



California Tree and Landscape Consulting, Inc.

December 16, 2020

Steve Norman
CNA Engineering, Inc.
2575 Valley Road
Sacramento, CA, 95821
Via email: steve@cnaeng.com

PRE-DEVELOPMENT ARBORIST REPORT & TREE INVENTORY

RE: Yankee Hill Tentative Parcel Map, DL2020-0004 & Oak Tree Preservation Plan Permit, TRE2020-0003

Executive Summary

Steve Norman, the property owner, contacted California Tree and Landscape Consulting, Inc. to update the arborist report by Abacus Consulting Arborists dated February 27, 2018, and provide information regarding the trees protected by the Oak Tree Preservation code, chapter 17.77. The property is Yankee Hill Road, APN # 010-010-008-000, 010-010-009-000, and 030-140-004-000. All located in Rocklin, California. See Supporting Information –Tree Location Map.

Gordon Mann, ISA Certified Arborist WE-0585 AM, Nicole Harrison, ISA Certified Arborist #WE-6500AM, TRAQ, and Nicholas McNamara, arborists assistant, of Abacus Consulting Arborists were on site February 13th, 2018 to February 27th, 2018 to evaluate the trees. Nicole Harrison of California Tree and Landscape Consulting (formerly with Abacus Consulting Arborists) visited the site on December 10, 2020, to spot check for tree diameter growth, decline in the mature trees, and removals pursuant to the client's observations.

A total of 48 trees are included in the inventory, of which all are protected by size and species according to the City of Rocklin Tree Preservation ordinance. 8 trees meet the criteria for Heritage status. No trees are proposed for removal as a part of this process¹.

Tree Species	Trees Inventoried	Heritage Trees	Proposed for Removal for Development	Proposed for Retention with Impacts ²
Interior Live Oak, <i>Quercus wislizeni</i>	37	7	0	-
Blue Oak, <i>Quercus douglasii</i>	5	1	0	-
Valley Oak, <i>Quercus lobata</i>	6	0	0	-
	48	8	0	-

See Appendices for specific information on each tree

¹ Tentative Parcel Map by CNA Engineering, Inc. "Yankee Hill Road Property" dated January 5, 2021.

² Impacts occur when development activities, including grading or trenching, are within the protected root zone defined for each tree in Chart B. The impact result and/or additional protection measures can be found in the conclusion of this report.

Methods

Appendix 2 in this report is the detailed inventory of the trees. The following terms will further explain our methods and findings.

The protected trees evaluated as part of this report have a numbered tag that was placed on each one with a pre-stamped tree number and Tree Tag. They are attached with a nail, installed at approximately 5 feet above ground level on the approximate south side of the fence.

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. Additional limiting factors, such as blackberries, poison oak, and/or debris piled at the base of a tree can inhibit the visual assessment.

Tree Location: The GPS location of each tree was collected using the ESRI’s ArcGIS collector application on an Apple iPhone or Samsung. The data was then processed in ESRI’s ArcMap by Julie McNamara, M.S. GISci, to produce the tree location map.

Tree Measurements: 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 in the ‘Measured at’ column. A steel diameter tape was used to measure all of the trees. A laser distance meter was used to measure distances. Canopy radius measurements may also have been estimated due to obstructions, such as steep slopes or other trees.

Terms

Field Tag #	The pre-stamped tree number on the tag which is installed at approximately 6 feet above ground level on the north side of the tree.
Old Tag #	If additional field tags are found on the trees and are legible, they are listed here.
Species	The species of a tree 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.
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 in the next column “measured at”
Measured at	Height above average ground level where the measurement of DBH was taken
Canopy radius	The farthest extent of the crown composed of leaves and small twigs. Most trees are not evenly balanced. This measurement represents the longest extension from the trunk to the outer canopy. The dripline measurement is from the center point of the tree and is shown on the Tree Location Map as a circle. This measurement can further define a protection zone if specified in the local ordinance as such or can indicate if pruning may be required for development.
Arborist Rating	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.

Rocklin Rating	Arborist	Rating	
Healthy	Excellent	5	No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect
Healthy	Good	4	The tree is in good condition and there are no apparent problems that can be seen from a visual ground inspection.
Healthy	Fair	3	The tree is in fair condition. There are some minor structural or health problems that pose no immediate risk of death or failure. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated and/or health can be improved.
Dead, Diseased, Dying Category (2)	Poor	2	The tree has major problems. If the option is taken to preserve the tree, additional evaluation to identify if health or structure can be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. Additionally, risk should be evaluated as a tree rated 2 may have structural conditions which indicate there is a high likelihood of failure. Trees rated 2 should be removed if these additional evaluations will not be performed.
Dead, Diseased, Dying Category (1)	Very Poor	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 high risk.
Dead, Diseased, Dying Category (1)	Dead	0	This indicates the tree has no significant sign of life.

Notes: Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline environment. Notes also indicate if the standard tree evaluation procedure was not followed (for example - why dbh may have been measured at a location other than the standard 54"). Additionally, notes will list any evaluation limiting factors such as debris at the base of a tree.

Actions Recommended actions to increase health and longevity.

Development Status Projected development impacts are based solely on distance relationships between tree location and grading. Field inspections and findings during the project at the time of grading and trenching can change relative impacts. Closely followed guidelines and requirements can result in a higher chance of survival, while requirements that are overlooked can result in a dramatically lower chance of survival. Impacts are measured as follows:

Impact Term

Long Term Result of Impact

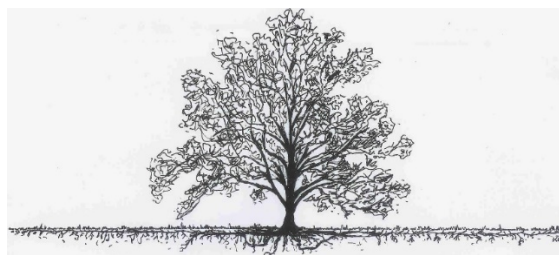
Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species tolerance is good.
Moderate	Tree is likely to show moderate symptoms. Chance of survival post development is fair. Impacts to the Protected Root Zone are less than 35% and species tolerance is good or moderate.
Severe	Tree is likely to show moderate symptoms annually and a pattern of decline. Chance of long term survival post development is low. Impacts to the Protected Root Zone are up to 50% and species tolerance is moderate to poor.
Critical	Tree is likely to show moderate to severe symptoms annually and a pattern of decline. Chance of long term survival post development is negligible. Impacts to the Protected Root Zone are up to 80%.

Discussion

Trees need to be protected from normal construction practices if they are to remain on the site and are expected to survive long term. While construction damage in the root zone is often the death of a tree, the time from when the damage occurs to when the symptoms begin and/or the tree dies can be years. Our recommendations are based on experience and the local ordinance requirements to enhance tree longevity. It requires the calculated root zone must remain intact as an underground ecosystem despite the use of heavy equipment to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil can have serious consequences to tree health. The Tree Preservation Requirements and General Development Guidelines should be incorporated into the site plans and enforced onsite. The project arborist should be included in the development team during construction to provide expertise and make additional recommendations if additional impacts occur or tree response is poor.

Root Structure

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. The correct root structure of a tree is in the drawing below. All plants' roots need both water and air for survival. Poor canopy development or canopy decline in mature trees after development is often the result of inadequate root space and/or soil compaction.



The reality of where roots are generally located (Menzer, 2008)

Pruning Mature Trees for Risk Reduction and/or Development Clearance

There are few good reasons to prune mature trees. Removal of deadwood, directional pruning, removal of decayed or damaged wood, and end-weight reduction as a method of mitigation for structural faults are the only reasons a mature

tree should be pruned. Live wood over 3" should not be pruned unless absolutely necessary. Pruning cuts should be clean and correctly placed. Pruning should be done in accordance with the American National Standards Institute (ANSI) A300 standards.

Pruning causes an open wound in the tree. Trees do not "heal" they compartmentalize. It is far better to use more small cuts than a few large cuts as small pruning wounds reduce risk while large wounds increase risk. 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 which did not close with callous tissue often have advanced decay. These wounds are a likely failure point. Mature trees with large wounds have a high risk of failure.

Overweight limbs are a common structural fault in suppressed trees. There are two remedial actions for over-weight limbs (1) prune the limb to reduce the extension of the canopy, or (2) cable the limb to reduce movement. Cables do not hold weight they only stabilize the limb and additionally require annual inspection.

Arborist Classifications

There are different types of Arborists:

Tree Removal and/or Pruning Companies: These companies may be licensed by the State of California to do business as a tree removal company, but they do not necessarily know anything about trees biology.

Arborists: Arborist is a broad term intended to mean someone with specialized knowledge of trees, but it is often used to imply knowledge that is not there.

ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has trained, met the qualifications for application, and been tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.

Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and then tested to have specialized knowledge of trees; and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: ASCA-consultants.org.

RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

The Owner and/or Developer should ensure the project arborist's protection measures are incorporated into the site plans and followed. Tree specific protection measures can be found in Appendix 2 – Tree Information Data.

- Identify the Root Protection Zones on the final construction drawings and show the placement of tree protection fencing pursuant to the arborists recommendation or city requirements.
- The project arborist should review the final construction drawings prior to submittal and identify the impacts to each tree and recommend actions to increase the likelihood of long term survival post construction.
- The project arborist should inspect the fencing prior to grading and/or grubbing for compliance with the recommended protection zones.

- The project arborist should directly supervise the clearance pruning, irrigation, fertilization, placement of mulch and chemical treatments.
- All stumps within the root zone of trees to be preserved shall be ground out using a stump router or left in place. No trunk within the root zone of other trees shall be removed using a backhoe or other piece of grading equipment.
- Prior to any grading, or other work on the site that will come within 50' of any tree to be preserved, irrigation will be required from April through September and placement of a 4-6" layer of chip mulch over the protected root zone of all trees that will be impacted. Chips should be obtained from onsite materials and trees to be removed.
- Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.
- Clearly designate an area on the site outside the drip line of all trees where construction materials may be stored, and parking can take place. No materials or parking shall take place within the root zones of protected trees.
- Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.
- Trenching inside the protected root zone shall be by a hydraulic or air spade, placing pipes underneath the roots, or boring deeper trenches underneath the roots.
- Include on the plans an Arborist inspection schedule to monitor the site during (and after) construction to ensure protection measures are followed and make recommendations for care of the trees on site, as needed.

Report Prepared by:



Nicole Harrison

Registered Consulting Arborist #719

ISA Certified Arborist #WC-6500AM, TRAQ

American Society of Consulting Arborists

Appendix 1 – Tree Location Map

Appendix 2 – Tree Data

Appendix 3 – General Development Guidelines

Bibliography

International Society of Arboriculture. (2015). *Glossary of Arboricultural Terms*. Champaign: International Society of Arboriculture.

L.R., C. (2003). *Reducing Infrastructure Damage by Tree Roots*. Porterville: International Society of Arboriculture.

- Matheny, J. C. (1994). *Evaluation of Hazard Trees in Urban Areas, Second Edition*. Champaign: International Society of Arboriculture.
- Menzer, K. (2008). *Consulting Arborist Report*.
- Smiley. (2008). *Managing Trees During Construction, Best Management Practices*. Champaign: International Society of Arboriculture.
- Stamen, R. (1997). *California Arboriculture Law*. Riverside: Law Offices of Randall S. Stamen.
- Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning)*. Londonderry: Tree Care Industry Association.
- Urban, J. (2008). *Up by the Roots*. Champaign: International Society of Arboriculture.



2/28/2018

Yankee Hill Rd

in
Rocklin, California

Tree Rating

0 Dead

1 Extreme Structure or Health Problems

2 Major Structure or Health Problems

3 Fair - Minor Problems

4 Good - No Apparent Problems

Canopy Updated

Property Line



Please refer to the Arborist Report for additional information.

Tree locations are approximate.

Imagery - ESRI (2018)

APPENDIX 2 – TREE INFORMATION DATA

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7248	22	N	Y		Interior Live Oak	Quercus wislizenii	12	8	15	TDBH measured at base, included bark main stem at 2, good flare, epicormic growth, slight lean W, good canopy, suppressed by 7249		3 Fair - Minor Problems	Healthy	Preserve
7249		N	Y		Interior Live Oak	Quercus wislizenii	12	9, 9, 8, 7, 11	25	cavity at base, codominant leaders at base, N stems conjoined, S stems conjoined, DW, Sparse canopy	Remove deadwood reduce canopy extension	3 Fair - Minor Problems	Healthy	Preserve
7250	21	N	Y	Y	Interior Live Oak	Quercus wislizenii	24	19, 19	33	codominant leaders split at base, included bark all stems, epicormic growth, canopy reaches ground, small failure S stem, lower branches not growing	Remove or cable immediately. Reduce canopy extension to prevent failure	2 Major Structure or Health Problems	Diseased /Dying	Preserve
7251	20	N	Y		Interior Live Oak	Quercus wislizenii	15.75	12, 10	20	Decay under at base, S stem barbed wire included, poor leaf surface, Fair to poor structure	Reduce canopy extension	2 Major Structure or Health Problems	Diseased /Dying	Preserve
7252		N	Y		Blue Oak	Quercus douglasii	12		22	good flare, epicormic growth, codominant leaders at 20, ant hill at base, small cavity at base		4 Good - No Apparent Problems	Healthy	Preserve
7253	30	N	Y		Interior Live Oak	Quercus wislizenii	9	9, 8, 8	19	codominant leaders at base, included bark S stem, dead wood, hillside, 5 pruning wounds towards tracks 2-6 inches, fair canopy, epicormic growth, old 30	Wide and broad in lower canopy, poor leaf surface, decline	3 Fair - Minor Problems	Healthy	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7254		N	Y	Y	Interior Live Oak	Quercus wislizenii	26		20	TDBH measured at 2', large cavity at base E, barbed wire, abnormal growth, narrow attachments	Remove if target will exist	1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7255		N	Y		Interior Live Oak	Quercus wislizenii	11	9	20	codominant leaders at 3, good flare, hillside, good canopy		4 Good - No Apparent Problems	Healthy	Preserve
7256		N	Y		Interior Live Oak	Quercus wislizenii	18	8, 8, 7	17	codominant leaders from the ground, small cavity E stem at base, pruning wounds E, small failures, N suppressed by 7255, abnormal growth, fair canopy		3 Fair - Minor Problems	Healthy	Preserve
7257		N	Y		Interior Live Oak	Quercus wislizenii	12	10	18	TDBH measured at 2', codominant leaders at base, included bark, good canopy, epicormic growth		4 Good - No Apparent Problems	Healthy	Preserve
7258		Y	Y		Interior Live Oak	Quercus wislizenii	14		17	hillside, large pruning wounds, failure at base, off property, good canopy		1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7259		N	Y		Interior Live Oak	Quercus wislizenii	13	7	15	growing out of a rock, epicormic growth, abnormal growth, included bark, codominant leaders at 1	Reduce to prevent failure	3 Fair - Minor Problems	Healthy	Preserve
7260		N	Y		Interior Live Oak	Quercus wislizenii	19	10, 14, 15, 6	32	codominant leaders at base, some basal decay, wide spread canopy, north and west stems lean, fair leaf surface		3 Fair - Minor Problems	Healthy	Preserve
7261	34	N	Y		Interior Live Oak	Quercus wislizenii	7		20	conjoined stems at 5', poor structure, too many pruning	Remove if target, or	1 Extreme Structure	Diseased /Dying	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
										wounds, understory -suppressed by 7260	reduce to prevent failure	or Health Problems		
7262	16	N	Y		Interior Live Oak	Quercus wislizenii	12	10, 7	18	hillside, good flare, dead 6 inch stem, epicormic growth, included bark on S stem, sparse canopy, unhealed pruning wounds		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7263	15	N	Y		Interior Live Oak	Quercus wislizenii	10	10, 9	24	large jagged failures, pruning wounds, codominant leaders at base, decay at base at old cdl removal, widespread canopy, Sparse canopy, lean to E, included bark main stem, mistletoe, poor leaf surface		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7264	14	N	Y		Interior Live Oak	Quercus wislizenii	22.5	11, 12, 15	32	Codominant from base, north stem codominant with included bark and decay/deadwood at 2' - high risk of failure; south stem included bark at 6'. Overall poor structure, bows east	Remove if target, or reduce to prevent failure	1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7265	13	N	Y		Valley Oak	Quercus douglasii	22.5		24	good flare, included bark at 20, codominant leaders at 15', 1-4" deadwood, fair leaf surface		3 Fair - Minor Problems	Healthy	Preserve
7266		N	Y		Valley Oak	Quercus lobata	10	9	23	codominant leaders at base, included bark at base, unbalanced canopy south west, good flare		3 Fair - Minor Problems	Healthy	Preserve
7267		N	Y		Interior Live Oak	Quercus wislizenii	10	8, 9, 9, 5	24	codominant leaders at base, embedded fence post at base, pruning stubs, crossing limbs, epicormic growth, suppressed by 7266, fair leaf surface		2 Major Structure or Health Problems	Diseased /Dying	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7268		N	Y		Interior Live Oak	Quercus wislizenii	7	6, 6	19	small pruning wounds, codominant leaders at base, vertical cavities in all stems at base, epicormic growth, fair canopy, suppressed, narrow attachments		3 Fair - Minor Problems	Healthy	Preserve
7269		N	Y		Interior Live Oak	Quercus wislizenii	9		18	codominant leaders at base, large failure cavity and decay at base, sparse canopy, suppressed		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7270		N	Y		Interior Live Oak	Quercus wislizenii	13		24	jagged failure with decay at 1, lean to E, healing wounds, cavity at 3 6", epicormic growth, codominant leaders at 5, good leaf surface		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7271		N	Y	Y	Interior Live Oak	Quercus wislizenii	38		50	Failed and on the ground		1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7272		N	Y	y	Interior Live Oak	Quercus wislizenii	25.75	14, 13, 9	30	large cavities at base, good flare, abnormal growth, large failures, epicormic growth, pruning wounds, decay, bows at 15-25' - prostrate above, fair canopy		1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7273		N	Y	Y	Interior Live Oak	Quercus wislizenii	33		30	TDBH measured at 1', edge of cut roots growing down to new level, codominant leaders at 3' and 6' in both stems, large deadwood, small miscellaneous problems throughout canopy, fair leaf surface	Recommend advanced inspection. Remove dead wood. Reduce canopy extension to prevent failure	2 Major Structure or Health Problems	Diseased /Dying	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7274		N	Y	Y	Interior Live Oak	Quercus wislizenii	26	20, 22, 13	40	Edge of cut roots growing down, codominant leaders at ground into two main stems, abnormal trunk shapes, embedded wire east, too many failures and large dwd, fair leaf surface	Remove if target will exist	1 Extreme Structure or Health Problems	Diseased /Dying	Preserve
7276		N	Y	y	Blue Oak	Quercus douglasii	24		32	TDBH measured at 2', growing over rock, deep slope south, codominant leaders at 2' into 3, Included bark, poor structure from suppression, fair leaf surface	Reduce canopy south, reevaluate annually for potential for structural failure due to rocks under base	2 Major Structure or Health Problems	Diseased /Dying	Preserve
7277		N	Y		Interior Live Oak	Quercus wislizenii	11		19	Basal decay southside, dead branches, die back, thin crown		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7278		N	Y		Interior Live Oak	Quercus wislizenii	9 at 1'		18	codominant leaders at 1', included bark, lean South, one sided crown, thin canopy		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7279		N	Y	N	Interior Live Oak	Quercus wislizenii	23.5	16 at 1'	29	codominant leaders at base, South leader laying 45°, north leader included bark, codominant at 10', some basal decay, rock at base	clearance prune, end weight reduction, crown clean	3 Fair - Minor Problems	Healthy	Preserve
7280		N	Y		Blue Oak	Quercus douglasii	11		18	Lean North, one sided crown North, codominant leaders at 10', blackberries at base		3 Fair - Minor Problems	Healthy	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7281		N	Y		Interior Live Oak	Quercus wislizenii	8		0	Dead		0 Dead	Diseased /Dying	Preserve
7282		N	Y		Interior Live Oak	Quercus wislizenii	6	3, 4	10	Codominant leaders at 2', leans North East		3 Fair - Minor Problems	Healthy	Preserve
7283		N	Y		Interior Live Oak	Quercus wislizenii	7	5, 4 at 1'	17	TDBH measured at 1', codominant leaders at base, ivy, Lean Northwest, one sided crown north, growing under pine tree		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7284		N	Y		Blue Oak	Quercus douglasii	6		9	vertical growth, slight bend in trunk at 10 feet, symmetric crown. Recent beaver damage (?) possibly mostly dead, sprouting from base. Reinspect in June	Reinspect in June, 2021	2 Major Structure or Health Problems	Healthy	Preserve
7285		N	Y	Y	Interior Live Oak	Quercus wislizenii	26	20	38	codominant leaders at base, 20 inch stem leans Northwest 45 deg, epicormic growth, guy thru branch, old utility pole, 1-sided crown and end weight	Remove all dead wood. Reduce canopy extension to prevent failure	3 Fair - Minor Problems	Healthy	Preserve
7286		N	Y		Blue Oak	Quercus douglasii	18		31	Basal cavity east side, overdrawn by 7285, one sided crown south, old phone wire in trunk,		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7287		N	Y		Interior Live Oak	Quercus wislizenii	8		15			3 Fair - Minor Problems	Healthy	Preserve
7288		N	Y		Interior Live Oak	Quercus wislizenii	12		14	60 deg lean Southwest, basal decay, two other failed stems to the north	Recommended for Removal	1 Extreme Structure or Health Problems	Diseased /Dying	Preserve

Field Tag #	Old Tag #	Off-Site	Protected	Heritage	Species Common Name	Species Botanical Name	TDBH	DBH - Other Stems	Canopy radius	Notes	Actions	Arborist Rating	Rocklin Rating	Development Status
7290		N	Y		Valley Oak	Quercus lobata	6	6, 5	14	3 stems at base, included bark, close canopies		3 Fair - Minor Problems	Healthy	Preserve
7292		Y	Y		Interior Live Oak	Quercus wislizenii	22		22	TDBH measured at 2', trunk decay at 3' codominant leaders at 3', codominant leaders at 5'		2 Major Structure or Health Problems	Diseased /Dying	Preserve
7293		Y	Y		Interior Live Oak	Quercus wislizenii	14	12	21	codominant leaders at 1', some decay in south stem and north stem, included bark, thinning foliage, underneath communication cable.		3 Fair - Minor Problems	Healthy	Preserve
7375		N	Y		Interior Live Oak	Quercus wislizenii	18		20	Growing over rock S, covered in poison oak, leans south, poor taper, embedded fence wire old codominant leaders failure		2 Major Structure or Health Problems	Diseased /Dying	Preserve
1		N	Y		Valley Oak	Quercus lobata	6		8	Grew to size since last survey		3 Fair - Minor Problems	Healthy	Preserve
2		N	Y		Valley Oak	Quercus lobata	6		8	Grew to size since last survey		3 Fair - Minor Problems	Healthy	Preserve
3		N	Y		Interior Live Oak	Quercus wislizenii	7		12	Grew to size since last survey Codominant at 18", next to Grey Pine		3 Fair - Minor Problems	Healthy	Preserve
4		N	Y		Valley Oak	Quercus lobata	6		8	Grew to size since last survey, 5' from 7284. Extensive damage from beavers (?) sprouting from ground		2 Major Structure or Health Problems	Healthy	Preserve

APPENDIX 3

GENERAL DEVELOPMENT GUIDELINES

Definitions

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on most large trees is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed and/or removed. The cambial zone is the area where tissues responsible for adding new layers to the tree each year are located. Removing or damaging this tissue results in a tree that can only grow new tissue from the edges of the wound. In addition, the interior wood of the tree is exposed to decay fungi and becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied correctly and a Project Arborist oversees the construction. The Project Arborist should have the ability to enforce the Protection Measures. It is advisable for the Project Arborist to be present at the Pre-Construction meeting to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area calculated as 1 to 1.25' for every inch of trunk diameter (ie. A 10" diameter tree will have an RPZ of 10') or the dripline, whichever is greater. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, the area within the Tree Protection fence should be fertilized with 4 pounds of nitrogen per 1000 square feet, and the fertilizer irrigated in. The irrigation should percolate at least 24 inches into the soil. This should be done no less than 2 weeks prior to grading or other root disturbing activities. After irrigating, cover the RPZ with at least 12" of leaf and twig mulch. Such mulch can be obtained from chipping or grinding the limbs of any trees removed on the site. Acceptable mulches can be obtained from nurseries or other commercial sources. Fibrous or shredded redwood or cedar bark mulch shall not be used anywhere on site.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing.

No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.



The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6'.

In areas of intense impact, a 6' chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

Where tree trunks are within 3' of the construction area, place 2" by 4" boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.³

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of "preserved" roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

Design the irrigation system so it can slowly apply water (no more than ¼" to ½" of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

³ International Society of Arboriculture (ISA), maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed.

Chemical Treatments: The owner or developer shall be responsible to contact an arborist with a pesticide applicators license to arrange for an application of a root enhancing hormone, such as Paclobutrazol, to mitigate the stress produced by the development. Additionally, at the discretion of the project arborist, an insect infestation preventative for both boring insects and leaf feeding insects and/or fungal preventative for leaf surfaces may be required. Roots pruned during the course of performing a cut may be required to be treated with a biofungicide such as Bio-Tam.