Appendix B – Arborist Report

# Kielty Arborist Services LLC

Certified Arborist WE#0476A
P.O. Box 6187
San Mateo, CA 94403
650- 515-9783


April 20th, 2021

Smith Development
Attn: Jenn Bodine

Site: 150 Grant Avenue, 123 Sherman Avenue, & 2501 Park Boulevard, Palo Alto

Dear Smith Development,

As requested on March 23rd, 2021, I visited the above site for the purpose of inspecting and commenting on the trees. A mixed-use project is proposed for this site, and your concern as to the future health and safety of the trees has prompted this visit. Planning submittal package by KSH Architects was reviewed for writing this report. This report will go over the general health of the trees on site and will give recommendations for the proposed construction. A tree protection plan to follow throughout the entire length of the proposed construction will also be found within this report.

**Method:**
All inspections were made from the ground; the trees were not climbed for this inspection. The trees in question were located on a map provided by you. The trees were then measured for diameter at 54 inches above ground level (DBH). The trees were given a condition rating for form and vitality. The trees' condition rating is based on 50 percent vitality and 50 percent form, using the following scale.

1 - 29 Very Poor
30 - 49 Poor
50 - 69 Fair
70 - 89 Good
90 - 100 Excellent

The height of the trees was measured using a Nikon Forestry 550 Hypsometer. The spread was paced off. Comments and recommendations for future maintenance are provided.

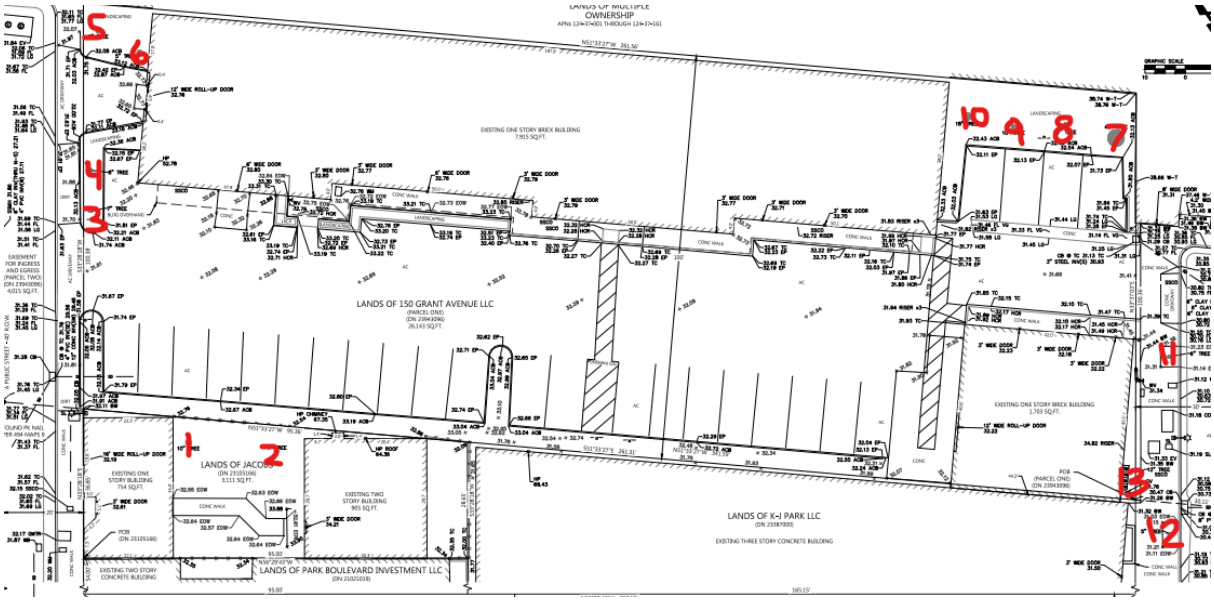
**Survey Key:**
**DBH-**Diameter at breast height (54 inches above grade)
**CON-**Condition rating
**HT/SP-**Tree height and canopy spread
**P-** Indicates protected tree by city ordinance
**R-** Indicates proposed tree removal

**Survey:**

| Tree# | Species | DBH | CON | HT/SP | Comments |
|---|---|---|---|---|---|
| 1**R** | Plum *(Prunus sp.)* | 8.8 | 60 | 15/15 | Fair vigor, fair form, minor deadwood. |
| 2**R** | Japanese maple *(Acer palmatum)* | 3.8-5.5 | 0 | 12/6 | DEAD. |
| 3**R** | Raywood ash *(Fraxinus angustifolia 'Raywood')* | 7.8 | 55 | 25/15 | Fair vigor, fair form. |
| 4**R** | Raywood ash *(Fraxinus angustifolia 'Raywood')* | 8.7 | 55 | 25/15 | Fair vigor, fair form. |
| 5**R** | Magnolia *(Magnolia grandiflora)* | 4.8 | 30 | 15/12 | Fair vigor, poor form, heartwood rot, |
| 6**R** | Photinia *(Photinia x fraseri)* | 5.0 | 50 | 12/12 | Fair vigor, fair form. |
| 7**P** | Redwood *(Sequoia sempervirens)* | 36.8 | 70 | 65/25 | Good vigor, good form. |
| 8**R** | Redwood *(Sequoia sempervirens)* | 13.5 | 70 | 45/15 | Good vigor, good form, suppressed. |
| 9**R** | Redwood *(Sequoia sempervirens)* | 8.8 | 70 | 35/12 | Good vigor, good form, suppressed. |
| 10**P/R** | Redwood *(Sequoia sempervirens)* | 19.8 | 70 | 50/15 | Good vigor, good form. |
| 11**P/R** | Magnolia *(Magnolia grandiflora)* | 6.0 | 65 | 20/15 | Fair vigor, fair form, **street tree**. |
| 12***P** | Magnolia *(Magnolia grandiflora)* | 5.8 | 45 | 15/12 | Fair to poor vigor, fair form, **street tree.** |
| 13**R** | Tree of heaven *(Ailanthus altissima)* | 11.5 | 45 | 40/25 | Fair vigor, fair form, poor location, poor species, invasive. |

# NO TREES FOUND ON THE 2501 PARK BOULEVARD SIDE OF PROJECT

**P-**Indicates a protected tree by city ordinance
*indicates neighbors tree

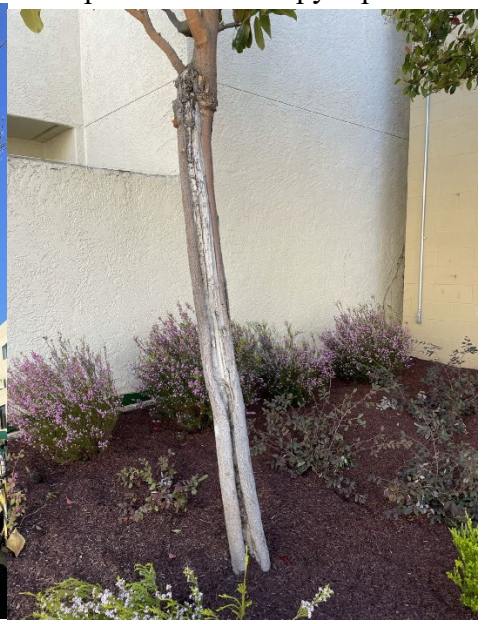



**Showing tree number locations**

**Non-protected trees proposed for removal:**
Trees #1-6, #8-11, & #13 are proposed for removal to facilitate the proposed construction. Plum tree #1 and Japanese maple (dead) tree #2 are within an existing courtyard between 2 buildings. These trees are not of a protected species. All trees proposed for removal will need to be replaced per the tree canopy replacement standard.

Raywood ash trees #3, #4, magnolia tree #5, and photina tree #6 are proposed for removal to facilitate construction. These trees are not protected in the city of Palo Alto. Magnolia tree #5 is in poor condition as heartwood rot was observed on the trunk as well as an overall decline in the canopy. This tree is not expected to survive much longer regardless of the proposed construction. These trees will need to be replaced on site per the tree canopy replacement standard.

**Showing ash trees #3 and #4**



**Showing heartwood rot on magnolia #5**

Redwood trees #8 and #9 are proposed for removal. These trees are under the protected size for redwood trees in the city of Palo Alto. Removal is needed to facilitate construction. These trees will need to be replaced per tree canopy replacement standards.

**Showing redwood trees #7-10**

Tree of heaven tree #13 is proposed for removal. This species is highly invasive and encouraged for removal. The tree is located up against an existing building foundation. Removal is needed before demolition of the building as demolition could de-stabilize the tree. This tree will need to be replaced per tree canopy replacement standards.

**Showing tree of heaven #13**

**Protected trees proposed for removal:**
Redwood tree #10 is proposed for removal to facilitate the proposed construction. The proposed building is within the footprint of the tree.

Magnolia street tree #11 is proposed for removal to facilitate the proposed construction. All trees to be removed must be replaced per the tree canopy replacement standards.

**Tree replacement measures:**
The tree canopy replacement standard as seen in Palo Alto's Tree Technical Manual was used to establish the number of replacement trees required on site. Below is a list of the canopy distance for each tree to be removed followed by the number of replacement trees required to fulfill city requirements. Using the standards, a total of thirty-two 24" box trees are needed on site.

**Plum tree #1=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Japanese maple tree #2=** 6-foot-wide canopy
Replacement trees= Two 24" box trees or one 36" box tree.

**Raywood ash tree #3=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Raywood ash tree #4=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Magnolia tree #5=** 12-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Photinia #6=** 12-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Redwood tree #8=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Redwood tree #9=** 12-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Redwood tree #10=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Magnolia tree #11=** 15-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

**Tree of heaven #13=** 25-foot-wide canopy
Replacement trees= Three 24" box trees or two 36" box trees.

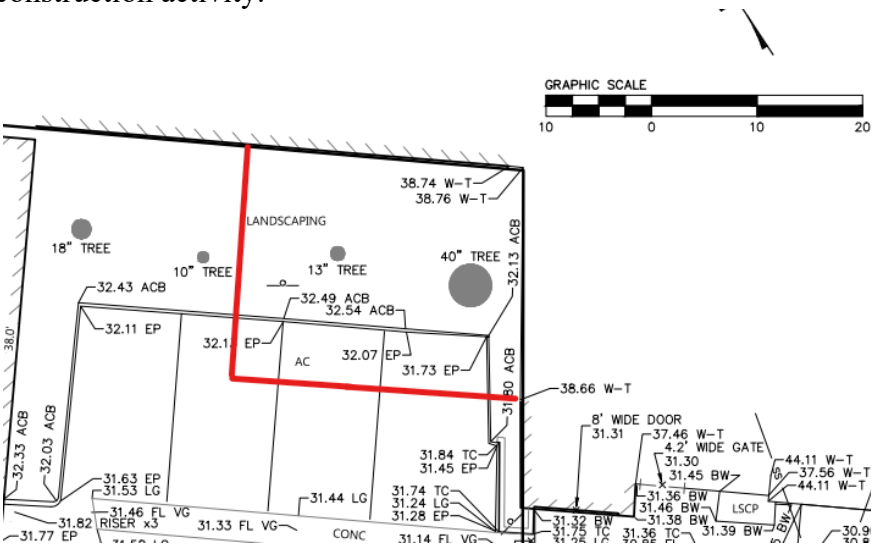
Tree Canopy - Replacement Standard

| COLUMN 1 | COLUMN 2 | COLUMN 3 |
|---|---|---|
| Canopy of the Removed Tree (Avg. dist. across the canopy*) | Replacement Trees | Alternative Tree |
| 4'-9' | Two 24" Box Size (minimum) | One 36" Box Size |
| 10'-27' | Three 24" Box Size | Two 36" Box Size |
| 28'-40' | Four 24" Box Size | Two 48" Box Size |
| 40'-56' | Six 24" Box Size | Two 48" Box & Two 36" Box Size |
| 56'-60' | Two 24" Box & Two 36" Box + Two 48" Box Size | ** |
| 60'+ | ** | ** |

**Showing Tree Canopy Replacement Standard Used**

**Impacts/recommendations:**

The only tree to be retained on site is redwood tree #7. Neighboring magnolia street tree #12 will also be retained. For redwood tree #7 to be retained, it is recommended to maintain the existing landscaped area a minimum of 20 feet from the tree as roots are expected to be found in abundance in this area. Where the existing parking lot is near the tree, it is recommended to stay 10 feet from the tree as a portion of the tree's root crown is likely within the pavement area. Roots within the pavement area are not expected to be found in abundance when compared to the landscaped area due to compaction resulting in a smaller tree protection zone on the existing pavement side of the tree. Basement excavation is recommended to not encroach closer than this area. The basement will need to be supported by vertical shoring. Below is a diagram showing the area to be left undisturbed by construction activity.




**Showing the recommended tree protection zone for redwood tree #7**

All excavation must take place by hand when within 30 feet from the tree. The Basement excavation cut shall first be excavated by hand to a depth of 3 feet along the edge of the proposed basement cut. This way all encountered roots can be cleanly cut under the Project Arborist supervision. Cut root ends at the basement cut are recommended to be covered by 3 layers of wetted down burlap to help avoid root desiccation. Burlap shall be spayed down with clean water multiple times a day. Impacts are expected to be minor. Within the tree protection zone, a series of soaker hoses are recommended to be installed. Once a week the tree is recommended to be irrigated with 50 gallons of clean water. During the month of May for the next 3 years the tree is recommended to be deep water fertilized using 300 gallons of clean water mixed with a well-balanced fertilizer.

Neighboring magnolia tree #12 is not expected to be impacted. This tree will need to be protected by type 3 tree protection fencing. The following tree protection plan will help to insure the future health of the retained trees on site. No impacts to the protected trees on site are expected.

**Tree Protection Plan:**
Tree protection zones should be established and maintained throughout the entire length of the project. All tree protection measures, recommended inspections, irrigation, and construction scheduling shall be implemented in full by the owner and contractor. Fencing for the protection zones should be 6-foot-tall metal chain link type supported by 2-inch diameter metal poles pounded into the ground to a depth of no less than 2 feet. The support poles should be spaced no more than 10 feet apart on center. The location for the protection fencing should be placed at a minimum distance equal to the tree driplines, and at a maximum distance of 10 times the trees diameters where possible. Where tree protection fencing cannot be placed at the dripline because of the approved proposed work, tree protection should be placed as close as possible to the proposed work while still allowing room for construction to safely continue. Signs should be placed on fencing signifying “Tree Protection Zone - Keep Out”. No materials or equipment should be stored or cleaned inside the tree protection zones. If tree protection zones need to be reduced for access or any other reason, than a landscape barrier shall be installed where tree protection does not extend out to the tree driplines. The following tree protection distances should be followed throughout the entire length of the project:

- Magnolia street tree #12 will need to be protected by type 3 tree protection. Fencing shall consist of orange plastic fencing wrapped around the tree trunk from the ground to a height equal to the first lateral branch, to form a 2-inch thick layer of orange plastic fencing. On the outside of the orange plastic fencing, 2-inch thick wooden slats are recommended to be bound securely to the fencing. During installation of the wood slats, caution shall be used to avoid damaging any bark or branches.
- Redwood tree #7 will need to be protected by type 1 tree protection fencing as shown in the provided diagram.

Landscape Barrier
Where tree protection does not cover the entire root zone of the trees (at canopy spread), or when a smaller tree protection zone is needed for access, a landscape buffer consisting of wood chips spread to a depth of six inches with plywood or steel plates placed on top will be placed where foot traffic is expected to be heavy. The landscape buffer will help to reduce compaction to the unprotected root zone.

Tree Pruning
During construction any trimming will be supervised by the site arborist and must stay underneath 25% of the tree's total foliage. At this time no pruning is proposed. All pruning shall be done by a licensed tree care provider.

Root Cutting
Any roots to be cut should be monitored and documented. Large roots or large masses of roots to be cut should be inspected by the site arborist. The site arborist may recommend irrigation and a tree monitoring program at that time. Cut all roots clean with a saw or loppers. Roots to be left exposed for a period of time should be covered with layers of burlap and kept moist. All roots measuring 1.5 inches in diameter or larger to be cut, must first be shown to the Project Arborist.

Trenching and Excavation
Trenching and excavation shall strive to stay outside of the tree protection zones. If not possible trenching for any reason, should be hand dug when beneath the dripline of desired trees. Hand digging and careful placement of pipes below or beside protected roots will dramatically reduce root loss, thus reducing trauma to desired trees. Trenches should be back filled as soon as possible using native materials and compacted to near original levels. Trenches to be left open with exposed roots shall be covered with burlap and kept moist. Plywood laid over the trench will help to protect roots below.

Irrigation
Normal irrigation should be maintained throughout the entire length of the project for the imported trees. Irrigation should consist of surface flooding, with enough water to wet the entire root zone twice a month during the dry season.

Inspections
The site will be inspected after the tree protection measures are installed, and before the start of construction. Monthly inspections are generally required for site such as this. Inspections will be carried out during the first week of each month. The inspections will be documented with inspection letters being provided to the owner, contractor and city arborist. Other inspections will be carried out on an as needed basis. The inspections are required by the city of Palo Alto as a condition of approval. It is the contractor's responsibility to notify the site arborist when construction is to start, and whenever there is to be work performed within the 10 times the diameter of a protected tree on site at least 48 hours in advance. Kielty Arborist Services can be reached at 650-515-9783(Kevin), or by email at kkarbor0476@yahoo.com.

Further information about tree protection can be found in the Tree Technical Manual provided by the city of Palo Alto. This information should be kept on site at all times. The information included in this report is believed to be true and based on sound arboricultural principles and practices.
Sincerely, Kevin R. Kielty Certified Arborist WE#0476A Kevin Kielty

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650- 515-9783

**ARBORIST DISCLOSURE STATEMENT**

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like a medicine, cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

*Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees.*

Arborist: Kevin Kielty
Kevin R. Kielty Date: April 20th, 2021