James P. Allen & Associates

Dedicated to the Preservation of Trees

A Limited Peer Review

Coast Redwood Tree Removal Permit Appeal
339 Walnut Avenue, Santa Cruz California

Prepared for
Keelan Franzen, Appellant

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BACKGROUND

The City of Santa Cruz has issued a true removal permit for a mature coast redwood that grows at 339 Walnut Street. The tree removal permit application was submitted by Lewis Tree Service, an agent for Santa Cruz Property Management, identified as the Property Owner on the application.

I was contacted by Ms. Annika Mancini an associate of Mr. Keelan Franzen who has filed an appeal. Ms. Mancini stated but she was referred to me by local arborist due to my 50+-year career as both a practicing and consulting arborist in Santa Cruz. Additionally, she was aware my extensive experience as a union carpenter constructing residential, commercial structures and Public Works facilities. She noted my tenure as a consulting arborist for several Santa Cruz County Public Works Departments, my tree preservation history working at the University of California Santa Cruz. As an independent private consultant, I've worked with countless developers assessing the preservation suitability of trees on development projects and working with the design teams and builders to construct with trees in a sustainable manner. She noted my commitment to objective analysis, professional ethics and the preservation of trees.

ASSIGNMENT/SCOPE OF SERVICES

Ms. Mancini requested that I review background materials, conduct a brief, limited site inspection and document my findings in the form of a peer review. She requested that I review all materials with the intention of exploring possible mitigation measures in order to preserve the redwood tree, protect the adjacent building and sidewalk.

I agreed to perform the defined services and met with Ms. Mancini on December 11, 2023 at 339 Walnut Avenue. We conducted a brief inspection while standing on public property, beyond private property boundaries.

Ms. Mancini I reviewed the following materials which were provided by Ms. Mancini:

- Arborist Reports (2) prepared by Don Cox dated May 30, 2023 and December 9th, 2023
- TREE_PERMIT_APPLICATION_TR23-0089_AND_PICTURES
- HERITAGE_TREE_EVALUATION_TR23-0089
- Observation Letter by Mark Ritson PE RCE 37100, Terra Firma Engineering and Science dated December 4, 2023
- *Structural Assessment of Existing Apartment Building Affected by Redwood Tree, Lynwall Apartments* by Jodi Collins PE RCE 66954 dated July 17, 2023
- Secondary Report by Jodi Collins from December 13th, 2023
- Arborist Report by Monika Buczko, Registered Consulting Arborist #785
- Engineering Report by Cascadia Engineering
- City Council Agenda Report by Parks and Recreation
- September 26 City Council Meeting Agenda Summary

NOTE: This analysis is based on my review of the background materials provided and a limited, visual inspection while standing on the ground beyond private property boundaries.

BRIEF SUMMARY OF FINDINGS/KEY POINTS:

After my brief inspection of the site and review of the documents provided, it is my professional opinion that the removal of the subject coast redwood tree is not only unnecessary but unwarranted. Mitigation of the current damage observed by others is readily achievable. The potential for future damage to the building foundation, sewer line and sidewalk can be diminished through the implementation of preventive measures.

This tree is currently in a good state of health as stated by others and stable. The minor "bowing" of the brick façade could have been constructed in that manner. If this minor "bow" is caused by the force of the tree's root crown, the root crown could have been/can be shaved.

It should be noted that the minor foundation fractures could be present in other areas and consistent with degradation of concrete, a porous material with a finite life. The fractures observed by Ms. Collins have not affected the function nor revenue generation of the building. Ms. Collins noted that the current damage is "minor", meaning this situation can be taken with less urgency. An engineer and arborist should work in conjunction to further form a plan of preserving the tree, while protecting the structures.

PROFESSIONAL COUNTER-OPINIONS

After thorough review of Mr. Cox reports I submit the following challenges to his statements:

"Suitability for preservation: Not suitable due to root crown expansion and damage to property in process. The roots and crown cannot be cut without causing severe physiological distress and destabilization of entire tree"

- *This statement is untrue. Coast redwood is an extremely resilient species and will regrow at almost from and anatomical point of tissue severance with adequate moisture. Tree structure and stability are the points of attention when removing structural roots. Once offending roots are identified, strategic pruning, shaving or removal will diminish negative impacts to tree stability. It is entirely probable that roots that may cause future damage can be successfully pruned and/or deflected through the use of root barriers to avoid future damage.*

"Risk and potential targets: Risk of major damage to foundation and building and garage floor structures within 2-5 years from root and root crown expansion"

- *The statement is subjective and not supported by any scientific data or formulas as to how the estimate was concluded. If this statement were proven to be true, then there are two to five years to develop and implement mitigation measures that prevent damage in a sustainable manner.*

"Excavation in the proximity of the base of the tree is necessary. The required excavation is impossible without causing extreme physiological distress and severe damage to the tree (cutting of structural roots and root collar) and possible destabilization (risk of wind-throw toppling)"

- *Inaccurate. The roots can be selectively pruned when they are identified as potentially causing damage. The tree's root crown could have been/can be shaved to create space for analysis and maintain distance from the building foundation. Roots can be selectively pruned without negative impacts to tree health or stability.*
- *There are numerous mitigation measures that were not identified by Mr. Cox. This is a professional responsibility as defined by Risk Management BMPs and ANSI A-300 Standards. Available mitigation measures will be defined in subsequent sections of this document.*

"TPZ: for purposes of root protection and preservation of structural-root integrity and tree stability the Tree Protection Zone recommendation is 35 feet radius distance from the tree trunk in all directions as a non intrusion, no root cutting zone for tree preservation (ISA BMP Trunk Diameter method 8:1)"

- *This doesn't apply to an existing condition. Roots were likely cut/removed from this tree in 1959 when the building was constructed. This level of root loss exceeds the stated criteria within BMPs. The current level of vigor, growth rates and stability of this tree are living examples that BMPs are only guidelines, not absolutes.*

"Removal is determined as unavoidable due to proximity to the structure. The tree is an obstacle for essential repairs. No reasonable means of mitigation is available that would preserve the tree"

- *Again, this statement is inaccurate. Tree removal is unnecessary if yet to be defined mitigation measures are implemented and regular maintenance is performed. No maintenance has been performed by the property owner which may have avoided or diminished the "damage" currently in place.*

Mr. Cox states the following conclusions in his second report on 12/9/23 after excavation with an air spade: "There is definite contact with the wall of the building by the expanding root crown of the tree, as further evidenced by the appearance of a bowed inward curvature of the brick siding at the points of contact."

- *Mr. Cox makes this statement without any supporting photographic verification, challenging the accuracy and truthfulness of his conclusion.*

"The air-spade excavation was a poorly advised method for any conclusive inspection, due to the limitations of the equipment and the site characteristics. Further exploration would need to be done possibly with Ground Penetrating Radar."

- *This statement invalidates Mr. Cox' conclusion that "there is definite contact with the wall of the building…." and recommends investigation using Ground Penetrating Radar (GPR).*

After review of the Agenda Report submitted by the Parks and Recreation Department Staff, which included reports and recommendations from Jodi Collins and Don Cox, I submit the following thoughts:

"The tree is too close to the foundation to perform this root pruning work to industry standard or to protect the building foundation."

- *The mention of the root management BMPs root management and concerns over lack of stability can be refuted by intentionally examining, identifying roots that may cause damage, protecting structural and load bearing roots, avoiding unnecessary pruning/root loss and shaving/planing the tops of major supporting roots as opposed to total removal.*

"Given the location and growth rate of the tree, the adjacent sidewalk is likely to require periodic replacement at the owner's expense if the tree is to remain."

- *The concern regarding frequent and expensive sidewalk repairs due to root growth can be mitigated by the use of alternative materials in conjunction with proper maintenance. Proper maintenance will ensure that significant damage does not occur. This maintenance is an applicable treatment for all trees that grow within city limits and is not uniquely confined to the growth of this particular tree .*

"Although this sidewalk repair plan is possible, it is costly and may also not be a permanent solution."

- *As mentioned above; the sidewalk damage is significant but repairable. One of the major factors that caused damage was attributed to poor design and construction. The current, uplifted sidewalk was constructed without any form of reinforcement bars (rebar) or wire mesh which lends strength. Additionally, the damaged section could have been attached to the undamaged sections by "dowelling" and poured in a monolithic manner as it was constructed. This would have strengthened the sidewalk surface and provided defense against the current damage.*
- *Alternative materials to a cement sidewalk that are better suited for this area will be listed in this document*

"There is no reasonable mitigation option to save the tree or prevent ongoing damage to the structural integrity of the building."

- *The assertion that there is no possible means to mitigate property damage declines to address the mitigation measures listed below. A trained and knowledgeable arborist can conduct these measures with consideration of all proposed safety issues.*

DISCUSSION OF MITIGATION OPTIONS

Although the growth of the subject tree has resulted in significant sidewalk damage and possibly caused minor structural damage to the foundation, framing of the apartment building, the implementation of mitigation options, listed below would allow the retention of this stately coast redwood tree.

- Root pruning/shaving to protect building foundation and repaired sidewalk
    - *The offending root crown could be or shaved and/or periodically pruned to maintain distance between the tree and building and eliminate damage potentials.*

- Concrete sidewalk alternatives:
    - **Decomposed Granite (DG)** concrete-ized with an edge treatment. Low cost, easily maintained, and ADA compliant

    - **Rubbersidewalks**, **Terrewalks** and **Verlayo** offer high quality walking surfaces that can be placed over tree roots with minimal root pruning. These modular walkway panels are made from 100% recycled materials panels measuring 2' X 2'6". These thin, (less than 2" thick) cross section panels can be laid in multiples of 2-foot widths (4, 6, 8, 10 foot wide) or 2.5' widths (5, 7.5, 10 foot wide). Verlayo are even thinner, rubber sidewalk panels, from 1/2 inch to 1 1/2 inches thick and 2' X 2' dimensions-The base material can be placed around tree roots without root pruning if roots are at least 2 inches below final grade. All products are made from 100% recycled materials, rubber or plastic that are LEED and LID qualified. The panels are reusable which allow root maintenance.

        - https://terrecon.com/products/overview/

        - https://terrecon.com/products/terrewalks/

        - https://terrecon.com/products/rubbersidewalks/

        - https://terrecon.com/products/verlayo/

    - Redesign
        - Swoop sidewalk away from the tree's root crown into the available street space
        - Utilize current Public Works design but simplified, with alternative materials and not concrete
    - Ramp Over/Elevated Sidewalk bridging roots

    - Designing and Installing Efficient Root Control Diversion Barriers
        - These are mechanical barriers constructed of a variety of materials designed to redirect root growth away from structures and sidewalks

- Sustainable Sewer Line Repair:
    - The recent information brought forward by the applicant regarding the necessity for sewer line replacement due to root intrusion bears further investigation. If this is the original sewer line, the materials used during the late 50's would have degraded and warrant replacement/upgrade. If it has been invaded by roots, they can be "roto-rooted" to open the line. The replacement of the sewer line will have reinforced hub caps to prevent root damage.

CONCLUSION

After thorough review of reports and conducting a brief inspection of the tree, there are many remediation measures available to mitigate current and defend against future damage.

The subject coast redwood tree meets Heritage definition per Santa Cruz City Code. It can also be considered a Legacy, living century-old monument that can transcend generations and be passed on to those that follow us. It has measurable economic benefits to the citizens of Santa Cruz for noise attenuation, stormwater capture, carbon sequestration, temperature and pollution control among other things. There are countless immeasurable intrinsic and aesthetic benefits that are irreplaceable in the lifetimes of our children and grandchildren.

Professional valuation standards to determine the monetary value of trees are defined within the Guide for Plant Appraisal. The appraised value using the Trunk Formula Method is $271, 876.

It is my professional opinion that this tree can be preserved while protecting adjacent sidewalk and building elements.

Please contact me with any questions regarding this limited peer review.

Respectfully submitted,

James P. Allen

James P. Allen

- American Society of Arboriculture
  - Registered Consulting Arborist #390
- Society of American Foresters
  - Certified Urban Forester #120
- International Society of Arboriculture
  - Board Certified Master Arborist #625B
- International Society of Arboriculture
  - Qualified Tree Risk Assessor
- Santa Cruz City Business License Holder