Preliminary Arborist Report

4590 Patrick Henry Drive
Santa Clara, CA

PREPARED FOR:
KASA Partners
101 California Street, Suite 950
San Francisco, CA 94111

PREPARED BY:
HortScience | Bartlett Consulting
2550 Ninth Street
Berkeley, CA 94710

June 2023

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Preliminary Arborist Report

4590 Patrick Henry Drive
Santa Clara, CA

Table of Contents

List of Tables

Exhibits

Preliminary Arborist Report

4590 Patrick Henry Drive
Santa Clara, CA

Introduction and Overview

KASA Partners is planning the redevelopment of the property located at 4590 Patrick Henry Drive in Santa Clara, CA. HortScience | Bartlett Consulting (Divisions of The F. A. Bartlett Tree Expert Co.) was asked to conduct a tree inventory and prepare an **Arborist Report** for the trees potentially impacted by the project as required by the City of Santa Clara.

This report provides the following information:

1. An assessment of the health and structural condition of the trees within the proposed project area based on a visual inspection from the ground.
2. An evaluation of the impacts to trees based on site plans provided by the client.
3. Guidelines for tree preservation during the design, construction, and maintenance phases of development.

Tree Assessment Methods

Trees were assessed on August 24, 2022. The assessment included all trees with a trunk diameter of 4 inches or larger within the project boundary or with canopy overhanging the property. Trees were tagged #301 – 377. The assessment procedure consisted of the following steps:

1. Identifying the tree species.
2. Tagging additional tree with an identifying number and recording its location on a map and replacing missing tags.
3. Measuring the trunk diameter at a point 54 inches above grade.
4. Evaluating the health and structural condition using a scale of 1 – 5:

   5 - A healthy, vigorous tree, reasonably free of signs and symptoms 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 than can be abated with treatment. The tree will require more intense management and monitoring and may have shorter life span than those in ‘good’ category.

Low: Trees 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

Seventy two (71) trees were assessed, representing 11 species (Table 1). All species were relatively common ornamentals in the San Francisco Bay area. Coast redwood is native to California, but is not indigenous to the area. Overall, nearly half (34 trees, or 48%) of the trees were in fair condition, and 34% (24 trees) were in poor condition. Only 13 trees (18%) were in good condition. Descriptions of each tree are found in the ***Tree Assessment Form*** and approximate locations are shown on the ***Tree Assessment Map*** (see Exhibits).

Table 1: Condition ratings and frequency of occurrence of trees.
4590 Patrick Henry Drive, Santa Clara

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Blackwood acacia	*Acacia melanoxylon*	1	5	1	**7**
Hackberry	*Celtis occidentalis*	2	-	-	**2**
Carob	*Ceratonia siliqua*	1	10	2	**13**
Evergreen ash	*Fraxinus uhdei*	3	2	-	**5**
Chinese juniper	*Juniperus chinensis*	-	4	1	**5**
Crape myrtle	*Lagerstroemia indica*	4	1	-	**5**
Cajeput paperbark tree	*Melaleuca quinquenervia*	-	6	3	**9**
Chinese pistache	*Pistacia chinensis*	-	2	3	**5**
Purpleleaf plum	*Prunus cerasifera*	1	-	1	**2**
Holly oak	*Quercus ilex*	1	4	2	**7**
Coast redwood	*Sequoia sempervirens*	11	-	-	**11**
Total		**24**	**34**	**13**	**71**

The site was a small lot with a single-story commercial use building surrounded by parking lots and a small, landscaped area fronting Patrick Henry Drive. The building was unoccupied. Train tracks ran along the western side of the property, and tall oleanders had formed a privacy screen amongst trees growing along the chain-link fence on that side. Landscaped medians spanned the north and south sides of the property.

Thirteen (13) carobs were growing in landscaped planting strips on the north and south sides of the property. Ten (10) were in fair condition, #306 and 307 were good, and #371 was poor. All of the carobs except one (#342) had multiple trunks between ground level and 8 feet. Four of the carobs were off-site trees overhanging the property.

Six cajeput paperbark trees were in fair condition and three (#323, 330, 331) were in good condition. Six paperbarks had codominant or multiple trunks between ground level and 10 feet. Diameters of the single trunked paperbarks ranged from 9 to 22 inches.

Eleven young coast redwoods were in poor condition. All were drought-stressed, with moderately brown and sparse crowns. The average trunk diameter was 7 inches with a range from 4 to 8 inches. The trunks of redwoods #355, 356, and 358 were obscured by shrubs.

Five blackwood acacias were in fair condition, with one (#351) in poor condition and #304 in good condition. Trunk diameters ranged from 4 to 30 inches, with an average of 15 inches. The roots of the three largest acacias (#301, 302, 364) were growing over nearby curbs. The trunks of acacias #334, 336, and 344 were obscured by shrubs.

Photo 1. The bases of holly oak #315 and Chinese juniper #312 were so close that their trunks were embedded in one another.

Seven holly oaks were present. Four were in fair condition, two (#347, 357) in good condition and one (#373) was poor. Trunk diameters ranged from 7 to 12 inches, with an average of 11 inches. The base of holly oak #361 was embedded in a chain link property line fence on the west side of the property. Holly oak #315 was growing so close to Chinese juniper #312 that the base of the oak was engulfing the juniper (Photo 1). Four holly oaks were off-site trees (#357, 362, 363, 373).

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

- Four crape myrtles in poor condition and one (#316) in fair condition. All of the crape myrtles had upright forms, but the crowns of trees in poor condition were very sparse.

- Five evergreen ash were growing on the north and south sides of the property. Three (#338, 370, 376) were in poor condition and two (#326, 327) were in fair condition, with diameters ranging from 12 to 22 inches.

- Four Chinese junipers were in fair condition and one (#335) was in good condition. Juniper #335 was the youngest and only single trunked juniper, with a diameter of 4 inches.

- Five Chinese pistache were growing on the west side of the property. Three (#306, 307, and 311) were in good condition and two (#310, 377) were fair. Chinese pistaches #306, 307, 310 and 311 had decorative rocks installed at the base. Average trunk diameter was 8 inches.

- Two purpleleaf plums were on the west side of the property. Two (#313) were in good condition and one (#303) was in poor condition. All plums had decorative rocks installed at the base.

- Two off-site hackberries were in poor condition. Crowns of both were sparse. Hackberry #346 had multiple trunks at ground level.

Photo 3. Chinese pistache #310 had an exceptionally wide, dense crown.

Santa Clara Tree Protection Requirements

The City of Santa Clara (Municipal Code Chapter 12.35) protects the following species with a diameter of 12 inches when measured at 54 inches above grade: California buckeye, big leaf maple, deodar cedar, blue Atlas cedar, camphor, western sycamore, coast redwood, California bay laurel, and five species of native oak (coast live oak, valley oak, black oak, blue oak, and interior live oak). The City of Santa Clara also protects Heritage trees, approved development trees, and private trees of any species with a diameter of 38 inches or more at 54 inches above grade. Multi-stemmed trees with a diameter of 38 inches or more when measured below the the first major trunk fork are also Protected. Heritage trees are specific trees adopted by the City of Santa Clara and listed in the General Plan Appendix 8.10. There were no *Heritage trees* identified at this site. No assessed trees met the criteria for *Protected* trees.

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 present a low risk of damage or injury if they fail.

We must be concerned, however, 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 non-vigorous trees are. Chinese pistache #306 and 307 had good health and would likely tolerate construction better than less healthy trees.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are more likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. The base of holly oak #361 was embedded in chain link fence. This was a tree with compromised structural integrity and not recommended for preservation.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, coast redwoods and evergreen ash are well tolerant of construction, but trees respond best with irrigation following site disturbance. Blackwood acacias are intolerant of root injuries.

- **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. Chinese juniper #335 was a young, vigorous tree and would be able to tolerate construction better than an older juniper.

- **Invasiveness**
  Species which 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 (https://www.cal-ipc.org/paf/) lists species identified as being invasive. Blackwood acacia and purpleleaf plum are invasive on a limited basis.

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 Assessments*** in Exhibits, and Table 2). We consider trees with high suitability for preservation to be the best candidates for preservation. We do not normally 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.
4590 Patrick Henry Drive, Santa Clara

High	Trees in good health and with structural stability that have the potential for longevity at the site. Five trees had high suitability for preservation: Chinese pistaches #306 & 307, cajeput paperbark trees #330 & 331, and Chinese juniper #335.
Moderate	Trees in fair health and/or with structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring and may have shorter lifespans than those in the "high" category. Twenty-three (23) trees had moderate suitability for preservation: blackwood acacia #304, cajeput paperbark trees #319, 322 – 323, 328, 329, carobs 337, 341, 342, 374, 375, Chinese junipers #305, 308, 309, holly oaks #347, 357, 363, Chinese pistaches #310 & 311, evergreen ashes #326 & 327, and purpleleaf plum #313.
Low	Trees in poor health or with 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: all coast redwoods (11), blackwood acacias (#304, 334, 336, 343, 344, 351, 364), carobs (#340, 365 – 369, 371, 372), crape myrtles (#316 – 318, 332, 333), holly oaks (#315, 361, 362, 373), cajeput paperbark trees (#320, 325), evergreen ash (#338, 370, 376), hackberries (#345 & 346), Chinese juniper #312, Chinese pistache #377, and purpleleaf plum #303.

Preliminary Evaluations of Impacts and Recommendations

Appropriate tree retention develops a practical match between the location and intensity of construction activities with the quality and health of trees. The ***Tree Assessment*** was the reference point for tree condition and quality. To evaluate impacts from the project, I reviewed the *the Tree Removal Plan* created by Bar Architects dated June 6, 2023. None of the proposed elements were shown on the tree removal plan.

The project proposes to demolish the existing buildings and existing infrastructure. Proposed building will be constructed on the northeast side of the site leaving opportunity for tree preservation at the edges of the site. the best opportunity for preservation is the proposed public park area (see **Tree Disposition Table**).

Fifty-one (51) trees are proposed for removal, 20 based on their condition and 31 due to the project. Twenty (20) trees can be preserved. These trees are located in the proposed park area or are located off-site. Tree preservation is predicated on strict adherence to the **Tree Preservation Guidelines.**

Table 3: Tree disposition.
4590 Patrick Henry Drive, Santa Clara

Tree No.	Species	Trunk Diameter (in.)	Disposition	Comments
303	Purpleleaf plum	7,7,4,3	Condition	Remove based on condition.
304	Blackwood acacia	4	Remove	Within project area.
305	Chinese juniper	10,7,6,6	Remove	Within project area.
306	Chinese pistache	4	Remove	Within project area.
307	Chinese pistache	9	Remove	Within project area.
308	Chinese juniper	12, 6	Remove	Within project area.
309	Chinese juniper	12, 7,6,6	Remove	Within project area.
310	Chinese pistache	12	Remove	Within project area.
311	Chinese pistache	8	Remove	Within project area.
312	Chinese juniper	7,6,5,5,5	Remove	Within project area.
313	Purpleleaf plum	8	Remove	Within project area.
315	Holly oak	11	Remove	Within project area.
316	Crape myrtle	4	Remove	Within project area.
317	Crape myrtle	5	Condition	Remove based on condition.
318	Crape myrtle	5	Condition	Remove based on condition.
319	Cajeput paperbark tree	14,12	Remove	Within project area.
320	Cajeput paperbark tree	9,7	Remove	Within project area.
322	Cajeput paperbark tree	22	Remove	Within project area.
323	Cajeput paperbark tree	9	Remove	Within project area.
325	Cajeput paperbark tree	9,7,6	Remove	Within project area.
326	Evergreen ash	14	Remove	Within project area.
327	Evergreen ash	20	Remove	Within project area.
328	Cajeput paperbark tree	18	Remove	Within project area.
329	Cajeput paperbark tree	13	Remove	Within project area.
330	Cajeput paperbark tree	17	Remove	Within project area.
331	Cajeput paperbark tree	19, 15	Remove	Within project area.
332	Crape myrtle	5	Condition	Remove based on condition.
333	Crape myrtle	5	Condition	Remove based on condition.
334	Blackwood acacia	4	Preserve	Outside project area.

Tree No.	Species	Trunk Diameter (in.)	Disposition	Comments
335	Chinese juniper	4	Preserve	Outside project area.
336	Blackwood acacia	4	Preserve	Outside project area.
337	Carob	18	Preserve	Outside project area.
338	Evergreen ash	12	Condition	Remove based on condition.
340	Carob	8	Preserve	Outside project area.
341	Carob	19	Preserve	Outside project area.
342	Carob	13	Preserve	Outside project area.
343	Blackwood acacia	9	Preserve	Off-site? impacts are close
344	Blackwood acacia	20	Preserve	Outside project area.
345	Hackberry	4	Preserve	Off-site? impacts are close
346	Hackberry	7,7,6,4	Preserve	Off-site? impacts are close
347	Holly oak	12	Preserve	Off-site? impacts are close
348	Coast redwood	8	Condition	Remove based on condition.
349	Coast redwood	6	Condition	Remove based on condition.
350	Coast redwood	7	Condition	Remove based on condition.
351	Blackwood acacia	5,5,4	Condition	Remove based on condition.
352	Coast redwood	7	Condition	Remove based on condition.
353	Coast redwood	7	Condition	Remove based on condition.
354	Coast redwood	5	Condition	Remove based on condition.
355	Coast redwood	6	Condition	Remove based on condition.
356	Coast redwood	6	Condition	Remove based on condition.
357	Holly oak	12	Preserve	Off-site? impacts are close
358	Coast redwood	7	Condition	Remove based on condition.
359	Coast redwood	8	Condition	Remove based on condition.
360	Coast redwood	8	Condition	Remove based on condition.
361	Holly oak	7,6,5	Remove	Within project area.
362	Holly oak	12	Preserve	Off-site? impacts are close
363	Holly oak	8,8,6	Preserve	Off-site? impacts are close
364	Blackwood acacia	24	Remove	Within project area.
365	Carob	7,7	Preserve	Off-site? impacts are close
366	Carob	6	Remove	Within project area.
367	Carob	7	Remove	Within project area.
368	Carob	7	Remove	Within project area.
369	Carob	16	Preserve	Off-site? impacts are close
370	Evergreen ash	12	Condition	Remove based on condition.
371	Carob	8,7,6,5,4	Preserve	Off-site? impacts are close
372	Carob	6	Remove	Within project area.
373	Holly oak	7	Preserve	Off-site? impacts are close

Tree No.	Species	Trunk Diameter (in.)	Disposition	Comments
374	Carob	12	Remove	Within project area.
375	Carob	8,7,7,6,5,4,3	Preserve	Off-site? impacts are close
376	Evergreen ash	22	Condition	Remove based on condition.
377	Chinese pistache	7	Remove	Within project area.

Preliminary 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 depends on the amount of excavation and grading, care with which demolition is undertaken, and 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 on the Tree Protection Plan prepared by the project arborist.
    a. Fence all trees at the property line or at the edge of the dripline to exclude the tree from the work area. Fencing should be installed prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link with posts sunk into the ground or equivalent as approved by the City.
    b. Fences must be installed prior to beginning demolition and must remain until construction is complete.
    c. No grading, excavation, construction, or storage or dumping of materials shall occur within the **TREE PROTECTION ZONE**.
    d. No underground services including utilities, sub-drains, water, or sewer shall be placed in the **TREE PROTECTION ZONE**.

Design recommendations

1. 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.
2. Plot accurate locations of all trees to be preserved on all project plans. Identify the **TREE PROTECTION ZONE** for each tree. Create a Tree Protection Plan showing the location of the **TREE PROTECTION ZONE** for each tree. For design purposes, the Tree Protection Zone

shall be defined as the area 1 foot away from construction activities shown in the reviewed 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. Consider the vertical clearance requirements near trees during design. Avoid designs that would require pruning more than 20% of a tree's canopy.
5. Irrigation systems must be designed so that no trenching severs roots larger than 1" in diameter will occur within the **TREE PROTECTION ZONE**.
6. **Tree Preservation Guidelines** prepared by the Consulting Arborist, which include specifications for tree protection during demolition and construction, should be included on all plans.
7. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
8. Do not lime the subsoil within 50' of any tree. Lime is toxic to tree roots.
9. 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.
10. Ensure adequate but not excessive water is supplied to trees; in most cases occasional irrigation will be required. Avoid directing runoff toward trees.

Pre-demolition and pre-construction treatments and recommendations

1. The demolition and construction superintendents shall meet with the Consulting Arborist before beginning work to review all work procedures, access routes, storage areas, and tree protection measures.
2. Where demolition must occur close to trees, such as removing curb and pavement, install temporary trunk protection devices such as winding silt sock wattle around tree trunks to a height of approximately 5'. Any low branches that are within the work zone should also be protected. Remove trunk protection after demolition is completed and install protective fence at the limits of the tree protection zone. Do not retain wattling around tree trunks for more than 2-3 weeks to avoid damaging trunks from excess moisture.
3. Apply and maintain 4-6" wood chip mulch within the **TREE PROTECTION ZONE**. Keep the mulch 2' from the base of tree trunks.
4. Prune trees to be preserved to clean the crown of dead branches 1" and larger in diameter, raise canopies as needed for construction activities.
    a. Do not remove more than 20-25% of each tree's crown.
    b. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning

(International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).

c. Branches extending into the work area that can remain following demolition shall be tied back and protected from damage.

d. While in the tree, the arborist shall perform an aerial inspection to identify any defects, weak branch and trunk attachments and decay not visible from the ground. Any additional work needed to mitigate defects shall be reported to the property owner.

5. 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.
6. 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.
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. The Project arborist shall be on-site during all operations within the **TREE PROTECTION ZONE** to monitor demolition activity.
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. Any approved grading, construction, demolition, or other work within the **TREE PROTECTION ZONE** should be monitored by the Consulting Arborist.
2. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.
3. 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.
4. Construction trailers, traffic and storage areas must remain outside **TREE PROTECTION ZONE** at all times.
5. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the Consulting 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.
6. If roots 2” and greater in diameter are encountered during site work and must be cut to complete the construction, the Consulting Arborist must be consulted to evaluate effects on the health and stability of the tree and recommend treatment.

7. Any brush clearing required within the **TREE PROTECTION ZONE** shall be accomplished with hand-operated equipment.
8. 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.
9. 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.
10. Prior to grading or trenching, trees may require root pruning outside the **TREE PROTECTION ZONE.** Any root pruning required for construction purposes shall receive the prior approval of, and be supervised by, the Consulting Arborist.
11. Spoil from trench, footing, utility, or other excavation shall not be placed within the **TREE PROTECTION ZONE**, neither temporarily nor permanently.
12. 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.
13. All trees shall be irrigated on a schedule to be determined by the Consulting Arborist (every 3 to 6 weeks is typical). Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 30”.
14. 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.
15. No excess soil, chemicals, debris, equipment, or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
16. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.
17. 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
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. Inspect trees annually and following major storms to identify conditions requiring treatment to manage risk associated with tree failure.

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.

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

HortScience | Bartlett Consulting

Prepared by:

Amber Graves Alvares
Consulting Arborist & Urban Forester
ISA Certified Arborist, WE-13131A
ISA Tree Risk Assessment Qualified

Report revised by:

Darya Barar, Managing Consulting Urban Forester
ISA Certified Arborist No. WE-6757A
Registered Consulting Arborist #693
ISA Tree Risk Assessment Qualified

Exhibits

Tree Assessment Form

Tree Assessment Map

Tree Assessment

4590 Patrick Henry Drive
Santa Clara, CA
August 2022

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
303	Purpleleaf plum	7,7,4,3	No	2	Low	Narrow upright form; twig and branch dieback; epicormic sprouts make up almost entire crown; boring holes and sap from base spreading up branches; rocks around base.
304	Blackwood acacia	4	No	4	High	Good young tree; upright form; full crown.
305	Chinese juniper	10,7,6,6	No	3	Moderate	Multiple attachments at base; topped; spreading form; slight browning.
306	Chinese pistache	4	No	4	High	Good young tree; multiple attachments at 5 ft; slight lean S; rocks around base.
307	Chinese pistache	9	No	4	High	Upright form; slight lean S; full rounded crown heavy with fruit; rocks around base.
308	Chinese juniper	12, 6	No	3	Moderate	Multiple attachments at base; wide spreading form; minor browning throughout crown.
309	Chinese juniper	12, 7,6,6	No	3	Moderate	Multiple attachments at base; wide spreading form; shaded by nearby trees.
310	Chinese pistache	12	No	3	Moderate	Multiple attachments at 5 and 7 ft; 2 ft by 1 ft wound at base on S; dense rounded crown; rocks around base.
311	Chinese pistache	8	No	4	Moderate	Multiple attachments at 5 and 8 ft; very slightly sparse rounded crown; raised bark at lowest branch attachment; rocks around base.
312	Chinese juniper	7,6,5,5,5	No	3	Low	Multiple attachments at base; growing around and engulfing holly oak 316; topped.
313	Purpleleaf plum	8	No	4	Moderate	Good upright form; full round crown; sapsucker damage in trunk; rocks around base.
315	Holly oak	11	No	3	Low	Good upright form; sapsucker damage; base engulfing juniper.
316	Crape myrtle	4	No	3	Low	Good upright form; sparse; crown heavier on N.
317	Crape myrtle	5	No	2	Low	Good upright form; very sparse.
318	Crape myrtle	5	No	2	Low	Good upright form; very sparse.

Tree Assessment

4590 Patrick Henry Drive
Santa Clara, CA
August 2022

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
319	Cajeput paperbark tree	14,12	No	3	Moderate	Codominant at base; third leader removed at base; full narrow crown; large exposed surface roots.
320	Cajeput paperbark tree	9,7	No	3	Low	Codominant at base; narrow union; narrow form; full crown with slight twig dieback.
322	Cajeput paperbark tree	22	No	3	Moderate	Upright form; codominant at 8 ft; lower codominant leader removed at 6 ft; large exposed surface roots with smaller girdling roots over them; full crown.
323	Cajeput paperbark tree	9	No	4	Moderate	Upright; narrow form; full crown; exposed surface roots.
325	Cajeput paperbark tree	9,7,6	No	3	Low	Multiple attachments at base; minor twig dieback; wound from base to 6 ft on NW leader.
326	Evergreen ash	14	No	3	Moderate	Codominant at 8 ft; twig dieback; small patch of bark loss at base on N.
327	Evergreen ash	20	No	3	Moderate	Multiple attachments at 15 ft; rounded crown with some twig dieback.
328	Cajeput paperbark tree	18	No	3	Moderate	Trunk sweeps to west and corrects; narrow form; full crown.
329	Cajeput paperbark tree	13	No	3	Moderate	Upright form; second leader removed at 4 ft; slight lean W; narrow form; full crown.
330	Cajeput paperbark tree	17	No	4	High	Multiple attachments at 10 ft; full crown.
331	Cajeput paperbark tree	19, 15	No	4	High	Codominant at base with narrow union to 6 ft; full dense crown; slight lean S.
332	Crape myrtle	5	No	2	Low	Good upright form; very sparse crown.
333	Crape myrtle	5	No	2	Low	Good upright form; very sparse crown.
334	Blackwood acacia	4	No	3	Low	Bows S; young tree; obscured by oleanders.
335	Chinese juniper	4	No	5	High	Good upright form; young tree.

Tree Assessment

4590 Patrick Henry Drive
Santa Clara, CA
August 2022

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
336	Blackwood acacia	4	No	3	Low	Good upright form; young tree; obscured by oleanders; tagged on oleander.
337	Carob	18	No	3	Moderate	Codominant at 7 ft; dieback in upper crown; lean S; small wound at base on N.
338	Evergreen ash	12	No	2	Low	No tag - trunk inaccessible; multiple attachments at 8 ft; S leader dead; very sparse crown.
340	Carob	8	No	3	Low	Multiple attachments at 8 ft; sparse crown.
341	Carob	19	No	3	Moderate	Multiple attachments at 7 ft; sapsucker damage; full crown.
342	Carob	13	No	3	Moderate	Upright form; lean to the N; full crown; sapsucker damage.
343	Blackwood acacia	9	No	3	Low	Off site; leans N; high dense crown.
344	Blackwood acacia	20	No	3	Low	Leans N; codominant at 9 ft; dieback in top of crown; trunk obscured by shrub.
345	Hackberry	4	No	1	Low	Off site; bows W; all but dead.
346	Hackberry	7,7,6,4	No	2	Low	No tag - off site; multiple attachments at base; sparse crown.
347	Holly oak	12	No	4	Moderate	Leans west; dense crown; mild sapsucker damage; branches growing through fence.
348	Coast redwood	8	No	1	Low	All but dead.
349	Coast redwood	6	No	2	Low	Good upright form; sparse and moderately brown.
350	Coast redwood	7	No	2	Low	Good upright form; sparse and moderately brown.
351	Blackwood acacia	5,5,4	No	2	Low	Multiple attachments at base; high sparse crown.
352	Coast redwood	7	No	2	Low	Good upright form; sparse with moderate browning.
353	Coast redwood	7	No	2	Low	Good upright form; sparse with moderate browning.
354	Coast redwood	5	No	2	Low	Good upright form; sparse with moderate browning.
355	Coast redwood	6	No	2	Low	Good upright form; sparse with moderate browning; obscured by bushes.
356	Coast redwood	6	No	2	Low	Good upright form; sparse with moderate browning; obscured by bushes.

Tree Assessment

4590 Patrick Henry Drive
Santa Clara, CA
August 2022

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

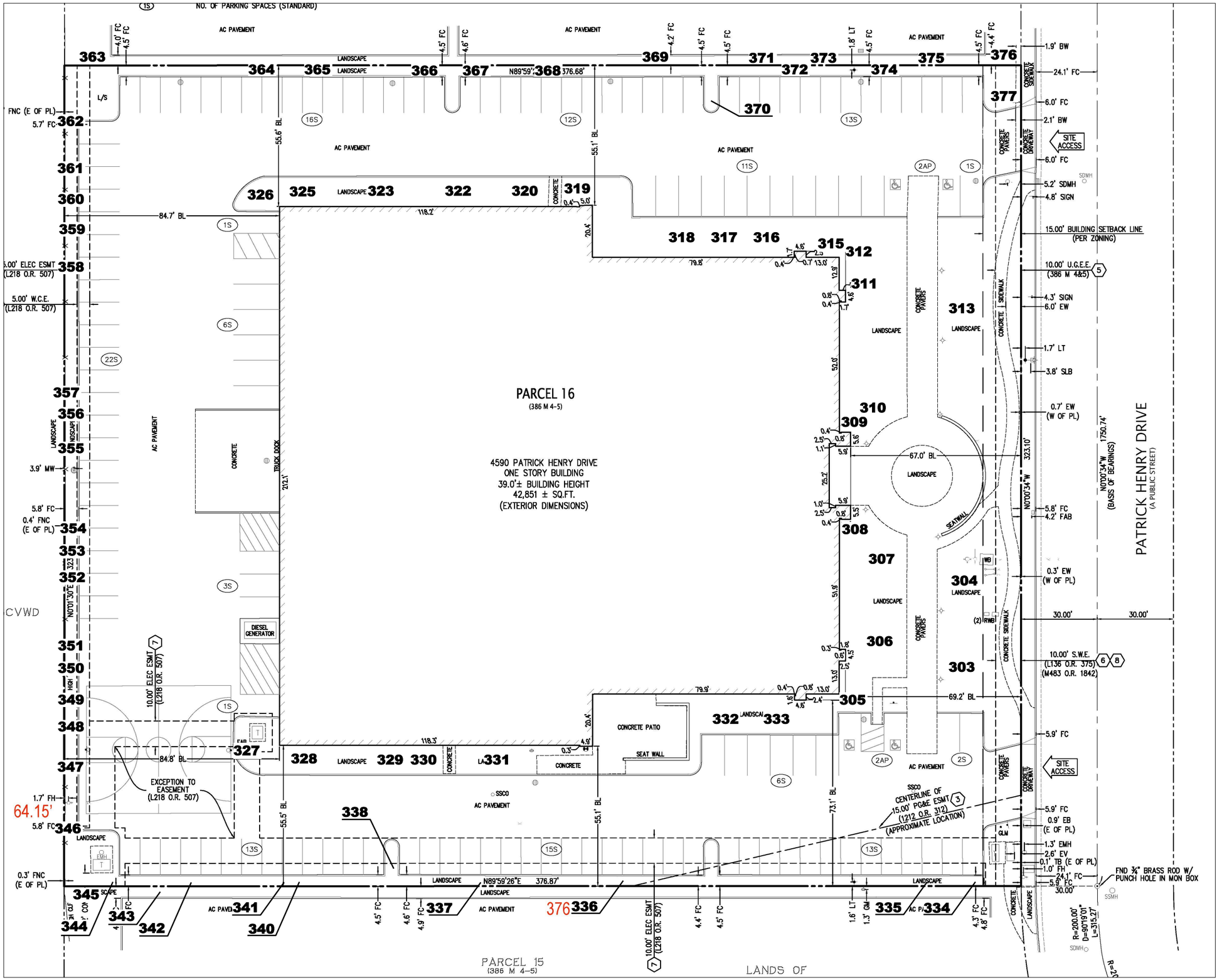
Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
357	Holly oak	12	No	4	Moderate	No tag - off site; crown full and bows over fence to E.
358	Coast redwood	7	No	2	Low	Good upright form; sparse with moderate browning; obscured by bushes.
359	Coast redwood	8	No	1	Low	All but dead.
360	Coast redwood	8	No	2	Low	Good upright form; sparse with moderate browning; ivy climbing trunk.
361	Holly oak	7,6,5	No	3	Low	Property line tree; chain link embedded in trunk; multiple attachments at base; bows W.
362	Holly oak	12	No	3	Low	No tag - off site; bows W towards train tracks.
363	Holly oak	8,8,6	No	3	Moderate	Off site; multiple attachments at base; sooty mold; rounded crown; slightly sparse.
364	Blackwood acacia	24	No	3	Low	Multiple attachments at 15 ft; large roots circling trunk and overflowing curb; bark loss on exposed roots; full crown.
365	Carob	7,7	No	3	Low	No tag - off site; multiple attachments at base; obscured by oleanders.
366	Carob	6	No	3	Low	Multiple attachments at 7 ft; obscured by oleanders.
367	Carob	7	No	3	Low	Multiple attachments at 7 ft; slight lean S; high crown.
368	Carob	7	No	3	Low	Multiple attachments at 5 ft; high sparse crown.
369	Carob	16	No	3	Low	No tag - off site; multiple attachments at 7 ft; high sparse crown.
370	Evergreen ash	12	No	2	Low	Slight lean S; twig and branch dieback; sparse crown.
371	Carob	8,7,6,5,4	No	2	Low	No tag - off site; multiple attachments at base; high sparse crown.
372	Carob	6	No	3	Low	Upright form; young tree; sparse crown.
373	Holly oak	7	No	2	Low	No tag - off site; suppressed; sparse crown.
374	Carob	12	No	4	Moderate	Upright form; multiple attachments at 7 ft; sapsucker damage; rounded dense crown.
375	Carob	8,7,7,6,5,4,3	No	4	Moderate	No tag - off site; multiple attachments at base; wide dense crown.

Tree Assessment

4590 Patrick Henry Drive
Santa Clara, CA
August 2022

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
376	Evergreen ash	22	No	2	Low	Multiple attachments at 8 ft; narrow attachments; sparse crown; twig and branch dieback.
377	Chinese pistache	7	No	3	Low	One sided and leans to the S; heavy over driveway; full crown.



Tree Assessment Map

4590 Patrick Henry Drive
Santa Clara, CA

Prepared for:
KASA Partners
San Francisco, CA

August 2022

No Scale

Notes:

Base map provided by:
Kier & Wright
Santa Clara, CA

Numbered tree locations are approximate.

HORT SCIENCE
BARTLETT CONSULTING
Divisions of The F.A. Bartlett Tree Expert Company

2550 Ninth Street, Suite #112
Berkeley, CA 94710
Phone 925.484.0211
Fax 925.484.0596