ARBORIST REPORT-

Preliminary Tree Resource Analysis, Construction Impact & Protection Plan for:

Mixed Use Project

530 Front Street, Santa Cruz, CA 95060

May 19, 2019

Revised 3/22/2022

Prepared for:

Swenson Builders
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Prepared by:

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SUMMARY

Revised 3/22/2022

- One of the two street trees inventoried, (Australian willow, T31), has failed after the report was completed, and it has been removed. No other report modifications are needed.
- A six-story, mixed-use building is proposed at 530 Front Street, Santa Cruz.
- The existing commercial buildings will be demolished and replaced with a new building.
- Thirty-eight trees (25 “protected” & 13 “not protected”), within the project limits were inventoried.
- Except for two street trees and one private tree, all trees within the project limits will be significantly impacted by the project and their removal will be required.
- Most of the trees inventoried were in either good or fair condition.
- The twenty-five “protected” trees are divided into three categories, including *street trees* located along Front street, *private trees* located on the commercial property, and *riparian trees* located along the river corridor.
- Twenty two of the twenty – five “protected” trees within the project limits, will be significantly impacted by the project and are recommended to be removed.
- One of the twenty-five “protected” trees, not significantly impacted, is in poor condition ~~and~~ its removal is recommended.
- Two, One of the twenty –five “protected” trees within the project limits, will not be significantly impacted by the project and their retention is recommended.
- Mitigation measures for retained trees are specified and protection methods detailed.
- When final construction plans are submitted, additional protection specifications may be required.
- If tree removals are permitted by approval authority, replacement trees will be required.

Background

Plans have been submitted to the City of Santa Cruz Planning Department, for a six -story mixed use building replacing the existing commercial buildings at 530 Front Street, Santa Cruz. Swenson Builders has requested my services, to assess the condition of 38 trees on or near the project limits, and the construction impacts that may affect them. Further, to provide a report with my findings and recommendations to meet City of Santa Cruz planning requirements.

Assignment

Provide an arborist report that includes an assessment of the trees within the project area. The assessment is to include the species, size (trunk diameter, height and canopy spread), condition (health and structure), and suitability for preservation ratings.

To complete this assignment, the following services were performed:

- **Tree Resource Evaluation:** Inventory, evaluate and assign suitability for preservation ratings for subject trees. Tag trees with numbered metal tags.
- **Plan Review: Reviewed provided plans including**: Civil Plan Set by Civil Engineers Associates, *Front/Soquel, Mixed Use Project Santa Cruz* dated 3/26/2019 & Site Plan by Daniel Sell, *Front/Soquel, Mixed Use Project Santa Cruz dated 5/9/2019.*
- **Construction Impact Assessment:** Combine tree resource data with anticipated construction impacts, to provide recommendations for removal or retention of trees.
- **Mapping:** Tree canopies were plotted onto: *Topographic Map & Existing Conditions* by CEA Civil Engineering Associates dated, 3/26/2019.

Limits of the Assignment

The information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection on May 13, 2019.
The inspection is limited to visual examination of accessible items without climbing, dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in questions may not arise in the future.

Purpose and use of the report

The report is intended to identify all the trees within the plan area that could be affected by a project. The report is to be used by the developer, their agents, and the City of Santa Cruz as a reference for existing tree conditions and to help satisfy the City of Santa Cruz planning requirements.

Resources

All information within this report is based on site plans as of the date of this report.
Resources are as follows:

- Topographic Map & Existing Conditions by CEA Civil Engineering Associates dated, 3/26/2019
- Civil Plan Set by CEA Civil Engineering Associates dated, 3/26/2019
- Site Plan, First Floor Plan by Daniel Sell, dated *5/9/2019.*
- Landscape Site Planting Plan by Gregory Lewis, dated 5/15/2019.
- Site Visit, Tree Inventory & Condition Evaluation at, 530 Front Street and River Corridor area adjacent to 530 Front Street on May 13, 2019.
- City of Santa Cruz Municipal Code – Chapter 9.56 *Preservation of Heritage Trees* (applicable sections).
- City of Santa Cruz – Chapter 28.08 *Land Use Permits & Findings*, Part 21: Watercourse Development Permit (Applicable code attached to appendix of this report)

OBSERVATIONS

The property is located at 530 Front Street, Santa Cruz. The project limits are bordered on the south by an adjacent commercial building and on the north by Soquel Avenue. The project limit to the west is Front Street, and to the east, the riverbank bike path, **image #1.**

The 38 inventoried trees are located along Front Street (2 street trees), on the existing commercial properties within the project limits (18 trees), or along the riverbank (levee), immediately east of the existing commercial buildings (18 trees). The riverbank trees are classified as riparian trees and populate a portion of the Santa Cruz city river corridor.

Three categories of the 25 “protected” trees were evaluated for the proposed project. Most of the trees were in good or fair condition. One private tree, T49 a liquidambar, was in poor condition due to multiple structural defects, **image #2**.

Two trees are categorized as “street trees”, according to the City of Santa Cruz Municipal code. The tree species in this group includes, red oak (*Quercus rubra*) and Australian willow (*Geijera parvifolia*), **images #3 & 4**.

Five trees are categorized as private “protected” trees, including two Southern Magnolia (*Magnolia grandiflora*) i**mage #5**, and three Liquidambar (*Liquidambar styraciflua*).

Eighteen trees are categorized as “riparian, river corridor” and are under jurisdiction of U.S. Army Corps of Engineers, State of California, and the City of Santa Cruz. Seven tree species (primarily natives), comprise this group including, California buckeye (*Aesculus californica*), Coast Live Oak (*Quercus agrifolia*), Cork oak (*Quercus suber*), Poplar (*Populus sp*), California sycamore (*Platanus racemosa*), Bigleaf maple (*Acer macrophyllum*) and Italian Stone pine (*Pinus pinea*), **images #6-8.**

The remaining group of trees include thirteen, “not protected” trees located on the commercial property at 530 Front Street.

Image #1 - Proposed Mixed Use Project 530 Front Street – Approximate Project Boundaries (in red).

Image #2 – Tree T49, Liquidambar. Contains multiple structural defects including co-dominant trunks of the same diameter with acute angle of attachment and included bark (blue arrow). These defects combine to prevent development of a strong trunk union. One trunk contains two 8-12" diameter limb tear outs with deadwood (red circles), which the tree has not successfully repaired (callused over) creating a structural weakness that is vulnerable to decay.

Image #3 – Tree T30 – Red Oak, Street tree located along Front Street.

Image #4 – Tree T31 – Australian Willow, Street tree located along Front Street.

Image #5 – Tree T32 – Southern Magnolia, One of five "protected" private trees located at 530 Front Street.

Image #6 – Trees T52,T53 & T54 – sycamore, located at the north end of the riverbank area adjacent to 530 Front Street. Tree T52 (circled) on right has significant leaf blight and reduced foliage canopy due to a infestation of the fungal disease anthracnose. Trees T53 and T54 (to left of T52), also infected by anthracnose, but to a lesser degree.

Image #7 – Trees T55 & 56-Coast Live Oak and Tree T57- California Buckeye (circled). View is looking south along bike path.

Image #8 -Tree T59 – Poplar (in foreground), Tree T58 Italian Stone Pine (circled). View is looking north along bike path.

DISCUSSION

Species List

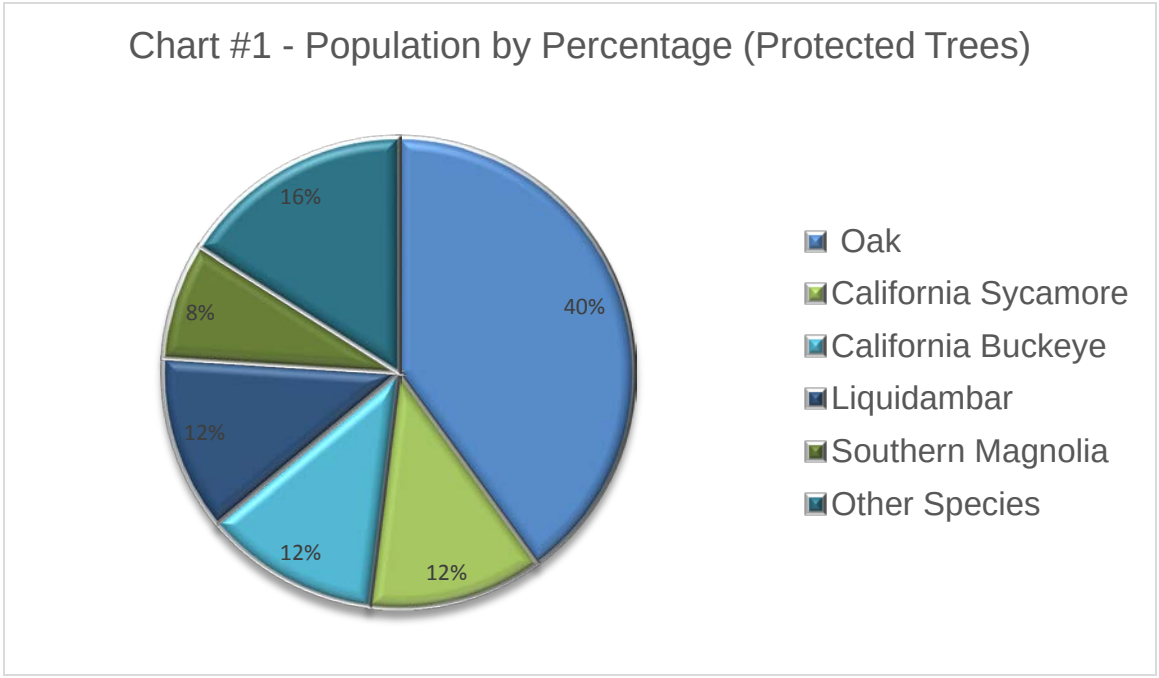
TOTAL SUBJECT TREES: 38 Trees

Protected: 25

5	Oak	(*Quercus sp.*)
3	Coast Live Oak	(*Quercus agrifolia*)
1	Red Oak	(*Quercus rubra*)
1	Cork Oak	(*Quercus suber*)
3	California Sycamore	(*Platanus racemosa*)
3	California Buckeye	(*Aesculus californica*)
3	Liquidambar	(*Liquidambar styraciflua*)
2	Southern Magnolia	(*Magnolia grandiflora*)
1	Australian Willow	(*Geijera parviflora*)
1	Italian Stone Pine	(*Pinus pinea*)
1	Poplar	(*Populus sp.*)
1	Bigleaf Maple	(*Acer macrophyllum)*

Not Protected: 13

5	Liquidambar	(*Liquidambar styraciflua*)
3	Purple-leaf Plum	(*Prunus cerasifera 'Thundercloud'*)
2	Evergreen Pear	(*Pyrus kawakamii*)
1	Tree Aloe	(*Aloe sp.*)
1	Holly Oak	(*Quercus ilex*)
1	Mayten	(*Maytenus boaria*)



Condition Rating

A trees condition is determined by an assessing both the **health** and **structure**, then combining the two factors to reach a *condition rating*. Tree condition is rated as poor, fair or good. The quantity of trees assigned for each category (good, fair or poor), is indicated below:

Tree Condition Rating

- Good - 26
- Fair - 10
- Poor - 2

Suitability for Preservation

A trees suitability for preservation is determined based on its health, structure, age, species characteristics and longevity using a scale of good, fair or poor. The quantity of trees assigned to each category (good, fair or poor), is listed below.

Suitability Rating

- Good - 27
- Fair – 9
- Poor - 2

Tree Evaluation and Recording Methods

Site evaluations were made on 7/13/2018. *The inventory included all trees within the project limits , and five "protected" trees adjacent to, but outside the project limits.* The health and structural **condition** of each tree was assessed and recorded. Based on the trees health and structural condition, each trees **suitability for preservation** was rated and recorded.

The recorded data is included in the *Tree Assessment Chart, Appendix A,* of this report. Tree numbers were plotted on the attached *Tree Protection Plan sheets*. **To correlate the data in the Tree Assessment Chart to the tree's location on the site, refer to the Tree Location Site Plan sheet - Appendix C.**

Tree Protection Zone

The tree protection zone (TPZ), is a defined area within which certain activities are prohibited or restricted to minimize potential injury to designated trees during construction.

The size of the optimal TPZ can be determined by a formula based on: 1) trunk diameter 2) species tolerance to construction impacts, and 3) tree age (Matheny, N. and Clark, J 1998). In some instances, tree drip line is used as the TPZ. Development constraints can also influence the final size of the tree protection zone.

Fencing is installed to delineate the (TPZ), and to protect tree roots, trunk, and scaffold branches from construction equipment. *The fenced protection area may be smaller than the optimal or designated TPZ area in some circumstances.* Tree protection may also involve the armoring of the tree trunk and/or scaffold limbs with barriers to prevent mechanical damage from construction equipment. *See Tree Protection Guidelines & Restrictions* – Appendix E.

Once the TPZ is delineated and fenced (prior to any site work, equipment and materials move in), construction activities are only to be permitted within the TPZ if allowed for and specified by the project arborist.

Where tree protection fencing cannot be used, or as an additional protection from heavy equipment, tree wrap may be used. Wooden slats at least one inch thick are to be bound securely, edge to edge, around the trunk. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the outside of the wooden slats. Major scaffold limbs may require protection as determined by the City arborist or Project arborist. Straw wattle may also be used as a trunk wrap and secured with orange plastic fencing.

Data has been entered in the *Tree Assessment Chart – Appendix A,* which indicates the optimal Tree Protection Zone for each tree.

Additional general tree protection guidelines are included in *Tree Protection Guidelines & Restrictions* – Appendix G.

Critical Root Zone

Critical Root Zone (CRZ) is the area of soil around the trunk of a tree where roots are located that provide critical stability, uptake of water and nutrients required for a tree's survival. The CRZ is the minimum distance from the trunk that trenching that requires root cutting should occur and can be calculated as three to the five times the trunk Diameter at Breast Height (DBH). For example, if a tree is one foot in trunk diameter than the CRZ is three to five feet from the trunk location. We will often average this as four times the trunk diameter or 1ft. DBH = 4ft. CRZ (Smiley, E.T., Fraedrich, B. and Hendrickson, N. 2007).

Root Disturbance Distance

No one can estimate and predict with absolute certainty what distance from a tree, a soil disturbance such as excavation for construction should be, to ensure it will not significantly affect tree stability or health. Or to what degree, (low, moderate or high), a tree might be impacted. There are simply too many variables involved that we cannot see or anticipate. However, three times the D.B.H. (diameter at breast height), is a widely accepted minimum used in the industry for root disturbance, *on one side of the trunk*, and is supported by several research studies including (Smiley, Fraedich & Hendrickson 2002, Bartlett Tree Research Laboratories). This distance is often used during the design and planning phases of a project in order to estimate root loss due to construction activities. This distance is a guideline only and should be increased for trees with significant leans, decay or other structural problems.

The ISA, International Society of Arboriculture- Root Management (2017) publication recommends, "cutting roots at a distance greater than six times the trunk diameter (DBH) minimizes the likelihood of affecting both health and stability. This recommendation is given further direction by the companion publication, A.N.S.I. (*American National Standard*) A300 (Part 8)- 2013 Root Management, when roots are cut in a *non-selective* manner, i.e. in a straight line on one side of a tree. It says, if the cutting is "within six times the trunk diameter (DBH), mitigation shall be recommended". Further, A.N.S.I. recommends the "minimum distance from the trunk for root cutting should be adjusted according to trunk diameter, species tolerance to root loss, tree age, health and site condition".

In general, root cutting that occurs at a distance less than six times the diameter of a tree should be undertaken by hand digging and hand (or Sawzall), root pruning. These methods help mitigate root loss impacts.

Construction Impacts to Subject Trees

The impacts from the project are high for 35 of the 38 trees within the project limits, and due to the high impacts the 35 trees will require removal.

One of the three "protected" trees not highly impacted is in poor condition and its removal is recommended.

Two trees, street trees T30 and T31 will be moderately impacted and can be retained. They will be affected by work within their Critical Root Zone, for sidewalk removal and replacement. Root pruning may be required during new sidewalk installation, but impact levels to the two trees can be kept at moderate levels if tree protection measures outlined on page 14 below, and included on the Tree Protection Plan sheets T1 & T2, are followed.

A new 6" sanitary sewer lateral will be installed within 12 feet of tree T31. The trench required for this lateral will be within 10 feet of tree T31. The Critical Root Zone for this tree is between 4.75' and 7.9' (3-5X trunk diameter), from the trunk. The trench will be just outside the critical root zone and tree protection measures will be specified.

Impact Level

Impact level rates the degree a tree may be impacted by construction activity and is primarily determined by how close the construction procedures occur to the tree. Construction impacts are rated as low, moderate, high. The quantity of trees assigned for each category (low, moderate, high), is indicated below:

Impact Rating

- Low - 0
- Moderate – 3
- High - 35

Construction Phases Affecting Subject Trees –

City Street Trees Along Front Street:

Construction phases that will impact trees along Front Street include:

1. Demolition and removal of existing sidewalk and base rock.
2. Installation of new base rock and concrete sidewalk.
3. Installation of new sanitary sewer lateral.
4. Installation of new building.

Private Trees Within Parking Islands & Landscape Beds at 530 Front Street:

Construction phases that will impact private trees include:

1. Installation of new building.

Private Trees Along Soquel Avenue Sidewalk:

Construction phases that will impact private trees include:

1. Installation of new concrete access stairway to new building.
2. Installation of new building.

Riparian Trees along River Corridor:

Construction phases that will impact trees along the River Corridor include:

1. Installation of fill material, new restaurant patio and other site amenities between the new building and the top of the levee (bike path).
2. Installation of retaining wall at the south end of the project limits along the riverbank (levee).
3. Installation of new building.

Impacts to Subject Trees by Number –

City Street Trees Along Front Street:

1. Demolition and removal of existing sidewalk will impact trees T30 & T31, root zone.
2. Installation of new base rock and concrete sidewalk will impact trees T30 & T31, root zone.
3. Installation of new sewer lateral will impact tree T31, root zone.
4. Installation of new building will impact trees T30 & T31, canopy clearance pruning.

Private Trees Within Parking Islands & Landscape Beds at 530 Front Street:

1. Installation of new building will impact trees T32-T44, entire tree. Trees are within footprint of new building and removal of these trees will be required.

Private Trees Along Soquel Avenue Sidewalk:

1. Installation of new concrete access stairway to new building will impact trees, T45 & T46. Footing is within 1-2' and removal of trees will be required.
2. Installation of new building will impact trees T47 & T48. Building footing will be within 2-3' and removal of trees will be required.

Riparian Trees along River Corridor

1. Installation of fill material between the new building and the top of the levee (bike path) will impact trees T50 – T63, entire tree. Grade will be raised to near or same elevation, as top of levee. Trees are within footprint of grade elevation increase for restaurant patio and other site amenities, and removal of these trees will be required.
2. Installation of retaining wall at the south end of the project limits along the riverbank will impact tree T63 and its removal will be required.

Mitigation Measures for Retained Trees

The trees retained on this project will require the following methods to protect them from the impacts described above and to minimize root or canopy loss during the demolition and construction phases. Some of the demolition and construction work could affect the critical root zones of selected trees.

- Tree Protection Fencing (all retained trees).
- Trunk and scaffold protection wrap (street trees).
- Supervised, selective and non- selective root pruning.
- Supervised, targeted canopy clearance pruning.

Tree protection requirements (mitigation methods), listed above are specified on page 14 below. **These specifications are included on the attached *Tree Protection Plan* sheets T1 & T2 and shall become an element of the final plan set.**

When final civil drawings are submitted, additional tree protections may be specified in an addendum or revision to this report and included on the *Tree Protection Plan* sheets T1 & T2.

Tree Protection Specifications & Recommended Sequence

Street Trees along Front Street, Trees T30 – T31

1. Install tree trunk protection as indicated on Sheet T2.
2. Install tree protection fencing as indicated on Sheet T2.
3. Project Arborist shall be notified 48 hours in advance of trenching for new 6” sanitary sewer lateral occurring 12 feet north of tree T31. May require some hand trenching.
4. Project arborist shall be notified 48 Hours in advance, if temporary removal of tree protection fencing to accomplish demolition and/or installation of sidewalk or utility elements is required.
5. Removal of existing concrete sidewalk within the tree protection zone, shall be accomplished with jack hammer equipment and pieces hand loaded.
6. Excavation, root pruning as necessary and forming for new sidewalk/curb and gutter shall be supervised by Project Arborist.

Replacement Trees

As mitigation for trees removed, replacement trees will be required. The replacement requirements may vary for the category of tree replaced. For this project, the two categories or groups of trees includes the private trees located within the property at 530 Front Street, and the riparian trees along the river corridor. The private trees are regulated by the City of Santa Cruz and the riparian trees are regulated by the U.S. Army Corps of Engineers, State of California and the City of Santa Cruz.

Replacement Trees for Private Trees at 530 Front Street:

- For each tree removed, one replacement tree is required.
- Since the new project will include planting new street trees along Front Street, some replacement trees can be included with this group.
- In some situations, the city will provide 15-gallon trees of an approved street tree species.
- Replacement trees along Front Street shall be London Plane 'Columbia' (*Platanus acerifolia* 'Columbia') or other species as directed by City Forester.
- If new street trees are installed, an approved cast iron grate must be installed (Neenah Foundry #8710) with each tree.
- Applicants may elect to pay an in-lieu fee to the tree trust fund of $150 for off- site mitigation. (Contribution to the Tree Trust Fund are used to purchase street trees, trees for projects, etc.)
- If the $250.00 refundable bond is placed and the tree(s) are replanted, permittee must contact the City Urban Forester, 831-420-5246 after 3 months of establishment to the $250.00 bond returned. Once the permit is issued there is a 10-day appeal period as required by ordinance before the permit becomes effective.
- If no appeal is filed, the permit is valid for 45 days. Aggrieved parties wishing to appeal approval of a tree permit may submit a tree appeal application and $100 fee to the Parks and Recreation Department.
- If you choose to make a monetary donation to the City's Tree Trust Fund, your donation is used to purchase street trees to be planted in the City of Santa Cruz.

Replacement Trees for Riparian Trees along River Corridor:

The river corridor area is regulated by multiple agencies including:

- U.S. Army Corps of Engineers
- California Department of Fish and Wildlife – Lake and Streambed Alteration Program
- City of Santa Cruz – Chapter 28.08 *Land Use Permits & Findings*, Part 21: Watercourse Development Permit (Applicable code attached to appendix of this report)

The City of Santa Cruz requires replacement trees along the river corridor be a native riparian species and the landscape planting plan for this project includes native trees along the river corridor.

After submittal of development documents for this project is completed, additional specific requirements may be generated by the regulating agencies regarding tree removal and replacement.

CONCLUSION

Revised 3/22/2022

- One of the two street trees inventoried, (Australian willow, T31), has failed after the report was completed, and it has been removed.
- A six-story, mixed-use building is proposed at 530 Front Street, Santa Cruz.
- The existing commercial buildings will be demolished and replaced with a new building.
- Thirty-eight trees (25 “protected” & 13 “not protected”), within the project limits were inventoried.
- Except for two street trees and one private tree, all trees within the project limits will be significantly impacted by the project and their removal will be required.
- Most of the trees inventoried were in either good or fair condition.
- The twenty-five “protected” trees are divided into three categories, including *street trees* located along Front street, *private trees* located on the commercial property, and *riparian trees* located along the river corridor.
- Twenty two of the twenty – five “protected” trees within the project limits, will be significantly impacted by the project and are recommended to be removed.
- One of the twenty-five “protected” trees not significantly impacted, liquidambar tree T49, located adjacent to Soquel Avenue, is in poor condition and its removal is recommended.
- ~~Two~~ One of the twenty –five “protected” trees within the project limits, street trees, red oak T30, and Australian willow T31 (dead, removed), located along Front Street, will not be significantly impacted by the project and their retention is recommended.
- Mitigation measures for retained street trees, T30 and T31 are specified and protection methods detailed.
- When final construction plans are submitted, additional protection specifications may be required.
- If tree removals are permitted by approval authority, replacement trees will be required.
- Regulating agencies for this project include, the U.S Army Corps of Engineers, California State Department of Fish and Wildlife and the City of Santa Cruz.

RECOMMENDATIONS

1. Obtain all necessary permits prior to removing or significantly altering any trees on site.

2. Remove all trees significantly impacted by the project.

3. Plant one replacement tree for every “protected” private tree removed, including three new street trees along Front Street. The species planted should be London Plane ‘Columbia’ (*Platanus acerifolia* ‘Columbia’), or other species as directed by City Forester. Install a Neenah Foundry #8710 cast iron grate with each tree.

4. Plant replacement trees for trees removed along the river corridor as directed by the multiple regulating agencies. All replacement trees shall be native riparian species.

5. Ensure that all tree protection requirements for retained trees are executed as specified on Tree Protection Plan sheets T1 & T2.

6. This report is based on preliminary plan sets. Alterations to the site plan may change the evaluations and recommendations contained in this report.

Respectfully submitted,

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Mixed Use Project, 530 Front Street, Santa Cruz

Tree Assessment Chart - Appendix A

Suitability for Preservation Ratings:

Good: Trees in good health and structural condition with potential for longevity on the site

Fair: Trees in fair health and/or with structural defects that may be reduced with treatment procedures

Poor: Trees in poor health and/or with poor structure that cannot be effectively abated with treatment

Retention or Removal Code:

RT: Retain Tree
RI: Remove Due to Construction Impacts

I.M. Impacts Can Be Mitigated With Pre-Construction Treatments
R.C. Remove Due to Condition

Protected Tree City of Santa Cruz Any tree 14 inches or greater in diameter measured at 4.5 feet above grade. Street trees regardless of size.
Riparian Trees (River Corridor) Any tree regardless of size is protected.

Tree #	Species	Trunk Diameter @ 54 inches a.g.	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T30	red oak (*Quercus rubra*)	9"	Yes	28'X12'	Good	Good	Good	10'	Moderate (Root loss-excavation, compaction)	R.T.	Street tree. Some root impacts anticipated from demo/install of new sidewalk.
T31	Australian willow (*Geijera parviflora*)	19"	Yes	32'X25'	~~Good~~	~~Fair~~	Poor 3/22/2022 ~~Good~~	14'	Moderate (Root loss - excavation, compaction, Canopy loss - clearance pruning)	R.T.	Dead and Removed- 3/22/2022 Street tree. 12' from new 6" sanitary sewer lateral. Requires clearance pruning for construction of new building. Some root impacts anticipated from demo/install of new sidewalk. Roots uplifting existing sidewalk.
T32	Southern magnolia (*Magnolia grandiflora*)	14"	Yes	32'X25'	Good	Good	Good	14'	High (Within foot print of new building)	R.I.	
T33	holly oak (*Quercus ilex*)	7"	No	28'x8'	Good	Fair	Good	7'	High (Within foot print of new building)	R.I.	Pruned to columnar habit.

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Mixed Use Project, 530 Front Street, Santa Cruz

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 54 inches a.g.	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T34	purple-leaf plum (*Prunus cerasifera 'Thundercloud'*)	2"	No	9'X5'	Fair	Good	Good	5'	High (Within foot print of new building)	R.I.	
T35	purple-leaf plum	5"	No	15'X12'	Good	Good	Good	6'	High (Within foot print of new building)	R.I.	
T36	Southern magnolia (*Magnolia grandiflora*)	14"	Yes	35'X30'	Good	Good	Good	14'	High (Within foot print of new building)	R.I.	
T37	purple-leaf plum	2"	No	9'X4'	Good	Good	Good	5'	High (Within foot print of new building)	R.I.	
T38	tree aloe (*Aloe sp.*)	6"	No	12'X3'	Good	Good	Good	5'	High (Within foot print of new building)	R.I.	

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Mixed Use Project, 530 Front Street, Santa Cruz

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T39	liquidambar (*Liquidambar styraciflua*)	10"	No	45'X12'	Good	Good	Good	10'	High (Within foot print of new building)	R.I.	
T40	liquidambar	11"	No	45'X10'	Good	Good	Good	10'	High (Within foot print of new building)	R.I.	
T41	liquidambar	12"	No	45'x12'	Good	Good	Good	10'	High (Within foot print of new building)	R.I.	
T42	evergreen pear (*Pyrus kawakamii*)	13"	No	25'x22'	Fair	Good	Good	11'	High (Within foot print of new building)	R.I.	Thin canopy.
T43	evergreen pear	8"	No	22'X12'	Fair	Fair	Fair	10'	High (Within foot print of new building)	R.I.	In raised planter. Unbalanced canopy.
T44	mayten (*Maytenus boaria*)	11"	No	17'x15'	Fair	Good	Fair	10'	High (Within foot print of new building)	R.I.	In raised planter. Water needs not being met. Upper canopy dieback in twigs up to 1" in diameter. Trunk girdled at base. Soil void under trunk.
T45	liquidambar	20"	Yes	75'X35'	Good	Fair	Fair	15'	High (Within 1' of new stairway footing)	R.I.	Co-dominant trunks at 9' above grade. Numerous 4-6" diameter surface roots uplifting sidewalk.

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5/20/2019

Mixed Use Project, 530 Front Street, Santa Cruz

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T46	liquidambar (*Liquidambar styraciflua*)	20"	Yes	65'X20'	Fair	Good	Fair	15'	High (Within 2' of new stairway footing)	R.I.	Multiple co-dominant trunks at 15' above grade. Numerous 4-6" diameter surface roots uplifting sidewalk.
T47	liquidambar	13"	No	65'X15'	Fair	Fair	Fair	10'	High (Within 3' of new building footing)	R.I.	
T48	liquidambar	13"	No	65'X15'	Fair	Fair	Fair	10'	High (Within 2' of new building footing)	R.I.	Co-dominant trunks at 15' above grade.
T49	liquidambar	22"	Yes	70'X25'	Fair	Poor	Poor	16'	Moderate (Within 15' of new retainer)	R.C.	Co-dominant trunks at 15' above grade. 4-6" diameter roots uplifting sidewalk. Two each 8-12" diameter limb tear outs with deadwood.
T50	Aesculus californica (*California buckeye*)	3"	Yes	9'X10'	Good	Good	Good	5'	High (Within 1' of new retaining wall)	R.I.	
T51	bigleaf maple (*Acer macrophyllum*)	7",5"	Yes	25'X18'	Good	Fair	Good	10'	High (Within foot print of restaurant patio)	R.I.	Co-dominant trunks at 3' above grade.

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Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T52	California sycamore (*Platanus racemosa*)	13"	Yes	35'X25'	Poor	Fair	Poor	10'	High (Within foot print of restaurant patio)	R.I.	Significant leaf blight from anthracnose (*Apiognomonia veneta*), infection. Foliage canopy density is reduced (twig and small branch dieback), by 75% due to leaf blight.
T53	California sycamore (*Platanus racemosa*)	20"	Yes	65'X40'	Fair	Good	Fair	15'	High (Within foot print of restaurant patio)	R.I.	Significant leaf blight from anthracnose (*Apiognomonia veneta*), infection. Foliage canopy density is reduced (twig & small branch dieback), by 50% due to leaf blight.
T54	California sycamore	16"	Yes	55'X30'	Fair	Good	Fair	12'	High (Within foot print of restaurant patio)	R.I.	Leaf blight from anthracnose (*Apiognomonia veneta*), infection. Foliage canopy density is reduced (twig dieback), by 25% due to leaf blight.
T55	coast live oak (*Quercus agrifolia*)	6"	Yes	12'x10'	Good	Good	Good	6'	High (Within foot print of restaurant patio)	R.I.	
T56	coast live oak	6"	Yes	10'X10'	Good	Good	Good	6'	High (Within foot print of restaurant patio)	R.I.	
T57	Aesculus californica (*California buckeye*)	7"	Yes	15'x15'	Good	Good	Good	8'	High (Within foot print of levee backfill)	R.I.	

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Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T58	Italian stone pine (*Pinus pinea*)	18"	Yes	20'x25'	Good	Good	Good	14'	High (Within foot print of levee backfill)	R.I.	
T59	poplar (*Populus sp.*)	8",8",5"	Yes	25'x18'	Good	Fair	Fair	10'	High (Within foot print of levee backfill)	R.I.	Multiple co-dominant trunks at grade.
T60	coast live oak (*Quercus agrifolia*)	6"	Yes	10'x8'	Good	Good	Good	6'	High (Within foot print of levee backfill)	R.I.	.
T61	oak (*Quercus sp.*)	4"	Yes	10'X7'	Good	Good	Good	6'	High (Within foot print of levee backfill)	R.I.	
T62	cork oak (*Quercus suber*)	3"	Yes	10'X6'	Good	Good	Good	6'	High (Within foot print of levee backfill)	R.I.	
T63	Aesculus californica (*California buckeye*)	5"	Yes	10'x6'	Good	Good	Good	8'	High (Within foot print of levee backfill)	R.I.	

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Mixed Use Project, 530 Front Street, Santa Cruz

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T64 No Tag	oak (*Quercus sp.*)	1"	Yes	4'X3'	Good	Good	Good	5'	High (Within foot print of levee backfill)	R.I.	
T65 No Tag	oak (*Quercus sp.*)	1"	Yes	4'X3'	Good	Good	Good	5'	High (Within foot print of levee backfill)	R.I.	
T66 No Tag	oak (*Quercus sp.*)	1"	Yes	4'X3'	Good	Good	Good	5'	High (Within foot print of levee backfill)	R.I.	
T67 No Tag	oak (*Quercus sp.*)	1"	Yes	4'X3'	Good	Good	Good	5'	High (Within foot print of levee backfill)	R.I.	

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5/20/2019

APPENDIX B – CRITERIA FOR TREE ASSESSMENT CHART

Following is an explanation of the data used in the tree evaluations. The data is incorporated in the *Tree Assessment Chart, Appendix A.*

Trunk Diameter and Number of Trunks:

Trunk diameter as measured at 4.5 feet above grade. The number of trunks refers to a single or multiple trunked tree. Multiple trunks are measured at 4.5 feet above grade.

Health Ratings:

Good: A healthy, vigorous tree, reasonably free of signs and symptoms of disease

Fair: Moderate vigor, moderate twig and small branch dieback, crown may be thinning and leaf color may be poor

Poor: Tree in severe decline, dieback of scaffold branches and/or trunk, most of foliage from epicormics

Structure Ratings:

Good: No significant structural defects. Growth habit and form typical of the species

Fair: Moderate structural defects that might be mitigated with regular care

Poor: Extensive structural defects that cannot be abated.

Suitability for Preservation Ratings:

Rating factors:

Tree Health: Healthy vigorous trees are more tolerant of construction impacts such as root loss, grading and soil compaction, then are less vigorous specimens.

Structural integrity: Preserved trees should be structurally sound and absent of defects or have defects that can be effectively reduced, especially near structures or high use areas.

Tree Age: Over mature trees have a reduced ability to tolerate construction impacts, generate new tissue and adjust to an altered environment. Young to maturing specimens are better able to respond to change.

Species response: There is a wide variation in the tolerance of individual tree species to construction impacts.

Rating Scale:

Good: Trees in good health and structural condition with potential for longevity on the site

Fair: Trees in fair health and/or with structural defects that may be reduced with treatment procedures.

Poor: Trees in poor health and/or with poor structure that cannot be effectively abated with treatment. Trees can be expected to decline or fail regardless of construction impacts or management . The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

Construction Impacts:

Rating Scale:

High: Development elements proposed that are located within the Tree Protection Zone that would severely impact the health and /or stability of the tree. The tree impacts cannot be mitigated without design changes. The tree may be located within the building footprint.

Moderate: Development elements proposed that are located within the Tree Protection Zone that will impact the health and/or stability of the tree and can be mitigated with tree protection treatments.

Low: Development elements proposed that are located within or near the Tree Protection Zone that will have a minor impact on the health of the tree and can be mitigated with tree protection treatments.

None: Development elements will have no impact on the health and stability of the Tree.

Tree Protection Zone (TPZ):

Defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, particularly during construction or development.

Legend

- Tree Location & Number
- Tree Protection Fencing
- Tree Canopy Extents
- Hand Trenching & Root Pruning
- Remove Tree

See Arborist Report dated 5/20/2019 for additional tree assessment information.

T52 SYCAMORE
DBH 13"

T53 SYCAMORE
DBH 20"

T54 SYCAMORE
DBH 16"

T55 COAST LIVE OAK
DBH 6"

T56 COAST LIVE OAK
DBH 6"

T57 CALIFORNIA BUCKEYE
DBH 7"

T58 ITALIAN STONE PINE
DBH 18"

T59 POPLAR
DBH 8",8",5"

T60 COASTLIVE OAK
DBH 6"

T61 OAK
DBH 4"

T62 OAK
DBH 3"

T63 CALIFORNIA BUCKEYE
DBH 5"

T50 CALIFORNIA BUCKEYE
DBH 32"

T51 BIG LEAF MAPLE
DBH 7",5"

XXXX

T64,T55,T66 & T67 COAST LIVE OAK
DBH 1",1",1",1" (NO TAG)

T36 SOUTHERN MAGNOLIA
DBH 14"

T38 TREE ALOE
DBH 6"

T49 LIQUIDAMBAR
DBH 22"

T48 LIQUIDAMBAR
DBH 13"

T47 LIQUIDAMBAR
13"

T46 LIQUIDAMBAR
DBH 20"

T45 LIQUIDAMBAR
DBH 20"

SOQUEL AVENUE

T39 LIQUIDAMBAR
DBH 10"

T40 LIQUIDAMBAR
DBH 11"

T41 LIQUIDAMBAR
DBH 12"

T37 PURLE-LEAF PLUM
DBH 2"

T35 PURPLE-LEAF PLUM
DBH 5"

T34 PURPLE-LEAF PLUM
DBH 2"

T33 HOLLY OAK
DBH 7"

T42 EVERGREENPEAR
DBH 13"

T32 SOUTHERN MAGNOLIA
DBH 14"

T43 EVERGREEN PEAR
DBH 8"

T44 MAYTEN
DBH 11"

New 6" sanitary sewer lateral.

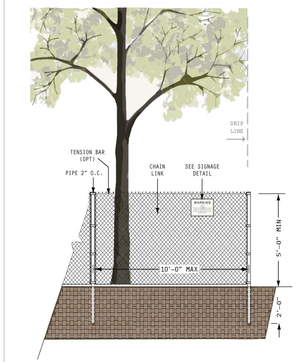
FRONT STREET

Notify Project Arborist 48 hours in advance of trenching for sewer lateral.

~~T31- AUSTRALIAN WILLOW DBH 19"~~ Dead & Removed (3/22/2022)

T30- RED OAK
DBH 9"

0 20 40 Feet



TREE PROTECTION FENCE DETAIL
ELEVATION VIEW

TREE PROTECTION FENCING

Protection fencing shall be installed in areas defined on the attached Tree Protection Plan. These fences must be installed before any demolition or construction equipment is on site. It must be minimum 4 -foot high, orange plastic, welded wire or chain link, secured with a minimum length 6-foot u-channel steel posts, posts driven into the ground on maximum of 6-foot centers. If access into the protected areas becomes necessary, it must be supervised by the Project Arborist. Signage shall be installed on the tree protection fencing. Signage will be installed (8.5 X 11"), on ten-foot centers. An example of the fencing signage is attached to the Tree Protection Plan sheet or arborist report. Once the Tree Protection Zone (TPZ), is delineated and fenced, essentially prior to any site work, equipment and materials move in or landscape construction, activities within the TPZ are only permitted of allowed for and specified by the Project Arborist. The fenced TPZ areas are considered "non – intrusion zones" and should not be altered or breached.

L mrc§ R_pecrcb pmmr nps l§l e _q pcosgpcb during installation of new sidewalk for trees T30 and T31qf_jj `c s lbcp rfc qsncptggglmd Npmhcar ?p`mpggr,

Base Map Provided by: Civil Engineers Associates

Tree Protection Plan

Mixed Use Project -530 Front Street, SantaCruz, 96060

Sheet T1 of 2

K.F. 5/20/2019

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Tree Protection Specifications & Recommended Sequence

Street Trees along Front Street, Trees T30 – T31

1. Install tree trunk protection as indicated on Sheet T2.
2. Install tree protection fencing as indicated on Sheet T2.
3. Project Arborist shall be notified 48 hours in advance of trenching for new 6" sanitary sewer lateral occurring 12 feet north of tree T31. May require some hand trenching.
4. Project arborist shall be notified 48 Hours in advance, if temporary removal of tree protection fencing to accomplish demolition and/or installation of sidewalk or utility elements is required.
5. Removal of existing concrete sidewalk within the tree protection zone, shall be accomplished with jack hammer equipment and pieces hand loaded.
6. Excavation, root pruning as necessary and forming for new sidewalk/curb and gutter shall be supervised by Project Arborist.

PRE-CONSTRUCTION ROOT PRUNING

Excavation shall only occur within the TPZ (Tree Protection Zone), of retained trees, when designated by the Project Arborist. Excavations within (*or outside of the TPZ, as designated*), the Tree Protection Zone, will be executed by hand, in order to preserve roots two (2") inches in diameter or greater during the excavation process. All root pruning will be conducted under supervision of the Project Arborist. These activities will be documented, and a monitoring report will be provided to the City Arborist. Under direction of the Project Arborist, it may be necessary to temporarily remove the Tree Protection Fencing to allow access for root pruning activities.

Trenches for root pruning will be hand dug according to locations of the Tree Protection Plan sheet:

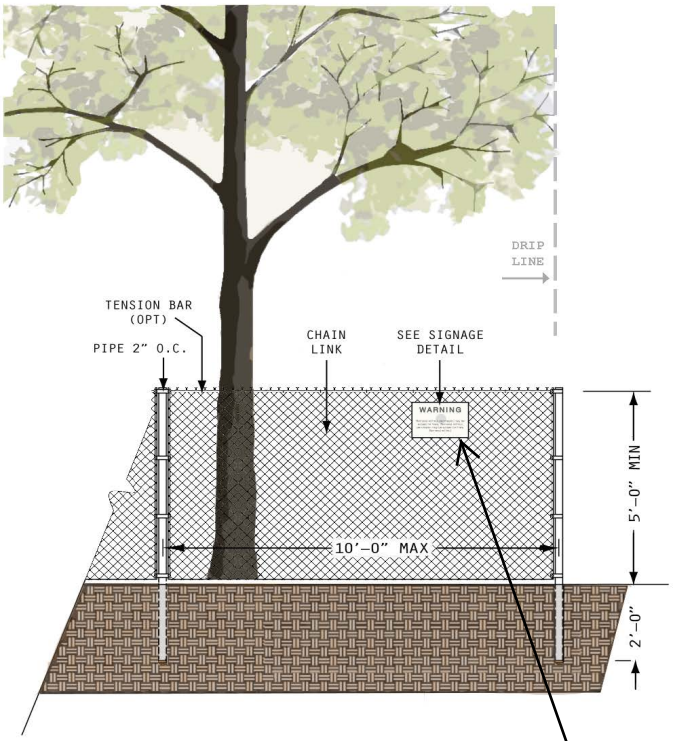
- Trenches will be dug one foot behind staking on tree side of stakes.
- The depth of the trench will equal the depth required for installation of the adjacent element.
- Cleanly prune and roots encountered 2 inches in diameter or smaller. Use loppers, hand saw or Sawzall. A sharp spade may be used for palm roots. The pruned roots should be covered with burlap layers or carpeting and kept moist until the trench is backfilled.
- If roots are encountered 2" in diameter or greater, the Project Arborist shall be notified, and a determination shall be made to prune the root or retain the root by "bridging" the trench and installing the piping under the root.
- Reinstall the Tree Protection Fencing to its original location.

Tree Trunk Protection

All existing street trees will require trunk protection. Protect trees with either option below:

1. Preventing mechanical damage to the main trunk from equipment or hand tools can be accomplished by wrapping the main trunk with straw wattle, to a height of 6 feet. The wattle will prevent damage to the vascular tissues underneath the bark. No nails are used to secure the wattle.

2. A minimum of 4 layers of orange plastic snow fencing, then a layer of 2X4 planks set on end, edge to edge and wrapped a minmum of 4 additional layers of orange plastic snow fencing to a height of 6 feet.



TREE PROTECTION FENCE DETAIL
ELEVATION VIEW

Warning

Tree Protection Zone

Keep Out

NOTICE: PROTECTIVE FENCING IS REQUIRED ON THIS JOB SITE.
REMOVAL OR DAMAGE OF THIS FENCING MAY RESULT IN A FINE

This sign must be prominently displayed. Fencing may not be moved or removed without permission of the Project Arborist.
During demolition and construction, all reasonable steps necessary to prevent damage, or the destruction of protected trees is required. Failure to comply with all precautions may result in a STOP WORK order being issue by the regulating agency.

No Entry without Project Arborist Authorization
Kurt Fouts –Arborist Consultant- 831 – 359 -3607

K.F. 5/20/2019

Sheet T2 of 2

Tree Protection Plan

Mixed Use Project - 530 Fronts Street, Santa Cruz, 95060

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Glossary of Terms

Basal rot: decay of the lower trunk, trunk flare, or buttress roots.

Canker: Localized diseased area on stems, roots and branches. Often sunken and discolored.

Critical Root Zone (CRZ): Area of soil around a tree where a minimum number of roots considered critical to the structural stability or health of the tree are located. CRZ determination is sometimes based on the drip line or a multiple of the DBH, but because root growth can be asymmetric due to site conditions, on-site investigation may be required.

Codominant branches/stems: Forked branches (or trunks), nearly the same size in diameter, arising from a common junction and lacking a normal branch union, may have included bark.

Crown: Upper part of a tree, measured from the lowest branch, including all branches and foliage.

Defect: An imperfection, weakness, or lack of something necessary. In trees defects are injuries, growth patterns, decay, or other conditions that reduce the tree's structural strength.

Diameter at breast height (DBH): Measurement of trunk diameter at 4.5 feet above grade.

Frass: Fecal material and/or wood shavings produced by insects.

Included Bark Attachments (crotches): Branch/limb or limb /trunk, or codominant trunks originating at acute angles from each other. Bark remains between such crotches, preventing the development of axillary wood. The inherent weakness of such attachments increases with time, through the pressure of opposing growth and increasing weight of wood and foliage, often resulting in failure.

Live Crown Ratio (LCR): Ratio of the height of the crown containing live foliage to overall height of the tree.

Scaffold branches: Permanent or structural branches that form the scaffold architecture or structure of a tree.

Suppressed: Trees that have been overtopped and occupy an understory position within a group or grove of trees. Suppressed trees often have poor structure.

Tree Protection Zones (TPZ): Defined area within which certain activities are prohibited of restricted to prevent or minimize potential injury to designated trees, especially during construction or development.

Trunk flare: Transition zone from trunk to roots where the trunk expands into the buttress or structural roots.

This Glossary of Terms was adapted from the *Glossary of Arboricultural Terms* (ISA, 2015)

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Appendix F- TREE PROTECTION GUIDELINES AND RESTRICTIONS

Protecting Trees During Construction:

1) Before the start of site work, equipment or materials move in, clearing, excavation, construction, or other work on the site, every tree to be retained shall be securely fenced- off as delineated in approved plans. Such fences shall remain continuously in place for the duration of the work undertaken in connection with the development.

2) If the proposed development, including any site work, will encroach upon the tree protection zone, special measures shall be utilized, as approved by the project arborist, to allow the roots to obtain necessary oxygen, water, and nutrients.

3) Underground trenching shall avoid the major support and absorbing tree roots of protected trees. If avoidance is impractical, hand excavation undertaken under the supervision of the project arborist may be required. Trenches shall be consolidated to service as many units as possible. Boring/tunneling under roots should be considered as an alternative to trenching.

4) Concrete or asphalt paving shall not be placed over the root zones of protected trees, unless otherwise permitted by the project arborist.

5) Artificial irrigation shall not occur within the root zone of native oaks, unless deemed appropriate on a temporary basis by the project arborist to improve tree vigor or mitigate root loss.

6) Compaction of the soil within the tree protection zone shall be avoided.

7) Any excavation, cutting, or filling of the existing ground surface within the tree protection zone shall be minimized and subject to such conditions as the project arborist may impose. Retaining walls shall likewise be designed, sited, and constructed to minimize their impact on protected trees.

8) Burning or use of equipment with an open flame near or within the tree protection zone shall be avoided. All brush, earth, and other debris shall be removed in a manner that prevents injury to the tree.

9) Oil, gas, chemicals, paints, cement, stucco or other substances that may be harmful to trees shall not be stored or dumped within the tree protection zone of any protected tree, or at any other location on the site from which such substances might enter the tree protection zone of a protected tree.

10) Construction materials shall not be stored within the tree protection zone of a protected tree.

Project Arborist Duties and Inspection Schedule:

The project arborist is the person(s) responsible for carrying out technical tree inspections, assessment of tree health, structure and risk, arborist report preparation, consultation with designers and municipal planners, specifying tree protection measures, monitoring, progress reports and final inspection.
A qualified project arborist (or firm) should be designated and assigned to facilitate and insure tree preservation practices. He/she/they should perform the following inspections:

Inspection of site: Prior to equipment and materials move in, site work, demolition, landscape construction and tree removal: The project arborist will meet with the general contractor, architect / engineer, and owner or their representative to review tree preservation measures, designate tree removals, delineate the location of tree protection fencing, specify equipment access routes and materials storage areas, review the existing condition of trees and provide any necessary recommendations.

Inspection of site: During excavation or any activities that could affect trees: Inspect site during any activity within the Tree Protection Zones of preserved trees and any recommendations implemented. Assess any changes in the health of trees since last inspection.

Final Inspection of Site: Inspection of site following completion of construction. Inspect for tree health and make any necessary recommendations.

Kurt Fouts shall be the Project Arborist for this project. All scheduled inspections shall include a brief Tree Monitoring report, documenting activities and provided to the City Arborist.

Tree Protection Fencing

Tree Protection fencing shall be installed prior to the arrival of construction equipment or materials. Fence shall be comprised of six -foot chain link fence mounted on eight - foot tall, 1 and 7/8-inch diameter galvanized posts, driven 24 inches into the ground and spaced on a minimum of 10-foot centers. Once established, the fence must remain undisturbed and be maintained throughout the construction process until final inspection.

A final inspection by the City Arborist at the end of the project will be required prior to removing any tree protection fencing.

Tree Protection Signs

All sections of fencing should be clearly marked with signs stating that all areas within the fencing are Tree Protection Zones and that disturbance is prohibited.

Monitoring

Any trenching, construction or demolition that is expected to damage or encounter tree roots should be monitored by the project arborist or a qualified ISA Certified Arborist and should be documented.

The site should be evaluated by the project arborist or a qualified ISA Certified Arborist after construction is complete, and any necessary remedial work that needs to be performed should be noted.

Root Pruning

Root pruning shall be supervised by the project arborist. When roots over two inches in diameter are encountered they should be pruned by hand with loppers, handsaw, reciprocating saw, or chain saw rather than left crushed or torn. Roots should be cut beyond sinker roots or outside root branch junctions and be supervised by the project arborist. When completed, exposed roots should be kept moist with burlap or backfilled within one hour.

Tree Work Standards and Qualifications

All tree work, removal, pruning, planting, shall be performed using industry standards of workmanship as established in the Best Management Practices of the International Society of Arboriculture (ISA) and the American National Standards Institute series, *Safety Requirements in Arboriculture Operations* ANSI Z133-2017,

Contractor licensing and insurance coverage shall be verified.

During tree removal and clearance, sections of the Tree Protection Fencing may need to be temporarily dismantled to complete removal and pruning specifications. After each section is completed, the fencing is to be re-installed.

Trees to be removed shall be cut into smaller manageable pieces consistent with safe arboricultural practices, and carefully removed so as not to damage any surrounding trees or structures. The trees shall be cut down as close to grade as possible. Tree removal is to be performed by a qualified contractor with valid City Business/ State Licenses and General Liability and Workman's Compensation insurance.

Development Site Tree Health Care Measures

RECOMMENDED TO PROVIDE OPTIMUM GROWING CONDITIONS, PHYSIOLOGICAL INVIGORATION AND STAMINA, FOR PROTECTION AND RECOVERY FROM CONSTRUCTION IMPACT.

Establish and maintain TPZ fencing, trunk and scaffold limb barriers for protection from mechanical damage, and other tree protection requirements as specified in the arborist report.

Project arborist to specify site-specific soil surface coverings (wood chip mulch or other) for prevention of soil compaction and loss of root aeration capacity.

Soil, water and drainage management is to follow the ISA BMP for "Managing Trees During Construction" and the ANSI Standard A300(Part 2)- 2011 Soil Management (a. Modification, b. 'Fertilization, c. Drainage.)

Fertilizer / soil amendment product(s) amounts and method of application to be specified by certified arborist.

City of Santa Cruz

9.56.040 HERITAGE TREE AND HERITAGE SHRUB DESIGNATION.

Any tree, grove of trees, shrub or group of shrubs, growing on public or private property within the city limits of the city of Santa Cruz which meet(s) the following criteria shall have the “heritage” designation:

(a) Any tree which has a trunk with a circumference of forty-four inches (approximately fourteen inches in diameter or more), measured at fifty-four inches above existing grade;

(b) Any tree, grove of trees, shrub or group of shrubs which have historical significance, including but not limited to those which were/are:

(1) Planted as a commemorative;

(2) Planted during a particularly significant historical era; or

(3) Marking the spot of an historical event.

(c) Any tree, grove of trees, shrub or group of shrubs which have horticultural significance, including but not limited to those which are:

(1) Unusually beautiful or distinctive;

(2) Old (determined by comparing the age of the tree or shrub in question with other trees or shrubs of its species within the city);

(3) Distinctive specimen in size or structure for its species (determined by comparing the tree or shrub to average trees and shrubs of its species within the city);

(4) A rare or unusual species for the Santa Cruz area (to be determined by the number of similar trees of the same species within the city);

(5) Providing a valuable habitat; or

(6) Identified by the city council as having significant arboricultural value to the citizens of the city.

City of Santa Cruz Municipal Code

Chapter 24.08
LAND USE PERMITS AND FINDINGS

Part 21: WATERCOURSE DEVELOPMENT PERMIT

24.08.2100 PURPOSE.

The purpose of this part is to carry out the goals of the City-Wide Creeks and Wetlands Management Plan by applying development standards to lands adjacent to watercourses within the city of Santa Cruz that will enhance and protect watercourse functions and values. This part of the zoning title is also part of the Local Coastal Implementation Plan.

(Ord. 2008-03 § 1 (part), 2008: Ord. 2006-02 § 2 (part), 2006).

24.08.2110 GENERAL PROVISIONS.

1. Applicability. The watercourse development permit requirements of this part apply to every zoning district within the city of Santa Cruz. Refer to the City-Wide Creeks and Wetlands Management Plan to determine the category and development setback areas for each individual watercourse.

2. Definitions.

a. Best Management Practices (BMP). Any program, technology, process, siting criteria, operating method, measure or device which controls, prevents, removes or reduces discharge of pollutants or sediments into bodies of water.

b. Centerline of Creek. The midpoint of a creek channel as determined by taking the midpoint of the bank-full width. Bank-full width is the lateral extent of water surface at the point where the channel is completely filled to a point above which water would spill onto the floodplain.

c. Development. For the purpose of this part the term “development” shall include any work requiring a use, building, grading, or public works permit; the placement of a fence, wall, retaining wall, steps, deck, patio, any accessory structures, or walkway; grading, relocation or removal of stones from the creek channel; bank stabilization or repair structures; and certain landscape changes occurring within the management area.

d. Development Setback Area. The distance from the centerline of the watercourse and the edge of development, which provides a buffer between new development and the riparian corridor and watercourse.

e. Integrated Pest Management (IPM). An approach to pest management that relies primarily on nonchemical means (such as controlling climate, food sources, and building entry points) to prevent and manage pest infestation.

f. Management Area. The area of city permitting authority adjacent to watercourses that includes the riparian corridor, development setback area and extends twenty-five feet beyond the edge of the development setback area.

g. Riparian Corridor. The width of riparian vegetation and/or immediate watercourse influence area, measured outward from the centerline of the watercourse.

h. Vegetation Removal, Major. Clearing of woody and non-woody vegetation canopy cover or herbaceous ground cover that does not meet the definition of minor vegetation removal; removal of any native (indigenous) annual or perennial woody or non-woody species within the riparian area; or pruning, trimming, cutting off, or removal of greater than twenty-five percent of the crown of any tree within a three-year period. Major vegetation removal is allowable under certain limited conditions for prevention of serious fire hazards, prevention of noxious weed infestation (provided, that erosion control measures are implemented and the cleared area is replanted/reestablished and seeded with appropriate native species to reduce the potential for erosion), or for other projects allowed under the watercourse development permit procedures.

i. Vegetation Removal, Minor. Routine trimming of plant material; pruning of tree branches totaling less than twenty-five percent of the crown within a three-year period; removal of nonnative invasive species of brush, annual or perennial vegetation, and herbaceous grass species that out compete or suppress existing native vegetation; provided, that sufficient vegetation remains to prevent erosion (bare soil shall not be left exposed); or the removal of vegetation as authorized by the planning director or his/her designee to alleviate an existing hazardous condition. Minor vegetation removal is permissible only for routine maintenance, increasing interior light and air circulation, improving tree structure, controlling plant disease or decay, promoting longevity of vegetation, habitat enhancement and under certain conditions, for fire safety and prevention. Minor vegetation removal does not include removal of mature eucalyptus trees in known monarch butterfly habitat areas.

j. Watercourse Categories. All watercourses and watercourse reaches included within the City-Wide Creeks and Wetlands Management Plan are categorized as either an “A,” “B” or “C” watercourse. This designation is based on the quality of the riparian corridor associated with each watercourse.

k. Wetland. An area that is: (1) identified as a known wetland or area of ponding water that needs further site-specific review by the City-Wide Creeks and Wetlands Management Plan or (2) identified as part of a review process as inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions (hydrophytes).

l. Wetland (Coastal Zone). An area that is (1) identified as a known wetland or area of ponding that needs further site-specific review as described in the City-Wide Creeks and Wetlands Management Plan or (2) identified as part of a review process as having at least one of the following three attributes: (A) land that supports predominantly hydrophytic cover; (B) soil that is is predominantly hydric; (C) or in the case of wetlands without vegetation or soils, land that is flooded or saturated at some time during years of normal precipitation.

(Ord. 2008-03 § 1 (part), 2008: Ord. 2006-02 § 2 (part), 2006).

City of Santa Cruz - Parks Division

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Approved Street Trees of Santa Cruz

LATIN NAME	COMMON NAME	TREE WIDTH	TREE HEIGHT	DECIDIOUS	EVERGREEN	FLOWERING	FALL COLOR	SPECIAL INFORMATION
Aesculus x carnea 'Briotii'	Red Horsechestnut	40	35	Y	N	Y	Y	
Arbutus 'Marina'	Marina Madrone	20	25	N	Y	Y	N	
Betula jacquemontii	White Birch	10	25	y	N	N	Y	Requires regular watering and care
Cercis canadensis	Eastern Redbud	20	25	Y	N	Y	Y	
Cinnamonium camphora	Camphor	45	50	N	Y	N	N	Wide park strips only
Fraxinus americana 'Autumn Purple'	Autumn Purple Ash	40	50	Y	N	N	Y	
Jacaranda mimosifolia	Jacaranda	35	30	Y	N	Y	Y	Late to leaf out in spring
Lagerstroemia indica 'Natchez' 'Tuscarora' 'Muskogee'	Crepe Myrtle	20	20	Y	N	Y	Y	Available in Light pink, dark pink and white
Laurus 'Saratoga'	Saratoga Grecian Bay	20	20	N	Y	N	N	Medium to slow growth rate, good cooking herb
Maytenus boaria	Mayten Tree	20	20	N	Y	N	N	
Melaleuca linariifolia	Flaxleaf Paperbark	25	25	N	Y	Y	N	
Melaleuca stypheliodes	Prickly Paperbark	35	30	N	Y	Y	N	
Melaleuca quinquenervia	Cajeput Tree	45	30	N	Y	Y	N	
Nyssa sylvatica	Tupelo Gum	40	35	Y	N	N	Y	Excellent fall color
Pistachia chinensis	Chinese Pistache	45	40	Y	N	N	Y	Excellent fall color
Platanus acerifolia 'Columbia' or 'Yarwood'	London Plane	50	40	Y	N	N	Y	'Columbia' has a better branching structure
Pyrus calleryana 'Chanticleer'	Chanticleer Pear	30	20	Y	N	Y	Y	Columner form
Pyrus calleryana 'Aristocrat'	Aristocrat Pear	30	25	Y	N	Y	Y	Open form
Quercus agrifolia	Coast Live Oak	50	50	N	Y	N	N	Requires wide planting strip
Quercus frainetto 'Forest Green'	Hungarian Oak	40	30	Y	N	N	Y	
Quercus lobata	Valley Oak	50	50	Y	N	N	Y	requires wide planting strip
Quercus macrocarpa	Bur or Mossy Cup Oak	50	50	Y	N	N	Y	Interesting Acorns, requires wide planting strip
Quercus rober	English Oak	40	40	Y	N	N	Y	'Fastigiata' is an upright form
Quercus rubra	Red Oak	40	40	Y	N	N	Y	
Quercus suber	Cork Oak	50	50	N	Y	N	N	Interesting bark
Quercus shumardii	Shumard Oak	50	50	Y	N	N	Y	Requires wide planting strip
Quercus virginiana	Southern Live Oak	40	40	N	Y	N	N	Irrigation and Lawn tolerant
Sophora japonica 'Regent'	Regent Scholar Tree	30	30	Y	N	Y	Y	White wisteria-like blossoms
Syagrus romanzoffianum	Queen Palm	45	15	N	Y	N	N	Tropical accent palm
Tilia americana 'Redmond'	American Linden	45	30	Y	N	Y	Y	Excellent smelling blossoms
Tristania laurina 'Elegant'	Yellow Tristania	15	10	N	Y	N	N	'Elegant' has larger leaves and a redish tint
Ulmus parvifolia 'Drake'	Drake Chinese Elm	40	40	Y	N	N	N	Anthracnose resistant
Washingtonia filifera	CA Fan Palm	50	15	N	Y	N	N	Thicker and stouter than the Mexican relative
Washingtonia robusta	Mexican fan Palm	60	15	N	Y	N	N	Tall thin trunk

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided by the appraiser/consultant is assumed to be correct. No responsibility is assumed for matters legal in character nor is any opinion rendered as the quality of any title.
2. The appraiser/consultant can neither guarantee nor be responsible for accuracy of information provided by others.
3. The appraiser/consultant shall not be required to give testimony or to attend court by reason of this appraisal unless subsequent written arrangements are made, including payment of an additional fee for services.
4. Loss or removal of any part of this report invalidates the entire appraisal/evaluation.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person(s) to whom it is addressed without written consent of this appraiser/consultant.
6. This report and the values expressed herein represent the opinion of the appraiser/consultant, and the appraiser/consultant's fee is in no way contingent upon the reporting of a specified value nor upon any finding to be reported.
7. Sketches. Diagrams. Graphs. Photos. Etc., in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys.
8. This report has been made in conformity with acceptable appraisal/evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.
9. When applying any pesticide, fungicide, or herbicide, always follow label instructions.
10. No tree described in this report was climbed, unless otherwise stated. We cannot take responsibility for any defects which could only have been discovered by climbing. A full root collar inspection, consisting of excavating around the tree to uncover the root collar and major buttress roots, was not performed, unless otherwise stated. We cannot take responsibility for any root defects which could only have been discovered by such an inspection.

CONSULTING 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 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. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed.

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 all trees.

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