Arborist Report

1495 San Antonio Road
Marin County, CA

PREPARED FOR
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HORT SCIENCE
BARTLETT CONSULTING
A Division of The A. Bartlett Tree Expert Company

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Executive Summary

Cindy Mercer is planning improvements to the subject property located in Marin County. The site is surrounded by oak woodland and currently consists of a two-story house, pool, shed, and water and propane tanks with associated paving and landscaping. Improvements depicted in the site plans include construction of a new primary residence and landscape walls, grading for permeable walkways and roadways installation, dirt road resurfacing, relocation of water and propane tanks, and removal of the existing pool. HortScience | Bartlett Consulting, Divisions of The F. A. Bartlett Tree Expert Company, was asked to prepare an **Arborist Report** for trees within the project area as required by Marin County.

One hundred and twenty-five (125) trees were assessed, representing eight species. In total, 21% of trees were in good condition, 46% were in fair condition, and 33% were in poor condition. The species composition was typical of Northern California oak woodlands. Native species assessed included bigleaf maple, California bay, coast live oak, black oak, and valley oak.

According to Marin County's Native Tree Preservation and Protection Ordinance Number 3342:

- Native oaks such as coast live oak, valley oak, and black oak are designated *Protected* when they are 6" in trunk diameter or larger and *Heritage* when 18" or larger, as measured 54" above grade.
- California bays are designated *Protected* when 10" in trunk diameter or larger and *Heritage* when 30" or larger.
- Tree Removal Permits are required for the removal of more than a total of five *Protected* or *Heritage* trees for parcel improvement within any 12 month period.
- **Exemptions to the prohibition of protected tree removal are made if the Certified Arborist determines the tree is in poor health, has severe structural defects, poses a safety hazard, or is infected by a pathogen or attacked by insects that threaten surrounding trees.**
- As a standard practice to maintain consistency with the Marin Countywide Plan, replacement of each removed *Protected* or *Heritage* tree may be required. In the event on-site tree planting is not feasible, in-lieu payments in the amount of $500.000 per replacement tree may be required.

Based on the definitions above, 34 trees are considered *Heritage* and 40 trees are *Protected*. Eighteen (18) additional trees would have been considered *Heritage* and 21 trees would have been *Protected*, but they were in poor condition, had extensive decay, and/or exhibited severe structural defects that posed safety hazards.

Overall, the project would:

- Remove 41 trees
    - This total includes five *Heritage* trees and 10 *Protected* trees
- Potentially preserve 19 trees
    - This total includes five *Heritage* trees and four *Protected* trees
- Preserve 65 trees
    - This total includes 24 *Heritage* trees and 26 *Protected* trees

Proposed site improvements will necessitate the removal of most trees within the interior of the work area for grading, building and retention pond construction, and roadway and walkway installation. The greatest opportunity for tree preservation is outside the work area and along the

perimeter of the site.

Adherence to the **Tree Preservation Guidelines** will increase the likelihood of trees planned for preservation surviving construction.

Referencing Marin County's Native Tree Preservation and Protection Ordinance Number 3342: As a standard practice to maintain consistency with the Marin Countywide Plan, replacement of each removed *Protected* or *Heritage* tree within the Building Envelope area may be required. In the event on-site tree planting is not feasible, in-lieu payments in the amount of $500.000 per replacement tree may be required.

Based on the requirements above and anticipated site conditions following construction, I recommend re-planting trees at a 1:1 to 2:1 replacement ratio (14 to 28 replacement trees) for the removal of a total of 14 *Protected* or *Heritage* trees within the Building Envelope Boundary, depending on tree spacing and species selection.

Introduction and Overview

Cindy Mercer is planning improvements to the subject property located in Marin County. The site is surrounded by oak woodland and currently consists of a two-story house, pool, shed, and water and propane tanks with associated paving and landscaping. Improvements depicted in the site plans include construction of a new primary residence and landscape walls, grading for permeable walkways and roadways, dirt road resurfacing, and relocation of water and propane tanks. The project limits are depicted in the site plan (Holey Associates, 12-4-2018) provided by the client.

This report provides the following information:

1. An assessment of the health and structural condition of the trees within and adjacent to the construction areas based on a visual inspection from the ground.
2. An evaluation of the anticipated impacts to trees and recommendations for preservation and removal based on construction plans and tree suitability for preservation.
3. A calculation of the number of replacement trees that may be required by the County and recommendations for mitigation planting.
4. Guidelines for tree preservation during the design, construction, and maintenance phases of development.

Tree Assessment Methods

Trees were assessed on November 8, 9, 14 and 15, 2017, September 14, 2018, December 7, 2019, and March 5, 2020. The assessment procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with an identifying number and recording its location on a map; off-site trees were not tagged;
3. Measuring the trunk diameter at a point 54" above grade.
4. Evaluating the health and structural condition using a scale of 1 – 5 based on a visual inspection from the ground:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptom of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.

3 - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
2 - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
1 - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.

5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.
   - ***High***: Trees with good health and structural stability that have the potential for longevity at the site.
   - ***Moderate***: Trees with somewhat declining health and/or structural defects that can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.
   - ***Low***: Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes and generally are unsuited for use areas.

Description of Trees

One hundred and twenty-five (125) trees were assessed, representing eight species (Table 1). In total, 21% of trees were in good condition, 46% were in fair condition, and 33% were in poor condition. The species composition was typical of Northern California oak woodlands. Native species assessed included bigleaf maple, California bay, coast live oak, black oak, and valley oak. Descriptions of each tree are provided in the ***Tree Assessment,*** and approximate locations are plotted on the ***Tree Inventory Map*** (see Exhibits).

Table 1. Condition ratings and frequency of occurrence of trees
1495 San Antonio Road, Marin County

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Bigleaf maple	*Acer macrophyllum*	1	-	-	**1**
Myoporum	*Myoporum laetum*	1	-	-	**1**
European olive	Olea european	-	1	2	**3**
Fruiting plum	Prunus domestica	-	-	1	**1**
Coast live oak	*Quercus agrifolia*	17	20	6	**43**
Black oak	*Quercus kelloggii*	8	8	2	**18**
Valley oak	*Quercus lobata*	-	1	2	**3**
California bay	*Umbellularia californica*	14	28	13	**55**
Total		**41**	**58**	**26**	**125**

The most common species assessed was California bay (55 trees, 44% of the population). The bays were in good (13 trees) to fair (28 trees) condition with 14 trees in poor condition. Trunk diameters ranged from 8 to 41" with an average of 21". The bays were growing in a densely vegetated and minimally managed forest surrounding the property. As a result, competition for light and other resources led to the suppression of many bays– growth was stunted and many developed asymmetric canopies with low live crown ratios (Photo 1). Live crown ratio is a percentage of total tree height that supports live foliage and is an indicator of tree vigor.

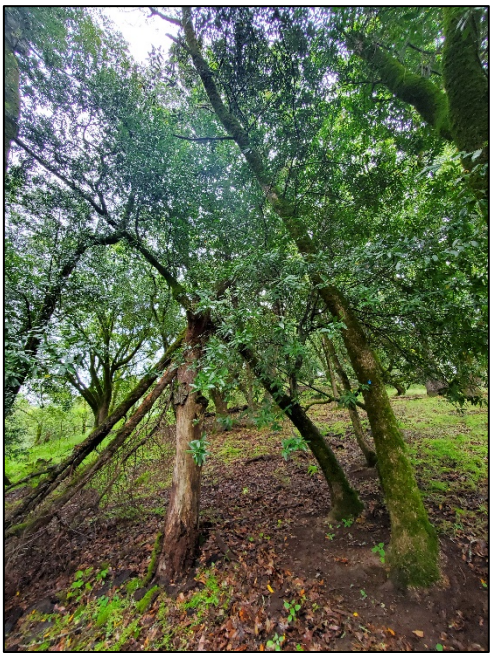

Photo 1 – California bay #110 was growing in the dense oak woodland forest surrounding the property. The tree was suppressed and developed a significant lean as a result of dense growing conditions.

Forty-three (43) coast live oaks were included in the assessment (34% of the population). The trees were in fair (20 trees) to good condition (six trees) with 17 trees in poor condition. The coast live oaks were among the largest trees onsite; trunk diameters ranged from 7 to 52" with an average of 26". Many of the coast live oaks exhibited signs of internal decay such as bark abnormalities, the presence of fruiting bodies, and canopy dieback. In addition, a few coast live oaks were fused at the base with California bay trees. An example of such a pair is coast live oak #66 and California bay #56 (Photo 2).

Photo 2 – Coast live oak #66 and California bay #56 were fused at their bases.

Eighteen (18) black oaks were assessed (14% of the population). The black oaks were in fair (8 trees) to poor condition (8 trees) with two trees in good condition. Trunk diameters ranged from 11 to 30" with an average of 21". The majority of the black oaks were also suppressed as a result of dense growing conditions (Photo 3). For example, black oak #64 had a low live crown ratio, a trunk that bowed north, and moderate lower canopy dieback due to a lack of available sunlight.

The remaining five species were represented by three or fewer individuals each. These trees included:

- Bigleaf maple #100 was in poor condition. The 23" tree was suppressed by neighboring trees, had a 5' long severely decaying trunk wound, and had signs of past branch failures in its canopy.
- Myoporum #79 was growing outside the project area along the existing driveway. The multistem tree was in poor condition with a severe thrips (a common insect pest) infestation that disfigured the tree's foliage.
- Three European olives were growing along the driveway outside the existing residence (Photo 4, next page). Olive #70 was in fair condition with decay in its base; whereas, olives #69 and 71 were young, vigorous trees in good condition.
- Fruiting plum #72 was in good condition and grew along the driveway outside the existing residence. It was multi-stemmed with a vase-shaped canopy, which is typical of small, fruiting trees.
- Three valley oaks were also included in the assessment. Valley oaks #115 and 116 were in good condition with vigorous, spreading canopies; whereas, valley oak #117 was in fair condition and exhibited signs of significant internal decay. Trunk diameters ranged from 22 to 32" with an average of 26".

Photo 3 – Black oak #94 was fused at the base with black oak #93. The two oaks had low live crown ratios with sparse upper canopies.

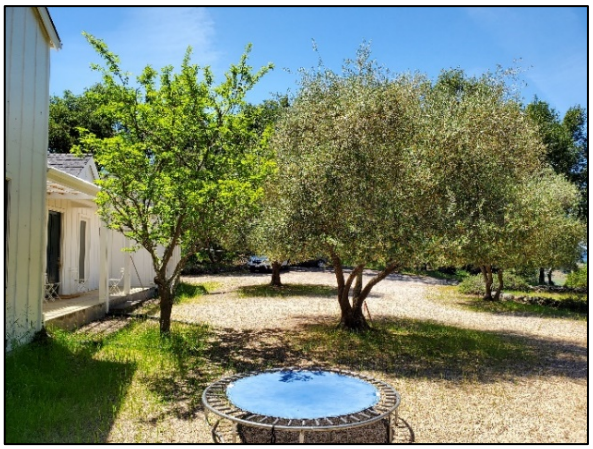

Photo 4 – European olives #69 - 71 and fruiting plum #72 were growing outside the project area, near the existing driveway and private residence.

Marin County's Tree Protection Ordinance

According to Marin County's Native Tree Preservation and Protection Ordinance Number 3342:

- Native oaks such as coast live oak, valley oak, and black oak are designated *Protected* when they are 6" in trunk diameter or larger and *Heritage* when 18" or larger, as measured 54" above grade.
- California bays are designated *Protected* when 10" in trunk diameter or larger and *Heritage* when 30" or larger.
- Tree Removal Permits are required for the removal of more than a total of five *Protected* or *Heritage* trees for parcel improvement within any 12 month period.

- **Exemptions to the prohibition of protected tree removal are made if the Certified Arborist determines the tree is in poor health, has severe structural defects, poses a safety hazard, or is infected by a pathogen or attacked by insects that threaten surrounding trees.**
- As a standard practice to maintain consistency with the Marin Countywide Plan, replacement of each removed *Protected* or *Heritage* tree may be required. In the event on-site tree planting is not feasible, in-lieu payments in the amount of $500.000 per replacement tree may be required.

Based on the definitions above, 34 trees are considered *Heritage* and 40 trees are *Protected*. Eighteen (18) additional trees would have been considered *Heritage* and 21 trees would have been *Protected*, but they were in poor condition, had extensive decay, and/or exhibited severe structural defects that posed safety hazards.

In addition, final recommendations for removal and pruning of trees within the designated Fire Zones for fire risk mitigation will be confirmed with the Marin County Fire Department, per Marin County's Tree Protection Ordinance.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment. Where development will not occur, the normal life cycles of decline, structural failure and death should be allowed to continue.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees. For example, coast live oak #38 was in poor condition – it had extensive decay and little live foliage. It is not well suited for retention.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Valley oak #117 with a significant column of decay and a cracking main trunk is an example of such a tree.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. For instance, coast live oak is relatively more tolerant of root and soil impacts than valley oak and California bay.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Species invasiveness**
  Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database http://www.cal-ipc.org/plants/inventory/ lists species identified as being invasive. Marin County is part of the Central West Floristic Province. European olive is listed as having limited invasiveness. Myoporum is on the invasive watch list.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (see ***Tree Assessment*** in Exhibits, and Table 2). We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Table 2. Tree suitability for preservation
1495 San Antonio Road, Marin County

High	These are trees with good health and structural stability that have the potential for longevity at the site. Twenty-three (23) trees had high suitability for preservation.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and monitoring, and may have shorter life-spans than those in the “high” category. Fifty-four (54) trees had moderate suitability for preservation.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Forty-eight (48) trees had low suitability for preservation.

Evaluation of Impacts and Recommendations

The ***Tree Assessment*** was the reference point for tree health, condition, and suitability for preservation. The *Proposed Landscape Plan A1.2* (Holey Associates, May 2020), depicts the

construction of a new primary residence and landscape walls, grading for permeable walkways and roadways installation, dirt road resurfacing, relocation of water and propane tanks, and removal of the existing pool. These improvements will necessitate the removal of most trees within the interior of the work area. The greatest opportunity for tree preservation is outside the work area and along the perimeter of the site.
Tree disposition of each tree is listed in the **Tree Disposition** exhibit.

Overall, the project would:

- Remove 41 trees
    - This total includes five *Heritage* trees and 10 *Protected* trees.
- Potentially preserve 19 trees
    - This total includes five *Heritage* trees and four *Protected* trees.
- Preserve 65 trees
    - This total includes 24 *Heritage* trees and 26 *Protected* trees.

Forty-one trees are planned for removal.

- Twenty-two (22) of these trees are in poor condition with low suitability for preservation – they are suppressed, have structural defects and internal decay, and have varying degrees of canopy dieback.
- Other trees are located too close in proximity to proposed construction and it is unlikely they will be able to tolerate the resulting impacts:
    - For example, California bay #6 is located where the permeable walkway is planned.
    - Three trees are located within or at the edge of proposed retention ponds.
    - Six trees are located within or at the edge of the proposed gravel turnaround.
    - Sixteen (16) trees are located within or at the edge of the area to be graded for roadway construction.

Along the perimeter of the site and beyond the building envelope boundary, grades are being preserved and tree preservation is possible. A few on-site trees and most off-site trees are planned for preservation. Survival of these trees will depend on the severity and proximity of construction impacts and the care with which work is conducted around the trees. Adherence to the **Tree Preservation Guidelines** will increase the likelihood of these trees surviving construction.

Nineteen (19) trees may be potentially preserved based on the severity and proximity of construction impacts and the care with which work is conducted around the trees:

- California bays #7, 50, 52, and 60, coast live oaks #11 and 20, and black oaks #47, 48, 64, 89, and 92 are mostly located outside the project area. I anticipate these trees will experience minimal to moderate impacts from proposed construction. However, they are in poor condition with a compromised ability to tolerate and adapt to changes to their environment. The project team intends to preserve these trees.
- Coast live oak #4 is located within the proposed parking area. However, the project team intends preserve and protect the tree during the course of construction. For this specific tree, I recommend installing trunk protection (if work must occur around the tree's trunk) and tree protection zone fencing at the trees' dripline or as far out as nearby construction activity will allow. Excavation and root impacts should also be minimized to the extent possible around the tree. Spread a 2-4" layer of woodchip mulch within the tree's tree protection zone to reduce soil compaction and help retain soil moisture. Reference the **Tree Preservation Guidelines** for more detail.

- Trees such as California bays #8 and 60 and coast live oak #13 are located adjacent to proposed construction. These trees will likely experience moderate to severe impacts resulting from construction, depending on the care with which work is conducted around the trees and the amount and size of roots impacted during excavation. Impacts from adjacent construction may be lessened if the appropriate tree preservation measures are implemented.

Sixty-five trees are planned for preservation:

- Six trees are adjacent to the existing dirt road to be re-surfaced with compressed gravel. As the soil along the dirt road is already compact and excavation for the re-surfacing with be minimal, I anticipate the impacts to these trees will be minor to moderate and within the trees' tolerance limits. Clearance pruning may be required for equipment access and fire risk reduction.
- Fifty-one (51) trees are outside the construction area.
- The remaining trees are within the interior of the work area, but it appears they located far enough away from proposed construction. I anticipate impacts from adjacent construction will be within the trees' tolerance limits if the appropriate tree preservation measures are implemented.
    - For example, the proposed permeable walkway will be routed around California bay #5 to mitigate impacts to the tree.
    - Coast live oak #9 is located 10' away from the proposed landscape wall. The tree is young and vigorous and the species is tolerant of root and soil impacts.

Tree Mitigation Recommendations

Referencing Marin County's Native Tree Preservation and Protection Ordinance Number 3342: As a standard practice to maintain consistency with the Marin Countywide Plan, replacement of each removed *Protected* or *Heritage* tree may be required. In the event on-site tree planting is not feasible, in-lieu payments in the amount of $500.000 per replacement tree may be required.

In addition, per plans provided by the client, the area beyond Building Envelope Boundary is considered agricultural and tree preservation is at the property owner's discretion. As a result, removal of *Protected* or *Heritage* trees in this area does not appear to require mitigation.

Based on the requirements above and anticipated site conditions following construction, I recommend re-planting trees at a 1:1 to 2:1 replacement ratio (14 to 28 replacement trees) for the removal of a total of 14 *Protected* or *Heritage* trees within the Building Envelope Boundary, depending on tree spacing and species selection. As the oak woodland forest surrounding the property is already densely vegetated and to reduce the potential fuel load within the defensible space areas around the residences, I recommend primarily siting replacement trees along each side of the service road where there is adequate growing space for trees. I recommend selecting drought tolerant, native species such as coast live oak, valley oak, pacific madrone, California buckeye, and wax myrtle. There is also potential to plant fruit trees (such as olives and plums) and ornamental trees around the residences and orchard trees in the open area on the western side of the property. Re-planting with species known to be vectors of Sudden Oak Death (*Phytophthora ramorum*) such as California bay laurel, *Rhododendron*, and *Camellia* should be avoided.

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive

injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. Coordinating any construction activity inside the **TREE PROTECTION ZONE** can minimize these impacts.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Tree Protection Zone

1. **A TREE PROTECTION ZONE** shall be identified for each tree to be preserved. For design purposes and to the extent possible outside of adjacent construction activity, The **TREE PROTECTION ZONE** for each tree shall be defined as the tree dripline.
2. Fence all trees to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing, or grading. Fences shall be 6' chain link with posts sunk into the ground or equivalent as approved by the County.
3. Fences must be installed prior to beginning demolition and must remain until construction is complete.
4. No grading, excavation, construction or storage or dumping of materials shall occur within the **TREE PROTECTION ZONE**.
5. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**.

Design recommendations

1. Accurately locate all trees, on-site and off-site, and include tree locations and **TREE PROTECTION ZONES** on all plans.
2. Any changes to the plans affecting the trees should be reviewed by the consulting arborist with regard to tree impacts. These include, but are not limited to, site plans, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans, and demolition plans.
3. Plan for tree preservation by designing adequate space around trees to be preserved. This is the **TREE PROTECTION ZONE:** No grading, excavation, construction or storage of materials should occur within that zone. Route underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**.
4. **Tree Preservation Guidelines** prepared by the Consulting Arborist, which include specifications for tree protection during demolition and construction, should be included on all plans.
5. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
6. Do not lime the subsoil within 50' of any tree. Lime is toxic to tree roots.
7. As trees withdraw water from the soil, expansive soils may shrink within the root area. Therefore, foundations, footings and pavements on expansive soils near trees should be designed to withstand differential displacement.
8. Avoid directing runoff toward trees.

Pre-demolition and pre-construction treatments and recommendations

1. Fence all trees to be retained to completely enclose the Tree Protection Zone prior to demolition, grubbing or grading. Fences shall be 6' chain link. Fences are to remain until all grading and construction is completed.
2. Tree(s) to be removed that have branches extending into the canopy of tree(s) or located within the **TREE PROTECTION ZONE** of tree(s) to remain shall be removed by a Certified Arborist or Certified Tree Worker and not by the demolition contractor. The Certified Arborist or Certified Tree Worker shall remove the trees in a manner that causes no damage to the tree(s) and understory to remain. Stumps shall be ground below grade.
3. Fences are to remain until all grading and construction is completed. Where construction must occur close to trees, install trunk protection devices such as winding silt, sock wattling around trunks, or stacking hay bales around tree trunks. Do not retain wattling around tree trunks for more than 2-3 weeks to avoid damaging trunks from excess moisture.



4. Apply and maintain a 4-6" layer of wood chip mulch within the **TREE PROTECTION ZONE**. Keep mulch 2' from the base of tree trunks.
5. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the Consulting Arborist may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.
6. All down brush and trees shall be removed from the **TREE PROTECTION ZONE** either by hand, or with equipment sitting outside the **TREE PROTECTION ZONE**. Extraction shall occur by lifting the material out, not by skidding across the ground. Brush may be chipped and spread beneath the trees within the **TREE PROTECTION ZONE** as a form of protective wood chip mulch.
7. Structures and underground features to be removed within the **TREE PROTECTION ZONE** shall use equipment that will minimize damage to trees above and below ground, and operate from outside the **TREE PROTECTION ZONE**. Tie back branches and wrap trunks with protective materials to protect from injury as directed by the Project arborist.

8. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.

Recommendations for tree protection during construction

1. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.
2. Tree protection devices are to remain until all site work has been completed within the work area. Fences or other protection devices may not be relocated or removed without permission of the Consulting Arborist.
3. Construction trailers, traffic and storage areas must remain outside **TREE PROTECTION ZONE** at all times.
4. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the Project Arborist. Roots should be cut with a saw to provide a flat and smooth cut. Removal of roots larger than 2” in diameter should be avoided.
5. If roots 2” and greater in diameter are encountered during site work and must be cut to complete the construction, the Project Arborist must be consulted to evaluate effects on the health and stability of the tree and recommend treatment.
6. Any brush clearing required within the **TREE PROTECTION ZONE** shall be accomplished with hand-operated equipment.
7. All down brush and trees shall be removed from the **TREE PROTECTION ZONE** either by hand, or with equipment sitting outside the **TREE PROTECTION ZONE**. Extraction shall occur by lifting the material out, not by skidding across the ground.
8. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, neither temporarily nor permanently.
9. All grading within the dripline of trees shall be done using the smallest equipment possible. The equipment shall operate perpendicular to the tree and operate from outside the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Consulting Arborist.
10. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
11. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
12. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.
13. Trees that accumulate a sufficient quantity of dust on their leaves, limbs and trunk as judged by the Consulting Arborist shall be spray-washed at the direction of the Project Arborist.

Maintenance of impacted trees

Our procedures included assessing trees for observable defects in structure. This is not to say that trees without significant defects will not fail. Failure of apparently defect-free trees does occur, especially during storm events. Wind forces, for example, can exceed the strength of defect-free wood, causing branches and trunks to break. Wind forces coupled with rain can saturate soils, reducing their ability to hold roots, and blow over defect-free trees. Although we cannot predict all failures, identifying those trees with observable defects is a critical component of enhancing public safety.

Furthermore, trees change over time. Our inspections represent the condition of the tree at the time of inspection. As trees age, the likelihood of failure of branches or entire trees increases. Annual tree inspections are recommended to identify changes to tree health and structure. In addition, trees should be inspected after storms of unusual severity to evaluate damage and structural changes. Initiating these inspections is the responsibility of the client and/or tree owner. Preserved trees will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority.

If you have any questions about my observations or recommendations, please contact me.

HortScience | Bartlett Consulting

Jillian Keller, Consulting Arborist and Urban Forester
Certified Arborist Utility Specialist #WE-12057A
Tree Risk Assessment Qualified

Exhibits

Tree Inventory Map

Tree Assessment

Tree Disposition

Tree Assessment Plan

1495 San Antonio Road
Petaluma, CA

Prepared for:
Cindy Mercer
Kentfield, CA

May 2020

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No Scale

Notes:
Base map provided by:
Holey Associates
Oakland, CA

Numbered tree locations with no survey point were approximately located in the field.

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Tree Assessment

1495 San Antonio Road
Marin County, CA
May 2020

Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
1	Coast live oak	43, 29, 20	Heritage	3	Moderate	One branch is fused to adjacent bay in canopy; oozing decay at base; 5' long decaying wound along eastern side of tree; swollen base; past failures.
2	Coast live oak	25, 17	Heritage	4	High	Swollen base; adjacent to shed; decaying cavity at point of trunk attachment; extensive internal decay; multiple stems arise at 4'; measured below attachment.
3	Coast live oak	18, 13	Heritage	3	Moderate	Adjacent to shed; large codominant stems arise at 3.5'; spreading canopy; decaying wounded branches; vigorous canopy; past decaying stem failures.
4	Coast live oak	32	Heritage	3	Low	Large codominant stems arise at 2.5'; large decaying wounds; eastern stems has extensive decay and is hollow; western stem has large spreading canopy.
5	California bay	31	Heritage	3	Moderate	Large vigorous spreading canopy; in between pool and house; decaying wounds; buried root flare; minor interior canopy twig dieback; deadwood in canopy.
6	California bay	31	No	2	Low	Canopy overhangs pool; epicormic sprouting along trunk; 20" diameter partial stem failure; deadwood in canopy; internal decay; decaying pruning wound.
7	California bay	35	No	2	Low	Large spreading canopy; decaying 10" branch in canopy; buried root flare; moderate concentrated patches of branch dieback in canopy; small diameter deadwood in canopy.
8	California bay	32, 28	Heritage	3	Moderate	Swollen base; codominant at 5'; vigorous upper canopy; minor interior canopy twig dieback.
9	Coast live oak	13	Protected	3	Moderate	Codominant stems arise at 5'; internal decay at base; decaying 20" trunk removal wound; branch failures; minor twig dieback; spreading canopy.
10	Coast live oak	11	Protected	3	Moderate	Moderate canopy dieback; engulfed in poison oak vines; buried root flare; past decaying failures.
11	Coast live oak	25, 24	No	2	Low	Moderate canopy dieback; large diameter deadwood in canopy; codominant at 12'.
12	California bay	34	Heritage	3	Low	Low live crown ratio; lower canopy dieback; suppressed by neighboring trees.
13	Coast live oak	52	Heritage	4	High	Low live crown ratio, suppressed by neighboring trees; 1' long cavity at base.

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
14	Coast live oak	52	Heritage	3	Moderate	Full vigorous canopy; upright form; swollen base; past 13” lateral branch failure; codominant at 13’ and 15’.
15	Coast live oak	34	No	2	Low	Low live crown ratio; codominant at 35’; suppressed by neighboring trees; cavities along trunk and 10” diameter past failure; trunk bows north; moderate lower canopy dieback.
16	California bay	32	Heritage	3	Moderate	Moderate canopy dieback; large decaying branch failures; low live crown ratio; suppressed.
17	Coast live oak	40	No	3	Low	Codominant attachments arise at 1’; low live crown ratio; moderate branch dieback; leans north downhill away from work area; asymmetric canopy suppressed by adjacent trees.
18	Coast live oak	6, 6	Protected	3	Moderate	Spindly form; lower crown suppression and dieback; past decaying branch failures; full vigorous canopy; trunk bows north.
19	Coast live oak	14	Protected	3	Moderate	Full vigorous canopy; swollen base; codominant at 12’; minor lower canopy dieback.
20	Coast live oak	42	No	2	Low	Large spreading canopy; multiple attachments arise at 2.5’; cavities in stems; past clearance pruning work; decaying pruning wounds; canopy extends to edge of access road; full canopy; trunk and base embedded in adjacent bay.
21	Coast live oak	49	Heritage	4	High	Codominant stems arise at 4’; full vigorous canopy; minor twig dieback.
22	Coast live oak	26	Heritage	3	Moderate	Codominant trunks fused and arise at 2’ with included bark; minor twig dieback; root flare buried; bases swollen; minor twig dieback.
23	Coast live oak	23, 20	Heritage	3	Moderate	21" and 20" codominant stems arise at 4', DBH measured below attachment; sprouting at base; branch fused to adjacent oak in canopy; minor twig dieback; swollen base.
24	California bay	27	Protected	4	High	Adjacent to shed; codominant at 5’; moderate branch dieback.
25	California bay	16, 3	No	2	Low	Codominant at 6’; minor twig dieback; past clearance pruning; vigorous canopy; suppressed by adjacent trees; asymmetric canopy.
26	Coast live oak	19	No	2	Low	Suppressed by adjacent trees and asymmetric canopy leans west towards house; buried root flares; vigorous canopy; decaying wounds; past large stem removal.
27	California bay	24	No	2	Low	Suppressed by adjacent bay with asymmetric canopy leaning west; fused at base and at 10’ with adjacent bay; vigorous spreading canopy; decaying large pruning wounds and past branch failures; internal trunk decay.

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
28	California bay	16	No	2	Low	Fused at base and at 10’ with adjacent oak; multiple attachments arise at 25’; moderate lower canopy branch dieback; vigorous upper canopy.
29	California bay	15	Protected	3	Moderate	Codominant stems fork with wide attachment at 3’; moderate twig dieback; suppressed by adjacent trees.
30	Black oak	22	Heritage	3	Moderate	Buried root flare; multiple attachments arise at 5’ with included bark; minor twig dieback; suppressed by adjacent trees; thin canopy.
31	California bay	17, 12	No	2	Low	Codominant stems arise at 7’ with wide attachment; large canopy asymmetric to the south due to proximity to neighboring tree; minor twig dieback; small diameter deadwood in canopy.
32	California bay	17	Protected	3	Moderate	Codominant stems arise at 6.5’; buried root flare; asymmetric canopy to the east due to suppression by adjacent tree; past decaying failures; minor twig dieback; deadwood in canopy.
33	California bay	30, 21	No	3	Low	Past failures; minor twig dieback; epicormic sprouting; decaying wounds at base; codominant stems arise at 2’ with wide angle of attachment; small diameter deadwood in canopy.
34	California bay	13, 10	Protected	3	Moderate	Measured below attachment; codominant stems arise at 5’; swollen base; vigorous canopy; minor twig dieback.
35	California bay	31	No	2	Low	Moderate canopy dieback; upright form; stems fused at base.
36	California bay	23, 7	Protected	3	Moderate	Poison oak growing up base; low live crown ratio; upright form; codominant at 30’; vigorous upper canopy.
37	California bay	18	Protected	3	Moderate	Swollen at base with sprouting; main trunk bows northeast and is suppressed by adjacent trees; deadwood present in canopy; poison oak beginning to grown on tree from adjacent oak snag.
38	Coast live oak	24	No	1	Low	Upright form; full vigorous canopy; codominant at 12’.
39	California bay	19	Protected	4	High	Full vigorous spreading canopy; codominant fork at 6’; 1’ deep cavity at base on southern side of trunk; internal decay.
40	California bay	41	Heritage	3	Moderate	Vigorous upper canopy; suppressed by neighboring trees; swollen at base with sprouting; codominant at 15’.
41	California bay	22	Protected	3	Moderate	Swollen base with sprouting; codominant at 20’; full vigorous canopy.
42	Black oak	20	No	1	Low	Decay at base with sloughing bark; decaying trunk; past failures; girdling root present; low live crown ratio; suppressed by neighboring trees.
43	Coast live oak	32	Heritage	3	Moderate	Swollen base with sprouting; codominant at 7’; upright form and vigorous canopy; minor twig dieback.

Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
44	Coast live oak	7	No	1	Low	Codominant at 6.5'; large spreading canopy; minor twig dieback; small past failures; deadwood in canopy.
45	California bay	18	Protected	3	Moderate	Fused stems at base; full vigorous canopies; codominant stems present through the canopy; along access path.
46	Coast live oak	20, 18	Heritage	3	Moderate	Slight trunk bow east; upright form; full vigorous canopy; multiple stems arise at 6' with narrow angle of attachment.
47	Black oak	30	No	2	Low	Trunk and base are embedded in adjacent oak; full vigorous canopy; upright form.
48	Black oak	21	No	2	Low	Low live crown ratio; codominant at 7'; suppressed by neighboring trees; cavities along trunk.
49	California bay	30	Heritage	4	High	Swollen base; large spreading canopy; codominant at 10' and 20'; lower canopy minor dieback; branch in upper canopy embedded in adjacent bay.
50	California bay	13	No	2	Low	Large spreading canopy; overhangs adjacent gravel driveway; buried root flare; small diameter past failures; multiple attachments arise at 6.5'; minor twig dieback.
51	Coast live oak	34	No	2	Low	Along driveway around house; multiple attachments arise at 3'; full spreading canopy.
52	California bay	12	No	2	Low	Along driveway around house; multiple attachments arise at 3'; full spreading canopy; internal decay in base and southern stem.
53	California bay	19	Protected	3	Moderate	Along driveway around house; multiple attachments arise at 1'; full spreading canopy; crossing branches.
54	Black oak	27	Heritage	3	Moderate	Good young tree adjacent to house; vase shaped canopy.
55	Coast live oak	30	No	1	Low	Suppressed by neighboring trees; vigorous canopy; adjacent to driveway; trunk decay.
56	California bay	24	No	2	Low	Suppressed by neighboring trees; vigorous canopy; adjacent to driveway; codominant at 2.5'.
57	California bay	12, 9	Protected	4	High	Suppressed by neighboring trees; vigorous canopy; adjacent to driveway; codominant at 6.5'; trunk wounds and extensive decay.
58	California bay	20	Protected	3	Moderate	Suppressed by neighboring trees; vigorous canopy; overhangs driveway; codominant at 4' and 7'; past trunk failure and extensive decay.
59	California bay	23	No	2	Low	Large spreading canopy overhangs driveway; past trunk failures and decay at base.

Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
60	California bay	27	Protected	4	High	Suppressed spreading canopy extends over driveway; trunk leans east; minor twig dieback.
61	California bay	21	Protected	4	Moderate	Adjacent to and canopy extends over driveway; thrips infestation; girdling root present; multiple attachments arise at base.
62	Coast live oak	21, 12	No	2	Low	Outside work area; canopy overhangs driveway; full spreading canopy.
63	Black oak	25	Heritage	3	Moderate	Outside work area; canopy overhangs driveway; vigorous canopy.
64	Black oak	17	No	2	Low	Along dirt road; codominant stems fused at 5.5'; vigorous spreading canopy; two decaying stem failures cavities along trunk.
65	California bay	29	Protected	4	High	Along dirt road; main trunks bows south away from adjacent tree; codominant at 15'; asymmetric canopy to the south; suppressed by adjacent tree.
66	Coast live oak	26	No	2	Low	Along dirt road; main trunks bows north away from adjacent trees; codominant at 15'; asymmetric canopy to the north; suppressed by adjacent tree; thin canopy; decaying basal wound and stem removal wound.
67	Coast live oak	26	No	1	Low	Swollen base and trunk sweeps south; codominant at 6'; minor twig dieback; asymmetric canopy to the south; suppressed by adjacent tree.
68	Coast live oak	50	Heritage	4	High	Canopy overhangs dirt road; vigorous spreading canopy; codominant at 8'; minor interior canopy twig dieback.
69	European olive	6, 6, 5	No	4	High	Moderate branch dieback; asymmetric canopy suppressed by adjacent trees to the north; leans north downhill and away from work area.
70	European olive	9, 6	No	3	Low	Codominant at 5.5'; moderate branch dieback; decay in trunk; spreading canopy.
71	European olive	7, 7, 5, 5	No	4	High	Low live crown ratio; leans east away from adjacent tree; moderate branch dieback; suppressed; codominant attachments arise at 1'.
72	Fruiting plum	6, 4, 3, 2, 2	No	4	High	Fused at base with #94; low live crown ratio; suppressed by adjacent trees; past decaying failures; healthy upper canopy.
73	California bay	26	Protected	3	Moderate	Fused at base with #93; low live crown ratio; suppressed by adjacent trees; past decaying failures; sparse upper canopy; engulfed in ivy; bows west.
74	California bay	9, 8	No	4	High	4" decaying wound on northern side; buried root flare; suppressed by adjacent trees; low live crown ratio; healthy upper canopy; spindly form.
75	California bay	28	No	2	Low	Full vigorous spreading canopy; codominant at 15'; buried root flare.

Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
76	California bay	28	No	2	Low	Trunk bows north and corrects; low live crown ratio; suppressed by adjacent trees; healthy upper canopy.
77	California bay	40	Heritage	3	Moderate	Swollen trunk; healthy upper canopy; low live crown ratio; lower canopy suppression and dieback.
78	Coast live oak	20	Heritage	3	Moderate	Codominant at 10'; 1' long cavity with decay in trunk; full vigorous canopy; minor branch dieback.
79	Myoporum	6, 6	No	2	Low	Codominant at 5'; healthy spreading canopy; fused at base with adjacent valley oaks; minor lower canopy dieback.
80	Coast live oak	30	Heritage	4	High	Leans south; vigorous spreading canopy; minor branch dieback; fused at base with adjacent oaks.
81	Coast live oak	13	Protected	4	High	Leans east significantly; vigorous spreading canopy; minor branch dieback; fused at base with adjacent oaks; 3' long deep crack with decay along trunk; significant column of trunk decay; imminent failure of main stem; heavy loading on main stem.
82	Coast live oak	33	Heritage	3	Moderate	Low live crown ratio; suppressed by adjacent trees; curving sinuous trunk; healthy upper crown.
83	Coast live oak	23	Heritage	3	Moderate	Multiple stems arise at 3' from curved and swollen trunk base; previously topped; spreading vigorous canopy.
84	Coast live oak	13	No	2	Low	Typical form and structure.
85	Coast live oak	17	Protected	3	Moderate	Poor form and structure; epicormic sprouting; swollen base; Ganoderma fruiting body; 1.5' trunk cavity present; past trunk failure; cavities at base; adjacent to water tank.
86	Black oak	25	Heritage	4	Moderate	1.5' decaying wound on north side of tree at base; suppressed by adjacent trees with asymmetric canopy; cavities along trunk; vigorous spreading canopy; swollen base; codominant at 20'.
87	Coast live oak	11	No	1	Low	Swollen base; codominant at 6'; a few fruiting bodies along trunk; bark soughing off and signs of internal decay present; decaying 1' long wound at southern base; full spreading vigorous canopy.
88	Black oak	16	Protected	3	Moderate	Partial failure at base; grows horizontally; decay at base; moderate twig dieback.
89	Black oak	14	No	2	Low	Swollen base with sprouting; minor twig dieback; partial 10" stem failure; trunk bows north.

Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
90	Black oak	29	Heritage	3	Moderate	Swollen base; cavity at base on southern side of tree; full vigorous canopy; 3' healing wound with bark beetle activity along northern trunk; decaying 12" stem removal wound on south; trunk bows south.
91	Black oak	16, 13	Protected	3	Moderate	Swollen base; trunk leans west and canopy is suppressed by adjacent trees; vigorous canopy.
92	Black oak	18, 13	No	2	Low	At edge of worksite; asymmetric canopy suppressed by adjacent trees leans south; minor twig dieback; past decaying failures; bay is leaning against tree; poison oak vine growing up trunk.
93	Black oak	14	Protected	3	Moderate	Extensive decay and hollow at base; internal trunk decay present; suppressed by adjacent trees; low live crown ratio; embedded in adjacent bay 25' up in canopy.
94	Black oak	11	No	2	Low	3' of fused wood at base with adjacent oak; canopy suppressed by adjacent trees and leans west; vigorous spreading canopy.
95	Coast live oak	11	Protected	3	Moderate	Adjacent to access road; multiple attachments arise at 1'; full vigorous canopy; upright form; multiple codominant stems with included bark present in canopy.
96	Black oak	24	Heritage	4	High	Fused to adjacent oak; extensive decay at base; hollow at base; low live crown ratio, Ganoderma fruiting body on trunk; multiple attachments arise at 2.5'.
97	California bay	9	No	3	Low	Swollen base; codominant fork at 15'; minor lower canopy twig dieback; large spreading canopy; second stem arises from base.
98	Coast live oak	15	No	2	Low	Snag; engulfed in poison oak; no live foliage; extensive decay.
99	California bay	14	Protected	3	Moderate	Snag; extensive decay.
100	Bigleaf maple	23	No	2	Low	All but dead; top down dieback; fruiting bodies present; internal decay.
101	California bay	11	Protected	4	Moderate	Snag; extensive decay and fruiting bodies.
102	California bay	22	Protected	4	High	3' of base fused with oak; Ganoderma fruiting body at base; full spreading canopy; trunk bows west; internal decay; past branch failures.
103	Coast live oak	18	Heritage	3	Moderate	Thin canopy; swollen base with extensive internal decay; codominant at 7'.
104	California bay	32	Heritage	5	High	Past decaying failures; fruiting bodies along trunk; deadwood in canopy; multiple attachments arise at 5.5'; 12" stem is extensively decayed and has dieback; fused at base with adjacent bay.
105	California bay	17	Protected	3	Moderate	3' of fused base with bay; Ganoderma fruiting body at base; past failures; moderate twig dieback.

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106	California bay	15	Protected	3	Moderate	All but dead; extensive decay; asymmetric canopy to the west; little live foliage.
107	California bay	17	Protected	3	Moderate	Dead and decayed.
108	California bay	18	Protected	4	High	Decay and wounding at base; low live crown ratio; past decaying branch failures along trunk; leans east and is suppressed by adjacent trees.
109	California bay	10	Protected	3	Moderate	Suppressed by adjacent trees; 5' long wound on northern side with significant decay; past failures; moderate branch dieback in upper canopy.
110	California bay	8	No	2	Low	31B; epicormic sprouting along trunk; healthy upper canopy; trunk bows west away from adjacent tree; codominant at 12'.
111	California bay	11	Protected	3	Moderate	Codominant at 3.5'; full vigorous spreading canopy; swollen base.
112	California bay	14	Protected	3	Moderate	Fused at base with #106; moderate branch dieback; deadwood throughout canopy; healthy upper canopy.
113	Coast live oak	17	No	2	Low	Fused at base with #105; moderate branch dieback; deadwood in canopy; healthy upper canopy.
114	California bay	17	Protected	4	High	Fused codominant stems arise at 8'; minor branch dieback; main trunk bows west; past failures and deadwood in canopy; suppressed by adjacent trees.
115	Valley oak	32	Heritage	4	High	Cavity and decay at base; full vigorous spreading canopy.
116	Valley oak	22	Heritage	4	High	Suppressed by adjacent trees; moderate branch dieback; trunk bows north.
117	Valley oak	24	No	3	Low	Significant lean north; intact canopy; severely suppressed by adjacent trees.
118	California bay	11	Protected	3	Moderate	Trunk bows west; suppressed by adjacent trees; narrow codominant attachment at 10'; vigorous full canopy.
119	California bay	13, 12, 11, 11	Protected	3	Moderate	Codominant at 5'; full vigorous canopy; healing pruning wounds; cavity and decay at base.
120	Coast live oak	25	No	2	Low	Buried base; epicormic sprouting along trunk; suppressed by adjacent trees; trunk leans significantly east; dieback in lower canopy; narrow canopy; decaying 2' wound on eastern side of tree.
121	Black oak	21	Heritage	3	Moderate	In between shed and tanks; decaying pruning wounds and significant column of decay in lower to mid trunk; trunk bows south and corrects; epicormic growth; suppressed canopy.

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122	Coast live oak	20	No	2	Low	Past decaying failures; fused with adjacent bay at 7'; spreading form; decay in main trunk; healthy upper canopy.
123	Black oak	12	No	2	Low	Significant column of decay in trunk; along dirt road; epicormic growth; thin suppressed canopy.
124	California bay	8	No	3	Moderate	Swollen base; decaying pruning wounds and significant column of decay in trunk; low live crown ratio; suppressed.
125	Coast live oak	17	Protected	3	Moderate	Codominant at 7'; suppressed by adjacent trees; minor lower canopy dieback; healthy upper canopy; narrow form.

Tree Disposition

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Disposition	Comments
1	Coast live oak	43, 29, 20	Heritage	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
2	Coast live oak	25, 17	Heritage	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
3	Coast live oak	18, 13	Heritage	Preserve	Outside construction area.
4	Coast live oak	32	Heritage	Potentially preserve	Located within parking area. Will be protected and surrounded with compacted gravel.
5	California bay	31	Heritage	Preserve	Located adjacent to landscape wall. Walkway routed around tree.
6	California bay	31	No	Remove	Poor condition. Located where proposed permeable walkway is planned.
7	California bay	35	No	Potentially preserve	Poor condition. Adjacent to proposed permeable walkway.
8	California bay	32, 28	Heritage	Potentially preserve	At the edge of proposed permeable walkway.
9	Coast live oak	13	Protected	Preserve	Approximately 10' from proposed landscape wall. May need clearance pruning for adjacent shed.
10	Coast live oak	11	Protected	Preserve	Approximately 10' from proposed permeable walkway.
11	Coast live oak	25, 24	No	Potentially preserve	Poor condition. Approximately 10' from proposed permeable walkway.
12	California bay	34	Heritage	Remove	Located within retention pond.
13	Coast live oak	52	Heritage	Potentially preserve	Adjacent to proposed building construction.
14	Coast live oak	52	Heritage	Preserve	Adjacent to paving stone walkway.
15	Coast live oak	34	No	Preserve	Adjacent to proposed permeable walkway. Fused to #16.
16	California bay	32	Heritage	Preserve	Adjacent to proposed permeable walkway. Fused to #15.
17	Coast live oak	40	No	Remove	Poor condition and low suitability for preservation.
18	Coast live oak	6, 6	Protected	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
19	Coast live oak	14	Protected	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
20	Coast live oak	42	No	Potentially preserve	Adjacent to pool removal and building construction. Poor condition.
21	Coast live oak	49	Heritage	Preserve	Outside construction area.
22	Coast live oak	26	Heritage	Preserve	Outside construction area.
23	Coast live oak	23, 20	Heritage	Preserve	Outside construction area.
24	California bay	27	Protected	Preserve	Outside construction area.
25	California bay	16, 3	No	Preserve	Outside construction area.
26	Coast live oak	19	No	Remove	Adjacent to building construction and retention pond installation. Poor condition.
27	California bay	24	No	Remove	Poor condition. Adjacent to retention pond installation. Verify location and proximity to turnaround.
28	California bay	16	No	Remove	Located within turnaround.
29	California bay	15	Protected	Remove	Located within turnaround.
30	Black oak	22	Heritage	Remove	Located within turnaround.
31	California bay	17, 12	No	Remove	Located within grading and turnaround. Poor condition.

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32	California bay	17	Protected	Preserve	Adjacent to water tank area.
33	California bay	30, 21	No	Remove	Located at edge of roadway.
34	California bay	13, 10	Protected	Remove	Located within grading.
35	California bay	31	No	Remove	Located within grading and water tank area. Fused to and codependent on tree #121 (planned for removal).
36	California bay	23, 7	Protected	Remove	Located within water tank area.
37	California bay	18	Protected	Preserve	Outside construction area.
38	Coast live oak	24	No	Remove	Poor condition and low suitability for preservation.
39	California bay	19	Protected	Preserve	Outside construction area.
40	California bay	41	Heritage	Preserve	Outside construction area.
41	California bay	22	Protected	Preserve	Outside construction area.
42	Black oak	20	No	Remove	Poor condition and low suitability for preservation.
43	Coast live oak	32	Heritage	Potentially preserve	Located adjacent to grading. Verify tree location.
44	Coast live oak	7	No	Remove	Poor condition and low suitability for preservation. Adjacent to grading.
45	California bay	18	Protected	Potentially preserve	Located adjacent to grading. Verify tree location.
46	Coast live oak	20, 18	Heritage	Potentially preserve	Located adjacent to grading. Verify tree location.
47	Black oak	30	No	Potentially preserve	Located adjacent to grading. Verify tree location. Poor condition.
48	Black oak	21	No	Potentially Preserve	Outside construction area. Poor condition.
49	California bay	30	Heritage	Preserve	Outside construction area.
50	California bay	13	No	Potentially Preserve	Outside construction area. Poor condition.
51	Coast live oak	34	No	Preserve	Outside construction area.
52	California bay	12	No	Potentially Preserve	Outside construction area. Poor condition.
53	California bay	19	Protected	Preserve	Outside construction area.
54	Black oak	27	Heritage	Preserve	Outside construction area.
55	Coast live oak	30	No	Remove	Poor condition and low suitability for preservation.
56	California bay	24	No	Remove	Poor condition and low suitability for preservation.
57	California bay	12, 9	Protected	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
58	California bay	20	Protected	Preserve	Outside construction area.
59	California bay	23	No	Remove	Poor condition with extensive internal decay. Adjacent to proposed permeable walkway and building construction.
60	California bay	27	Protected	Potentially preserve	Adjacent to CMU landscape wall installation.
61	California bay	21	Protected	Preserve	At edge of existing dirt road to be resurfaced with compressed gravel. Fused to coast live oak #1 (protected tree in fair condition to be preserved).

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Disposition	Comments
62	Coast live oak	21, 12	No	Remove	Poor condition. At edge of gravel road and turnaround.
63	Black oak	25	Heritage	Preserve	Outside construction area.
64	Black oak	17	No	Potentially Preserve	Outside construction area. Poor condition.
65	California bay	29	Protected	Preserve	Outside construction area.
66	Coast live oak	26	No	Remove	Poor condition and low suitability for preservation. Fused to adjacent tree planned for removal.
67	Coast live oak	26	No	Remove	Poor condition and low suitability for preservation.
68	Coast live oak	50	Heritage	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
69	European olive	6, 6, 5	No	Preserve	Outside construction area.
70	European olive	9, 6	No	Preserve	Outside construction area.
71	European olive	7, 7, 5, 5	No	Preserve	Outside construction area.
72	Fruiting plum	6, 4, 3, 2, 2	No	Preserve	Outside construction area.
73	California bay	26	Protected	Preserve	Outside construction area.
74	California bay	9, 8	No	Preserve	Outside construction area.
75	California bay	28	No	Preserve	Outside construction area.
76	California bay	28	No	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
77	California bay	40	Heritage	Preserve	Outside construction area.
78	Coast live oak	20	Heritage	Preserve	Outside construction area.
79	Myoporum	6, 6	No	Preserve	Outside construction area.
80	Coast live oak	30	Heritage	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
81	Coast live oak	13	Protected	Preserve	Outside construction area and along existing driveway. Clearance pruning may be needed.
82	Coast live oak	33	Heritage	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
83	Coast live oak	23	Heritage	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
84	Coast live oak	13	No	Preserve	Adjacent to existing dirt road to be resurfaced with compressed gravel. Clearance pruning may be needed.
85	Coast live oak	17	Protected	Preserve	Outside construction area.
86	Black oak	25	Heritage	Preserve	Outside construction area. Clearance pruning may be needed as canopy overhangs existing dirt road to be resurfaced.
87	Coast live oak	11	No	Remove	Poor condition and low suitability for preservation.
88	Black oak	16	Protected	Preserve	Outside construction area.
89	Black oak	14	No	Potentially preserve	Outside construction area. Poor condition.
90	Black oak	29	Heritage	Preserve	Outside construction area.
91	Black oak	16, 13	Protected	Preserve	Outside construction area.

Tree Disposition

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Disposition	Comments
92	Black oak	18, 13	No	Potentially preserve	Outside construction area. Poor condition.
93	Black oak	14	Protected	Preserve	Outside construction area.
94	Black oak	11	No	Preserve	Outside construction area. Fused to and codependent on tree #93 (protected tree in fair condition planned for preservation).
95	Coast live oak	11	Protected	Preserve	Outside construction area.
96	Black oak	24	Heritage	Preserve	Outside construction area.
97	California bay	9	No	Preserve	Outside construction area.
98	Coast live oak	15	No	Remove	Poor condition and low suitability for preservation.
99	California bay	14	Protected	Preserve	Outside construction area.
100	Bigleaf maple	23	No	Remove	Poor condition and low suitability for preservation.
101	California bay	11	Protected	Potentially preserve	Adjacent to grading.
102	California bay	22	Protected	Preserve	Outside construction area.
103	Coast live oak	18	Heritage	Remove	Located within grading.
104	California bay	32	Heritage	Remove	Located within grading.
105	California bay	17	Protected	Remove	Located within grading.
106	California bay	15	Protected	Remove	Located within grading.
107	California bay	17	Protected	Remove	Located within grading.
108	California bay	18	Protected	Remove	Located within grading.
109	California bay	10	Protected	Remove	Located within grading.
110	California bay	8	No	Remove	Located within grading.
111	California bay	11	Protected	Remove	Located at the edge of roadway.
112	California bay	14	Protected	Remove	Located within grading.
113	Coast live oak	17	No	Remove	Poor condition. Adjacent to grading.
114	California bay	17	Protected	Potentially preserve	Located adjacent to grading. Verify tree location.
115	Valley oak	32	Heritage	Preserve	Outside construction area.
116	Valley oak	22	Heritage	Preserve	Outside construction area.
117	Valley oak	24	No	Preserve	Outside construction area.
118	California bay	11	Protected	Preserve	Outside construction area.
119	California bay	13, 12, 11, 11	Protected	Preserve	Outside construction area.
120	Coast live oak	25	No	Remove	Poor condition and low suitability for preservation. Adjacent to proposed permeable walkways.
121	Black oak	21	Heritage	Remove	Located within grading and water tank area. Fused to and codependent on tree #35 (in poor condition and planned for removal).
122	Coast live oak	20	No	Remove	Poor condition. Located within roadway.

Tree Disposition

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Tree No.	Species	Trunk Diameter (in.)	Protected or Heritage?	Disposition	Comments
123	Black oak	12	No	Remove	Located within grading. Poor condition and low suitability for preservation.
124	California bay	8	No	Remove	Located within water tank area.
125	Coast live oak	17	Protected	Preserve	Outside construction area.