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ARBORIST REPORT AND TREE PROTECTION PLAN

CA-7225

9300 Mill Station Rd.
Sebastopol, CA

October 2023





Arborist Report & Tree Protection Plan for
9300 Mill Station Rd. (CA-7225)
Sebastopol, CA

Prepared for:

Assurance Development
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October 2023

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Summary

In October of 2023, Davey Resource Group (DRG) was contracted by Ms. Melissa Keith of Assurance Development to conduct a tree inventory and develop a tree protection plan for the trees in the area of impact from installation of a cell phone tower, road widening, and a turnaround access road at 9300 Mill Station Rd. in Sebastopol, California. The request was made to assess the current condition of the trees and establish a tree protection plan based on the findings.

On October 10 of 2023, an International Society of Arboriculture (ISA) Certified Arborist (Lori Murphy, #WE-7844-BM) from Davey Resource Group conducted the evaluation of thirty (30) trees that may be impacted by development. The trees were assessed by their location, size, health, form, and structure. This data was used to determine if the trees fall under the definition of protected or regulated as defined by the County of Sonoma, and then used to calculate the critical root zone (CRZ) and structural root zone (SRZ) of the trees. These calculations will help guide construction options and mitigate potential impacts to the trees.

The trees were located at 9300 Mill Station Rd. in Sebastopol, CA. The trees were assessed if they were 4-inches or greater (diameter) and had any part of the drip line overhanging the proposed project site. The majority of trees on site were orchard apple trees. A stand of native arroyo willows was present near the planned fire truck turnaround. One (1) assessed tree is considered a protected native oak tree (valley oak trees with a diameter at breast height (dbh) greater than 20 inches, or multiple trees having a cumulative dbh greater than 60 inches). Under the current plans, the seventeen (17) assessed orchard trees and approximately twelve (12) stems within the willow group are within the project limits of disturbance and will need to be removed to accommodate the proposed development. The valley oak will be retained and fencing is required to be installed along the Tree Protection Zone (TPZ), as described in the Conclusions and Recommendations. Any excavation within the TPZ of the valley oak tree should be done under arborist supervision and may require adjustment if substantial roots are encountered. Pruning for clearance and/or to prevent damage to lower branches is recommended for the oak tree.

Introduction

Background

Assurance Development and the property owners are planning a construction project on an undeveloped section of at 9300 Mill Station Rd. (APN #13601200360000) in Sebastopol, CA. The plans include the construction of one cell phone tower, widening a portion of the access road, and adding a fire truck turnaround to the access road. The most recent design plans were used to evaluate impacts to trees on site and on adjacent parcels (if applicable).

Assignment

The arborist visually assessed any tree (4-inches or greater in diameter) on the property or adjacent properties with drip lines overhanging the property 4-inches in diameter. Following data collection, specific tree preservation plan elements were calculated that identified each tree's critical and structural root zones (CRZ and SRZ) to better ensure survivability during the planned development.

The applicant and arborist shall use the criteria set forth in the County of Sonoma Tree Ordinance Ch. 26 [Article 67](#). As such, a protected tree is defined as any single valley oak tree measuring twenty (20) inches or more in diameter at breast height (DBH). Removal of protected trees requires a permit. Development projects are required to be designed to minimize the destruction of protected trees as stated in the Tree Protection Ordinance [Ch. 26, Section 88-010 \(m\)](#).

Limits of the Assignment

Many factors can limit specific and accurate data when performing evaluations of trees, their conditions, and potential for failure or response to site disturbances. No soil or tissue testing was performed. All observations were made from the ground on October 10 of 2023, and no soil excavation to expose roots was performed. The willow trees were identified and trunk diameters estimated as access to these trees was not possible. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcome for the evaluated trees in the future. No physical

inspection of the upper canopy, sounding, resistance drilling, or other technologies were used in the evaluation of the trees.

Purpose and Use of Report

The purpose of this report is to provide a summary inventory of all trees within the project area, including an assessment of the current condition and health, as well as providing a tree protection plan for all evaluated trees/canopies that may be impacted by construction plans. The findings in this report can be used to make informed decisions on design planning and be used to guide long-term care of the trees. This report and detailed tree protection plan can also be submitted to the County of Sonoma for permitting purposes and/or design review.

Observations

Methods

A visual inspection was used to develop the findings, conclusions, and recommendations found in this report. Data collection included measuring the diameter (in inches) of trees at approximately 54 inches above grade (DBH), height estimation, a visual assessment of tree condition, structure, and health, and a photographic record. Multi-stem trees had all trunks summed and averaged. A rating percentage (0-100%) was assigned for each tree's health, structure, and form, and the lowest percentage was used as the overall tree condition. Condition ratings were based on but not limited to: (1) the condition and environment of the tree's root crown; (2) the condition of the trunk, including decay, injury, callusing or presence of fungus; (3) the condition of the limbs, including strength of crotches, amount of dead wood, hollow areas, and whether there was excessive weight borne by them; (4) the condition and growth rate history of the twigs, including pest damage and diseases; (5) the leaf appearance, including abnormal size and density as well as pest and disease damage.

Using an average of the above factors together with the arborist's best judgment, the health, structure, and form of each tree was rated using the following scale:

- **Excellent (90%-100%):** High vigor and near perfect health with little or no twig dieback, discoloration, or defoliation. Nearly ideal and free of structural defects. Nearly ideal form for the species and generally symmetrical.
- **Good (70%-89%):** Vigor is normal for the species and no significant damage due disease or pests. Twig dieback, discoloration, or defoliation is minor. Well developed structure with minor defects that can be corrected easily. Minor asymmetries/deviations from species norm. Function and aesthetics are not compromised.
- **Fair (50%-69%):** Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the canopy. A single structural defect of a significant nature or multiple moderate defects. Structural defects are not practical to correct or would require multiple treatments over several years. Major asymmetries/deviations from species norm. Function and aesthetics are compromised.
- **Poor (30%-49%):** Unhealthy and declining in appearance. Poor vigor and low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig or branch dieback. A single serious structural defect or multiple significant defects. Observed structural problems cannot be corrected. Failure may occur at any time. Largely asymmetrical or abnormal form. Form detracts from aesthetics or intended use to a significant degree.
- **Very Poor (1%-29%):** Poor vigor and appears to be dying. Little live foliage. Single or multiple severe structural defects. Visually unappealing and provides little or no function in the landscape.

- **Dead (0%)**

A preservation priority was assigned to each tree on a scale of 1 to 4: a rating of 1 representing the highest priority for protection due to excellent overall condition, unique specimen, or high value tree; a rating of 2 for a tree in good to excellent condition and worthy of protection but not uniquely value; a rating of 3 for a fair condition tree that can be easily replaced; and a rating of 4 for trees in poor to critical condition that should be removed under most circumstances.

Site Observations

The project site is located in Sebastopol, Sonoma County at 9300 Mill Station Rd. A residence sits at the western end of a long dirt driveway. An apple orchard is on the eastern side of the property. This section, the planned project site, is level with bare soil, dry grasses and forbs in addition to the apple trees. A dense, crowded stand of naturally occurring arroyo willows grows on the north side of the orchard and is surrounded by dense blackberry canes. A single valley oak stands at the edge of the driveway between the proposed fire truck turnaround and the entrance to the cell tower site.

Tree Observations

Trees were assessed within the planned project area comprising three (3) distinct species. One (1) tree was a native oak species, one species was a native willow, and the remaining trees were non-native edible apple species. The most common species were the orchard apples (*Malus domestica*, 17 trees), followed by arroyo willows (*Salix lasiolepis*, approximately 12), and one valley oak (*Quercus lobata*). The valley oak was in good condition, and the willow and apple trees were in fair to poor condition. Tree diameters of the orchard apple trees ranged from 5 inches to 12 inches with an average of 8.9 inches. Tree diameters of the willow trees ranged from 4 inches to 7 inches with an average of 6 inches. Tree heights of the apples and willows were twenty-five feet or less. Only one (1) tree, the valley oak, is considered a protected tree.

Tree photographs can be found in Appendix A and a complete Tree Inventory and Condition Assessment can be found in Appendix B.

Tree Protection Zones and Root Zones

The Tree Protection Zone (TPZ) is often considered as the area around a tree within the drip line radius, determined by measuring the length of the longest horizontal branch from the center of the trunk to the outermost point of the dripline. For this project, DRG recommends a conservative root zone area calculation standard as follows:

The trunk diameters of the surveyed trees were used to illustrate the potential critical root zone (CRZ) of each tree. The CRZ is considered the maximum possible radius of the root zone of a tree. The CRZ was calculated by multiplying the DBH by 1 foot. For instance, tree #1 has a DBH of 28.3 inches and a calculated CRZ of 28.3 feet (28.3 x 1). This distance may extend beyond the tree canopy drip line and is normally considered the tree protection zone (TPZ). Tree protection fencing is commonly installed at the drip line or the edge of CRZ to prevent soil compaction and damage to the root zone or canopy.

Like the CRZ, the structural root zone (SRZ) was also calculated using a commonly accepted method established by Dr. Kim Coder in *Construction Damage Assessments: Trees and Sites*.¹ In this method, the root plate size (i.e. pedestal roots, zone of rapid taper area, and roots under compression) and limit of disruption based upon tree DBH is considered as a minimum distance that any disruption should occur during construction. Significant risk of catastrophic tree failure exists if structural roots within this given radius are destroyed or severely damaged. The SRZ is the area where minimal or no disturbance should occur without arborist supervision. Both the CRZ and SRZ for the surveyed trees are listed in Appendix B, Table 1.

¹ Dr. Kim D. Coder, University of Georgia June 1996

Conclusion and Recommendations

The design plans show the seventeen (17) assessed apple trees, and approximately twelve (12) willow stems within the stand, within the limits of disturbance of the planned project and removal will be necessary. The access road will be widened up to the dripline of the valley oak tree and as site upgrades are occurring near the Tree Protection Zone, tree protection measures will be necessary to preserve this tree. Impacts to the oak tree are expected to be low to none. Tree protection fencing should be installed at or beyond the dripline of the oak and the remaining willow and apple trees adjacent to the project area. Any excavation within the TPZ of the oak tree should be done by hand and supervised by a Certified Arborist. Pruning of lower branches for clearance will be necessary to provide equipment access. Any necessary pruning shall follow ANSI A300 standards, with no more than 20% of the live canopy removed.

Additional tree preservation guidelines are as follows:

- No intrusion whatsoever may occur to the SRZ of any tree to be retained.
- Table 2 below provides the CRZ, SRZ, and TPZ of the trees that may be impacted by the planned construction.
- Due to the sensitive nature of working within the TPZ of trees to be retained, any excavation or grading **within the TPZ** of protected trees must be performed with hand tools and supervised by a Certified Arborist to monitor and document any tree impacts. Any significant roots (≥ 2 inches in diameter) approved for pruning should be cut cleanly and photo documented. If substantial/structural roots are encountered and not recommended for pruning, the on-site Arborist may require tree removal if design plans cannot be changed.
- Applying a 4 inch layer of wood chip mulch to the TPZ (listed in Table 2) of trees in the work area, particularly if the entire TPZ cannot be fenced due to construction, is a best practice that is highly recommended. **This includes the section of driveway beneath the canopy of the oak tree as heavy equipment can compact the soil within the root zone. Mulch should be topped with plywood to distribute the weight of heavy equipment on the driveway under the oak canopy during development.**
- Tree Protection Zone (TPZ) fencing shall be a minimum of 6 feet high, constructed of chain link or polyethylene laminar safety fencing or similar material subject to approval by an ISA Certified Arborist, and stabilized using pier blocks. Avoid posts or stakes which may damage the root zone.
- "Tree Protection Area - Keep Out" or similar signs shall accompany the TPZ fencing every 15 feet and include contact information to report violations.
- TPZ fencing **shall** remain in place until such time as the Planning staff or City Arborist is assured the trees are no longer in danger of construction damage. If the fencing is removed for any amount of time during the construction process, the project arborist and/or City Arborist must be on site to ensure that no damage to the tree(s) occurs.
- Parking of vehicles and/or storage or dumping of equipment, debris, or materials, including solvents, paints, oil, gasoline, chemicals, or other toxic substances that may be harmful to trees shall occur within the drip line of any tree, or any other location on the site from which such substances might enter the drip line of trees which are designated to remain on the project site is prohibited during all phases of construction, including site preparation.
- If any irrigation system is damaged by the excavation, it should be inspected and repaired by a qualified irrigation technician.
- Mycorrhizal treatment can increase nutrient accessibility and compensate for root loss and is a good practice the property owner may consider if significant roots are encountered and must be cut.
- After construction is complete, the retained trees should be monitored for one year and a Certified Arborist should be contacted to inspect if any lean, limb die-back, leaf drop, or foliage discoloration develops.
- All heavy equipment should remain outside of the TPZs, and trenching within the TPZ of any Heritage or protected tree should be performed with hand tools and supervised by a Certified Arborist to monitor and document impacts.

- Any roots exposed during excavation must be kept moist if left uncovered for over 12 hours. Covering with wet burlap or similar material and regularly inspecting twice/day to ensure roots remain damp is recommended.
- Ensure the area within the TPZ receives the **weekly watering** equivalent to the amount of average natural rainfall for the specific development site. When the amount of natural rainfall received is less than the historical average, manual watering methods should be employed. The on-site Certified Arborist can make the determination when additional manual watering is necessary.
- All excavated areas within a TPZ must be backfilled as soon as possible with clean, native topsoil.
- Contractor is responsible for compliance with Tree Protection Plan. Failure to fully comply with the restrictions, conditions, and mitigation measures of the Tree Protection Plan, may result in the issuance of a stop-work order, and may also result in the imposition of fines, penalties, or both.

Appendix A – Site Map



Aerial view of site and tree locations.

Appendix B – Tree Data Tables

Table 1. Tree Inventory

Tree #	DBH (in)	Common Name	Species	Height (ft)	Canopy Radius (ft)	CRZ (Radius in ft)	SRZ (Radius in ft)	TPZ (Radius in ft)
1	28.3	Valley oak	Quercus lobata	55	30	28.5	9	30
2	up to 7"	Arroyo willow	Salix lasiolepis	25	varies	varies	~2.5	varies
3	up to 12"	Apple	Malus domestica	15	~6	~6	up to 4	6

Table 2. Tree Condition

Tree #	DBH (in)	Stems	Common Name	Species	Health (%)	Structure (%)	Form (%)	Overall Condition
1	28.3	1	Valley oak	Quercus lobata	80	80	80	Good
2	up to 7"	~12	Arroyo willow	Salix lasiolepis	60	60	60	Fair
3	up to 12"	17	Apple	Malus domestica	50	50	60	Fair to Poor

Table 3. Preservation Priority, Protected/Removal Status, and Notes

Tree #	DBH (in, sum)	Stems	Common Name	Preservation Priority	Protected Tree (Y/N)	Proposed Removal (Y/N)	Notes
1	28.3	1	Valley oak	1	Y	N	Soil disked 6' from base within orchard. Driveway under canopy is compacted.
2	up to 7"	~12	Arroyo willow	2	N	Y	Approx. 12 stems at eastern edge of stand are proposed for removal. One stem leans at 45°, several have crown dieback. The majority of stems will be retained.
3	up to 12"	17	Apple	3	N	Y	Several trees have decay cavities, some have crown dieback.

Appendix C – Tree Photographs (*additional photos available upon request)



Photo 1. Tree #1 is a valley oak tree in overall good condition.



Photo 2. Oak tree will need clearance pruning over the driveway.



Photo 3. Stand of arroyo willows surrounded by blackberries. Apple tree in foreground.



Photo 4. Edge of willow stand. Leaning willow, planned for removal has a trunk DBH of 7".



Photo 5. Approximately 12 willow stems are planned for removal for site development.



Photo 6. Eastern view of willows (center) and row of apple trees next to driveway (right).



Photo 7. Apple trees line the driveway.



Photo 8. Western view of driveway.