

Kielty Arborist Services LLC

Certified Arborist WE#0476A

P.O. Box 6187

San Mateo, CA 94403

650-515-9783

June 6, 2018

Jet Engineering

Attn: James E. Thompson

1048 El Camino Real, Suite C

Redwood City, CA 94063

Site: 1462 Edgewood Road, Redwood City, CA

Dear Mr. Thompson,

As requested on Wednesday, May 16, 2018, I visited the above site to inspect and comment on the trees. A subdivision is proposed for this site and your concern for the future health and safety of the trees has prompted this visit.

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 or diameter at breast height). 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.

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Survey:

Tree#	Species	DBH	CON	HT/SP	Comments
1S	Redwood (<i>Sequoia sempervirens</i>)	17.5	90	45/15	Good vigor, good form, young tree, good screen, out of native range, needs supplemental irrigation.
2S	Redwood (<i>Sequoia sempervirens</i>)	14.7	90	45/15	Good vigor, good form, young tree, good screen, out of native range, needs supplemental irrigation.
3S	Redwood (<i>Sequoia sempervirens</i>)	14.8	90	45/15	Good vigor, good form, young tree, good screen, out of native range, needs supplemental irrigation.
4S	Redwood (<i>Sequoia sempervirens</i>)	13.0	90	45/15	Good vigor, good form, young tree, good screen, out of native range, needs supplemental irrigation.
5	Redwood (<i>Sequoia sempervirens</i>)	11.8	90	40/15	Good vigor, good form, young tree, good screen, out of native range, needs supplemental irrigation.
6	Coast live oak (<i>Quercus agrifolia</i>)	6.7	80	35/15	Good vigor, fair form, suppressed, close to redwood tree.
7	Olive 4-3-3-3-3-3-3 (<i>Olea europaea</i>)		90	12/20	Good vigor, fair form, multi leader at base, young tree.
8	Olive 5.7-3-3-3-3-3 (<i>Olea europaea</i>)		90	12/15	Good vigor, fair form, multi leader at base, young tree.
9	Olive 5.5-3-3-3-3-3-3 (<i>Olea europaea</i>)		90	20/20	Good vigor, fair form, multi leader at base, young tree.
10	Olive 3.1-2-2-2-2 (<i>Olea europaea</i>)		90	10/12	Good vigor, fair form, multi leader at base, young tree.
11	Olive 4.8-3-3-3-3-3 (<i>Olea europaea</i>)		90	12/12	Good vigor, fair form, multi leader at base, young tree.
12	Olive 5.5-3-3-3-3-3 (<i>Olea europaea</i>)		90	15/20	Good vigor, fair form, multi leader at base, young tree.

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Survey:

Tree#	Species	DBH	CON	HT/SP	Comments
13S	Coast live oak (<i>Quercus agrifolia</i>)	18.8	85	25/20	Good vigor, fair form, contorted trunk, leans into property, restricted root zone due to neighboring driveway, good candidate to prop, aesthetically pleasing.
14S	Coast live oak (<i>Quercus agrifolia</i>)	28.2	85	40/50	Good vigor, fair form, sycamore borer damage in past, recommended to expose root crown, codominant at 7 feet with good union, close to existing structure, pruned in past for structure clearance, suppressed by #15, good candidate for cables as leader is heavy over structure.
15S	Silver dollar eucalyptus (<i>Eucalyptus polyanthemos</i>)	15.9	50	40.30	Fair vigor, poor form, suppressed by neighbor's tree, leaning into canopy of tree #14, recommended to remove to improve #14, on edge of creek bank, base of tree not visible.
16	Chinese pistache (<i>Pistachia chinensis</i>)	6.1	80	20/15	Good vigor, good form, young tree.
17S	Coast live oak (<i>Quercus agrifolia</i>)	19.3	90	35/25	Good vigor, good form.

*-Indicates neighbors tree

S- Indicates significant tree by San Mateo County ordinance

San Mateo County "Significant Tree" Ordinance:

All trees over 12 inches in diameter are considered a significant tree in San Mateo County. Significant trees on site will need to be protected throughout the entire length of construction. Tree protection fencing will need to be placed at the dripline of all of the significant trees to be retained. A permit is required for the proposed removal of any significant tree on site. Trees #1-4, #13-15 and #17 are the only significant trees found on site. No heritage trees were found on site.

Summary:

The trees on site are a mix of imported and native trees. The trees are located on the perimeter of the property, making this an ideal site for a new home. In the front of the property is a stand of redwood trees(#1-5) as well as a small oak tree(#6). These trees are in good to excellent condition as they are quite young. A few of these trees will likely need to be removed for access into the property, as there is not an existing driveway into the property. Trees #5 and #6 are under the protected size in San Mateo County. If possible the new driveway should be located on the north side of the property, as this would require the removal of trees #5 and #6 that are not of a protected size. If it is not possible to locate the driveway in this location then a few of the protected redwood trees will need to be removed. The County Of San Mateo has a 1:1 replacement standard using a minimum of a 15 gallon sized tree. There is enough area on this site to plant new replacement trees as needed. The retained redwood trees will need to be provided with supplemental irrigation to maintain a healthy canopy.



Olive trees #7-12 are located in close proximity to the proposed subdivision property line on the south side of the property. These trees are not protected in San Mateo County due to their diameter measurements. All of the olive trees are in excellent condition with no obvious form or health flaws. These trees will provide an excellent screen at the property line and should be retained for this reason. Olive trees are very drought tolerant and require little to no irrigation.

Showing olive trees at the proposed property line

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Showing oak tree #13

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Coast live oak tree #13 is in good condition and is aesthetically pleasing. The tree is located at the proposed property line and offers screening for the property. The tree has a contorted trunk and leans into the property. The tree has a restricted root zone due to the neighboring driveway. Root growth is often discouraged due to the compacted conditions of the available soil underneath the neighboring driveway. Roots on the tension side of a trees lean are needed for the stability of the tree more than roots on the compression side. Because roots on the tension side of the trees lean are growing under compacted conditions, it is recommended to prune this tree every 3-5 years using acceptable reduction cuts in the direction of the tree's lean. This will keep the tree at a manageable size. Also, this tree is a perfect candidate for the installation of a prop to offer extra support due to the tree's lean. With these mitigation measures put into action the trees risk of future failure due to the tree's lean would be significantly reduced.



Showing oak tree #14

Coast live oak tree #14 is located near the rear of the property and is in good condition. During my inspection I noticed the root crown of the tree was buried. Minor sycamore borer damage was also observed near the base of the tree. It is recommended to expose the tree's root crown to inspect for any signs of oak root fungus, as buried root crowns can lead to oak root fungus diseases. The root crown should remain exposed. The tree is codominant at 7 feet with a good union formation. The tree has been pruned in the past for structure clearance, as the tree is heavy over the neighbor's garage. The tree has grown heavily to the south as it is being suppressed by a eucalyptus tree(#15) to the north. It is recommended to heavily prune the eucalyptus tree so that the oak tree can put on growth to the north, creating a more balanced tree crown. This tree will need to be maintained using approved reduction cuts to reduce the risk of leader failure on to the neighboring garage every 3-5 years. Also, if possible the leaders should be cabled for extra support.

Silver dollar eucalyptus tree #15 is in fair condition. The tree is located on the edge of the creek bank. The base of the tree was not visible during my inspection. This tree is leaning towards oak tree #14 creating suppressed conditions for the oak. It is recommended to heavily prune this tree to offer more room for the oak tree. By pruning this tree and not removing it, the tree roots are still available to stabilize the creek bank. If pruning the tree more than 25% of the tree's foliage a tree pruning permit will be required.

Tree #16 is a small Chinese pistache tree located near the rear of the property. This tree is in good condition. The tree is not protected in San Mateo County due to its diameter. If possible this tree should be retained.



Coast live oak tree #17 is in excellent condition. No obvious form flaws were visible within the tree's canopy. This tree is a significant tree and will be required to be protected during all stages of construction. The following tree protection plan will help ensure the safety and health of the retained trees on site. Once a site plan has been made available the tree protection plan shall be amended to be more specific.

Showing oak tree #17

Tree Protection Plan:

Tree protection fencing

Tree protection zones should be established and maintained throughout the entire length of the project. Fencing for protection zones should be 6-foot-tall metal chain link supported by 2-inch diameter poles pounded into the ground. The location for protective fencing should be placed at the dripline of the remaining protected trees on site. No equipment or materials should be stored or cleaned inside protection zones.

Landscape Buffer

If access is needed and a reduced tree protection zone is needed then a landscape buffer consisting of wood chips spread to a depth of six inches with plywood placed on top will be placed in the non protected area to protected the soil within the trees root zone from compaction. The landscape buffer will help to reduce compaction to the unprotected root zone and minimize impacts.

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 or fertilizing 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 encountered measuring 2 inches in diameter or over shall be exposed and remain damage free for the site arborist to view. Mitigation measures will be recommended at this time.

Trenching and Excavation

Trenching for irrigation, electrical, drainage or any other 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. All of the imported trees will require normal irrigation. Irrigation should consist of surface flooding, with enough water to wet the entire root zone. If the root zone is traumatized this type of irrigation should be carried out two times per month during the warm dry season. The native oak trees on site will not be irrigated unless their root zones are traumatized. The retained redwood trees on site will require regular supplemental irrigation.

Grading

All grading shall strive to be outside the canopy spread of the trees on site. If grading is to take place underneath the canopy of a significant sized tree, special mitigation measures will need to be applied. The grading contractors are recommended to meet with the Project Arborist at the site prior to beginning grading to review tree protection measures. The Project Arborist shall perform an inspection during the course of rough grading adjacent to the tree protection zone to ensure trees will not be injured by compaction, cut or fill, drainage and trenching, and if required, inspect aeration systems, tree wells, drains and special paving. The Site Arborist shall be notified at least 48 hours before an inspection is needed. If compaction from grading has taken place within a tree protection zone proper mitigation measures will need to be applied.

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Inspections

The site will be inspected after the tree protection measures are installed and before the start of construction. Other inspections will be carried out on an as needed basis. Any time work is within 20 feet of the protected trees on site, the site arborist must be notified 48 hours in advance so that a site visit can be scheduled during the proposed work.

Replacement trees:

The County Of San Mateo has a 1:1 replacement standard using a minimum of a 15 gallon sized tree.

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

David P. Beckham
Certified Arborist WE#10724A