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Arborist Report
&
Tree Inventory & Assessment

Prepared at the request of:

Jason Cole, Black Oak Design

For

Placer Greens

South East Corner of PFE Road & Antelope
Road

In

Placer County, California

Nicole Harrison

International Society of Arboriculture, Certified Arborist #WE-6500AM, TRAQ

April 24, 2015

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Executive Summary:

Jason Cole of Black Oak Design, Inc. contacted **ABACUS** to inventory and evaluate the protected trees along the riparian area and produce an Arborist Report as the end product. The property is located at the south east corner of PFE Road and North Antelope Road in Placer County, California. This report does NOT include the entire property. The west side of the creek was surveyed for purposes of establishing a canopy line for preservation during the development process. See attached site map, page 24.

Nicole Harrison, ISA Certified Arborist #WE-6500A, and Arborist Assistant, Nick McNamara, and Julie McNamara, MS GISci, of **ABACUS** were on site April 13th through April 19th 2015, providing species identification, number of trunks, measurements of DBH and canopy, field condition notes, recommended actions, and ratings.

There are **140** trees on this property that qualify as “protected trees” by the standards of the Placer County Tree Preservation Ordinance.

8 of the protected trees on this property are rated a 0 (“dead”).

40 of the protected trees are noted for removal due to their poor condition and are rated 1 (“dangerous/non-correctable”).

52 of the trees are rated 2 (“poor”).

42 of the trees are rated 3 (“fair”) or 4 (“good”).

There are 2 trees rated 5 (“excellent”).

There are **142** total trees inventoried, of which, **2** are unprotected by size, **66** are Interior Live Oak, and **74** are Blue Oak.

Note: Ratings do not consider the habitat value of the trees.

Listed within this report is the “**Recommendations**” section. All of these recommendations must be followed for all trees to be saved onsite and offsite. In addition, **Specific Recommendations** are included in the action column in **Chart B** and must be followed for the protection of the trees.

Assignment:

Pursuant to your request, **ABACUS** has completed an inventory of all the trees located on-site. We provided species identification, number of stems, measurements of DBH and canopy, field condition notes, recommended actions, and ratings

Observations:

Nicole Harrison, *Project Manager & ISA Certified Arborist #WE-6500AM*, and field assistant Nick McNamara, evaluated all protected trees that met the requirements of the Placer County Tree Preservation Ordinance. The fieldwork was performed April 13th through April 19th, 2015.



The protected trees (on-site) tagged by **ABACUS** have a numbered tag, placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: **ABACUS**, Auburn, CA with 1/8" pre-stamped tree number, our phone number 530-889-0603, attached with a natural colored aluminum 10d (3") nail, installed at 6 feet above ground level on the north side of the tree. The tag should last ~10 – 20+ years depending on the species, before it is enveloped by the trees' normal growth cycle.

Tree Site Map was by others. Tree locations have been verified on-site by **ABACUS**.

Chart B in this report is an inventory on the trees. The following terms, and **Chart A** will further explain our findings on **Chart B** and the trees in question.

Species of trees is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case). Oaks frequently cross-pollinate and hybridize, but the identification is towards the strongest characteristics.

Stems refers to the quantity of trunks or stems of a tree that have a significant connection. If one stem or trunk were to be removed, it would cause decay to harm an adjoining stem, making it one tree. All stems must be of the same species. (Also see "Tree SIZE Expressed by Trunk Diameter" at the end of this report)

DBH (diameter breast high) is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted here. A Swedish caliper¹ was used to measure the DBH for trees less than 26" in diameter and a steel diameter tape² for trees greater than 26"Ø.

Canopy is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the Critical Root Zone (CRZ) or Protection Zone (PZ), which is a circular area around a tree with a radius equal to a tree's largest dripline plus 1'. Our canopy measurement is the longest dripline measurement from the center point of the tree and includes the 1' only on the Tree Site Map.

Rating is subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection. The scale is as follows:

¹A large wooden sliding adjustable thickness gauge calibrated in 1/16" increments.

²Diameter Tape is used to figure the tree's diameter, by measuring the circumference, whereon the inches are pre-multiplied by 3.14 or π (π called pi) and shown to produce the diameter of the tree directly on the tape.

Chart A – Ratings Description

No problem(s)	5	excellent
No apparent problem(s)	4	good
Minor problem(s)	3	fair
Major problem(s)	2	poor
Extreme problem(s)	1	hazardous, non-correctable
Dead	0	dead

There is a very important line drawn between a tree rated a **3** and a **2**. A tree rated **3, 4, or 5** is a tree to be preserved, and a tree rated **0, 1, or 2** is recommended for removal. On the following tree list **BLACK** marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal, and **VIOLET** refers to trees that are to be removed for permitted development activities. **Trees rated a 2 may be retained but only if the recommendations are followed, otherwise the tree should be removed.**

Rating #0: This indicates a tree that has no significant sign of life.

Rating #1: The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.

Rating #2: The tree has major problems. If the option is taken to preserve the tree, its condition could be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. If the recommended actions are completed correctly, hazard can be reduced and the rating can be elevated to a 3. If no action is taken the tree is considered a liability and should be removed.

Rating #3: The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.

Rating #4: The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.

Rating #5: No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect characteristics for the species. Highly rated trees are not common in natural or developed landscapes. No tree is ever perfect especially with the unpredictability of nature, but with this highest rating, the condition should be considered excellent.

Notes: explain why the tree should be removed or preserved. If it is to remain and be preserved the tree may need some form of work to limit future liability from partial or total failure. Lower deadwood may not be an immediate problem, but the same size wood at a much higher location on the trees could be dangerous and might cause a minor injury to a fatal blow if the branch failed.

Abbreviation key and terms:

CDL: Co-Dominant Leader: Stems or trunks of the tree that are equal in size and relative importance.

CRZ: Critical Root Zone: The canopy is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the CRZ, which is a circular area around a protected tree with a radius equal to a tree’s largest dripline radius. The roots of a tree grow minimally within this canopy measurement and have been found growing 2 to 3 times beyond the farthest branches.

IB: Included Bark: A sharp “V” crotch, usually less than a 45° angle of attachment, between 2 branches where the bark is kept between two narrowly joined branches and the bark is continually turned inward, rather than

being pushed out. It is a common point for potential massive structural failure and this hazard can be minimized with properly installed and maintained cabling, bolting or bracing.

BMT: Broadleaf Mistletoe infested tree.

EG: Epicormic Growth: Shoots that arise from latent buds along the trees trunk or mature branches. This growth is usually a sign that the tree has undergone a stressful period.

LTD: Limb Tip Dieback: Generally associated with drought, the tips of scaffold limbs have died.

NABA: Narrow Angle Branch Attachment: A sharp "V" crotch, usually less than a 45° angle of attachment. Included bark is explained above and is common in branches with narrow attachments. In addition, these branches may not be attached to the trunk as well as others with wider angles of attachment, and can fail more frequently depending on the size of the branch.

OPC: Old Pruning Cuts

OWL: Over Weight Limb

PRZ: Protected Root Zone: A circular area around a protected tree with a radius equal to a tree's largest dripline radius plus 1'.

PS: Poor Structure: These trees have grown with structural imperfections that cannot be corrected and therefore render them hazardous and more likely to fail in the future.

R4D: Remove For Development

RDW: Remove Dead Wood: All dead wood to be removed over 3" in diameter and if over 2" in diameter when above 25', as this is a potential hazard for people under these limbs and a future health problem for the tree.

RH: Remove Hanger: There is a broken or cut branch that is hanging in the tree and needs to be removed.

RBMT: Remove Broadleaf Mistletoe: Broadleaf mistletoe, *Phoradendron villosum*, is an evergreen parasitic that grows on many hardwood trees and is spread most commonly by birds excreting the living seeds onto woody branches where they germinate. It is important to stop the spread by correctly removing the mistletoe plant by either pruning off the branch it lives on (if small enough) or by removing its light source and killing the parasite. Pruning: remove the branch at least 12" below the point of attachment to the next lateral using an approved thinning-type cut. Light exclusion: remove the mistletoe to flush with limb or trunk where it is attached and wrap the limb/trunk with 2-3 layers 6 mil polyethylene plastic 8" above and below the point of attachment. Tape it with a few wraps of electrical tape to keep all light out to kill the mistletoe, remove in 2-3 years.

TBR: To Be Removed: Tree to be removed due to health and/or structural reasons. Removal should be done carefully as to not harm the surrounding trees, branches, and/or trunks above or roots below ground. Do **NOT** rip out or push over the tree stumps if they are near other trees that are to be preserved. Cut them off close to ground level and leave the stumps and roots to decay, unless they are located within a proposed foundation or area to be paved/concrete surfaced.

~: **Tilde:** This mark is used in the field in any empty box to indicate that there is no information to enter in that space.

TMD: Too Much Decay

TMDW: Too Much Dead Wood

UC: Unbalanced Canopy: Either the trunk is leaning and/or the canopy is phototropic and overly heavy on one side.

Compass Points: These are the standard 16 points of the compass as aligned with Geographic North or True North. In our area, True North (TN) is adjusted for declination 14°49' to the west of Magnetic North (MN).

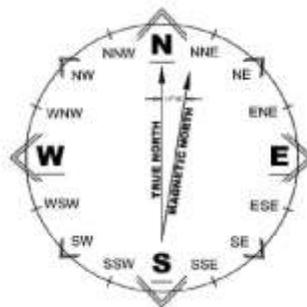


Chart B – Inventory of Trees

BLACK marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal. Trees rated a **2** may be retained but only if the recommendations are followed.

0 = Dead 1 = Very Poor 2 = Poor 3 = Fair 4 = Good 5 = Excellent

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3801	Blue Oak	<i>Quercus douglasii</i>	1	26	15	Imbedded fence wire, too much decay at base, large failure in main stem	To be Removed	1
3802	Blue Oak	<i>Quercus douglasii</i>	1	36	36	imbedded fence wire, large dead wood, canopy to ground to South, large failures	~	3
3803	Interior Live Oak	<i>Quercus wislizenii</i>	1	15	21	Crossing limbs with #3802, imbedded fence wire, base undermined by creek	~	2
3804	Interior Live Oak	<i>Quercus wislizenii</i>	1	28	~	Undermined, failed, too much decay, dangerous ground	To be Removed	1
3805	Blue Oak	<i>Quercus douglasii</i>	1	~42	~	Dead and failed	To be Removed	0
3806	Interior Live Oak	<i>Quercus wislizenii</i>	1	20	~	Undermined at base, on ground but still alive	No Hazard	1
3807	Blue Oak	<i>Quercus douglasii</i>	1	14	~	Undermined at base of #3806, poor structure, too much decay	~	1
3808	Interior Live Oak	<i>Quercus wislizenii</i>	2	11, 14	18	Under high voltage line, previously topped	Remove dead wood, prune to balance	2
3809	Interior Live Oak	<i>Quercus wislizenii</i>	2	23, 21	40	Codominant leader at 1', "U" crotch, too much dead wood, sparse canopy, large dead wood, bird tree	Remove if target	4
3810	Interior Live Oak	<i>Quercus wislizenii</i>	1	28	25	Too much dead wood, internal decay	~	1
3811	Interior Live Oak	<i>Quercus wislizenii</i>	1	16 @ 2'	24	Codominant leader at 3', bows to South East	Remove dead wood	2
3812	Interior Live Oak	<i>Quercus wislizenii</i>	1	7 @ 2'	10	Small leaves	~	3
3813	Interior Live Oak	<i>Quercus wislizenii</i>	2	7, 6 @ 2'	13	Crossing stems at base	Remove 3" crossing stem at base	3

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3814	Interior Live Oak	Quercus wislizenii	1	10 @ 1'	12	Codominant leader at 2'	~	3
3815	Blue Oak	<i>Quercus douglasii</i>	1	26	~	At edge of water, dead	~	0
3816	Interior Live Oak	Quercus wislizenii	1	16	~	At edge of water, decay in main stem, too much dead wood, significant dead wood	To be Removed	1
3817	Blue Oak	<i>Quercus douglasii</i>	1	~26	~	No tagged, West stem top failure, at edge of water, too much dead wood	To be Removed	1
3818	Blue Oak	<i>Quercus douglasii</i>	1	36	~	Dead	~	0
3819	Interior Live Oak	Quercus wislizenii	2	21 @ 3', 13	30	13" stem prostrate to South, bows to South and West, previously suppressed, low canopy	Remove dead wood, prune to balance	3
3820	Blue Oak	<i>Quercus douglasii</i>	1	36	35	Codominant leader at 5', 6' and 15', included bark, large dead wood	Remove dead wood, prune to balance	3
3821	Blue Oak	<i>Quercus douglasii</i>	1	28	31	Top failure, large dead wood	~	2
3822	Interior Live Oak	Quercus wislizenii	1	16		Too much decay in main stem, understory, poor structure	To be Removed	1
3823	Blue Oak	<i>Quercus douglasii</i>	1	36	40	24" failure - jagged, decay in main stem	Recut failure, Level 3 inspection	2
3824	Blue Oak	<i>Quercus douglasii</i>	1	22	35	Poor structure, suppressed, bows to South at 20', not correctable	Remove dead wood	2
3825	Interior Live Oak	Quercus wislizenii	6	2,2,2,4,6 (all at 2')	15	Decay at crotch, stump sprout, sparse canopy	Crown clean	3
3826	Interior Live Oak	Quercus wislizenii	1	22	~	Too much decay in main stem, poor structure	To be Removed	1
3827	Interior Live Oak	Quercus wislizenii	1	14	~	Prostrate at 4', off ground, very poor, in water	To be Removed	1
3828	Interior Live Oak	Quercus wislizenii	1	6	13	At water's edge	~	3
3829	Interior Live Oak	Quercus wislizenii	1	6	12	At water's edge	~	3
3830	Blue Oak	<i>Quercus douglasii</i>	1	17	22	Very good	Remove dead wood	5

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3831	Blue Oak	<i>Quercus douglasii</i>	1	19	~	Dead	~	0
3832	Interior Live Oak	<i>Quercus wislizenii</i>	1	16	15	Root plate failure in other stems, remaining tree-good, failed at base	Level 3 inspection	1
3833	Blue Oak	<i>Quercus douglasii</i>	3	16,18,22	33	At edge of water, tree on ground, failed at base, 22" failed in water (no hazard)	~	1
3834	Blue Oak	<i>Quercus douglasii</i>	1	23	30	At water's edge, failed on ground, mostly dead	~	1
3835	Blue Oak	<i>Quercus douglasii</i>	1	45	30	Over mature, in retrenchment, large failure to East, conks to south, very good for age	Level 3 inspection - determine percentage of decay at failures and conks, determine during development	3
3836	Blue Oak	<i>Quercus douglasii</i>	3	15,16,18	30	Two stems on ground, at edge of water, root plate failure	~	1
3837	Interior Live Oak	<i>Quercus wislizenii</i>	5	2,2,2,2,3	8	At water's edge, not protected, cluster	~	~
3838	Blue Oak	<i>Quercus douglasii</i>	2	20,30	~	Dead on the ground	~	0
3839	Interior Live Oak	<i>Quercus wislizenii</i>	1	15	19	At water's edge, good canopy, large closing wound from 1-3'	Remove dead wood, reinspect in 3 years	3
3840	Interior Live Oak	<i>Quercus wislizenii</i>	1	6	15	Poor structure, at water's edge, under canopy, codominate leader failure	To be Removed	1
3841	Blue Oak	<i>Quercus douglasii</i>	1	14	30	Large failures, poor structure	~	2
3842	Blue Oak	<i>Quercus douglasii</i>	2	16,18	35	Codominate leader at 4', narrow angle attachments, epicormic growth, high canopy, sparse canopy	Remove if target	2
3843	Blue Oak	<i>Quercus douglasii</i>	1	14	28	Poor structure, epicormic growth	Remove if target	2
3844	Interior Live Oak	<i>Quercus wislizenii</i>	1	9 @ 4'	17	Under story, good	~	3
3845	Blue Oak	<i>Quercus douglasii</i>	1	8	28	Bows to West at 10', touches ground	~	2

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3846	Interior Live Oak	Quercus wislizenii	1	21 @ 3'	30	Wound at 4' to South West, prostrate	Remove dead wood, prune to balance	3
3847	Blue Oak	<i>Quercus douglasii</i>	1	17	40	Poor structure, debris at base from failure hanging in tree, unbalanced canopy to South West, large dead wood	Reinspect, remove dead wood, remove debris	2
3848	Interior Live Oak	Quercus wislizenii	6	1,2,2,3,3,3	8	Not protected	~	~
3849	Interior Live Oak	Quercus wislizenii	1	9	12	Too much decay in main stem	To be Removed	1
3850	Blue Oak	<i>Quercus douglasii</i>	1	17	26	Closing wound at base, epicormic growth, embedded wire, good	Reinspect in 3 years	4
3851	Blue Oak	<i>Quercus douglasii</i>	1	9	12	Poor structure, suppressed, bows to West	Prune to balance	2
3852	Blue Oak	<i>Quercus douglasii</i>	2	13, 16 @ 3'	27	Codominant leader at 5', sparse canopy, unbalanced canopy to South West	Remove dead wood, prune to balance, reinspect in 3 years	3
3853	Blue Oak	<i>Quercus douglasii</i>	1	16 @ 2'	20	Very sparse canopy, codominant leader at 3', included bark, epicormic growth, large wound at base, too much dead wood	To be Removed	1
3854	Blue Oak	<i>Quercus douglasii</i>	1	12	14	Epicormic growth, too much dead wood	~	3
3855	Blue Oak	<i>Quercus douglasii</i>	1	34	35	Very sparse canopy, epicormic growth, large dead wood, on its way out	~	1
3856	Interior Live Oak	Quercus wislizenii	3	13,25,41	35	41" stem codominant leader failure at 3', on the ground- hazard, 25" stem has large dead wood, cavity at base, 13" stem is prostrate on the ground to the East	Reinspect every year, remove 41" stem, remove dead woods	2
3857	Interior Live Oak	Quercus wislizenii	1	12	30	Suppressed by #3856, poor structure, prostrate to North	~	2
3858	Interior Live Oak	Quercus wislizenii	1	24	30	Leans to South East, Unbalanced canopy to East, cavity at base, large dead	Prune to balance, reinspect	3

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
						wood, canopy to ground	every year	
3859	Interior Live Oak	Quercus wislizenii	1	16	16	Prostrate to North East-entire tree at 6'	~	2
3860	Blue Oak	Quercus douglasii	1	15	30	Bows to the East at 15', suppressed, fair	Remove dead wood, prune to balance	3
3861	Interior Live Oak	Quercus wislizenii	1	16 @ 2'	25	Entire tree prostrate at 3-6'	~	2
3862	Interior Live Oak	Quercus wislizenii	1	5 @ 1'	10	Not protected	Crown clean	4
3863	Interior Live Oak	Quercus wislizenii	5	3,4,5,6,7	15	Codominant leader at 1' into 4, suppressed, understory, unbalanced canopy to South	~	2
3864	Blue Oak	Quercus douglasii	1	5	12	Not protected	~	3
3865	Blue Oak	Quercus douglasii	1	28	37	Unbalanced canopy to South West, epicormic growth, canopy to ground, large dead wood	Remove dead wood, reinspect every year	3
3866	Blue Oak	Quercus douglasii	1	15	32	Suppressed, bows to South	Prune to balance, remove dead wood	3
3867	Blue Oak	Quercus douglasii	1	18	~	Dead	~	0
3868	Blue Oak	Quercus douglasii	1	26	35	Sparse canopy, epicormic growth	Remove dead wood, reinspect every year	4
3869	Interior Live Oak	Quercus wislizenii	1	13	25	Suppressed, bows to North at 15'	Remove dead wood, prune to balance	3
3870	Blue Oak	Quercus douglasii	1	17	35	Bows to South	Remove dead wood, prune to balance, reinspect every year	2
3871	Interior Live Oak	Quercus wislizenii	1	15	27	Too much decay at base, large dead wood	Remove dead wood, prune to balance,	2

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
							reinspect in 3 years	
3872	Blue Oak	<i>Quercus douglasii</i>	1	23	35	Canker disease, on its way out, poor structure, too much dead wood	~	1
3873	Interior Live Oak	<i>Quercus wislizenii</i>	1	7 @ 3'	~	Stub at 2', advanced decay, poor structure, understory	To be Removed	1
3874	Blue Oak	<i>Quercus douglasii</i>	1	14	~30	Poor taper unbalanced canopy to West	Remove dead wood, prune to balance	3
3875	Blue Oak	<i>Quercus douglasii</i>	1	7	12	Epicormic growth, poor taper, understory	~	2
3876	Interior Live Oak	<i>Quercus wislizenii</i>	2	10,12	~	Large dead wood, codominate leader, too much dead wood, top fail at 3'	To be Removed	1
3877	Blue Oak	<i>Quercus douglasii</i>	1	18	~	Failed on ground, dead	To be Removed Hazard	0
3878	Blue Oak	<i>Quercus douglasii</i>	1	21 @ 2'	30	Good	Remove dead wood	4
3879	Blue Oak	<i>Quercus douglasii</i>	1	18	~	Too much dead wood, poor structure	To be Removed Hazard	1
3880	Blue Oak	<i>Quercus douglasii</i>	1	20	35	Unbalanced canopy to West	Remove dead wood, prune to balance	3
3881	Blue Oak	<i>Quercus douglasii</i>	1	32	35	Large dead wood, failed stubs, good for age	Remove dead wood, level 3 inspection	4
3882	Interior Live Oak	<i>Quercus wislizenii</i>	2	9,11	~	At base of #3881, poor structure, decay pockets	To be Removed	1
3883	Interior Live Oak	<i>Quercus wislizenii</i>	1	15 @ 3'	~	At water's edge, undermined	To be removed	1
3884	Interior Live Oak	<i>Quercus wislizenii</i>	1	19	20	At water's edge, good canopy, undermined, dead wood at base	To be Removed	1
3885	Blue Oak	<i>Quercus douglasii</i>	1	15	18	Very good	Remove dead wood	5
3886	Interior Live Oak	<i>Quercus wislizenii</i>	4	12,19,24, 27 (total 46@2)	38	Codominate leader at 5' into 3, included bark, low canopy	Crown clean, reinspect every year	3

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3887	Interior Live Oak	Quercus wislizenii	1	21	~	Entire tree prostrate on the ground, too much decay	To be Removed	1
3888	Blue Oak	Quercus douglasii	1	11	~	Dead	~	0
3889	Interior Live Oak	Quercus wislizenii	1	15	~	Undermined at creek, too much dead wood, failed onto dead tree	To be Removed	1
3890	Blue Oak	Quercus douglasii	1	7	35	Epicormic growth, at water's edge, undermined	Remove if target	2
3891	Blue Oak	Quercus douglasii	1	10	20	Codominant leader top failure, poor taper, epicormic growth, at water's edge	Remove if target	2
3892	Interior Live Oak	Quercus wislizenii	2	12,16	27	Failed at water's edge, growing over truck, codominant leader failure	To be Removed	1
3893	Interior Live Oak	Quercus wislizenii	1	~18	~	Too much dead wood, large failures, no tag	To be Removed	1
3894	Blue Oak	Quercus douglasii	1	7	10	Epicormic growth	Re-inspect in 3 years	2
3895	Blue Oak	Quercus douglasii	1	24 @ 2'	33	Codominant leader at 4', large failures, unbalanced canopy to West	Remove stubs, remove dead wood, prune to balance	3
3896	Blue Oak	Quercus douglasii	1	15	22	Codominant leader at 7', good canopy	~	3
3897	Interior Live Oak	Quercus wislizenii	1	43	34	Large failure at crotch, large dead wood, large fail to West	Re-inspect every year	3
3898	Blue Oak	Quercus douglasii	1	11 @ 2'	~	Canker at 3', unbalanced canopy to West, included bark	Re-inspect in 1 year	3
3901	Blue Oak	Quercus douglasii	1	17 @ 1'	~	Codominant leader lost at 3', hit by dead tree, poor structure, bows to East	To be Removed	1
3902	Interior Live Oak	Quercus wislizenii	2	6,8	16	Poor structure, understory, large decay pockets	To be Removed	1
3903	Blue Oak	Quercus douglasii	1	16	30	Poor structure, not correctable	~	2
3904	Blue Oak	Quercus douglasii	1	23	35	Bows to West	Remove dead wood, prune to balance, re-inspect in 3 years	3

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3905	Blue Oak	<i>Quercus douglasii</i>	1	12	~	Poor taper, large failures	To be Removed	1
3906	Blue Oak	<i>Quercus douglasii</i>	1	12	20	Epicormic growth	Re-inspect in 3 years	3
3907	Blue Oak	<i>Quercus douglasii</i>	1	20	25	Epicormic growth	Re-inspect every year	3
3908	Blue Oak	<i>Quercus douglasii</i>	1	16	40	Included bark below codominate leader	Remove dead wood, end weight reduction, add 1 cable	2
3909	Interior Live Oak	<i>Quercus wislizenii</i>	2	8,9	~	Too much decay in main stems	To be Removed	1
3910	Blue Oak	<i>Quercus douglasii</i>	1	14 @ 3'	~	Suppressed, poor structure, large dead wood	To be Removed	2
3911	Blue Oak	<i>Quercus douglasii</i>	1	19	35	Re-inspect every year	Remove dead wood	3
3912	Interior Live Oak	<i>Quercus wislizenii</i>	1	7	14	Black berries, included bark at 6', understory	Needs corrective pruning	3
3913	Blue Oak	<i>Quercus douglasii</i>	1	24	35	~	Re-inspect every year, remove dead wood	3
3914	Blue Oak	<i>Quercus douglasii</i>	1	19	~	Top failure at 25'	To be Removed	1
3915	Blue Oak	<i>Quercus douglasii</i>	1	19	30	Large dead wood at edge of water, unbalanced canopy to South East, epicormic growth, undermined?	Remove dead wood, prune to balance, re-inspect every year	2
3916	Interior Live Oak	<i>Quercus wislizenii</i>	1	14 @ 1'	20	Dog leg, understory, fair	~	3
3917	Interior Live Oak	<i>Quercus wislizenii</i>	1	12 @ 2'	20	Understory	Prune to balance, remove dead wood	3
3918	Blue Oak	<i>Quercus douglasii</i>	1	39	35	Very sparse canopy, large dead wood, Innonotus canker at base	Remove if target	3
3919	Interior Live Oak	<i>Quercus wislizenii</i>	1	11	18	Understory, poor structure, cavity in main stem	~	2
3920	Interior Live Oak	<i>Quercus wislizenii</i>	1	17 @ 2'	20	Understory, bows at 4' to South West, poor structure, large dead wood	Prune to balance	2

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
3921	Blue Oak	<i>Quercus douglasii</i>	2	13,21	~	Dead on the ground, fall on the ground, undermined by creek	To be Removed	1
3922	Interior Live Oak	<i>Quercus wislizenii</i>	1	14	20	Good	Remove dead wood	3
3923	Interior Live Oak	<i>Quercus wislizenii</i>	1	12	25	Embedded fence post, large hanger	Remove dead wood, remove hanger, needs corrective pruning	3
3924	Interior Live Oak	<i>Quercus wislizenii</i>	1	19 @ 1'	35	Bows and unbalanced canopy to West, large dead wood	Prune to balance, remove dead wood	2
3925	Interior Live Oak	<i>Quercus wislizenii</i>	1	19	35	Prostrate from base, poor structure, large dead wood hanger from tree at base (dead)	To be Removed	1
3926	Blue Oak	<i>Quercus douglasii</i>	1	16	30	At water's edge, epicormic growth, large failure, no tag- black berries	~	2
3927	Interior Live Oak	<i>Quercus wislizenii</i>	1	6	10	Understory, poor structure, at water's edge	Remove dead wood	3
3928	Interior Live Oak	<i>Quercus wislizenii</i>	1	6	8	Understory, poor structure, at water's edge, no tog-blackberries	Remove dead wood	3
3929	Blue Oak	<i>Quercus douglasii</i>	1	30	32	Large over weight limit limb to West, sparse canopy	Remove dead wood, end weight reduction, level 3 inspection if target	3
3930	Interior Live Oak	<i>Quercus wislizenii</i>	1	11 @ 2'	20	Too much decay	To be Removed	1
3931	Blue Oak	<i>Quercus douglasii</i>	1	~35	40	Codominant leader at 10', included bark, poison oak, large dead wood, at water's edge, undermined?	Remove dead wood, end weight reduction in all stems	3
3932	Blue Oak	<i>Quercus douglasii</i>	1	15	30	Poor structure, bows to west at 15'	~	2
3933	Interior Live Oak	<i>Quercus wislizenii</i>	1	9	15	Poor structure, understory	Remove dead wood, prune to	2

Tree #	Common Name	Scientific Name	Number of stems	DBH	Canopy	Notes	Action	Rating
							balance	
3934	Interior Live Oak	Quercus wislizenii	1	19	30	Embedded fence post, leans to South West	Remove dead wood, prune to balance, remove fence wire	3
3935	Interior Live Oak	Quercus wislizenii	1	~30	40	No tag- poison oak too much, high canopy, large dead wood, too much decay at base	To be Removed	1
3936	Blue Oak	<i>Quercus douglasii</i>	1	10 @ 1'	15	Understory, suppressed, covered in poison oak	Remove poison oak, reinspect	2
3937	Interior Live Oak	Quercus wislizenii	1	10 @ 2'	25	Leans to West, bows at 20'	Prune to balance	2
3938	Interior Live Oak	Quercus wislizenii	1	10 @ 2'	~	Poor structure, too much dead wood	To be Removed	1
3939	Interior Live Oak	Quercus wislizenii	1	19	25	Bows at 10-15' to West in all stems	Prune to balance, remove dead wood	2
3940	Interior Live Oak	Quercus wislizenii	1	7	10	Good	~	4
3941	Blue Oak	<i>Quercus douglasii</i>	1	22	~	At water's edge, undermined, too much decay at base	To be Removed if target	1
3942	Blue Oak	<i>Quercus douglasii</i>	2	12,19	13	Bows to South, epicormic growth	Prune to balance, remove dead wood	2
3943	Interior Live Oak	Quercus wislizenii	1	10	35	At water's edge, failure	Remove dead wood	2
3944	Blue Oak	<i>Quercus douglasii</i>	1	35	40	Dominant, large dead wood, canopy to ground to West	Remove dead wood, reinspect every year	4

Testing & Analysis:

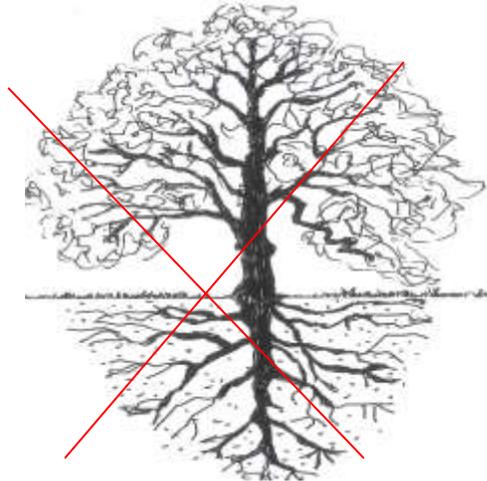
A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture's best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. No laboratory or chemical testing and analysis was performed, only ground level observations.

A recommended Level 3 – Advanced Assessment should be performed on trees determined during the development process to have a target. Level 3 assessment includes aerial inspection and evaluation of the structural defects of a tree including decay and load testing for purposes of risk analysis.

Discussion:

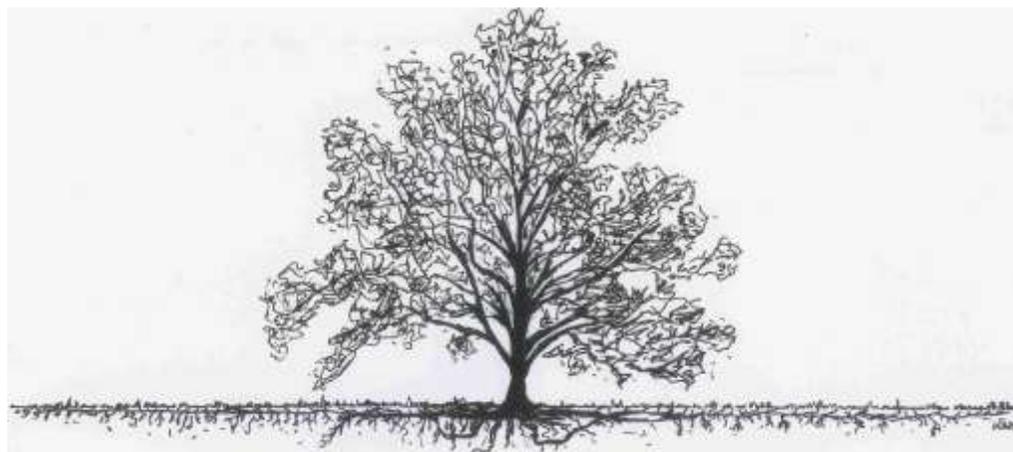
Root Development

The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy (see Drawing A below). The correct root structure of a tree is in Drawing B. All plants' roots need both water and air for survival. Surface roots are a common phenomenon with trees grown in compacted soil. Poor canopy development or canopy decline in mature trees is often the result of inadequate root space and/or soil compaction.



Drawing A

Common misconception of where tree roots are assumed to be located



Drawing B

The reality of where roots are generally located

Roots are the method by which a tree receives water and water-soluble nutrients. The water and nutrients are transported through the tree in the cambium layer, which lies just underneath the bark. Photosynthesis, which occurs in the leaves, requires the water from the roots. In return, the leaves produce sugars to feed the roots. There is a balance between the roots and leaves. There must be enough of each to provide for the other. In re-iteration: The GREEN part of the tree has an equal and more vigorous portion of roots that are unseen below the ground. What you see is a small portion of the tree!

Health and Disease Conditions in Trees

Healthy Canopy



Sparse Canopy

Photo by Nicole Harrison

Water is required to maintain each leaf on a tree. The larger a tree becomes, the more water is required to maintain it. If there is not enough water in the soil, the tree will begin to drop leaves to balance the leaf surface to the available water. Our native oaks have adapted to our dry environment and cycle in and out of leaf drop and re-growth phases. Non-native species, however, are not able to adapt to this cycle. In particular, Coast Redwood are notorious for growth to a certain size, a size to which water is available, and then they quickly decline and die from lack of available water.

Epicormic growth is a tree's response to loss of leaf surface from either limb drop, over pruning, or stressful conditions. Epicormic growth is simply the release of latent buds, which begin rapid growth in order to provide as much new leaf surface in the shortest period of time to make up for the loss of leaf surface. Epicormic growth prevents the death of the tree in stressful times, but creates a need for additional pruning. It is not the formation of a structurally intact new limb. The new limbs are weakly attached and need support and pruning.

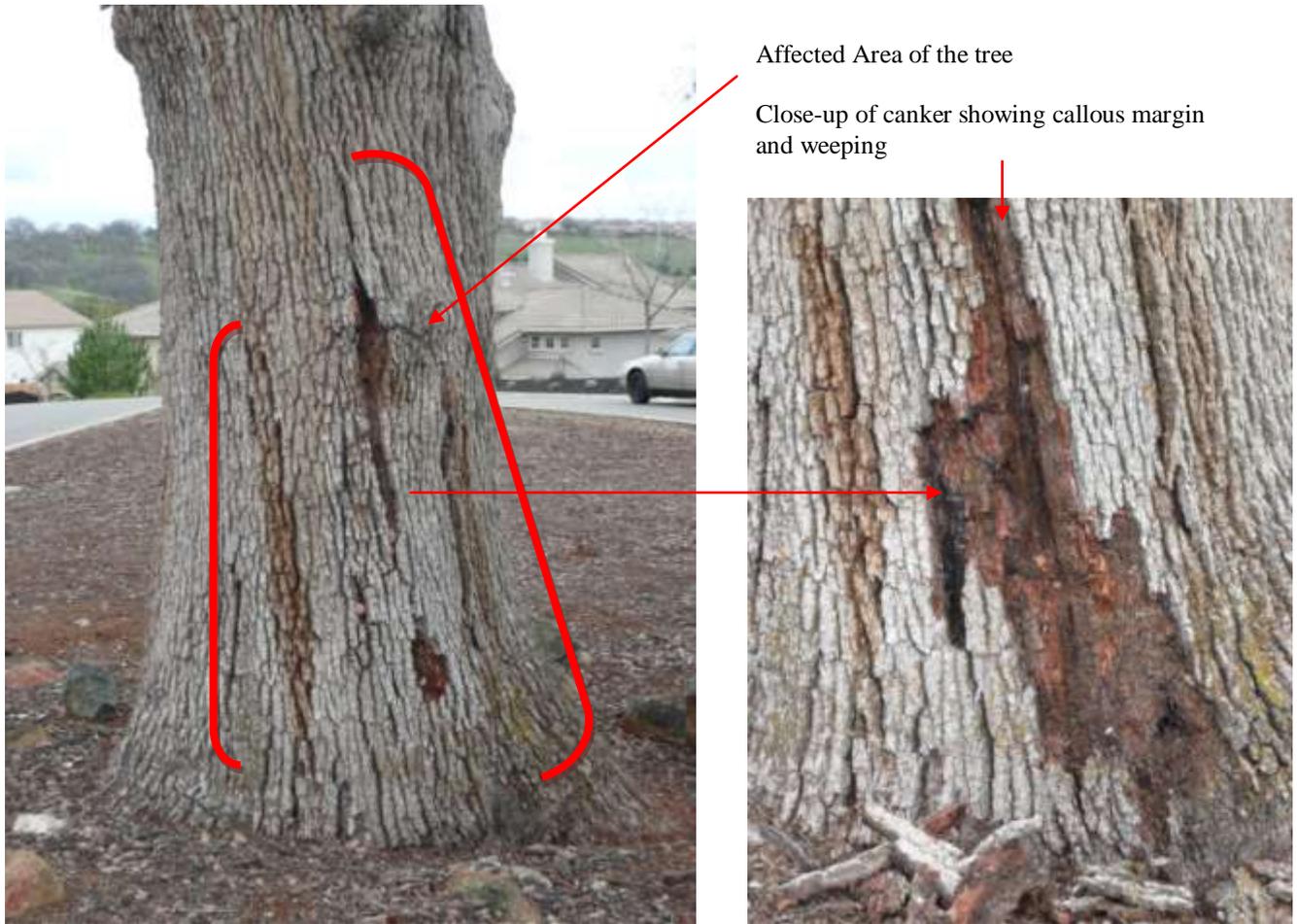


Epicormic Growth

Leaves develop on main stems as opposed to on branch tips

Sloughing bark and weeping stains on the lower trunk of trees indicate a canker disease. When the bark is removed, the elongate cankers can be seen. Canker rots are caused by wood-decaying fungi, in this case, *Inonotus dryophilus*. This disease is a white rot and kills the sapwood, phloem and vascular cambium of the tree (all the live tissues). In the early stages of infection, the amount and size of the cankers is moderate. At an advanced stage, it

may affect the structural integrity of the tree. Tree's with *Inonotus dryophilus* should be re-inspected at regular intervals.



The life of a tree is a balancing act. Disease, decay and insects are always present causing the tree to use some energy to deter their growth. Age can be a critical factor. A juvenile tree uses its energy to grow rapidly. It is usually rapid enough to outgrow disease, insect damage and other stress factors. A mature tree uses its energy for canopy spread and seed production applying less energy to inhibiting disease, decay and/or insects. By the time a tree is over-mature, the balance shifts and disease, decay and insects can significantly impact the tree. Crown retrenchment is the process by which an over mature tree reduces crown expansion by dropping extended limbs and re-aligning the weight of the canopy over the main trunk area. Mature trees in the retrenchment phase should not be considered for retention in a public area without risk management.

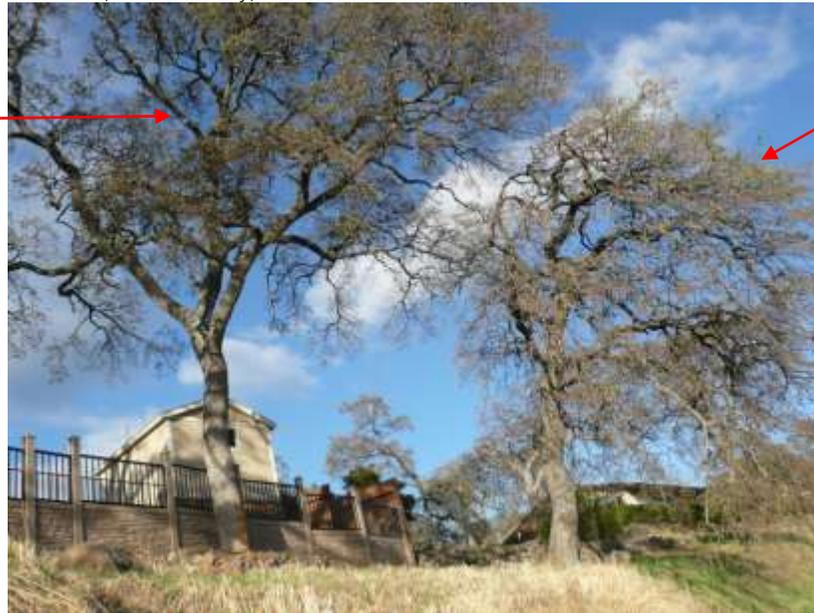
Structural Problems in Trees

Limited space for canopy development produces poor structure in trees. The largest tree in a given area, which is 'shading' the other trees is considered Dominant. The 'shaded' trees are considered Suppressed. The following picture illustrates this point. Suppressed trees are more likely to become a potential hazard due to their poor structure.

Dominant Tree

Growth is upright

Canopy is balanced by limbs and foliage equally

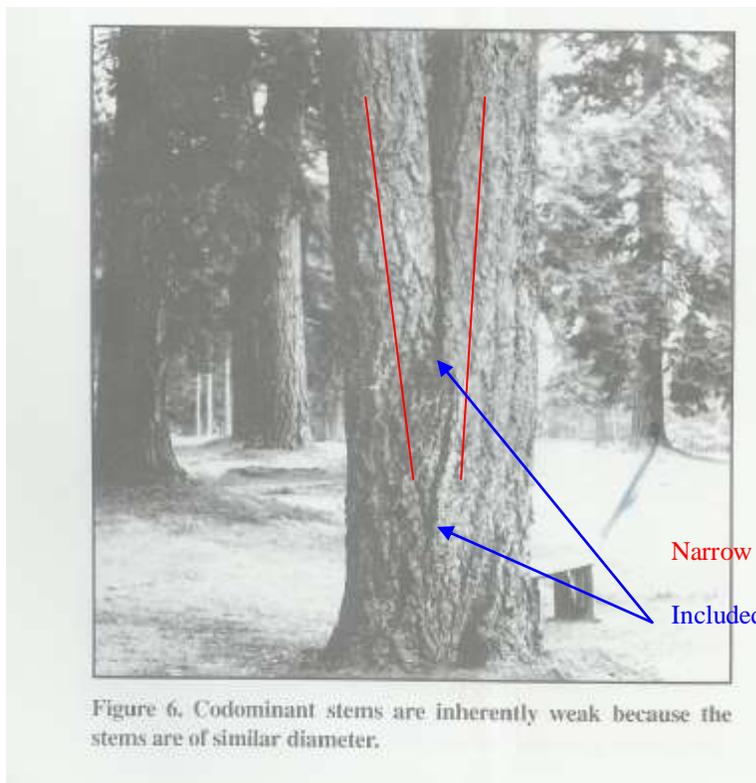


Suppressed Tree

Canopy weight all to one side

Limbs and foliage grow away from dominant tree

Co-dominant leaders are another common structural problem in trees.

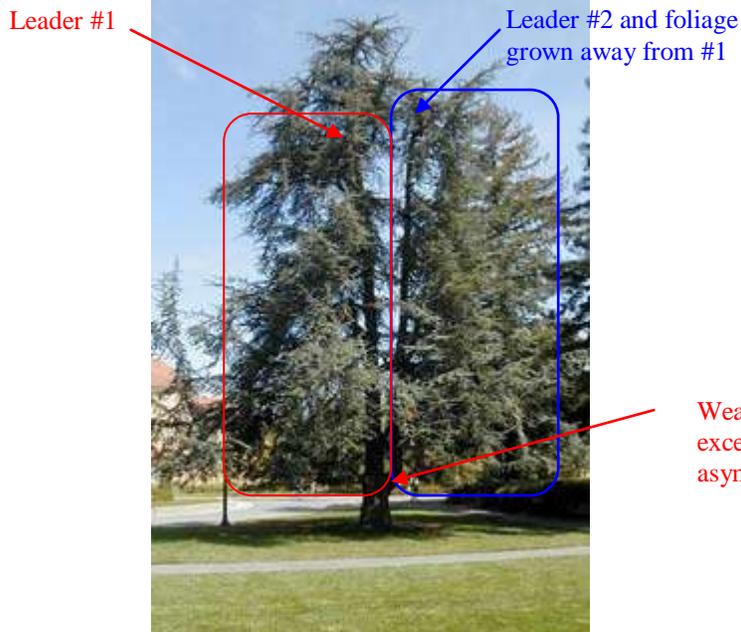


The tree in this picture has a co-dominant leader at about 3' and included bark up to 7 or 8'. Included bark occurs when two or more limbs have a narrow angle of attachment resulting in bark between the stems – instead of cell to cell structure. This is considered a critical defect in trees and is the cause of many failures.

Narrow Angle

Included Bark between the arrows

Photo from Evaluation of Hazard Trees in Urban Areas by Nelda P. Matheny and James R. Clark, 1994 International Society of Arboriculture



In addition, co-dominant leaders phototropically (due to sunlight) suppress each other's growth. All the limbs are grown away from the main trunk to one side. The weight of the foliage of the tree is distributed asymmetrically placing a greater amount of pressure on the already weak union.

Weak union with the excessive weight of asymmetrical canopies

Photo from <http://grounds.stanford.edu/points/significanttrees/cedrusatlantica.html>

Our native oak trees are easily damaged or killed by having the soil within the Critical Root Zone (CRZ) disturbed or compacted. All of the work initially performed around protected trees that will be saved should be done by people rather than by wheeled or track type tractors. Oaks are fragile giants that can take little change in soil grade, compaction, or warm season watering. Don't be fooled into believing that warm season watering has no adverse effects on native oaks. Decline and eventual death can take as long as 5-20 years with poor care and inappropriate watering. Oaks can live hundreds of years if treated properly during construction, as well as later with proper pruning, and the appropriate landscape/irrigation design.

Conclusion:

There are **140** trees on this property that qualify as "protected trees" by the standards of the Placer County Tree Preservation Ordinance.

8 of the protected trees on this property are rated a 0 ("dead").

40 of the protected trees are noted for removal due to their poor condition and are rated 1 ("dangerous/non-correctable").

52 of the trees are rated 2 ("poor").

42 of the trees are rated 3 ("fair") or 4 ("good").

There are 2 trees rated 5 ("excellent").

There are **142** total trees inventoried, of which, **2** are unprotected by size, **66** are Interior Live Oak, and **74** are Blue Oak.

Note: Ratings do not consider the habitat value of the trees.

Recommendations:

- 1) Follow all of the recommendations in the action column of **Chart B** immediately.
- 2) Mulch the area under the oaks' branched canopy with arborist type hard wood woodchips (4 – 6" deep), not redwood or cedar bark
- 3) All trees to be saved shall have their root zones and trunk(s) protected with a four (4') foot high orange or yellow plastic, high visibility exclusionary fence surrounding the trees' root zone. The fence shall be staked 10' o.c. maximum spacing, with 5' steel "T" posts, 2" x 2" square or 2"+ \varnothing wood posts. The exclusionary area shall be under the tree's branched canopy and extend out to the tree's longest dripline radius plus one foot, as a circle. Where new construction will be within the Protected Root Zone, the fencing shall be 4' away from the footings, and extend around the rest of the canopy of the tree from that point. The fencing shall be maintained and not removed until the completion of construction. The fencing shall completely surround the Protected Root Zone and not be "U" shaped or open at any point. Whenever possible, include as many trees that are to be saved into one fenced exclusionary Protected Root Zone. The fencing plan will be completed once the developer decides on driveway, utility, and structure placement.
- 4) As soon as the concrete is poured and the forms are stripped, backfill the footings and stem walls. The protected trees nearby that are to remain should be watered to the point of soil saturation.
- 5) Care must also be continued after the construction is over to select the right plants to live under and near the native oaks. Watered lawns and any frequent summer watering near California oaks will not mix well over a long period. This will cause the oaks to perish due to *Armillaria mellea* (oak root fungus). The demise of the native oaks due to *Armillaria mellea* may take 5 – 20 years. Oaks should live 200 - 500 years.
- 6) To help control root damage, utility-trenching paths are to be established away from the roots and branches of the oaks that are to remain.
- 7) Soil compaction shall be avoided by maintaining the exclusionary Protected Root Zone fencing, keeping material storage, people, portable outhouses, vehicles, and dogs out of this area.
- 8) Soil contamination shall be avoided by eliminating chemical dumping on the property that may infiltrate into the Protected Root Zone. **No**: washing, dumping, or contaminating the site including but not necessarily limited to the following: concrete from tools or trucks, paint materials, sheetrock mud or stucco materials, other chemicals, solvents, herbicides, etc. Limestone gravel should not be used as base material or for drain rock as it will change the pH to be more alkaline, and may harm the native oaks.
- 9) Do not nail, tie, screw, or fasten any signs, braces, etc. to the trees that are to remain.
- 10) The cut and fill material excavated from or added to the lot can kill an oak by removing too many roots, drying or wetting the soil or by suffocating the roots with too much soil. Care must be taken with the added soil as well as with the actual excavation. Roots need air as much as they need water to survive and for the whole tree to live and to flourish. If fill material is needed, properly designed aeration/ventilation systems made to protect the trees and allow for the fill material can be installed.
- 11) When deciding on a pruning arborist, inquire about a chipper and require them to utilize the chipped branches of the trees to be removed or pruned. The chips are to be used under

the oaks that are to remain, as mulch in the Protected Root Zone. Other mulch may be used of arborist type woodchips (4 – 6” deep), but not redwood or cedar bark.

12) When the recommended pruning is completed, it is only advisable if a qualified ISA Certified Arborist is on site. No cutting of live wood over 2”Ø shall be made. All cutting, pruning, trimming, cabling, guying, bracing, and lightning protection systems shall conform to the most current standards of the American National Standards Institute (ANSI). The current ANSI Tree Care Standards are A300 (Parts 1-4) 2000 to 2002 (copies at: www.ansi.org). The BMPs are “Best Management Practices”, as companion publications to the ANSI Tree Care Standards, printed by the International Society of Arboriculture (copies at: www.isa-arbor.com). The BMP booklets explain the details of the ANSI Tree Care Standards and how to follow them correctly. Pruning of branches under 3” in diameter should be made with sharp hand tools: pruners, loppers, and/or handsaws, not chainsaws.

These important details will greatly increase the likelihood of survival for your protected trees.



Preservation Requirements

To be Determined

Survey Area Map



The property is located at the south east corner of PFE Road and North Antelope Road in Placer County, California.

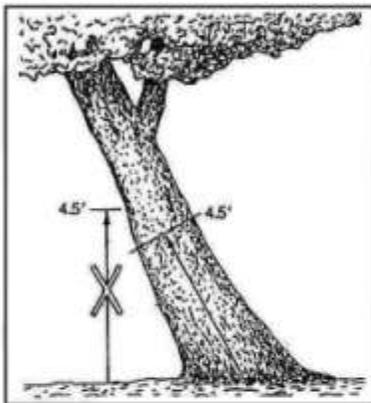
This report does NOT include the entire property. The west side of the creek was surveyed for purposes of establishing a canopy line for preservation during the development process.

Tree Size Expressed by Trunk Diameter

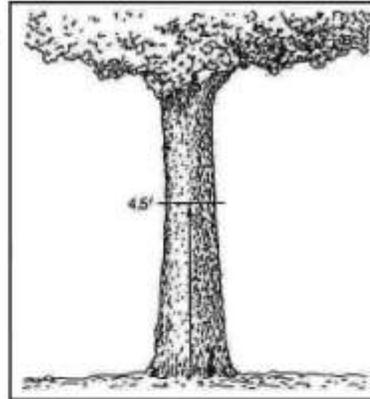
Tree SIZE Expressed by Trunk Diameter

"The height at which the trunk diameter of a tree is measured depends upon its size. The American Standard for Nursery Stock (ANSI, 1990) state that measurements shall be taken 6 inches (15 cm) above the ground for trunk diameters up to and including 4 inches (10 cm). Larger trees (assumed, but not stated, to be of transplantable size) are to be measured at 12 inches (30 cm). Trees normally considered too large to transplant are to be measured 4.5 feet [4'-6" is also called diameter breast high or dbh] (1.4 m) above the ground. Trees, like conifers, which have branches below 4.5 feet should be measured at a height that most effectively represents the size of the tree." The diameter is calculated by first measuring the circumference divided by 3.14 (π called pi) or by using a "diameter tape" wherein the inches are multiplied by π and shown to produce the diameter directly.

This is the dbh standard for measurement as shown in figure 4-2.



Figures 4-3 (top) and 4-4 (bottom). In each case, the trunk circumference should be measured at right angles to the trunk 4.5 feet (1.4 m) along the center of the trunk axis so the height is the average of the shortest and longest sides of the trunk.



Figures 4-2. Trees with fairly straight, upright trunks with the lowest branch arising on the trunk higher than 6 feet (1.8 m) above the ground should be measured at 4.5 feet (1.4 m).

There are some exceptions to the dbh standard as shown in the figures 4-3, 4-4, 4-5 & 4-6.

Figure 4-6. In a multi-stem tree, measure the trunk circumference of each trunk at 4.5 feet (1.4 m) above the ground. The area of each trunk is determined and then added together to obtain a trunk area that is representative of the size of the tree and each of the stems contribute its proportionate share to the canopy.

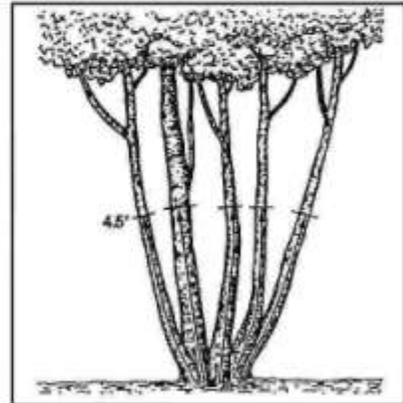
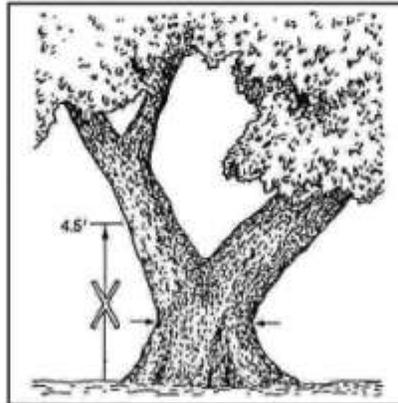
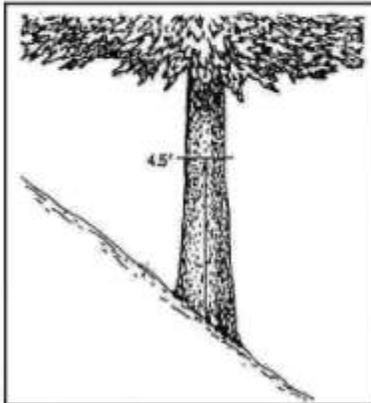


Figure 4-5. When low branches preclude measuring the trunk at 4.5 feet (1.4 m) measure the smallest circumference below the smallest branch. In this example, an alternative would be to determine the sum of the cross-sectional areas of the two stems measured about 12 inches (30 cm) above the crotch; then average the sum of the two branch areas and the smallest cross-sectional area below the branches. This may give a better estimate of tree size. Record the height of measurement(s) and the reasons the height or those heights were chosen.

This information is taken from: Guide for Planting Appraisal, English Edition, authored by the Council of Tree & Landscape Appraisers, edited, published & copyrighted by the International Society of Arboriculture, representing: American Association of Nurserymen, American Society of Consulting Arborist, Associated Landscape Contractors of America, International Society of Arboriculture and the National Arborist Association.

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Tree SIZE Expressed by Trunk Diameter

Scale: NTS

Drawing: TSE

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Disclosure, Assumptions and Disclaimer

- 1) I, Nicole Harrison, *ISA Certified Arborist WE-6500AM*, with “**ABACUS**”, did personally inspect the site and investigated the tree(s) as mentioned in this report and I performed all aspects of this report unless noted otherwise in the report. Arborist’s Assistant on site was Greg Nicholas.
- 2) We have neither financial interest in the tree work that may or may not be done, nor financial interest in the property where the tree(s) is (are) located unless noted within the report.
- 3) All opinions and recommendations expressed herein this report are ours solely. We have used our specialized education, knowledge, training and experience to examine the tree(s) and to make our opinions and recommendations to enhance the beauty, health and longevity, with an attempt to reduce the risk of who and/or what is near these trees. We cannot guarantee or warranty that a tree will not be healthy or safe under all circumstances, nor for a specific period of time or that problems may not arise in the future.
- 4) Our report with its opinions and recommendations are limited to the tree(s) inspected.
- 5) We attempt to be cognizant of the whole scope of a project, but many matters are beyond the scope of our professional consulting arborist services such as: exact property boundaries, property ownership, site lines, easements, codes, covenants & restrictions (CC&Rs), disputed between neighbors, and other issues.
- 6) We rely on the information disclosed to us and assume the information to be complete, true, and accurate.
- 7) The inspection is limited to visual examination of accessible items of the tree(s), from the ground unless otherwise noted, without excavation, probing, boring, or dissection, unless noted otherwise. Only information covered in this report was examined, and reflects the condition of those inspected items at that specific time.
- 8) Clients may choose to accept or disregard these opinions and recommendations of the arborist or to seek additional advice.
- 9) This report is copyrighted. Any modification or partial use shall nullify the whole report. Do not copy without written permission. This report is for the client and the client’s assignees.
- 10) Sketches, diagrams, graphs, drawings, and photographs within this report are intended as visual aids and are not necessarily to scale, and should not be construed as engineering or architectural detail, reports or surveys.
- 11) We shall not attend or give a deposition and/or attend court by reason of this report unless fees are contracted for in advance, according to our standard fee schedule, adjusted yearly, for such services as described.

Signed: _____



Arborist Report by:

ABACUS

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