

ABACUS

CONSULTING ARBORISTS



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PRELIMINARY Consulting Arborist Report & Tree Inventory

Prepared at the request of:

Larissa Justice

For the Property:

6639 Wishingwell Way

Located
in

Town of Loomis, CA

By:

Nicole Harrison

January 14, 2015

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TOWN OF LOOMIS

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Executive Summary:

Larissa Justice contacted **ABACUS** to inventory and evaluate the protected trees and produce an Arborist Report as the end product. The inventory provided includes all species of native trees which are at least 6" DBH,¹ and multi-stemmed trees with an aggregate of 10" or greater. The property is located at 6639 Wishingwell Way, in Loomis, California.

Nicole Harrison, ISA Certified Arborist #WE-6500AM, and Michael McNamara, Arborists Assistant, of **ABACUS** were on site December 17th, 2014, and January 6th, 2015; providing species identification, number of trunks, measurements of DBH and canopy, field condition notes, recommended actions, ratings, and several locations of protected native trees as defined by the City of Citrus Heights Tree Preservation Ordinance.

There are **23** trees on this property that were inventoried:

- **None** of the trees on this property are rated a **0** ("dead").
- **None** of the trees on this property are rated **1** ("dangerous/non-correctable") and are noted for removal due to their poor condition.
- **2** of the trees on this property are rated **2** ("poor") and require immediate action;
- **10** of the trees on this property are rated **3** ("fair") or **4** ("good").
- **None** of the trees on this property are rated **5** ("excellent").

There are additional trees onsite within 50' of the proposed developments which were not inventoried.

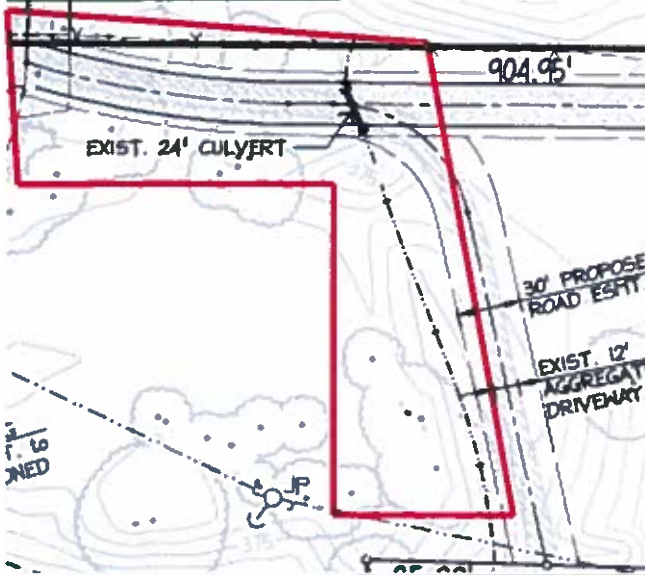
There are **23** total trees inventoried, of which **5** are Interior Live Oak, **5** are Valley Oak, **12** are Cottonwood, and **2** are Willow.

The community and Town of Loomis want the trees protected by species and size, and currently require the quality trees 6" and greater to be protected at all times and accounted for before construction work begins, and after completion. Listed within this report are the "Recommendations" section and the action column in **Chart B**, which are required for protection of the trees.

¹DBH or dbh, "Diameter Breast high" is the diameter of the tree's trunk in inches, measured 4' 6" off the ground (for more information see "Tree SIZE Expressed by Trunk Diameter" at the end of this report).

Assignment:

Pursuant to your request, **ABACUS** has completed an inventory of the trees located on the site plan and immediate proximity to the development of the roadway. We provided on-site tagging, as well as species identification, number of stems, measurements of DBH and canopy, field condition notes, recommended actions, and ratings. The property is located at 7264 Stock Ranch Road, in Citrus Heights, California.

Inventory Site Map:

Area of Inventory

Observations:

Nicole Harrison, *Project Manager & ISA Certified Arborist #WE-6500A*, evaluated all the trees. The fieldwork was performed on December 17th, 2014, and January 6th, 2015.

The trees, for purpose of discussion within this report, had previously been tagged and labeled by number on the Tree Site Map. Any trees without an tag on site were tagged by **ABACUS**. Tree locations were verified on-site by **ABACUS**.



The 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 with 1/8" pre-stamped tree number, attached with a natural colored 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.

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 caliper² was used to measure the DBH for trees less than 26" in diameter and a steel diameter tape³ 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:

Chart A

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

²A large wooden sliding adjustable thickness gauge calibrated in 1/16" increments.

³Diameter 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.

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).

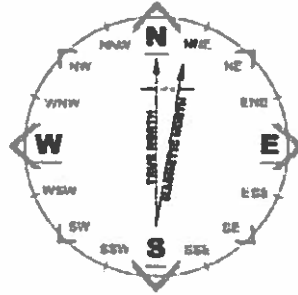


Chart B

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 or require action to raise their rating. **BLUE** are tree's on-site that are NOT protected due to their small size.

<u>Abacus Tree Tag#</u>	<u>Previous Tree Tag#</u>	<u>Botanical Name</u>	<u>Common Name</u>	<u>Stems</u>	<u>DBH</u>	<u>Canopy r</u>	<u>Notes</u>	<u>Action</u>	<u>Rating</u>
	613	<i>Quercus wislizenii</i>	Interior Live Oak	2	9, 9		North stem lost, co-dominant leader, large dead wood	Not yet Determined	1
	614	<i>Quercus wislizenii</i>	Interior Live Oak	3	17, 14, 9		Poor structure, epicormic growth only	Not yet Determined	3
2329	630	<i>Salix sp.</i>	Willow sp.	1	7	12	Significant Lean to southwest, large cottonwood 20' to east	Not yet Determined	2
	631	<i>Populus fremontii</i>	Cottonwood	1	24, 28, 20	40	South stem has too much decay and significant lean, 24-28 stem has included bark, large failures	Not yet Determined	2
	632	<i>Populus fremontii</i>	Cottonwood	1	18	11		Not yet Determined	3
	633	<i>Populus fremontii</i>	Cottonwood	1	17	34	Leans, poor taper	Remove dead wood	2
	634	<i>Populus fremontii</i>	Cottonwood	1	18, 18, 13, 17	35	18 has significant lean to south west, included bark, epicormic growth	25 % End weight reduction to south west, prune to balance	2
	635	<i>Populus fremontii</i>	Cottonwood	1	18, 16	20	18 is failed from base	To be removed	1
	636	<i>Populus fremontii</i>	Cottonwood	7	20, 8, 8, 22, 19, 15, 14	27	14" stem has significant lean to south west	Not yet Determined	2
	637	<i>Populus fremontii</i>	Cottonwood	1	16	25	Epicormic growth, large dead wood	Not yet Determined	2
	643	<i>Populus fremontii</i>	Cottonwood	1			REMOVED	Not yet Determined	
	644	<i>Populus fremontii</i>	Cottonwood	1	20	22	Epicormic growth, significant leant and unbalanced canopy to south, included bark	Not yet Determined	2

<u>Abacus Tree Tag#</u>	<u>Previous Tree Tag#</u>	<u>Botanical Name</u>	<u>Common Name</u>	<u>Stems</u>	<u>DBH</u>	<u>Canopy</u> ⌞	<u>Notes</u>	<u>Action</u>	<u>Rating</u>
	645	<i>Populus fremontii</i>	Cottonwood	1	17	25	Epicormic growth	Not yet Determined	3
	646	<i>Populus fremontii</i>	Cottonwood	4	12, 13, 13, 14	33	Included bark base to 6', 1 stem failed @ 20'	Not yet Determined	2
	647	<i>Quercus wislizenii</i>	Interior Live Oak	1	8 @ 2'	16	Stubs, understory	Not yet Determined	3
	648	<i>Quercus lobata</i>	Valley Oak	1	21	30	Epicormic growth, sparse canopy	Not yet Determined	3
2332	664	<i>Quercus lobata</i>	Valley Oak	1	14	16	Unbalanced canopy and slight lean to north east	Not yet Determined	4
2324		<i>Quercus wislizenii</i>	Interior Live Oak	1	14	19	Co-dominant leader at 6', good canopy	Not yet Determined	4
2325		<i>Salix sp.</i>	Willow sp.	2	~8, ~9	15	Base prostrate 5' from other side of stream, co-dominant leader with 2 corrected upright stems, located at existing culvert, 2 additional trees : Cottonwood 25' to east, valley oak 15' east and 15' south	Not yet Determined	2
2325		<i>Quercus lobata</i>	Valley Oak	1	17	25	Large deadwood, sparse canopy	Not yet Determined	3
2326		<i>Quercus lobata</i>	Valley Oak	1	15	31	Co-dominant leader at 10' with included bark	Not yet Determined	3
2327		<i>Quercus lobata</i>	Valley Oak	2	16, 15	28	High voltage lines, epicormic growth, good	Not yet Determined	3
2330		<i>Populus fremontii</i>	Cottonwood	1	17	16	Co-dominant leader at ~ 30' with included bark	Not yet Determined	3
2333		<i>Quercus wislizenii</i>	Interior Live Oak	1	10	18	Imbedded fence wire at 1', sparse canopy	Remove dead wood	3

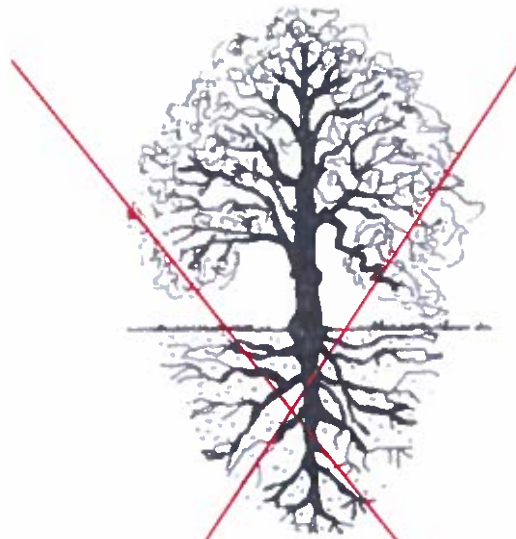
Level of Inspection, Testing and Analysis:

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:

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

Healthy Canopy

Sparse Canopy



Photo by Nicole Harrison

Epicormic growth is a trees response to loss of leave 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 leave 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.

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

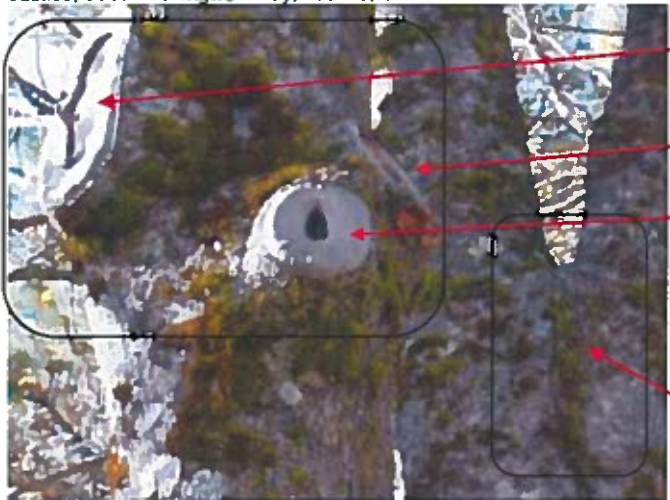


Suppressed Tree

Canopy weight all to one side

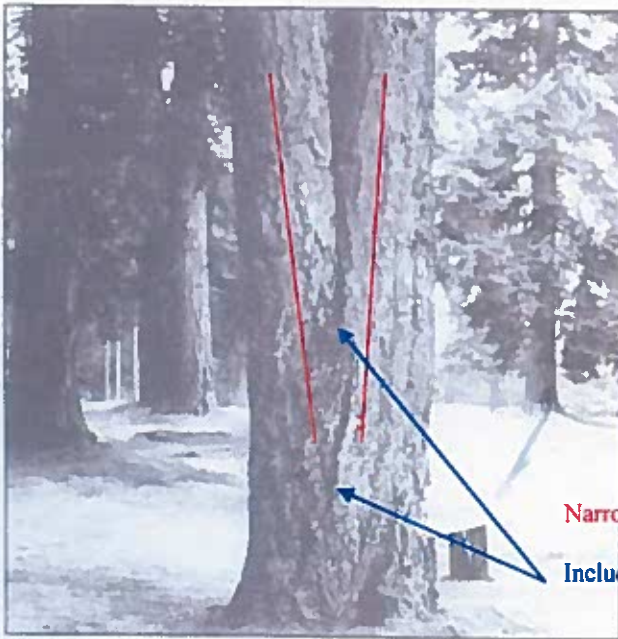
Limbs and foliage grow away from dominant tree

Pruning causes an open wound in the tree. Trees do not "heal" they compartmentalize. Any wound made today will always remain, but a healthy tree, in the absence of decay in the wound, will 'cover it' with callus tissue. Large, old pruning wounds with advanced decay are a likely failure point.



- Two Potential Failure Points**
- Large pruning wound with callous, uneven surface as indication of decay
 - Large pruning wound with advanced decay
 - Smaller pruning wound almost covered, black color could be an indication of decay
- Included Bark**

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

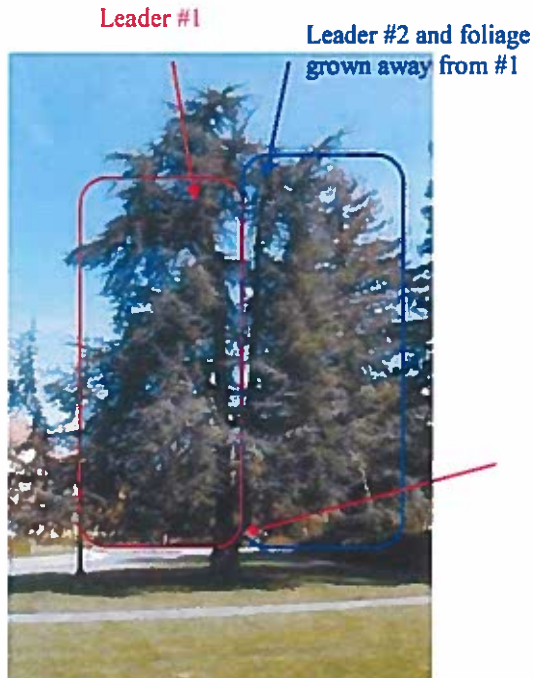


The tree in this picture has a co-dominant leader at about 3' and included bark up to 7 or 8'. Included bark occurs when two or more limbs have a narrow angle of attachment resulting in bark between the stems – instead of cell to cell structure. This is considered a critical defect in trees and is the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

Narrow Angle
Included Bark between the arrows

Figure 6. Codominant stems are inherently weak because the stems are of similar diameter.

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 23 trees on this property that were inventoried:

- None of the trees on this property are rated a 0 ("dead").
- None of the trees on this property are rated 1 ("dangerous/non-correctable") and are noted for removal due to their poor condition.
- 2 of the trees on this property are rated 2 ("poor") and require immediate action;
- 10 of the trees on this property are rated 3 ("fair") or 4 ("good").
- None of the trees on this property are rated 5 ("excellent").

There are additional trees onsite within 50' of the proposed developments which were not inventoried.

There are 23 total trees inventoried, of which 5 are Interior Live Oak, 5 are Valley Oak, 12 are Cottonwood, and 2 are Willow.

Recommendations:

- 1) Follow all of the recommendations in the action column of **Chart B** immediately.
- 2) 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"+ Ø 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.
- 3) 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.
- 4) 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 - 300 years.
- 5) 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.
- 6) 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.
- 7) 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.
- 8) Do not nail, tie, screw, or fasten any signs, braces, etc. to the trees that are to remain.
- 9) 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.
- 10) 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.

11) 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.

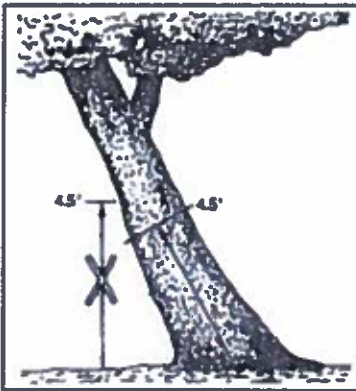
These important details will greatly increase the likelihood of survival for your protected trees.



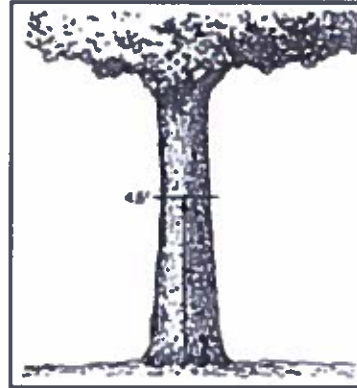
Tree SIZE Expressed by Trunk Diameter

"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 (measured, 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 (1.4 m) 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" whereon 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 4-4. 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.

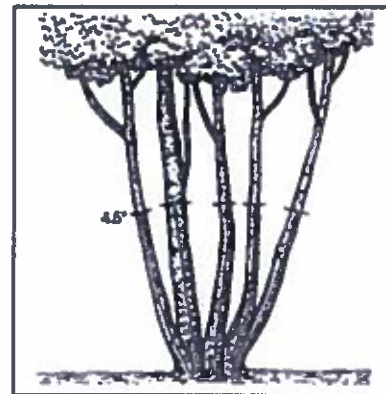
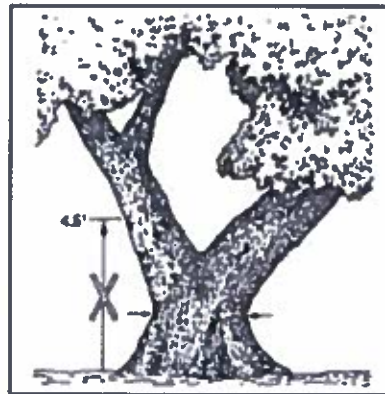
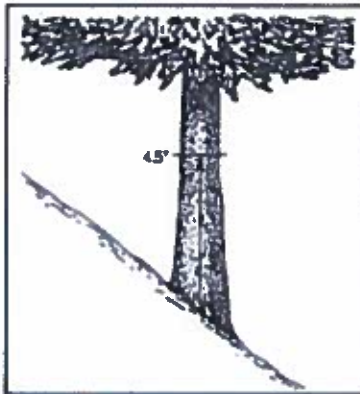


Figure 4-3. When low branches preclude measuring the trunk at 4.5 feet (1.4 m) measure the smallest circumference below the smallest branch. In this example, an alternative would be to determine the sum of the cross-sectional areas of the two stems measured about 12 inches (30 cm) above the crotch, then 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.

ABACUS

"If We Have Every Detail Counts"



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This information is taken from: Guide for Planting Approval, 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 Arborists, Associated Landscape Contractors of America, International Society of Arboriculture and the National Arborist Association.

Tree SIZE Expressed by Trunk Diameter

Scale: NTS

Drawings: T&E

ABACUS

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Disclosure, Assumptions and Disclaimer

- 1) I, Nicole Harrison, *ISA Certified Arborist WE-6500A*, 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.
- 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: _____

A handwritten signature in blue ink, appearing to be 'NH', written over a horizontal line.

MINOR LAND DIVISION 6639 WISHINGWELL WAY

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 15, T.11N, R.7E, M.D.M. A PORTION OF THE WEST HALF OF SECTION 15, T.11N, R.7E, M.D.R. and
A PORTION OF TRACT 1 AS SAID TRACT IS SHOWN ON THAT RECORD OF SURVEY RECORDED IN BOOK 13 AT PAGE 121, O.R.P.C.
Town of Loomis, Placer County, California



TOTAL ACREAGE

9.8 ACRES

GENERAL PLAN DESIGNATION

Existing = RESIDENTIAL AGRICULTURAL
Proposed = RESIDENTIAL AGRICULTURAL - 4.6 AC. min.
(No change)

ZONING DESIGNATION

Existing = RA 4.6 AC. TRACT
Proposed = RA 4.6 AC. TRACT (No change)

COMMUNITY SERVICES

FIRE PROTECTION = Loomis Fire District
SOLID WASTE = Loomis-Pleasanton Dispatch
WATER SERVICE = Loomis Water Service District
ELEMENTARY SCHOOLS = Loomis Union School District

PROJECT SUMMARY

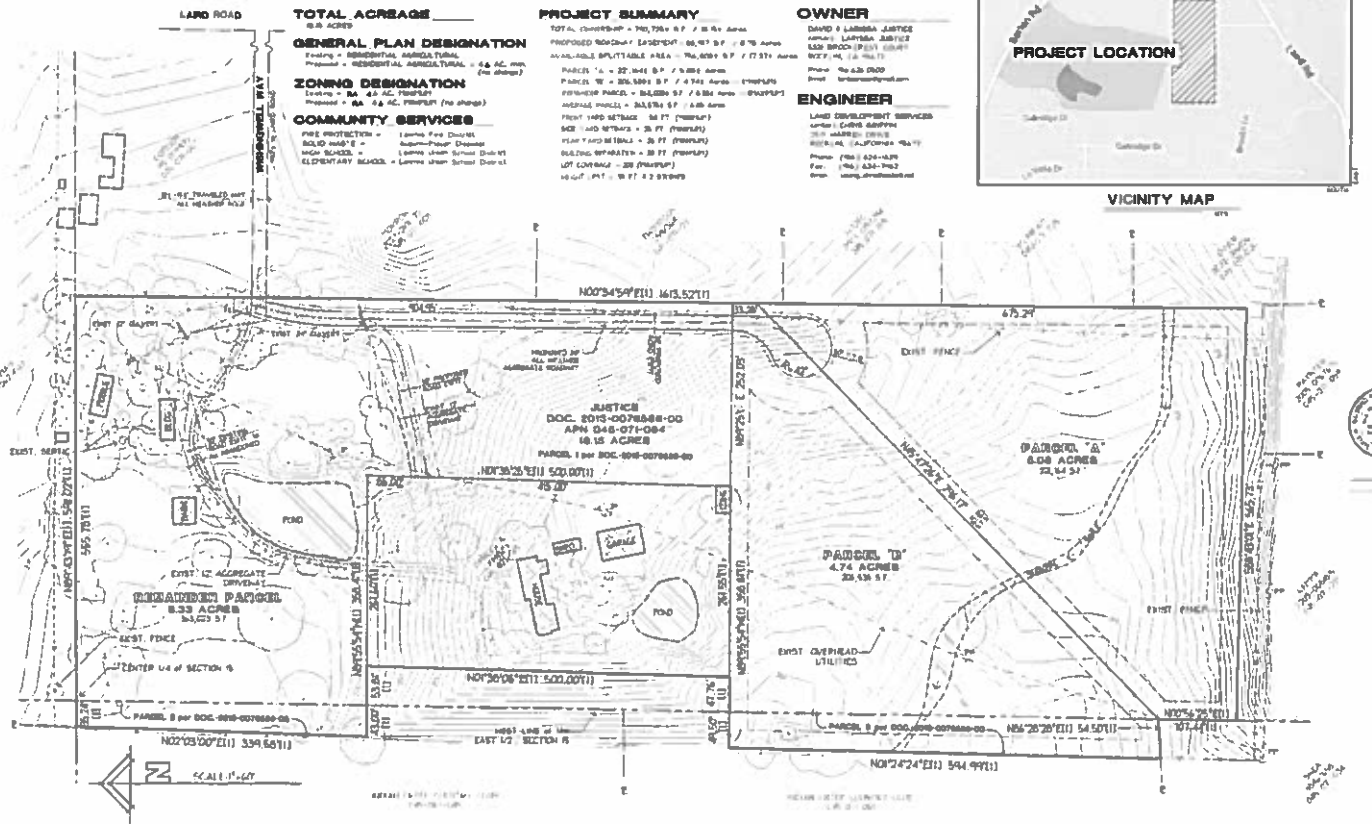
TOTAL DEVELOPMENT = 762,758 S.F. / 17.56 Acres
PROPOSED ROADWAY + EASEMENT = 66,487 S.F. / 1.52 Acres
AVAILABLE SPLITTABLE AREA = 76,000 S.F. / 1.73 Acres
PARCEL 'A' = 22,344 S.F. / 0.51 Acres
PARCEL 'B' = 205,500 S.F. / 4.74 Acres
PROPOSED PARCEL = 24,000 S.F. / 0.55 Acres (PROPOSED)
ADJACENT PARCEL = 24,574 S.F. / 0.56 Acres
FRONT YARD SETBACK = 30 FT. (PROPOSED)
SIDE YARD SETBACK = 30 FT. (PROPOSED)
REAR YARD SETBACK = 30 FT. (PROPOSED)
LOT COVERAGE = 20 (PROPOSED)
16' C&G P&T = 10 FT. 2.2 STORIES

OWNER

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530 BRIDGE STREET
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Phone: (916) 434-0200
Email: david@lamonia.com

ENGINEER

LAND DEVELOPMENT SERVICES
LARRY COOPER 4807076
1010 WARREN DRIVE
ROCKLIN, CALIFORNIA 95765
Phone: (916) 434-1629
Fax: (916) 434-1622
Email: larry@landdev.com



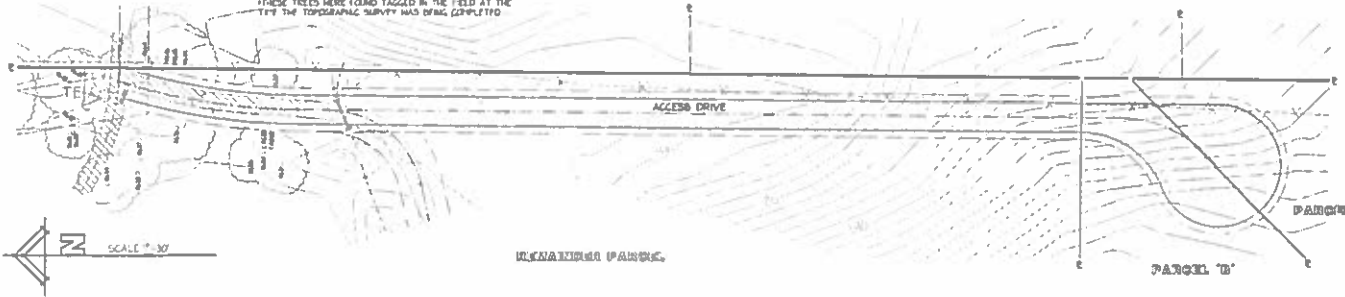
SCALE: 1"=40'

6639 WISHINGWELL WAY
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1010 WARREN DRIVE
ROCKLIN, CALIFORNIA 95765
PHONE: (916) 434-1629
FAX: (916) 434-1622
EMAIL: larry@landdev.com

DESIGNED: []
DRAWN: []
CHECKED: []
APPROVED: []
DATE: []

TREES POTENTIALLY IMPACTED BY THE CONSTRUCTION OF THE ACCESS DRIVE			
ID	TYPE	TRUNK DIAMETER @ BREAST HEIGHT	DR PLUME RADIUS
630	WILLOW	7"Ø"	14'
631	COTTONWOOD	05', 6"Ø"	20'
632	COTTONWOOD	11"	22'
633	COTTONWOOD	17"	34'
634	COTTONWOOD	10", 05', 12"	27'
635	COTTONWOOD	12", 10"	24'
636	COTTONWOOD	17", 11", 05', 08', 8", 8"	25'
641	COTTONWOOD	11", 05', 12"	27'
642	COTTONWOOD	16"	32'
643	COTTONWOOD	15"	30'
644	COTTONWOOD	11", 12", 12", 11"	27'
645	OAK	10"	20'

*THESE TREES WERE FOUND TAGGED IN THE FIELD AT THE TIME THE TOPOGRAPHIC SURVEY WAS BEING COMPLETED



6439 HUSHINGWELL WAY
 100% CIVIL ENGINEERING
 100% CIVIL ENGINEERING
 100% CIVIL ENGINEERING

DESIGNED BY: [Signature]
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]

DATE: [Blank]
 SCALE: [Blank]

2 / 2