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Associates

Consultants in Horticulture and Arboriculture

TREE PRESERVATION AND MITIGATION REPORT (UPDATED)

SIXTH AND DAVIS STREET PARKING
Santa Rosa, CA

Prepared for:

Mr. Jeff Blackman
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Prepared by:

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APRIL 16, 2017

April 16, 2017

Mr. Jeff Blackman
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5646 Milton Street, Suite 890
Dallas, Texas 75206

Re: Updated *Tree Preservation and Mitigation Report*, Sixth and Davis Street Parking in Santa Rosa, California

Jeff,

Attached you will find our updated *Tree Preservation and Mitigation Report* for the above noted project site. We are updating the report based on design revisions that have been incorporated to preserve a greater number of trees. A total of 20 trees were evaluated for this report and this includes all trees greater than 4 inches in trunk diameter. Several trees were found growing off-site, but overhanging project property, and these were included in our study per the Santa Rosa Tree Ordinance.

Each tree in this report was documented and evaluated for species, trunk diameter, health, and structural condition. We have provided our evaluation of the impact expected from the development activities illustrated on the plans reviewed, and a recommendation is provided to preserve or remove each tree.

The *Tree Location Plan* shows the location and numbering sequence of all evaluated trees. Also included are *Tree Preservation Guidelines* as a general reference to working around trees.

This report is intended to be a basic inventory of trees present at this site, which includes a general review of tree health and structural condition. No in-depth evaluation has occurred, and assessment has included only external visual examination without probing, drilling, coring, root collar examination, root excavation, or dissecting any tree part. Failures, deficiencies, and problems may occur in these trees in the future, and this inventory in no way guarantees or provides a warranty for their condition.

EXISTING SITE CONDITION SUMMARY

The project site is currently empty except for a single structure that fronts onto Davis Street. The site is bordered by Davis Street, Sixth Street, and the adjacent CalTrans right-of-way.

EXISTING TREE SUMMARY

Native California species present are Coast Live Oak (*Quercus agrifolia*) and Box Elder (*Acer negundo*).

Native California species that are not endemic to the site include Coast Redwood (*Sequoia sempervirens*)

Non-native species include Wild Plum, Maple, Black Walnut, Glossy Privet, and Prickly Pear Cactus.

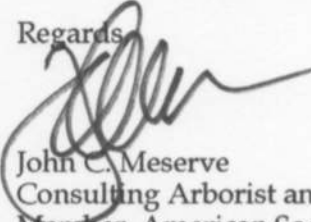
CONSTRUCTION IMPACT SUMMARY

Based on our review of the revised plans the following summary of impacts to trees is provided:

- (3) Removal is required based on the development plan.
- (3) Remove exempt species.
- (14) Preservation is possible.

Please feel free to contact me if you have questions regarding this report, or if further discussion about any tree issue is required.

Regards,


John C. Meserve
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Member, American Society of Consulting Arborists
ISA Certified Arborist, WE #0478A; Tree Risk Assessment Qualified



TREE INVENTORY CHART

TREE INVENTORY (UPDATED)
Sixth and Davis Street Parking
Santa Rosa, CA

April 16, 2017

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health 1 - 5	Structure 1 - 4	Expected Impact	Recommendations
1	<i>Quercus agrifolia</i>	Coast Live Oak	15+18	40	25	4	3	2	1, 7, 8, 9, 12
2	<i>Quercus agrifolia</i>	Coast Live Oak	18+18	40	25	4	3	2	1, 7, 8, 9, 12
3	<i>Sequoia sempervirens</i>	Coast Redwood	13	50	12	4	3	1	1, 8, 12
4	<i>Sequoia sempervirens</i>	Coast Redwood	50	70	15	4	3	1	1, 7, 8, 9, 12
5	<i>Quercus agrifolia</i>	Coast Live Oak	12+14+14	40	20	4	3	3	1, 7, 8, 9, 12
6	<i>Quercus agrifolia</i>	Coast Live Oak	13	35	20	4	3	2-3	1, 7, 8, 9, 12
7	<i>Quercus agrifolia</i>	Coast Live Oak	12	30	20	4	3	2	1, 7, 8, 9, 11, 12
8	<i>Quercus agrifolia</i>	Coast Live Oak	36	45	35	4	3	1-2	1, 7, 8, 9, 12
9	<i>Quercus agrifolia</i>	Coast Live Oak	12	35	14	4	3	2	1, 7, 8, 9, 12
10	<i>Quercus agrifolia</i>	Coast Live Oak	6+8	20	12	4	3	2	1, 7, 8, 9, 12
11	<i>Quercus agrifolia</i>	Coast Live Oak	5+5+4	20	12	4	3	1-2	1, 7, 8, 9, 12
12	<i>Acer negundo</i>	Box Elder	6+5	18	10	4	3	1	1, 7, 8, 9, 12
13	<i>Quercus agrifolia</i>	Coast Live Oak	36	45	30	4	3	1-2	1, 7, 8, 9, 11, 12
14	<i>Quercus agrifolia</i>	Coast Live Oak	28	45	28	4	3	1-2	1, 7, 8, 9, 11
15	<i>Ligustrum lucidum</i>	Glossy Privet	6+5+4	18	12	4	3	1	6
16	<i>Juglans nigra</i>	Black Walnut	18+24	50	30	4	3	3	2

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TREE INVENTORY (UPDATED)
 Sixth and Davis Street Parking
 Santa Rosa, CA

April 16, 2017

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health 1 - 5	Structure 1 - 4	Expected Impact	Recommendations
17	<i>Prunus domestica</i>	Wild Plum	10+6+6+6	16	10	4	3	1	6
18	<i>Acer species</i>	Maple	20+16	40	21	4	3	3	2
19	<i>Sequoia sempervirens</i>	Coast Redwood	12	15	10	4	3	3	2
20	<i>Opuntia species</i>	Prickly Pear Cactus	14	14	8	4	3	3	6

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KEY TO TREE
INVENTORY CHART

KEY TO TREE INVENTORY CHART

Tree Number

Each tree has been identified in the field with an aluminum tag and reference number. Tags are attached to the trunk at approximately eye level. The *Tree Location Plan* illustrates the location of each numbered tree.

Species

Each tree has been identified by genus, species and common name. Many species have more than one common name.

Trunk

Each trunk has been measured or estimated, in inches, to document its diameter, at 4.5 feet above adjacent grade. Trunk diameter is a good indicator of age, and is commonly used to determine mitigation replacement requirements.

Height

Height is estimated in feet, using visual assessment.

Radius

Radius is estimated in feet, using visual assessment. Since many canopies are asymmetrical, it is not uncommon for a radius estimate to be an average of the canopy size.

Health

The following descriptions are used to rate the health of a tree. Trees with a rating of 4 or 5 are very good candidates for preservation and will tolerate more construction impacts than trees in poorer condition. Trees with a rating of 3 may or may not be good candidates for preservation, depending on the species and expected construction impacts. Trees with a rating of 1 or 2 are generally poor candidates for preservation.

- (5) Excellent - health and vigor are exceptional, no pest, disease, or distress symptoms.
- (4) Good - health and vigor are average, no significant or specific distress symptoms, no significant pest or disease.
- (3) Fair - health and vigor are somewhat compromised, distress is visible, pest or disease may be present and affecting health, problems are generally correctable.
- (2) Marginal - health and vigor are significantly compromised, distress is highly visible and present to the degree that survivability is in question.
- (1) Poor - decline has progressed beyond the point of being able to return to a healthy condition again. Long-term survival is not expected. This designation includes dead trees.

Structure

The following descriptions are used to rate the structural integrity of a tree. Trees with a rating of 3 or 4 are generally stable, sound trees which do not require significant pruning, although cleaning, thinning, or raising the canopy might be desirable. Trees with a rating of 2 are generally poor candidates for preservation unless they are preserved well away from improvements or active use areas. Significant time and effort would be required to reconstruct the canopy and improve structural integrity. Trees with a rating of 1 are hazardous and should be removed.

- (4) Good structure - minor structural problems may be present which do not require corrective action.
- (3) Moderate structure - normal, typical structural issues which can be corrected with pruning.
- (2) Marginal structure - serious structural problems are present which may or may not be correctable with pruning, cabling, bracing, etc.
- (1) Poor structure - hazardous structural condition which cannot be effectively corrected with pruning or other measures, may require removal depending on location and the presence of targets.

Construction Impacts

Considering the proximity of construction activities, type of activities, tree species, and tree condition - the following ratings are used to estimate the amount of impact on tree health and stability. Most trees will tolerate a (1) rating, many trees could tolerate a (2) rating with careful consideration and mitigation, but trees with a (3) rating are poor candidates for preservation.

- (3) A significant impact on long term tree integrity can be expected as a result of proposed development.
- (2) A moderate impact on long term tree integrity can be expected as a result of proposed development.
- (1) A minor impact on long term tree integrity can be expected as a result of proposed development.

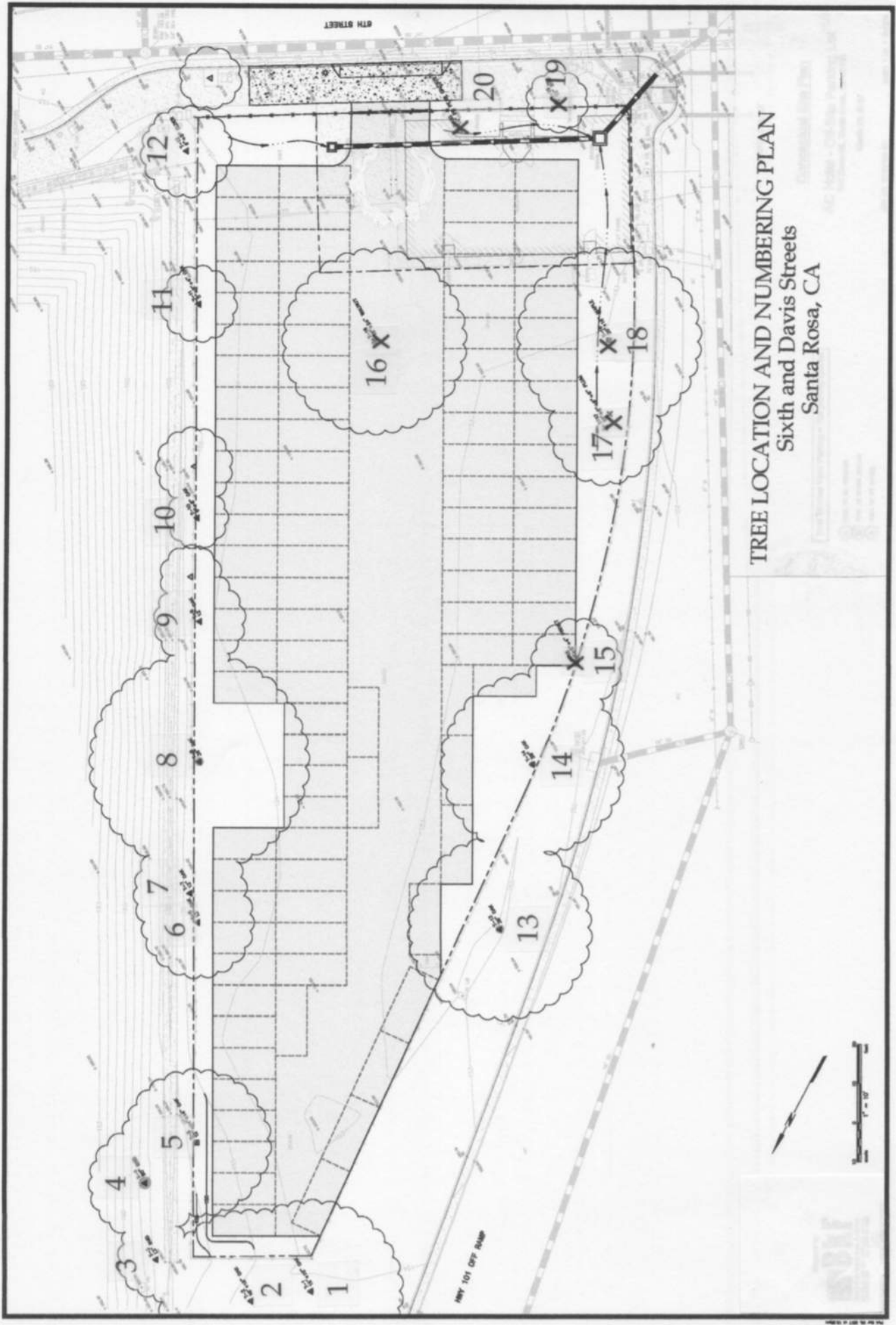
Recommendations

Recommendations are provided for removal or preservation. For those being preserved, protection measures and mitigation procedures to offset impacts and improve tree health are provided.

- (1) Preservation appears to be possible.
- (2) Removal is required due to significant development impacts.
- (3) Removal is required due to poor health or hazardous structure.
- (4) Removal is required due to significant development impacts and poor existing condition.
- (5) Removal is recommended due to poor species characteristics.

- (6) Removal can occur because this is an exempt species.
- (7) In order for this tree to be preservable an aerated and non-compacted paving section must be used beneath the dripline, or, no paving must be used beneath the dripline. If either of these cannot be incorporated the tree is not expected to survive and should be removed. Provide detail for further review.
- (8) Install temporary protective fencing at the edge of the dripline, or edge of approved construction, prior to beginning grading or construction. Maintain fencing in place for duration of all construction activity in the area.
- (9) Maintain existing grade within the fenced portion of the dripline. Route drainage swales and all underground work outside the dripline.
- (10) Place a 4" layer of chipped bark mulch over the soil surface within the fenced dripline prior to installing temporary fencing. Maintain this layer of mulch throughout construction.
- (11) Prune to clean and raise the canopy for clearance, per International Society of Arboriculture pruning standards.
- (12) This appears to be an off-site tree, but it overhangs the project property and will impacted by project activities.

TREE LOCATION PLAN



TREE LOCATION AND NUMBERING PLAN
 Sixth and Davis Streets
 Santa Rosa, CA



TREE PRESERVATION GUIDELINES

TREE PROTECTION GUIDELINES

FOR CONSTRUCTION AROUND PRESERVED TREES
Sixth and Davis Street Parking
Santa Rosa, CA

TREE PROTECTION ZONE

The Tree Protection Zone is illustrated on the Improvement Plans and represents the area around each tree, or group of trees, which must be protected at all times with tree protection fencing. No encroachment into the Tree Protection Zone is allowed at any time without approval from the project arborist, and unauthorized entry may be subject to civil action and penalties.

The protected area beneath the canopy of each tree will be designated by the project arborist as the Tree Protection Zone at a location determined to be adequate to ensure long term tree viability and health. The Tree Protection Zone may not be consistent with the canopy dripline in many locations.

TREE PROTECTION FENCING

Prior to initiating any construction activity on a construction project, including demolition, vegetation or approved tree removal, grubbing, or grading, temporary protective fencing shall be installed at each site tree or group of trees. Fencing shall be located at the edge of the Tree Protection Zone as specifically designated by the project arborist.

Fencing shall be minimum 4' height at all locations, and shall form a continuous barrier without entry points around all individual trees, or groups of trees. Barrier type fencing such as *Tensar* plastic fencing is recommended, but any fencing system that adequately prevents entry will be considered for approval by the project arborist. The use of post and cable fencing is not acceptable.

Fencing shall be installed in a professional manner using standard quality farm 'T' posts that are placed no more than 8 feet on center. Fencing shall be attached to each post at 5 locations with plastic electrical ties. Fencing shall be stretched tightly between posts in all locations. See fencing detail.

Fencing shall serve as a barrier to prevent encroachment of any type by construction activities including equipment, building materials, storage, outhouses, or personnel.

All encroachment into the fenced Tree Protection Zone must be approved in writing and supervised by the project arborist. Fencing relocation from original

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placement must also be approved in writing and be approved by the project arborist. Approved Tree Protection Zone encroachment may require additional mitigation or protection measures that will be determined by the project arborist at the time of the request.

Contractors and subcontractors shall direct all equipment and personnel to remain outside the fenced area at all times until project is complete, and shall instruct personnel and sub-contractors as to the purpose and importance of fencing and preservation. All contractors and subcontractors are notified by this specification that there will be no exceptions without prior written approval.

Fencing shall be upright and functional at all times prior to demolition and grading and through completion of construction in the specific area of protected trees. If the project is to occur in phases fencing may be removed as each phase is completed.

GRADING AND TRENCHING

Any construction activity that necessitates soil excavation in the vicinity of preserved trees shall be avoided where possible, or be appropriately mitigated under the guidance of the project arborist. All contractors must be aware at all times that specific protection measures are defined, and non-conformance may generate stop-work orders.

The designated Tree Protection Zone is defined around all site trees to be preserved. Fences protect the designated areas. No grading or trenching is to occur within this defined area unless so designated by the Improvement Plan, and where designated shall occur under the direct supervision of the project arborist.

Trenching should be routed around the Tree Protection Zone whenever possible. Where trenching has been designated within the Tree protection Zone, utilization of underground technology to bore, tunnel or excavate with high-pressure air or water will be specified. Hand digging will be generally discouraged unless site conditions restrict the use of alternate technology.

All roots greater than one inch in diameter shall be cleanly hand-cut as they are encountered in any trench or in any grading activity. The tearing of roots by equipment of any type shall not be allowed. Mitigation treatment of pruned roots shall be specified by the project arborist as determined by the degree of root pruning, location of root pruning, and potential exposure to desiccation. No pruning paints or sealants shall be used on cut roots.

Where significant roots are encountered mitigation measures such as supplemental irrigation and/or organic mulches may be specified by the project arborist to offset the reduction of root system capacity.

Retaining walls are effective at holding grade changes outside the area of the Tree Protection Zone and are recommended where necessary. Retaining walls shall be constructed in post and beam or drilled pier construction styles where they are necessary near or within the Tree Protection Zone.

Placement of fill soils is generally discouraged within the Tree Protection Zone, but in some approved locations may be approved to cover up to 30% of this area. The species and condition of the tree shall be considered, as well as site and soil conditions, and depth of fill. Retaining walls should be utilized to minimize the area of fill within the Tree Protection Zone. Type of fill soil and placement methods shall be specified by the project arborist.

Grade changes near or within the Tree Protection Zone shall be designed so that surface drainage will not be diverted toward or around the root crown in any manner. Grade shall drain away from root crown at a minimum of 2%. If grading toward the root collar is unavoidable, appropriate surface and/or subsurface drain facilities shall be installed so that water is effectively diverted away from root collar area.

Approved fill soils within the Tree Protection Zone may also be mitigated using aerated gravel layers as specified by the project arborist.

Tree roots will be expected to grow into areas of soil fill, and quality of imported soil shall be considered. Fill soil shall be site topsoil that closely matches that present within the root zone area. When import soil is utilized it must be the same or slightly coarser texture than existing site soil, should have a pH range comparable to site soils, and generally should have acceptable chemical properties for appropriate plant growth. A soil analysis is required prior to soil importation to evaluate import soil for these criteria.

Grade reduction within the designated Tree Protection Zones shall be generally discouraged, and where approved, shall be conducted only after careful consideration and coordination with the project arborist.

Foundations or footings of any type within the Tree Protection Zone shall be constructed using design techniques that eliminate the need for trenching into natural grade. These techniques might include drilled piers, grade beams, bridges, or cantilevered structures.

TREE DAMAGE

Any form of tree damage which occurs during the demolition, grading, or construction process shall be evaluated by the project arborist. Specific mitigation measures will be developed to compensate for or correct the damage. Fines and penalties may also be levied.

Measures may include, but are not limited to, the following:

- pruning to remove damaged limbs or wood
- bark scoring to remove damaged bark and promote callous formation
- alleviation of compaction by lightly scarifying the soil surface
- installation of a specific mulching material
- supplemental irrigation during the growing season for up to 5 years
- treatment with specific amendments intended to promote health, vigor, or root growth
- vertical mulching or soil fracturing to promote root growth
- periodic post-construction monitoring at the developer's expense
- tree replacement, or payment of the established appraised value, if the damage is so severe that long term survival is not expected

MULCHING

Trees will generally benefit from the application of a 4 inch layer of chipped bark mulch over the soil surface within the greater root zone area. Ideal mulch material is a chipped bark containing a wide range of particle sizes. Bark mulches composed of shredded redwood, bark screened for uniformity of size, or chipped lumber are not acceptable.

Chipped bark mulch may not originate from any tree infected with, or exhibiting symptoms of, Sudden Oak Death (SOD) due to the potential of infecting existing site trees.

TREE PRUNING AND TREATMENTS

All recommendations for pruning or other treatments must be completed prior to acceptance of the project. It is strongly recommended that pruning be completed prior to the start of grading to facilitate optimum logistics and access.

All pruning shall be conducted in conformance with International Society of Arboriculture pruning standards, and all pruning must occur under the direct supervision of, an arborist certified by the International Society of Arboriculture.