

# ARBOR ART

Tree Service

**RECOMMENDATIONS FOR THE PRESERVATION OF THE COAST REDWOOD TREE  
LOCATED ON THE FRONTAGE OF 356 OCEAN STREET  
SANTA CRUZ**

Prepared at the Request of:  
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Site visit By:  
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May 31, 2013

Job: 356 Ocean Street Development



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## SANTA CRUZ

### **Background:**

Owen Lawlor, Project Manager for the development of the housing project proposed for 350 and 356 Ocean Street, contacted me regarding the provision of a report concerning the preservation of a Coast Redwood Tree on this site. This report is a requirement of the City Planning Department and will be reviewed by the City Arborist for approval.

Jan Hochhauser, the Architect for this project, provided me with an accurate schematic showing the locations and nature of the proposed structure and landscape improvements in proximity to the subject tree for my review.

### **Assignment:**

This assignment entails the inspection of the subject tree and project site to evaluate its condition and note the existing site features.

This information will be incorporated into a report that will include a review of the proposed development work in proximity to this tree and tree protection strategies during the construction period. The report will also include recommendations regarding care of this tree after the development project has been completed.

### **Summary:**

The Coast Redwood tree located on the front of the property can be preserved as part of the new development and should thrive over the long term if care is taken to reduce damage to its critical root system during the design and construction phases of this project. The primary recommendations of this report are outlined below.

- Care will have to be taken to ensure that appropriate Tree Protection Zone fencing is installed and relocated during three separate phases of construction identified in the text of this report. This fence must not be removed without the consent of the project arborist.
- A section of grade beam foundation that does not exceed 24 inches depth must be utilized in closer proximity to the tree to reduce the likelihood of root loss in this area.
- An initial exploratory trench must be hand dug adjacent to the section of the foundation near the tree to identify any significant roots that will need to be cut cleanly at the outside edge of the excavation line.

Page 1

- The east facing canopy of this tree must be pruned back as it encroaches into the proposed building footprint. This work must be done by a licensed tree contractor under the supervision of a Certified Arborist.
- The depth of excavation required for the paved surface near this tree must not exceed eight inches in order limit root loss as much as possible.
- The site must be regularly inspected during the development project by the project arborist as

specified in the report below.

– Post construction strategies are recommended to improve tree health and recovery from root loss. These recommendations include a supplemental irrigation program, mulching the soil surface and a fertilizer application in the root zone.

**Observations:**

The Coast Redwood (*Sequoia sempervirens*) is located on the frontage of 356 Ocean Street. The tree is growing in an unmaintained area of landscape between the existing house, driveway and street. This tree is set back approximately 10 feet from the street sidewalk.

The Redwood has an 18 inch trunk diameter when measured at 54 inches above grade (DBH measurement) and is approximately 40 feet tall. It has an average canopy spread of 22 feet. This tree exhibits good health and has a good structure.

There is a Monterey Pine (*Pinus radiata*) adjacent to the Redwood Tree that will be removed.



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**Discussion:**

The schematic provided shows that the closest sections of foundation of the new structure will be situated eight feet six inches east and nine feet north of the base of the trunk of this tree (the root collar) respectively. The Tree will be located in an open landscape area that will be surrounded by a permeable paving surface.

The schematic shows that approximately 28 feet of the foundation in closer proximity to the Redwood Tree will consist of pier and grade beam construction. This modified section of the

foundation has been incorporated into the design in order to reduce potential root loss at the time of construction.

The utilization of a grade beam section of foundation should ensure that the relatively close setback distances between the root collar of this tree and the footprint of the proposed building will be adequate regarding the long term health and vitality of this tree. The type of paving materials utilized and the required depth of excavation for the underlying base material are important considerations regarding the preservation of the roots located nearer to the soil surface.

Coast Redwood Trees are noted as being relatively tolerant of root loss through construction activity and as long as the recommendations outlined below are followed this tree should thrive over the long term.

### **Recommendations Regarding the Design of the Building and Landscape:**

The incorporation of the section of modified foundation shown on the schematic must be utilized to reduce root loss. Note that the grade beam must be situated as close to the soil surface as possible in order to preserve the majority of the roots in its proximity. It is my understanding that the grade beam can be set at a minimum depth of 24 inches below grade in this context.

I recommend that the design of the permeable paving surface should entail an excavation for the base material that does not exceed eight inches below the existing surface grade.

### **Recommendations for Tree Preservation During the Demolition and Construction Period:**

#### **Tree Protection Zone Fencing:**

This tree must have a fence installed around all sides of its trunk to define a Tree Protection Zone (TPZ). I have identified three separate phases of work where the profile of the TPZ fence must be changed to maximize the protection of the critical root zone under the canopy of this tree.

Page 3

### **RECOMMENDATIONS FOR THE PRESERVATION OF THE COAST REDWOOD TREE LOCATED ON THE FRONTAGE OF 356 OCEAN STREET - SANTA CRUZ**

- -The TPZ fence must initially be installed around the edge of most of the canopy drip line to protect this tree during the demolition phase of the project before any demolition or grading work commences. I noted that the drip line extends over the existing driveway on the south side of the canopy. The fence on this side will have to parallel the edge of the drive under the canopy.
- -The location of the side of the fence facing the building (the east side and north east sides) must be then changed after the demolition work and before the construction of the building commences. This section of TPZ fencing must be re-located to be set back 36 inches from the foundation footprint which should provide enough space for

construction activities. The balance of the TPZ fence must remain at the canopy drip line until the installation of the surrounding paving proceeds.

- – The west and south side of the TPZ fence must be moved from the edge of the canopy drip line at the time of the paving installation work. This area of fence will be re-located under the canopy drip line 12 inches inside the edge of the paved area.

The TPZ fencing must consist of steel chain link attached to two inch pipe driven 24 inches below natural grade. This fence must not be removed during the demolition and construction phases of the project without the consent of the project arborist. No equipment can enter this zone. Nor can any grading work or trenching for services or irrigation occur within the defined TPZ. Note that the project arborist must also review the landscape plan to determine the location and depth of trenching for irrigation lines in closer proximity to this tree as this work will be performed after building construction phase when the protective fencing has been removed.

#### Exploratory Trenching Adjacent to the Foundation Footprint and Root Pruning Specifications:

An exploratory trench must be hand dug along at the outside edge of the proposed foundation line (including the back of any over excavation line) to the depth of the grade beam to ascertain whether any roots two inches or larger in diameter are present in the excavation. Any roots of that size present within this section must be cut back to the outside edge of the excavation line with a sharp saw. This trench should extend for a distance of 15 feet along the foundation section opposite the tree trunk (the center point of the excavation will be located opposite the center of the trunk and this trench will extend equidistant on either side of it).

Page 4

#### **RECOMMENDATIONS FOR THE PRESERVATION OF THE COAST REDWOOD TREE LOCATED ON THE FRONTAGE OF 356 OCEAN STREET - SANTA CRUZ**

##### Tree Pruning Recommendations:

I noted that the edge of the east facing canopy of this tree will encroach into the footprint of the new structure. This area of the canopy must be pruned back to allow for a 36 inch set back from the footprint of the proposed structure. The tree pruning must be undertaken by a state licensed tree contractor with a Certified Arborist on staff who will supervise the work.

##### Recommendations for the Care of the Coast Redwood after the Construction Period:

The location and depth of trenching for irrigation lines must be routed and undertaken in a manner that will minimize potential root loss.

A sub surface application of Fertilizer utilizing Greenbelt 22 14 14 is recommended to improve

the growth response of this tree after the construction period. This material should be mixed at a rate of four pounds of fertilizer per 100 gallons of water. Utilize 10 gallons of mix per inch DBH between May and September.

The soil surface in the landscape surrounding this tree must be mulched to a depth of three inches improve soil moisture retention and promote soil health. Enriched redwood sawdust or wood chips are recommended for this purpose.

Supplemental irrigation must be applied around this tree for the first two summers (May through September) after the completion of the project to help mitigate root loss and construction impacts on tree health. Irrigation must entail the utilization of a soaker hose or Netafim irrigation tubing to evenly distribute water within the open landscape area near the trunk. Supplemental Irrigation must be applied every three weeks at a rate 180 gallons per application (based on a rate of ten gallons per inch DBH).

**Inspection Schedule:**

The site must be inspected by the project arborist at the six following phases of this project:

- Inspection of the TPZ fence installation before demolition work begins
- Inspection of the re-located TPZ fence installation before the construction phase begins
- Inspection of the exploratory trench adjacent to the foundation footprint
- Inspection and set up of the pruning work required for the east facing canopy of this tree
- Inspection of the re-located TPZ fence before the paving work proceeds
- Final site inspection after the landscape installation has been completed

The project arborist must be available to come to the site at short notice if the need arises.

Page 5

**RECOMMENDATIONS FOR THE PRESERVATION OF THE COAST REDWOOD TREE  
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Please do not hesitate to contact me if you have any questions or concerns.

Respectfully submitted

Nigel Belton

Attachments:

- Statement of Assumptions and Limiting Conditions
- The schematic showing the locations of the tree proposed development work
- A sample of a Tree Protection Zone sign

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