<u>Appendix</u> B

Arborist Report

Kielty Arborist Services LLC

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

June 7th, 2021, Revised August 24th, 2021

Innovative Homes, LLC c/o: John Suppes 412 Olive Avenue Palo Alto, CA 94306

Site: 575 Los Trancos Road, Palo Alto CA

Dear Innovative Homes, LLC,

As requested on Friday May 28th, 2021, Kielty Arborist Services visited the above site to inspect and comment on the trees. Your concerns as to the future health and safety of the trees has prompted this letter. A review of the trees and a tree protection plan will be found within this report. Preliminary site plan A1.1 dated 4/8/21 has been reviewed as a part of 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 an existing topography 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 ratings are 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" above grade)
CON- Condition rating (1-100)
HT/SP- Tree height/ canopy spread
*indicates neighbor's trees
P-Indicates protected tree by city ordinance
R-Indicates proposed tree removal

575 Los Trancos Survey:				(2)	
	Species	DBH	CON	HT/SI	PComments
1 P	Coast live oak (Quercus agrifolia)	28.0	65	50/30	
2 P	Coast live oak (Quercus agrifolia)	19.5	60	45/30	Fair vigor, fair form, codominant at 8 feet with fair union, suppressed.
3 P	Coast live oak (Quercus agrifolia)	39.3	70	45/55	Good vigor, fair form, heavy laterals, aesthetically pleasing, recommended to cable and prune heavy leaders.
4 P	Valley oak (Quercus lobata)	44.1	60	65/50	Fair vigor, fair form, minor dead wood, 10" and 6" dead limbs observed, codominant at 20 feet, heavy lateral limbs, history of limb loss, recommended to removed dead wood.
5 P	Valley oak (Quercus lobata)	22.4	60	55/35	Fair vigor, fair form, suppressed, tall for diameter.
6 P	Valley oak (Quercus lobata)	39.4	55	60/60	Fair vigor, poor form, codominant at 6 feet, heavy into site, one side of canopy pruned for utilities, bleeding canker on trunk, recommended to treat canker, prune where heavy and cable where possible.
7 P	Coast live oak (Quercus agrifolia)	25.5	60	55/35	Fair vigor, fair form, suppressed, history of limb loss.
8 P	Valley oak (Quercus lobata)	25.7	65	60/35	Fair vigor, fair form, suppressed.
9 P	Coast live oak (Quercus agrifolia)	20.4	50	35/35	Fair vigor, poor form, heavily suppressed, grows towards street.
10 P	Coast live oak (Quercus agrifolia)	35.0	70	60/45	Good vigor, fair form, large 10" dead limb. recommended to remove dead limb.
11 P	Coast live oak (Quercus agrifolia)	36.9	45	35/50	Good vigor, poor form, grows horizontally. recommended to prop and prune if retained.
12 P	Valley oak 22.: (Quercus lobata)	5-17.9	65	50/50	Good vigor, fair form, codominant at 2 feet, heavy into site.

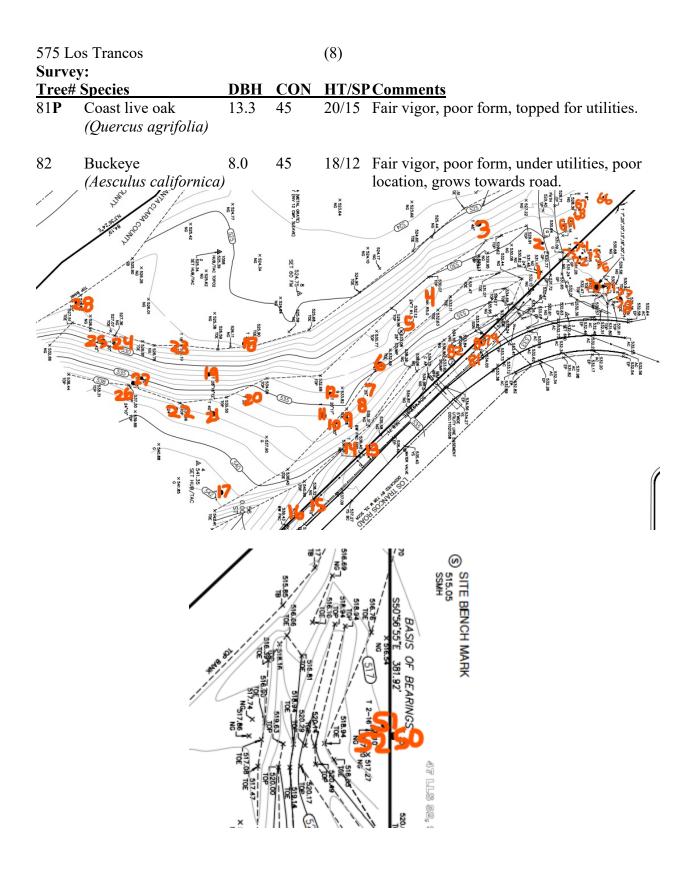
575 Los Trancos Survey:				(3)	
	y: Species	DBH	CON	HT/SP Comments	
13P	Coast live oak (Quercus agrifolia)	22.8	45		Good vigor, poor form, topped for utilities.
14	Bay 12 (Umbellularia califor	.2-12 rnica)	30	20/12	Poor vigor, poor form, dead leader, decay at root crown, topped.
15	Coast live oak (Quercus agrifolia)	10.1	50	30/12	Fair vigor, poor form, topped for line clearance.
16 P	Coast live oak (Quercus agrifolia)	13.8	50	30/15	Fair vigor, poor form, topped for line clearance.
17 P	Valley oak (Quercus lobata)	48.8	70	65/65	Good vigor, good form, mature. recommended to prune where heavy and to cable codominant leaders.
18 P	Coast live oak (Quercus agrifolia)	22.0	70	45/30	Good vigor, fair form.
19 P	Coast live oak 22. (Quercus agrifolia)	.6-16.8 13.6	65	45/45	Fair vigor, fair form, multi leader at grade, minor dead wood.
20 P	Valley oak (Quercus lobata)	29.8	40	50/40	Fair to poor vigor, poor form, codominant at 10 feet, codominant leader is dead, decay at root crown, recommended to expose root crown and inspect, remove dead codominant leader.
21 P	Valley oak (Quercus lobata)	35.2	70	60/60	Fair vigor, fair form, heavy lateral limbs.
22 P	Valley oak (Quercus lobata)	26.3	60	60/60	Fair vigor, fair form, suppressed, signs of decay at root crown, recommended to expose root crown and inspect.
23 P	Coast live oak (Quercus agrifolia)	17.0	65	50/30	Fair vigor, fair form, slight lean into site.
24 P	Coast live oak (Quercus agrifolia)	17.2	50	25/35	Fair vigor, poor form, suppressed, heavy lean well pruned.
25 P	Coast live oak (Quercus agrifolia)	37.5	65	60/60	Fair vigor, fair form, codominant at 12 feet. recommended to prune and cable.

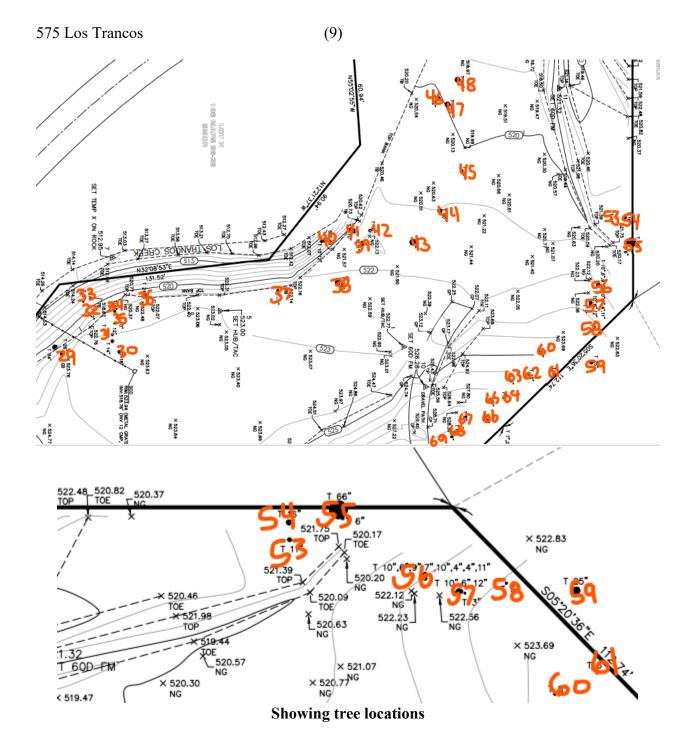
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Surve Tree#	ey: ⁴ Species	DBH	CON	HT/SI	HT/SP Comments	
26 P	Coast live oak (Quercus agrifolia)	24-10		10/40	Good vigor, poor form, grows horizontally, suppressed, recommended to prop and prune.	
27 P	Coast live oak 3 (Quercus agrifolia)	2.1-22	60	60/60	Fair vigor, fair form, codominant at grade. recommended to cable and prune codominant leaders.	
28	Bay (Umbellularia califor	14.9 rnica)	50	45/30	Fair vigor, fair form, suppressed.	
29	Black walnut (Juglans nigra)	29.6	30	50/45	Poor vigor, poor form, in decline.	
30 P	Coast live oak (Quercus agrifolia)	19.4	60	50/35	Good vigor, fair form, codominant at 20 feet with poor union, recommended to prune and cable.	
31	Coast live oak (Quercus agrifolia)	7.5	50	30/15	Fair vigor, fair form, suppressed.	
32	Black walnut (Juglans nigra)	12.0	60	45/25	Fair vigor, fair form.	
33	Bay (Umbellularia califor	8.0 rnica)	50	30/15	Fair vigor, fair form, suppressed.	
34	Bay (Umbellularia califor	9.0 rnica)	50	30/15	Fair vigor, fair form, suppressed.	
35	Bay (Umbellularia califor	10.0 rnica)	50	45/20	Fair vigor, fair form, suppressed.	
36 P	Coast live oak (Quercus agrifolia)	24.8	60	55/40	Fair vigor, fair form, heavy lean, on creek bank, crown reduction pruning recommended.	
37 R	Red willow (Salix laevigata)	6-3	0	20/12	DEAD.	
38 P	Coast live oak (Quercus agrifolia)	34.3	70	55/50	Good vigor, fair form.	

575 Los Trancos Survey:		(5)				
	y. Species	DBH	CON	HT/SP Comments		
39	Big leaf maple (Acer macrophyllum)	29.2	30		Poor vigor, poor form, large leader failure in past, in decline.	
40	Bay (Umbellularia califor	10-12 mica)	55	40/30	Fair vigor, fair form, on creek bank, codominant at grade.	
41	Bay (Umbellularia califor	8-10 mica)	55	40/20	Fair vigor, fair form, suppressed, on creek bank.	
42	Red willow (Salix laevigata)	16.3	30	30/15	Poor vigor, poor form, heavy decay on trunk, in decline.	
43 R	Olive (Olea europaea)	42.1	20	30/25	Poor vigor, poor form, in decline, nearly dead.	
44 R	Olive (Olea europaea)	30.2	20	30/25	Poor vigor, poor form, in decline, nearly dead.	
45 R	Black walnut (Juglans nigra)	12.6	65	30/25	Good vigor, good form.	
46 P	Coast live oak (Quercus agrifolia)	33.5	50	60/50	Fair vigor, fair form, decay at root crown, recommended to expose root crown and inspect.	
47 P/ R	Coast live oak (Quercus agrifolia)	36.0	0	50/60	DEAD	
48 P	Coast live oak (Quercus agrifolia)	36.0	10	15/15	Fair vigor, poor form, failed tree, stump re sprout.	
49 P	Coast live oak (Quercus agrifolia)	29.8	70	50/40	Good vigor, good form, dense canopy.	
50* P	Coast live oak (Quercus agrifolia)	30est	80	45/40	Good vigor, good form.	
51 P	Coast live oak (Quercus agrifolia)	16.2	65	30/20	Good vigor, fair form, suppressed.	
52 P	Coast live oak (Quercus agrifolia)	10-8	65	30/20	Good vigor, fai form, suppressed.	

575 L Surve	os Trancos			(6)	
	- y . # Species	DBH	CON	HT/SI	PComments
53	Coast live oak (Quercus agrifolia)	11.1	50		Good vigor, poor form, suppressed, leans.
54 P	Coast live oak (Quercus agrifolia)	16.2	60	35/30	Good vigor, poor form, suppressed, leans.
55	Bay (Umbellularia califor	66.0 mica)	40	70/40	Fair to poor vigor, poor form, multi leader at 5 feet, ganoderma fungus at base, recommended to prune out dead wood, and test for extent of decay.
56	Bay 10-6-9-7-10-4 (Umbellularia califor		50	50/30	Fair vigor, poor form, multi at base.
57	Bay 13- (Umbellularia califor	·12-6 rnica)	50	45/30	Fair vigor, poor form, multi at base.
58	Bay (Umbellularia califor	6.0 rnica)	40	30/15	Fair vigor, poor form, suppressed.
59	Bay (Umbellularia califor	28.6 rnica)	50	60/30	Fair vigor, fair form, codominant at 8 feet.
60	Redwood (Sequoia sempervirer	8.1 1s)	80	25/10	Good vigor, good form, recently planted.
61	Redwood (Sequoia sempervirer	6.4 1s)	80	18/10	Good vigor, good form, recently planted.
62	Redwood (Sequoia sempervirer	10.3 1s)	80	18/10	Good vigor, good form, recently planted.
63	Redwood (Sequoia semperviren	5.1 1s)	80	18/10	Good vigor, good form, recently planted.
64	Redwood (Sequoia semperviren	5.5 1s)	80	18/10	Good vigor, good form, recently planted.
65	Redwood (Sequoia semperviren	9.2 1s)	80	18/10	Good vigor, good form, recently planted.
66	Redwood (Sequoia semperviren	8.3 1s)	80	18/10	Good vigor, good form, recently planted.

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	y. Species	DBH	CON	HT/SI	PComments
67	Redwood (Sequoia semperviren	6.7	80		Good vigor, good form, recently planted.
68	Redwood (Sequoia sempervirer	9.9 1s)	80	18/10	Good vigor, good form, recently planted.
69	Redwood (Sequoia semperviren	5.5 1s)	80	18/10	Good vigor, good form, recently planted.
70	Bay 7-25-10-13-18 (Umbellularia califor		50	20/35	Fair to poor vigor, poor form, multi leader at grade.
71	White alder (Alnus rhombifolia)	24.2	45	60/25	Fair vigor, poor form, suppressed, leans against bay tree.
72	Coast live oak (Quercus agrifolia)	10.1	60	45/25	Fair vigor, fair form, suppressed.
73	Coast live oak (Quercus agrifolia)	8.6	60	45/25	Fair vigor, fair form, suppressed.
74	Coast live oak (Quercus agrifolia)	5.1	50	18/12	Fair vigor, poor form, suppressed.
75	Coast live oak (Quercus agrifolia)	5.3	50	15/12	Fair vigor, poor form, suppressed.
76	Elderberry (Sambucus nigra)	8-7	20	25/20	Poor vigor, poor form.
77	Black walnut (Juglans nigra)	5.0	60	40/15	Good vigor, fair form.
78	Bay 13-1 (Umbellularia califor	4-11 mica)	50	45/35	Fair vigor, poor form, multi leader at grade.
79	Bay (Umbellularia califor	8.0 mica)	30	20/10	Fair vigor, poor form, topped for utilities, next to driveway.
80 P	Coast live oak (Quercus agrifolia)	25.8	45	25/35	Good vigor, poor form, topped for utilities, next to driveway.





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Non-protected trees to be removed:

Red willow tree #37 is dead and should be removed as soon as possible as it is hazardous and a fire hazard for the site.



Olive trees #43 and #44 are in very poor condition. These trees are expected to be dead within the next few months. The trees are within the proposed driveway area. Tree removal and replacement is recommended. Black walnut tree #45 is in fair condition. This tree is also proposed for removal to facilitate the proposed construction of the driveway.

Showing nearly dead olive trees #43 and #44



Protected trees proposed for removal: Coast live oak tree #47 is dead. The tree should be removed as soon as possible as it is a fire hazard for the site.

Showing oak tree #47

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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.

(11)

Red Willow #37=12' wide canopy Replacement trees= The tree is dead. No replacement trees are recommended.

Olive tree #43= 25' wide canopy Replacement trees= Three 24" box size trees or two 36" box trees

Olive tree #44= 25' wide canopy Replacement trees= Three 24" box size trees or two 36" box trees

Black walnut tree #45= 25' wide canopy Replacement trees= Three 24" box size trees or two 36" box trees

Coast live oak tree #47= 60' wide canopy Replacement trees= The tree is dead. No replacement trees are recommended.

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'+	**	**

Tree Canopy - Replacement Standard

Showing tree canopy replacement standard used



Showing large oaks on site

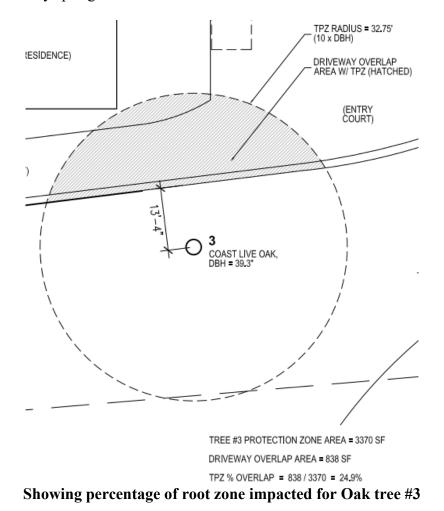
Summary of retained trees:

Many large mature native oak trees were observed on site. Between the home and the proposed building pad are where the larger oak trees exist. These trees have grown in a grove like fashion with trees developing leans and heavy lateral limbs. Crown reduction pruning and cabling of codominant leaders is recommended for many of the larger oak trees on site. These recommendations can be seen in bold within the survey portion of the report. Oak trees #20, 22, and 46 are recommended to have their root crowns exposed and inspected as signs of possible root rot disease were observed. A large ganoderma fungus and dead wood was observed on the root crown of bay tree #55. A drill test and root crown is exposure is recommended to explore the extent of decay at the root crown. A general crown cleaning to remove dead wood is recommended for the oak trees to be retained as little to no tree maintenance has taken place on the site. The retained oak trees are recommended to be annually inspected by a Certified Arborist for any needed work. The area underneath the dripline of the retained oak trees is recommended to maintain a dry landscape.

Preliminary site plan A1.1 was reviewed for writing this section of the report. The retained trees are all a fair distance away from the proposed work on site. Oak tree #3 is shown at 13 feet from the proposed driveway. Oak tree #4 is shown at 21 feet from the secondary driveway. The driveway is shown on a sloped area. It is recommended to use a retaining wall to reduce any grading needed on the tree side of the secondary driveway and main driveway when near oak trees #3 and #4. This will help to reduce impacts as much as possible due to the grading that would be needed if the driveway was to be built without a retaining wall. Excavation for the retaining wall is recommended to be done by hand while under the Project Arborist supervision when working within 10 times the diameter of the protected trees on site. Roots encountered will need to be cleanly cut. Cut root ends will need to be kept moist by covering the cut root ends with layers of wetted down burlap. A soaker hose is recommended to be installed at the retaining wall cut once the retaining wall has been built. The soaker hose is recommended to be turned on every week during the first dry season following the retaining wall build. After one year the soaker hose shall be permanently suspended. The two oak trees will need to be inspected monthly during the required monthly inspections during the proposed construction. Once construction has been completed, the trees are recommended to be inspected annually in the spring. Impacts are expected to be minor.

Impacts/Recommendations:

575 Los Trancos (13) Coast Live Oak tree #3 is the closest tree to the proposed driveway. At 10 times the tree's diameter the tree protection zone radius is 32.75 feet or a 3370 square foot area. The proposed driveway and retaining wall overlaps this area by 838 square feet. The tree's root zone will be encroached by 24.9% as shown in the provided diagram below. This is within Best Management Practices acceptable threshold for a species with a good tolerance to construction impacts and in good condition (or 25%). The recommendations stated in the last paragraph will help to keep impacts at a minor level. This tree is also recommended to be deep water fertilized anytime between fall and early spring.



The proposed driveway follows the same direction of the existing driveway near oak trees #1 and #2. Excavation for the new driveway when within the dripline of oak trees #1 and #2 shall not exceed more than 8" under existing grade. The finished grade of the driveway near these two trees is recommended to be at the existing grade or higher up. This will help to reduce impacts to the trees. Roots encountered measuring 2" in diameter or larger will need to be retained within the base rock section by packing base rock around roots. The existing driveway near these trees my have helped to reduce root growth in the area of proposed work through compaction. All excavation underneath the dripline of a protected tree will need to be carried out by hand while under the direct supervision of the Project Arborist.

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A building wall is located at 11 feet from oak tree #30. Hand excavation under the Project Arborist supervision is recommended when working within 10 times the tree's diameter. Encountered roots must be cleanly cut using a hand saw or loppers. Once the wall has been built a soaker hose is recommended to be installed at the wall cut. The soaker hose is recommended to be turned on every week during the first dry season following the wall build. After one year the soaker hose shall be permanently suspended. The oak tree will need to be inspected monthly during the required monthly inspections during the proposed construction. Once construction has been completed, the tree is recommended to be inspected annually in the spring.

Tree Protection Plan:

Tree protection zones should be established and maintained throughout the entire length of the project. 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 for the protected trees on site should be placed at the tree driplines where possible (type 1 tree protection fencing). All other non-protected trees are recommended to be protected by fencing placed at the dripline as well. No equipment or materials should be stored or cleaned inside protection zones. Signs should be placed on fencing signifying "Tree Protection Zone - Keep Out". If fencing needs to be reduced for access or any other reasons, the non-protected areas must be protected by a landscape buffer. All tree protection and inspection schedule measures, design recommendations, watering and construction scheduling shall be implemented in full by the owner and contractor.



IMAGE 2.15-1 Tree Protection Fence at the Dripline



IMAGE 2.15-2 Tree Protection Fence at the Dripline

Type I Tree Protection

The fences shall enclose the entire area under the **canopy dripline or TPZ** of the tree(s) to be saved throughout the life of the project, or until final improvement work within the area is required, typically near the end of the project (see Images 2.15-1 and 2.15-2). Parking Areas: If the fencing must be located on paving or sidewalk that will not be demolished, the posts may be supported by an appropriate grade level concrete base.

Showing type 1 tree protection fencing

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Landscape Buffer

Where tree protection does not cover the entire root zone of the trees at the dripline 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. If plywood is used the pieces of plywood shall be attached in a way that minimizes movement.

Tree Pruning

During construction any Pruning will be supervised by the site arborist and must stay underneath 25% of the tree total foliage.

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. Roots to be cut measuring larger than 1.5" in diameter shall be shown to the Project Arborist before being cut.

Trenching and Excavation

Trenching for irrigation, electrical, drainage or any other reason, should be located outside of the trees calculated root zone of 10 times the tree diameters when possible. If not possible, trenching shall be hand dug when beneath the dripline of desired trees. Any excavation underneath the dripline of a protected tree will need to be supervised by the Project Arborist. 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. Roots retained within trenches are recommended to be wrapped in layers of wetted down burlap to avoid root desiccation.

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 every other week during the dry season. The native trees on site (oaks, bays, and buckeyes) shall only be irrigated during the months of May and September to combat a prolonged drought period, or if their root zones are traumatized.

Grading

All existing grades underneath the dripline of a protected tree shall remain as is where possible.

Inspections

The site will be inspected after the tree protection measures are installed and before the start of construction. Monthly inspections are mandatory for a 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 monthly 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 dripline of a protected tree on site at least 48 hours in advance. During the site visits the site arborist will offer mitigation measures specific to the work completed. Kielty Arborist Services can be reached at 650-515-9783 or 650-532-4418, or by email at kkarbor0476@yahoo.com. A final inspection letter will also be required by the city before final occupancy.

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

Kielty Arborist Services

P.O. Box 6187 San Mateo, CA 94403 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.

Kevin Kielty Arborist: Kevin R. Kielty Date: August 24th, 2021