leans NE.; small crown completely one sided W.	20	0	0	15

Tree Assessment

Cityline
Sunnyvale, California
August 2018

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TREE No.	SPECIES	TRUNK DIAMETER (in.)	PROTECTED	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	COMMENTS	Driplines (ft.) North	South	East	West
283	Brazilian pepper	12	Yes	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	15	12
284	Brazilian pepper	11	No	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	10	15
285	Brazilian pepper	15	Yes	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	15	15
286	Brazilian pepper	22	Yes	3	Low	Multiple attachments at 6'; topped/pruned for bldg. clearance; crown completely one sided N.	25	0	25	22
287	Brazilian pepper	11	No	3	Low	Topped/pruned for bldg. clearance; crown completely one sided N.	20	0	12	1
288	Brazilian pepper	12	Yes	3	Low	Topped/pruned for bldg. clearance; small crown completely one sided NW.	20	0	12	18
289	Brazilian pepper	15	Yes	3	Low	Topped/pruned for bldg. clearance; crown completely one sided NW.	22	0	8	18
290	Brazilian pepper	11	No	3	Low	Topped/pruned for bldg. clearance; crown completely one sided NW.	20	0	5	15
291	Brazilian pepper	14	Yes	3	Low	Topped/pruned for bldg. clearance; crown completely one sided NW.	20	15	5	15
292	Brazilian pepper	9	No	2	Low	Suppressed; poor form.	3	10	0	8
293	Brazilian pepper	16	Yes	3	Moderate	Multiple attachments at 8'; one sided W.	15	18	12	20
294	White birch	9	No	3	Low	Topped for bldg. clearance; crown	20	3	3	15
295	Coast live oak	8	No	3	Moderate	Street tree, no tag; fair form and structure; base growing against grate.	10	12	12	12
296	Coast live oak	5	No	4	Moderate	Street tree, no tag; good form and structure.	8	8	8	8

Tree Assessment

Cityline
Sunnyvale, California
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TREE No.	SPECIES	TRUNK DIAMETER (in.)	PROTECTED	CONDITION 1=poor 5=excellent	SUITABILITY for PRESERVATION	COMMENTS	Driplines (ft.) North	South	East	West
297	Coast live oak	5	No	3	Moderate	Street tree, no tag; good form and structure; leans S.; base growing against grate.	5	8	8	8
298	Water gum	6	No	4	High	Street tree, no tag; good form and structure.	8	8	8	8
299	Water gum	6	No	4	High	Street tree, no tag; good form and structure.	8	8	8	8
300	Water gum	5	No	3	Moderate	Street tree, no tag; slight lean NW.; small crown.	8	5	7	8
301	Coast live oak	10	No	4	Moderate	Street tree, no tag; good form; low branches E.; a little sparse.	10	8	10	8

Tree Assessment Plan

Cityline
Sunnyvale, CA

Prepared for:
Sares Regis
San Mateo, CA

August 2018

No Scale

Notes:

Base map provided by:
Google Maps

Numbered tree locations are approximate

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