# IV. ENVIRONMENTAL IMPACT ANALYSIS
# D. BIOLOGICAL RESOURCES
# 2. NATIVE TREES

A Tree Inventory and Impact Analysis (the "Tree Report") for the proposed project was prepared by Glenn Lukos Associates (GLA) in June 2003 to analyze the potential biological resources impacts associated with the proposed project. A summary of the Tree Report is set forth below. The Tree Report, which is incorporated herein by this reference and attached as Appendix B to the Biological Technical Report is included as Appendix G to this Draft EIR (as a CD-ROM) and is available for public review (in hard copy form) at the Los Angeles Department of City Planning, 200 N. Spring Street, Room 763, Los Angeles, California 90012.

## ENVIRONMENTAL SETTING

### Project Site

The project site is located in the Verdugo Mountains in the northern portion of the City near the communities of Sunland and Tujunga (see Figure II-1 in Section II (Environmental Setting)). The project site is bisected by Interstate 210 and is bordered at its southern edge by La Tuna Canyon Road, at its eastern edge by open space and existing residential neighborhoods of southern Tujunga, at its northern edge by existing residential neighborhoods of Tujunga and Sunland, and at its western edge by natural open space in the Verdugo Mountains. For purposes of this native trees analysis, the project site and a six-acre portion of the Duke Property described above are collectively defined as the "Study Area." The Duke Property lies immediately north of La Tuna Canyon Road at its Interstate 210 interchange and is adjacent to the eastern boundary of the project site.

The Study Area is characterized by steep terrain punctuated by narrow canyons and drainages. Plant communities associated with the rugged ridgelines and canyons primarily consist of chaparral with limited amounts of coastal sage scrub on the drier south-facing slopes. Steep canyons and the larger drainages support coast live oak woodlands. Two areas represent exceptions to the generally intact, undisturbed natural habitat found in the Study Area: (1) the existing horse corral area at the proposed equestrian park site; and (2) the burned area within and adjacent to the Duke Property. Activities at the existing horse corral have resulted in compaction of the topsoil and degradation or loss of the native plant understory. The burned area is located north of Interstate 210, within the southwest quarter of the Duke Property and a portion of the project site located approximately 500 to 800 feet from the western edge of the Duke Property. The native understory and sub-shrub vegetation in this area is poorly developed but has begun to recover. The native sub-shrubs and shrubs are providing continuous ground cover intermittently throughout the burned area and may be expected to fully recover over an extended period of time.

**Methods and Inventory**

The tree inventory was conducted on June 4, 19, July 1, 10, 12, 16, 17, 19, 23, 24, 25, August 7, 8, 14, 15, 22, December 18, 27, and 30, 2002, and January 30, 31 and February 3, 2003 by Greg Everett, certified arborist (certification number WE-3977A), Rick Riefner, botanist, Dave Moskovitz, botanist, Justin Meyer, biologist, and Jeff Ahrens, biologist, and Martin Rasnick, Regulatory Specialist of Glenn Lukos Associates, Inc. Mr. Everett served as lead arborist for these surveys. Tom Larson, a Registered Consulting Arborist with Dudek and Associates, Inc., also participated in the preparation of the Tree Report.

Prior to commencement of field studies, existing maps and aerial photographs of the Study Area were reviewed to ensure that all areas with potential for supporting trees were examined. The Study Area incorporates a 100-foot-wide buffer zone extending outward from the edge of the development or road alignment footprints. However, two exceptions to the 100-foot-study-area rule exist:

(1) The 100-foot buffer zone extended beyond the Canyon Hills property line at the proposed equestrian park site along La Tuna Canyon Road in the southwest portion of the project site. While oak trees were observed up the slope on the neighboring property to the immediate west of the equestrian park site, no authorization to enter the adjoining property was available.

(2) At the eastern edge of the project site, several trees located within a poison oak stand were not included in this inventory. These trees are located on steep slope to the east of a streambed proposed for preservation (in the vicinity of tree numbers 429-452 described in Table IV.D-10 below). Their position on a slope that is not subject to grading or other construction disturbances makes a full accounting of the trees unnecessary, especially in light of the access problems associated with poison oak.

While in the field, pursuant to the LAMC, the location of each oak tree with a diameter at breast height (DBH) of eight inches or greater and all other trees with DBHs of 12 inches or greater identified within the Study Area were recorded ("other" trees were limited to western sycamore (*Platanus racemosa*) because no trees in the Study Area other than the western sycamore and the coast live oak (*Quercus agrifolia*) were found to have DBHs of 12 inches or greater).

The tree locations were recorded on a hand-held global position system (GPS) device and/or mapped directly on topographic maps. The Universal Transverse Mercator (UTM) coordinates were recorded electronically and duplicated in a notebook in case of the loss of the electronically-stored data. The UTM coordinates of each tree were later mapped by the project engineer using Geographic Information Systems (GIS) technology.

Subsequent to the production of a draft tree inventory map, GLA returned to the Study Area to verify the mapping accuracy of tree locations. The accuracy of the hand-held GPS unit is rated at ± 21 to 45 feet. Therefore, tree locations were subject to field verification in order to provide for accurate assessment of both direct and indirect impacts to trees. Using a 200-scale topographic map with two-foot contour intervals and a 200-scale digitally produced aerial photograph, tree locations were either confirmed or corrected. Corrected tree locations were conveyed to the project engineer for remapping. Field verification of tree locations was conducted on December 18, 27 and 30, 2002. The location of each coast live oak and western sycamore identified in the Study Area is depicted on Figure IV.D-6, below (a larger version of this Figure is attached as Exhibit 3 to the Tree Report). Figures IV.D-7 through IV.D-18, below, consist of detail maps that provide 100-scale enlargement of portions of the Study Area so that closely-spaced trees can be identified.

Each tree encountered was consecutively numbered and tagged to ensure reproducibility and to avoid redundant counting. Numbered, metal tags were attached to each tree on its north side at approximately breast height (approximately 4.5 feet above the ground) using an aluminum nail. Where access to the north side of a tree was difficult either due to steep slopes or the presence of dangerous vegetation (i.e., poison oak (*Toxicodendron diversilobum*)), the tag was placed at or near breast height in a position that would be obvious to a person approaching on foot (due to the consistently difficult terrain, this latter option was frequently employed). Access to several trees was impossible due to either dense poison oak, steep terrain or both. In these instances, estimates of DBH and tree characteristics were recorded and noted as "estimated."

Tree size was measured using a diameter tape providing adjusted figures[1] for diameter measurements when wrapping the tape around an object's circumference. Diameter measurements were taken using protocol provided by the Council of Tree and Landscape Appraisers in the "Guide for Plant Appraisal," published by the International Society of Arboriculture.[2] The DBH of each tree measurement was taken at a circumference at 4.5 feet above the ground along the trunk axis, with common exceptions. In cases where a tree's trunk was located on a slope, the 4.5-foot distance was approximated as the average of the shortest and longest sides of the trunk (i.e., the uphill side and downhill side of a tree's trunk, respectively) and the measurement was made at the circumference of the trunk at this point. When low branches interfered with a DBH measurement, the measurement was taken at the smallest trunk diameter below 4.5 feet. If branching was so low as to not allow a diameter measurement without interference from the trunk flare, then the measurement was performed at approximately breast height on each stem. In the case of multi-stemmed trees the trunk circumference of each trunk is measured at breast height (i.e., 4.5 feet above the ground).

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[1] *Inches divided by 3.14 (π) provide diameter measurement in inches.*

[2] *Council of Tree and Landscape Appraisers. 2000. "Guide for Plant Appraisal." Ninth Edition. International Society of Arboriculture, Savoy, Illinois.*

**Figure IV.D-6 Tree Inventory**

**Figure IV.D-7 N1 Tree Detail**

**Figure IV.D-8 N2 Tree Detail**

**Figure IV.D-9 N3 Tree Detail**

**Figure IV.D-10 N4 Tree Detail**

**Figure IV.D-11 N5 Tree Detail**

**Figure IV.D-12 N6 Tree Detail**

**Figure IV.D-13 S1 Tree Detail**

**Figure IV.D-14 S2 Tree Detail**

**Figure IV.D-15 S3 Tree Detail**

**Figure IV.D-16 S4 Tree Detail**

**Figure IV.D-17 S5 Tree Detail**

**Figure IV.D-18 S6 Tree Detail**

Pursuant to the "Guide for Plant Appraisal," tree health was evaluated with respect to five distinct components of tree structure: roots, trunk, scaffold branches, small branches, and foliage. Each of these components was graded between 0 and 5, with 5 representing no problems and 0 representing extreme problems. The health of each tree was assessed with regard to several criteria described in Table IV.D-7. These criteria include factors such as insect, fungal or pathogen damage, mechanical damage, presence of decay, presence of wilted or dead leaves, and wound closure.

Tables IV.D-8, IV.D-9, and IV.D-10, below, provide summaries of the data collected in the field. Tables IV.D-8 and IV.D-9 provide categorical summaries of the coast live oaks and western sycamores in the Study Area inventoried by DBH range and associated average overall rating. Table IV.D-10 sets forth a more detailed breakdown regarding the characteristics and overall health rating for each coast live oak and western sycamore identified in the Study Area. The results in these Tables are discussed below. The DBH ranges or size classes provided herein are offered only for ease of interpreting tree data. The trees inventoried have been placed in three size classes for this purpose: medium, large and extra large. Medium trees have DBHs between 8 and 17 inches (between 12 and 17 for sycamores), large trees have DBHs between 18 and 35 inches, and extra large trees are greater than 36 inches in DBH.

Table IV.D-10 provides DBH figures for use in comparing the relative sizes of the trees inventoried. In order to provide a simple, useful comparison of the DBHs for multi-trunk trees and single-trunk trees, the trunk cross-sectional area (TA) represented by each DBH measurement for each stem on a multi-trunk tree is added together to get a composite trunk cross-sectional area or composite trunk area (CTA).[3] This composite figure is then input into the formula for expressing trunk diameter based on cross-sectional area in order to provide a single figure DBH or composite DBH (CDBH) for any multi-trunk tree. This process is expressed by the following formula applied to a hypothetical three-stemmed multi-trunk tree:

*Where* $DBH_{stem1} = 3$ inches, $DBH_{stem2} = 4$ inches, and $DBH_{stem3} = 5$ inches; *and*

*where* $TA = \pi r^2 = 3.14r^2 = 3.14*DBH^2 \div 2^2 = 3.14*DBH^2 \div 4 = 0.785*DBH^2$,

*then* $TA_{stem1} = 7$ inches$^2$, $TA_{stem2} = 13$ inches$^2$, and $TA_{stem3} = 20$ inches$^2$.

*Then* $CTA = TA_{stem1} + TA_{stem2} + TA_{stem} = 40$ inches$^2$, *and*

*where* $CDBH = \sqrt{(CTA \div 0.785)}$,

*then* $CDBH = \sqrt{(40 \text{ inches}^2 \div 0.785)} = \sqrt{50.955} = 7.1$ inches.

[3] *Council of Tree and Landscape Appraisers. 2000. "Guide for Plant Appraisal." Ninth Edition. International Society of Arboriculture, Savoy, Illinois.*

**Table IV.D-7**
**Factors Evaluated in Determining Tree Health**
**Canyon Hills Project**

The health of each tree identified on the subject property was evaluated based on the five categories of tree structure listed below. Within each of these categories a number of factors were considered.[a] These factors, also listed below, were evaluated in order to provide a rating for each category of tree structure. The rating system provides a number between 0 and 5 where the numbers represent the following conditions:

| | |
|---|---|
| No problem | 5 |
| No apparent problem(s) | 4 |
| Minor problem(s) | 3 |
| Major problem(s) | 2 |
| Extreme problem(s) | 0 or 1 |

A rating of 0 to 5 was applied to each category for tree structure based on evaluation of the following factors:

| | |
|---|---|
| **Roots**<br>Root anchorage<br>Confined relative to top<br>Collar soundness<br>Mechanical injury<br>Girdling or kinked roots<br>Compaction or waterlogged roots<br>Toxic gases & chemical symptoms<br>Presence of insects or diseases | **Scaffold Branches**<br>Strong attachments:<br>smaller attachment than trunk<br>vertical branch distribution<br>free of included bark<br>Free of decay and cavities<br>Well-proportioned - tapered, laterals along branches<br>Wound closure<br>Amount of dead wood or fire injury<br>Presence of decay, insects or diseases |
| **Trunk**<br>Sound bark & wood, no cavities<br>Upright trunk (well tapered)<br>Mechanical or fire injury<br>Cracks - frost, etc.<br>Swollen or sunken areas<br>Presence of insects or diseases | **Smaller Branches & Twigs**<br>Vigor of current shoots, compared to that of 3-5 previous years<br>Well distributed through canopy<br>Normal appearance of buds - color, shape & size for species<br>Presence of weak or dead twigs<br>Presence of insects or diseases |
| | **Foliage**<br>Normal appearance - size & color<br>Nutrient deficiencies<br>Herbicide, chemical or pollutant injury symptoms<br>Wilted or dead leaves<br>Presence of insects or diseases |

[a] *Council of Tree and Landscape Appraisers, 2000.*

**Table IV.D-8**
**Summary of Total Coast Live Oak Survey Data**
**Canyon Hills Project**

| Size Category | No. of Trees | Average Overall Health Rating |
|---|---|---|
| 8" – 17" | 186 | 2.9 |
| 18" – 35" | 224 | 3.0 |
| 36"+ | 15 | 3.1 |
| ***Total*** | ***425*** | ***2.96*** |

**Table IV.D-9**
**Summary of Western Sycamore Survey Data**
**Canyon Hills Project**

| Size Category | No. of Trees | Average Overall Health Rating |
|---|---|---|
| 12" – 17" | 38 | 2.8 |
| 18" – 35" | 21 | 3.0 |
| 36"+ | 2 | 3.3 |
| ***Total*** | ***61*** | ***2.9*** |

Thus, the hypothetical three-stemmed tree has a composite DBH of 7.1 inches. The rationale for this process becomes clear when comparing the alternate approach of directly adding DBH measurements for trunks on a multi-trunk tree to provide a single figure DBH. For example, the three stems on the hypothetical multi-trunk tree described above have a composite cross-sectional area of 40 inches. If the DBH measurements of all three stems were instead simply added together the result would be a DBH figure of 12 inches for this hypothetical three-stemmed tree, a DBH almost 5 inches greater than the composite DBH of 7.1 inches. The latter approach ignores the importance of cross-sectional area in valuing trees and provides all multi-trunk trees with much greater value, relative to DBH, than would be their actual contribution in terms of mass, foliage, and height. The method used herein results in comprehensible DBH measurements for comparing single-trunk and multi-trunk trees and is adapted from the "Guide for Plant Appraisal" prepared by the Council of Tree and Landscape Appraisers.

Table IV.D-9 also provides a single figure between 0 and 5 for rating the overall health of each tree, with 5 representing the highest possible value. This figure, the Overall Rating, represents a simple average of the health ratings for the five structural components observed in the field and recorded on the field data sheets (Appendix B to the Tree Report provides transcriptions of the field data sheets). The Overall Rating value provides an at-a-glance rating for each tree. Nevertheless, for a more detailed

understanding of each tree surveyed, the individual ratings and the notes describing specifics about tree health should be reviewed on the transcribed data sheets (see Appendix B to the Tree Report).

Canopy diameters were also measured for surveys that took place on July 23, 2002 or later. Canopy diameters for trees inventoried prior to July 23 were later estimated using a formula derived from a regression analysis of oaks and sycamores for which both DBH and canopy measurements were made. The regression analysis and resulting formula allows prediction of canopy diameters based on DBH measurements. The tree inventory data sheets (see Appendix B to the Tree Report) provide a "Canopy Diameter (measured)" column for the trees subject to field measurement of their canopy diameters and a "Canopy Diameter (estimated)" for trees whose canopy diameters were estimated using the regression analysis (the estimated canopy figures were created subsequent to the field work). Appendix C to the Tree Report provides a copy of the Microsoft Excel graphic depiction of the relationship between DBH and canopy diameter and the resulting formulaic relationship for both coast live oaks and western sycamores.

Because the steep terrain made use of a tape measure for measuring canopy diameters very difficult and, in some cases, impossible, tree canopy diameters were typically estimated by "pacing-off" the measurement based on the investigator's knowledge of his stride length or by visually estimating the canopy width. The diameter measurements were always made along an imaginary line intersecting the tree trunk that best approximated the average canopy diameter.

***Coast Live Oak***

The coast live oak (*Quercus agrifolia*) is an evergreen tree common to valleys and lower elevation mountain slopes of coastal California, from Mendocino County to northern Baja. This is a slow-growing tree that can, on rare occasions, exceed 200 years of age with the proper cultural conditions. It is not uncommon for trees of this age to reach 75 feet in height with a canopy over 100 feet wide. Its acorn production and large size lend itself well to support of a large number of invertebrate and vertebrate animal species. The dark green leaves are 0.8 to 4 inches long and are oval and convex with spiny margins. The acorns are 0.8 to 1.6 inches long and are elongated into a narrow cone with a pointed tip. The bark is smooth and gray on the outside and reddish on the inside, at the furrows in the bark.[4,5]

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[4] *Elias, Thomas S. 1989. "Field Guide to North American Trees." Grolier Book Clubs Inc. Danbury, Connecticut.*

[5] *Pavlik, Bruce, Pamela Muick, Sharon Johnson, and Marjorie Popper. 1991. "Oaks of California." Cachuma Press, Los Olivos, California.*

A total of 425 oak trees with DBHs eight inches or greater were identified within the Study Area at the time of the surveys described herein (see Table IV.D-8). All of the oak trees identified in the Study Area were coast live oaks (*Quercus agrifolia*). No other trees of the *Quercus* genus subject to Section 46.00 et seq. of the LAMC were identified in the Study Area. Other *Quercus* species identified were limited to the shrubby leather oak (*Quercus durata* var. *gabrielensis*) and California scrub oak (*Quercus berberidifolia*), which are both multi-stemmed shrubs ranging from three to fifteen feet tall.

Table IV.D-8 indicates that the average overall health ratings are similar for different size categories of coast live oak, with the larger trees exhibiting slightly better overall health ratings. This is to be expected for this Study Area, as larger trees tend to endure fire better than younger trees due to thicker bark, higher scaffold branches, and lesser volumes of fuel beneath their more extensive and dense canopies. Due to natural and anthropogenic impacts that have affected these trees over decades, these coast live oaks received an average overall rating of 2.96 and 2.99, respectively, with no tree receiving a rating higher than 3.8. Past fires have scarred and distorted trunks and lower scaffold branches on a majority of the trees, causing structural defects and compromising tree health. Heart rot is also believed to be present on many of the oaks as this defect is common to coast live oaks and the presence of the cavities and calluses provide indirect evidence of its presence.

To place the 3.0 health rating in perspective, it is important to recognize the characteristics of trees that warrant higher health ratings of 4.0 to 5.0. These trees are most often found in managed landscapes where the effects of fire, drought, pests, disease, erosion, and vandalism have been eliminated. A tree with a condition rating of 4.0 or higher typically exhibits a balanced, well-spaced branch structure, full, even crown, and a healthy, unscarred tapered trunk. A highly rated tree has experienced no soil loss at its roots and no fill within its dripline. Well managed trees have been judiciously pruned to eliminate co-dominant leaders and narrow angles of attachment and their understory has been carefully managed to maximize the accumulation of leaf litter and the removal of dry vegetation that might carry fire to their trunk or canopy. Finally, a coast live oak of exceptional health may even receive irrigation during drought years where otherwise dry conditions might encourage pest damage or disease. Of course, none of the trees in the Study Area have been subject to such treatment, therefore high ratings would not be expected.

The mid- to low-average health rating of the coast live oaks is primarily a manifestation of fire, drought, and age. Fire has affected the aesthetics and physiology of a majority of the coast live oak trees in the Study Area that would be impacted or preserved. Whether visible through recently charred scaffold branches or old trunk cavities, it is obvious that fire is a recurring event in this ecosystem. With respect to the trees that would be preserved, this fire damage may create potential structural issues in the future. As reflected on Table IV.D-10, trees numbered 29-40 and 42-62 were recently damaged by fire and are now recovering (i.e., displaying new growth). Most of these trees exhibit damage to their canopies, with most showing at least minor damage to the lower scaffold branches. Because much

of the new growth was still relatively immature at the time of the survey, few comments were made in the field notes regarding structural problems. However, it is expected that as many of these trees mature the re-growth of stump and stem sprouts will exhibit common structural defects such as narrow angles of attachment (also known as narrow crotch angles), co-dominant leaders, multiple branch attachments, included (embedded) bark, and stump decay. Pruning of these trees may avert many of these problems; however, such pruning would have to occur within the next two to four years in order to be most effective and would only be recommended or practical if these trees were within or immediately adjacent to public parks or trails where the long-term health and structural integrity of the trees were important due to public safety concerns. Trees with structural problems located away from public use areas do not require remedial pruning because failure (i.e., falling trees or dropped branches) of these remote trees would be very unlikely to cause injury to a person or property. Indeed, such limb drop and the subsequent decay of fallen logs is a natural process and should not be interrupted unless necessary for public safety concerns.

As reflected in Table IV.D-10, trees numbered 381 – 410, in the vicinity of La Tuna Canyon Road, were also severely fire damaged in the past, perhaps as long as 20 to 40 years ago. Eighteen of these trees would be preserved. Almost all of these trees exhibit stump sprouting with multiple branch attachments, co-dominant leaders and narrow angles of attachment that, while not causing trunk failure now, will undoubtedly increase the potential for failure as the trees develop larger diameters and the amount of included or embedded bark increases.

Many coast live oaks in the Study Area also exhibit cavities on the lower trunk, even in areas where no other outward signs of fire are present. While these cavities may have eliminated as much as 50 percent of the cross-sectional area of the trunk, the presence of the cavities rarely showed a clear association with a declining or unhealthy tree. In fact, a great portion of a tree's trunk can be lost to a cavity without necessarily affecting the vigor of a tree.[6] However, structural stability incrementally decreases in proportion to the size of the cavity.[7] Cavities do provide opportunity for decay and, absent core sampling or other testing, the presence of decay could not be ruled out for these trees and in fact should be expected.

The capacity for this woodland to productively regenerate is compromised by the terrain, microclimate, and proximity to urban areas. With development nearby, fires are not allowed to run their natural course, which encourages higher fuel loads from non-native vegetation. The Study Area is prone to intensive, hot burning wildfires because of its steep terrain and dense understory vegetation. These

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[6] *Harris, Richard W. 1983 (1st ed.). "Arboriculture: Care of Trees, Shrubs, and Vines in the Landscape." Prentice-Hall, Inc., Englewood Cliffs, New Jersey.*

[7] *Matthew, C. 1999. "Stupsi Explains the Tree – A Hedgehog Teaches the Body Language of Trees." Verlag Forschungszentrum Karlsruhe*

intense fires not only cause direct damage to both bark and deeper tissues of mature trees as described above, but also destroy any remnant oak seedlings and saplings. They also encourage the quick re-growth of non-native annuals which out-compete the native perennial herbaceous and woody plants in the oak tree understory.

Within the Study Area's micro-climate, precipitation is concentrated in the winter months; by late spring the annual plants have already begun to wither. The perennial native flora (including coast live oaks) has evolved to maximize growth and reproduction potential over the long, warm, dry growing season. Non-native annuals out-compete the more slow growing natives and effectively strip moisture from the upper soil horizons by the early spring. The native flora is able to take advantage of a wider range of pollinators (insect species populations typically fluctuate in differing cycles from the late winter to the early summer) and must maximize benefit from any unseasonal late spring and summer rains and fog drip. The young coast live oaks are very susceptible to this competition as the fast growing annuals can more effectively compete for limited moisture and limited sunlight in the oak forest understory. The result is a decreasing rate of regeneration of oaks and the concomitant skewing of the oak population to older, less vigorous trees. Eventually, these less vigorous trees suffer declining productivity (i.e., depressed acorn production over the long term and slower growth rates) and the overall health of any given stand of trees declines. Drought only exacerbates these phenomena, further serving to degrade the overall health of Southern California coast live oaks.

***Western Sycamore***

The western sycamore (*Platanus racemosa*) is a deciduous tree that grows along stream banks. This is a rapidly growing tree that can live well over 200 hundred years. It can grow to 100 feet tall and exhibits a spreading form with an open, generally rounded crown. Its height lends itself to nesting opportunities for birds; however, its fruit provides only a minor food source. The leaves are 4.7 to 10 inches long and wide with three to five lobes about half the length of the leaf. The leaves are light green and hairy on the upper surface. Its bark is generally smooth and mottled with gray, white, and tan colors.[8]

Sixty-one western sycamores with DBHs of 12 inches or greater were identified within the Study Area. All but a few of these trees exhibit minor to severe damage from past fires. Consequently, many of the western sycamores throughout the Study Area exhibit significant cavities on their trunks or dieback of the lower canopy. Like the coast live oaks, some sycamores appear to have experienced loss of as much as 50 percent of their cross-sectional area at or below breast height due to fire damage. Unlike

[8] *Elias, Thomas S. 1989. "Field Guide to North American Trees." Grolier Book Clubs Inc. Danbury, Connecticut.*

the coast live oaks, however, the lack of vigor in many of the western sycamores suggests that, at least of the time of the inventory, many of these trees have not fully recovered from the fire and appear to be in decline. As with the coast live oaks, no attempt was made to probe for evidence of decay; however, unobserved decay is likely as many of the western sycamores exhibit low health ratings.

Table IV.D-9 describes the quantity and average overall health rating of the 61 western sycamores by the three size categories. Table IV.D-9 indicates that, with respect to the three size categories, the overall health ratings were somewhat more varied than for the coast live oaks, with the smallest size category (12" – 17") exhibiting an overall health rating of 2.8, the middle category (18" – 35") exhibiting an overall rating of 3.0, and the two trees greater than 36" averaging 3.3. The lower average overall rating for the smallest sycamores supports the qualitative observation that the sycamores are less tolerant of fire damage than similar-sized coast live oaks.

**Summary of Tree Inventory Data**

Table IV.D-10 provides a summary of the 486 trees (comprised of 425 coast live oaks and 61 western sycamores) subject to Section 46.00 et seq. of the LAMC. The reader will note that Table IV.D-10 lists a total of 522 trees. However, 36 of those trees were determined to have DBH measurements less than the 8-inch or 12-inch standards prescribed for oaks or other trees, respectively. For the purpose of positive identification, references to the undersized trees have not been deleted from Table IV.D-10. Instead, under the Species Name column, the undersized tree's species name has been replaced with the word "*NO*" to indicate its failure to meet the DBH standard. It should also be noted that this tree inventory captures tree DBH measurements and health ratings at a moment in time. With few exceptions, the trees will continue growing and their health may vary over time. The "Status" of each tree with the implementation of the proposed project is discussed below.

In addition, a single Southern California black walnut (*Juglans calofornica* var. *californica*) was observed with a trunk less than five inches DBH, which was therefore not recorded during the tree survey program.

**Table IV.D-10**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 1 | *Quercus agrifolia* | Preserved | 28 | 1 | 3.6 |
| 2 | *Quercus agrifolia* | Preserved | 17 | 3 | 3.4 |
| 3 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.4 |
| 4 | *Quercus agrifolia* | Preserved | 26 | 2 | 3.0 |
| 5 | *NO* | | | | |
| 6 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.6 |
| 7 | *Quercus agrifolia* | Preserved | 22 | 1 | 3.4 |
| 8 | *Quercus agrifolia* | Impacted | 32 | 3 | 3.0 |
| 9 | *Quercus agrifolia* | Preserved w/MM | 14 | 1 | 2.0 |
| 10 | *Quercus agrifolia* | Preserved | 23 | 1 | 3.4 |
| 11 | *Quercus agrifolia* | Preserved | 21 | 2 | 3.4 |
| 12 | *Quercus agrifolia* | Preserved | 16 | 1 | 3.4 |
| 13 | *Quercus agrifolia* | Preserved | 15 | 1 | 3.2 |
| 14 | *Quercus agrifolia* | Preserved | 38 | 6 | 3.8 |
| 15 | *Quercus agrifolia* | Preserved | 43 | 2 | 3.8 |
| 16 | *Quercus agrifolia* | Preserved | 9 | 1 | 3.2 |
| 17 | *Platanus racemosa* | Preserved | 18 | 2 | 2.4 |
| 18 | *Platanus racemosa* | Preserved | 13 | 1 | 3.6 |
| 19 | *Quercus agrifolia* | Preserved | 22 | 1 | 3.8 |
| 20 | *Quercus agrifolia* | Preserved | 20 | 1 | 3.8 |
| 21 | *Quercus agrifolia* | Preserved | 8 | 1 | 2.2 |
| 22 | *Quercus agrifolia* | Preserved | 16 | 2 | 3.8 |
| 23 | *Quercus agrifolia* | Impacted | 27 | 1 | 3.8 |
| 24 | *Quercus agrifolia* | Preserved | 20 | 1 | 3.2 |
| 25 | *Quercus agrifolia* | Preserved w/MM | 22 | 1 | 3.8 |
| 26 | *Quercus agrifolia* | Preserved | 14 | 1 | 3.2 |
| 27 | *NO* | | | | |
| 28 | *NO* | | | | |
| 29 | *Quercus agrifolia* | Impacted-Buffer | 20 | 1 | 2.4 |
| 30 | *Quercus agrifolia* | Impacted | 18 | 1 | 2.4 |
| 31 | *Quercus agrifolia* | Preserved | 13 | 1 | 2.4 |
| 32 | *Quercus agrifolia* | Preserved | 23 | 1 | 2.4 |
| 33 | *Quercus agrifolia* | Preserved | 21 | 1 | 2.4 |
| 34 | *Quercus agrifolia* | Preserved | 22 | 1 | 2.4 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 35 | *Quercus agrifolia* | Preserved | 29 | 1 | 2.6 |
| 36 | *Quercus agrifolia* | Preserved | 20 | 2 | 2.4 |
| 37 | *Platanus racemosa* | Preserved | 14 | 1 | 2.2 |
| 38 | *Quercus agrifolia* | Preserved | 23 | 1 | 2.2 |
| 39 | *Quercus agrifolia* | Preserved | 47 | 1 | 2.0 |
| 40 | *Platanus racemosa* | Preserved | 16 | 1 | 2.0 |
| 41 | *NO* | | | | |
| 42 | *Platanus racemosa* | Preserved | 19 | 5 | 2.2 |
| 43 | *Platanus racemosa* | Preserved | 16 | 4 | 2.2 |
| 44 | *Quercus agrifolia* | Preserved | 8 | 1 | 2.0 |
| 45 | *Quercus agrifolia* | Preserved | 23 | 2 | 1.6 |
| 46 | *Quercus agrifolia* | Preserved | 21 | 3 | 2.2 |
| 47 | *Quercus agrifolia* | Preserved | 16 | 1 | 2.2 |
| 48 | *Quercus agrifolia* | Preserved | 19 | 3 | 2.2 |
| 49 | *Quercus agrifolia* | Preserved | 21 | 1 | 2.2 |
| 50 | *Platanus racemosa* | Preserved | 21 | 1 | 2.4 |
| 51 | *Quercus agrifolia* | Preserved | 28 | 1 | 2.4 |
| 52 | *Quercus agrifolia* | Preserved | 29 | 1 | 2.2 |
| 53 | *Quercus agrifolia* | Preserved | 30 | 2 | 2.8 |
| 54 | *Quercus agrifolia* | Preserved | 33 | 1 | 2.8 |
| 55 | *Quercus agrifolia* | Preserved | 10 | 1 | 2.4 |
| 56 | *Quercus agrifolia* | Preserved | 17 | 1 | 2.6 |
| 57 | *Quercus agrifolia* | Preserved | 14 | 1 | 2.6 |
| 58 | *Quercus agrifolia* | Preserved | 17 | 1 | 2.2 |
| 59 | *Quercus agrifolia* | Preserved | 30 | 2 | 2.2 |
| 60 | *NO* | | | | |
| 61 | *Quercus agrifolia* | Preserved | 10 | 2 | 2.2 |
| 62 | *Quercus agrifolia* | Preserved | 25 | 2 | 3.0 |
| 63 | *Quercus agrifolia* | Impacted | 12 | 2 | 3.6 |
| 64 | *Quercus agrifolia* | Impacted | 15 | 3 | 3.6 |
| 65 | *Quercus agrifolia* | Impacted | 25 | 1 | 3.0 |
| 66 | *Quercus agrifolia* | Impacted | 26 | 4 | 3.2 |
| 67 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.6 |
| 68 | *Quercus agrifolia* | Impacted | 8 | 1 | 2.2 |
| 69 | *Platanus racemosa* | Impacted | 14 | 1 | 2.2 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 70 | *Platanus racemosa* | Impacted | 13 | 1 | 2.2 |
| 71 | *Quercus agrifolia* | Impacted | 28 | 4 | 2.8 |
| 72 | *Quercus agrifolia* | Impacted | 9 | 1 | 2.2 |
| 73 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.8 |
| 74 | *Quercus agrifolia* | Impacted | 8 | 1 | 3.4 |
| 75 | *NO* | | | | |
| 76 | *NO* | | | | |
| 77 | *Quercus agrifolia* | Impacted | 9 | 1 | 3.4 |
| 78 | *NO* | | | | |
| 79 | *NO* | | | | |
| 80 | *Quercus agrifolia* | Impacted | 9 | 2 | 3.2 |
| 81 | *Quercus agrifolia* | Impacted | 22 | 1 | 3.2 |
| 82 | *Quercus agrifolia* | Impacted | 20 | 1 | 3.4 |
| 83 | *Quercus agrifolia* | Impacted | 24 | 1 | 2.8 |
| 84 | *Quercus agrifolia* | Impacted | 22 | 2 | 2.6 |
| 85 | *Quercus agrifolia* | Impacted | 15 | 1 | 2.6 |
| 86 | *Quercus agrifolia* | Impacted | 31 | 3 | 2.6 |
| 87 | *Quercus agrifolia* | Impacted | 34 | 4 | 2.8 |
| 88 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.6 |
| 89 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.6 |
| 90 | *Quercus agrifolia* | Impacted | 8 | 1 | 2.8 |
| 91 | *Platanus racemosa* | Impacted | 18 | 2 | 2.6 |
| 92 | *Quercus agrifolia* | Impacted | 27 | 2 | 3.6 |
| 93 | *Quercus agrifolia* | Impacted | 27 | 2 | 3.4 |
| 94 | *Quercus agrifolia* | Impacted | 21 | 2 | 2.8 |
| 95 | *Quercus agrifolia* | Impacted | 25 | 8 | 3.6 |
| 96 | *Quercus agrifolia* | Impacted | 18 | 1 | 2.6 |
| 97 | *NO* | | | | |
| 98 | *Quercus agrifolia* | Impacted | 30 | 1 | 3.8 |
| 99 | *Quercus agrifolia* | Impacted | 18 | 1 | 3.6 |
| 100 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.8 |
| 101 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.6 |
| 102 | *Quercus agrifolia* | Impacted | 28 | 2 | 3.2 |
| 103 | *Quercus agrifolia* | Impacted | 34 | 1 | 3.8 |
| 104 | *Quercus agrifolia* | Impacted | 14 | 1 | 3.6 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 105 | *Quercus agrifolia* | Preserved | 20 | 4 | 3.2 |
| 106 | *Quercus agrifolia* | Preserved | 9 | 4 | 2.4 |
| 107 | *Quercus agrifolia* | Impacted-Buffer | 8 | 2 | 2.6 |
| 108 | *Quercus agrifolia* | Preserved w/MM | 31 | 3 | 3.8 |
| 109 | *Quercus agrifolia* | Preserved w/MM | 15 | 1 | 3.4 |
| 110 | *Platanus racemosa* | Impacted | 13 | 1 | 3.8 |
| 111 | *Quercus agrifolia* | Impacted | 17 | 2 | 2.8 |
| 112 | *Quercus agrifolia* | Impacted | 20 | 1 | 3.8 |
| 113 | *Quercus agrifolia* | Impacted | 20 | 1 | 3.6 |
| 114 | *Quercus agrifolia* | Impacted | 14 | 1 | 3.4 |
| 115 | *Quercus agrifolia* | Impacted-Buffer | 29 | 1 | 3.4 |
| 116 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.0 |
| 117 | *Quercus agrifolia* | Impacted | 27 | 1 | 3.4 |
| 118 | *Quercus agrifolia* | Impacted | 21 | 2 | 2.4 |
| 119 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.6 |
| 120 | *Quercus agrifolia* | Impacted | 21 | 3 | 2.8 |
| 121 | *Quercus agrifolia* | Impacted | 23 | 1 | 3.2 |
| 122 | *Quercus agrifolia* | Impacted | 9 | 1 | 3.6 |
| 123 | *Quercus agrifolia* | Impacted | 32 | 3 | 3.4 |
| 124 | *Quercus agrifolia* | Impacted | 23 | 2 | 2.4 |
| 125 | *Quercus agrifolia* | Impacted | 30 | 2 | 3.8 |
| 126 | *Quercus agrifolia* | Impacted | 15 | 2 | 2.6 |
| 127 | *Quercus agrifolia* | Impacted | 15 | 2 | 3.2 |
| 128 | *Quercus agrifolia* | Impacted | 16 | 2 | 3.2 |
| 129 | *Quercus agrifolia* | Impacted | 16 | 1 | 3.2 |
| 130 | *Quercus agrifolia* | Impacted | 15 | 1 | 3.2 |
| 131 | *NO* | | | | |
| 132 | *Quercus agrifolia* | Impacted | 12 | 3 | 2.2 |
| 133 | *Quercus agrifolia* | Impacted | 16 | 1 | 1.2 |
| 134 | *Quercus agrifolia* | Impacted-Buffer | 21 | 3 | 2.8 |
| 135 | *Quercus agrifolia* | Impacted-Buffer | 17 | 3 | 3.0 |
| 136 | *Quercus agrifolia* | Preserved | 16 | 1 | 3.6 |
| 137 | *Quercus agrifolia* | Preserved | 22 | 3 | 3.8 |
| 138 | *Quercus agrifolia* | Preserved | 17 | 1 | 3.4 |
| 139 | *Quercus agrifolia* | Preserved | 15 | 1 | 3.4 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 140 | *Quercus agrifolia* | Preserved | 27 | 2 | 3.0 |
| 141 | *Quercus agrifolia* | Preserved | 29 | 2 | 3.0 |
| 142 | *Quercus agrifolia* | Preserved | 14 | 1 | 3.2 |
| 143 | *Quercus agrifolia* | Preserved | 13 | 2 | 3.2 |
| 144 | *Quercus agrifolia* | Preserved | 10 | 1 | 3.4 |
| 145 | *Quercus agrifolia* | Preserved | 23 | 3 | 3.6 |
| 146 | *Quercus agrifolia* | Preserved | 13 | 1 | 3.4 |
| 147 | *Quercus agrifolia* | Impacted | 19 | 2 | 3.4 |
| 148 | *Quercus agrifolia* | Impacted | 31 | 2 | 3.4 |
| 149 | *Quercus agrifolia* | Impacted-Buffer | 14 | 1 | 2.4 |
| 150 | *Quercus agrifolia* | Preserved | 19 | 1 | 2.6 |
| 151 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.4 |
| 152 | *Quercus agrifolia* | Impacted | 29 | 1 | 3.6 |
| 153 | *Platanus racemosa* | Impacted | 23 | 4 | 3.2 |
| 154 | *NO* | | | | |
| 155 | *NO* | | | | |
| 156 | *Platanus racemosa* | Impacted | 13 | 1 | 3.4 |
| 157 | *Platanus racemosa* | Impacted | 13 | 1 | 3.2 |
| 158 | *Quercus agrifolia* | Impacted | 37 | 2 | 3.8 |
| 159 | *Quercus agrifolia* | Impacted | 40 | 2 | 3.8 |
| 160 | *Platanus racemosa* | Impacted | 12 | 1 | 3.2 |
| 161 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.0 |
| 162 | *Quercus agrifolia* | Impacted | 18 | 1 | 3.6 |
| 163 | *Quercus agrifolia* | Impacted | 30 | 1 | 3.8 |
| 164 | *NO* | | | | |
| 165 | *Quercus agrifolia* | Preserved | 17 | 3 | 3.6 |
| 166 | *Quercus agrifolia* | Preserved | 10 | 1 | 3.8 |
| 167 | *Quercus agrifolia* | Preserved | 9 | 1 | 2.8 |
| 168 | *NO* | | | | |
| 169 | *Quercus agrifolia* | Preserved | 16 | 3 | 2.6 |
| 170 | *Quercus agrifolia* | Preserved | 15 | 1 | 3.0 |
| 171 | *Quercus agrifolia* | Preserved | 12 | 1 | 3.2 |
| 172 | *Quercus agrifolia* | Preserved | 18 | 2 | 3.2 |
| 173 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.6 |
| 174 | *Platanus racemosa* | Impacted | 21 | 1 | 3.6 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 175 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.2 |
| 176 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.8 |
| 177 | *Quercus agrifolia* | Preserved w/MM | 10 | 1 | 3.8 |
| 178 | *Quercus agrifolia* | Preserved w/MM | 14 | 2 | 3.0 |
| 179 | *Quercus agrifolia* | Impacted | 34 | 4 | 3.8 |
| 180 | *Quercus agrifolia* | Impacted | 20 | 1 | 3.8 |
| 181 | *Quercus agrifolia* | Impacted | 23 | 1 | 3.4 |
| 182 | *Platanus racemosa* | Impacted | 22 | 1 | 3.6 |
| 183 | *Quercus agrifolia* | Impacted | 29 | 1 | 3.0 |
| 184 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.8 |
| 185 | *Quercus agrifolia* | Impacted | 24 | 1 | 3.8 |
| 186 | *Quercus agrifolia* | Impacted | 13 | 1 | 3.8 |
| 187 | *Quercus agrifolia* | Impacted | 23 | 2 | 3.8 |
| 188 | *Quercus agrifolia* | Impacted | 27 | 3 | 2.8 |
| 189 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.4 |
| 190 | *Quercus agrifolia* | Impacted | 36 | 4 | 3.6 |
| 191 | *Quercus agrifolia* | Impacted | 13 | 1 | 3.8 |
| 192 | *Quercus agrifolia* | Impacted | 8 | 1 | 3.2 |
| 193 | *Quercus agrifolia* | Impacted | 25 | 2 | 3.0 |
| 194 | *Quercus agrifolia* | Impacted | 24 | 1 | 3.8 |
| 195 | *Quercus agrifolia* | Impacted | 25 | 1 | 3.8 |
| 196 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.6 |
| 197 | *Platanus racemosa* | Impacted | 15 | 1 | 3.6 |
| 198 | *Quercus agrifolia* | Impacted | 8 | 1 | 3.2 |
| 199 | *Quercus agrifolia* | Impacted | 24 | 1 | 3.6 |
| 200 | *Quercus agrifolia* | Impacted | 23 | 1 | 3.2 |
| 201 | *Quercus agrifolia* | Impacted | 33 | 1 | 3.8 |
| 202 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.6 |
| 203 | *Platanus racemosa* | Impacted | 22 | 1 | 3.8 |
| 204 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.6 |
| 205 | *NO* | | | | |
| 206 | *Quercus agrifolia* | Impacted | 11 | 1 | 3.6 |
| 207 | *Quercus agrifolia* | Impacted | 15 | 2 | 3.6 |
| 208 | *Platanus racemosa* | Impacted | 17 | 1 | 3.8 |
| 209 | *Platanus racemosa* | Impacted | 16 | 1 | 3.0 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 210 | *Quercus agrifolia* | Impacted | 24 | 1 | 3.6 |
| 211 | *Platanus racemosa* | Impacted | 15 | 1 | 2.6 |
| 212 | *Quercus agrifolia* | Impacted | 29 | 1 | 2.4 |
| 213 | *Quercus agrifolia* | Preserved w/MM | 22 | 2 | 3.0 |
| 214 | *Quercus agrifolia* | Impacted | 34 | 1 | 3.6 |
| 215 | *Quercus agrifolia* | Impacted | 25 | 1 | 3.4 |
| 216 | *Quercus agrifolia* | Impacted | 15 | 1 | 3.2 |
| 217 | *Quercus agrifolia* | Impacted | 16 | 1 | 3.4 |
| 218 | *Quercus agrifolia* | Impacted | 15 | 1 | 3.2 |
| 219 | *Quercus agrifolia* | Impacted | 13 | 1 | 3.4 |
| 220 | *Platanus racemosa* | Preserved w/MM | 14 | 1 | 3.6 |
| 221 | *Quercus agrifolia* | Preserved w/MM | 8 | 1 | 3.2 |
| 222 | *NO* | | | | |
| 223 | *Quercus agrifolia* | Preserved w/MM | 21 | 1 | 3.8 |
| 224 | *Quercus agrifolia* | Impacted | 16 | 1 | 3.4 |
| 225 | *NO* | | | | |
| 226 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.6 |
| 227 | *Quercus agrifolia* | Impacted | 10 | 2 | 3.8 |
| 228 | *Quercus agrifolia* | Impacted | 11 | 1 | 3.8 |
| 229 | *Quercus agrifolia* | Impacted | 11 | 2 | 2.4 |
| 230 | *Quercus agrifolia* | Preserved | 9 | 1 | 2.6 |
| 231 | *Quercus agrifolia* | Preserved | 18 | 1 | 2.8 |
| 232 | *Quercus agrifolia* | Preserved | 22 | 1 | 3.4 |
| 233 | *Platanus racemosa* | Preserved | 15 | 1 | 2.6 |
| 234 | *Quercus agrifolia* | Preserved w/MM | 11 | 1 | 1.6 |
| 235 | *Quercus agrifolia* | Preserved w/MM | 25 | 2 | 2.4 |
| 236 | *Quercus agrifolia* | Impacted-Buffer | 14 | 2 | 2.4 |
| 237 | *NO* | | | | |
| 238 | *Platanus racemosa* | Impacted | 16 | 1 | 2.8 |
| 239 | *Quercus agrifolia* | Impacted-Buffer | 24 | 1 | 3.0 |
| 240 | *Quercus agrifolia* | Impacted | 13 | 2 | 2.6 |
| 241 | *Quercus agrifolia* | Impacted-Buffer | 28 | 1 | 3.2 |
| 242 | *Quercus agrifolia* | Impacted | 22 | 2 | 3.6 |
| 243 | *Quercus agrifolia* | Preserved w/MM | 18 | 2 | 2.8 |
| 244 | *Quercus agrifolia* | Preserved | 17 | 1 | 3.6 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 245 | *Quercus agrifolia* | Preserved | 28 | 3 | 3.4 |
| 246 | *Quercus agrifolia* | Preserved | 16 | 1 | 3.6 |
| 247 | *Quercus agrifolia* | Preserved | 19 | 1 | 3.0 |
| 248 | *Quercus agrifolia* | Preserved | 16 | 2 | 3.2 |
| 249 | *Quercus agrifolia* | Preserved | 23 | 3 | 3.6 |
| 250 | *Quercus agrifolia* | Impacted | 18 | 1 | 3.8 |
| 251 | *Quercus agrifolia* | Impacted | 9 | 1 | 2.4 |
| 252 | *Quercus agrifolia* | Impacted | 48 | 4 | 3.4 |
| 253 | *Quercus agrifolia* | Impacted | 19 | 2 | 2.0 |
| 254 | *Quercus agrifolia* | Preserved w/MM | 15 | 2 | 2.0 |
| 255 | *Quercus agrifolia* | Impacted-Buffer | 25 | 5 | 2.4 |
| 256 | *Quercus agrifolia* | Impacted | 16 | 1 | 2.0 |
| 257 | *Quercus agrifolia* | Impacted | 16 | 2 | 2.0 |
| 258 | *Quercus agrifolia* | Impacted | 27 | 3 | 2.6 |
| 259 | *Quercus agrifolia* | Impacted | 20 | 2 | 1.8 |
| 260 | *Quercus agrifolia* | Impacted | 30 | 4 | 2.2 |
| 261 | *Quercus agrifolia* | Impacted | 21 | 2 | 2.4 |
| 262 | *Quercus agrifolia* | Impacted | 22 | 3 | 2.0 |
| 263 | *Quercus agrifolia* | Impacted | 25 | 1 | 2.2 |
| 264 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.0 |
| 265 | *Quercus agrifolia* | Impacted | 30 | 3 | 1.8 |
| 266 | *Quercus agrifolia* | Impacted | 13 | 2 | 1.8 |
| 267 | *Quercus agrifolia* | Impacted | 14 | 1 | 2.2 |
| 268 | *Quercus agrifolia* | Impacted | 12 | 1 | 2.6 |
| 269 | *Quercus agrifolia* | Impacted | 21 | 1 | 2.6 |
| 270 | *Quercus agrifolia* | Impacted | 23 | 1 | 2.6 |
| 271 | *Quercus agrifolia* | Impacted | 13 | 5 | 2.8 |
| 272 | *Quercus agrifolia* | Impacted | 23 | 2 | 2.0 |
| 273 | *Quercus agrifolia* | Impacted | 24 | 1 | 2.4 |
| 274 | *Quercus agrifolia* | Impacted | 40 | 3 | 3.0 |
| 275 | *Quercus agrifolia* | Impacted | 26 | 3 | 2.6 |
| 276 | *Quercus agrifolia* | Impacted | 25 | 4 | 2.2 |
| 277 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.2 |
| 278 | *Quercus agrifolia* | Impacted | 13 | 1 | 2.0 |
| 279 | *NO* | | | | |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 280 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.0 |
| 281 | *Quercus agrifolia* | Impacted | 19 | 3 | 1.4 |
| 282 | *Quercus agrifolia* | Impacted | 24 | 2 | 1.2 |
| 283 | *Quercus agrifolia* | Impacted | 14 | 1 | 2.0 |
| 284 | *Quercus agrifolia* | Impacted | 19 | 2 | 2.0 |
| 285 | *Quercus agrifolia* | Preserved | 8 | 1 | 1.4 |
| 286 | *Quercus agrifolia* | Impacted | 33 | 2 | 2.4 |
| 287 | *Quercus agrifolia* | Impacted | 39 | 1 | 2.6 |
| 288 | *Quercus agrifolia* | Impacted | 17 | 1 | 3.0 |
| 289 | *Quercus agrifolia* | Impacted | 23 | 1 | 2.6 |
| 290 | *Platanus racemosa* | Impacted | 12 | 2 | 2.2 |
| 291 | *Quercus agrifolia* | Impacted-Buffer | 8 | 4 | 1.6 |
| 292 | *Quercus agrifolia* | Preserved | 19 | 6 | 2.0 |
| 293 | *Quercus agrifolia* | Impacted | 15 | 1 | 1.8 |
| 294 | *Quercus agrifolia* | Impacted | 11 | 1 | 2.2 |
| 295 | *Quercus agrifolia* | Impacted | 25 | 1 | 2.8 |
| 296 | *Platanus racemosa* | Impacted | 12 | 3 | 2.8 |
| 297 | *Quercus agrifolia* | Impacted | 24 | 1 | 2.8 |
| 298 | *Platanus racemosa* | Impacted | 13 | 2 | 2.6 |
| 299 | *Quercus agrifolia* | Impacted | 14 | 1 | 2.0 |
| 300 | *Quercus agrifolia* | Impacted | 44 | 1 | 2.4 |
| 301 | *Quercus agrifolia* | Impacted | 34 | 1 | 3.6 |
| 302 | *Platanus racemosa* | Impacted | 16 | 2 | 3.4 |
| 303 | *Quercus agrifolia* | Impacted | 25 | 1 | 3.6 |
| 304 | *NO* | | | | |
| 305 | *Platanus racemosa* | Impacted-Buffer | 14 | 1 | 3.8 |
| 306 | *Quercus agrifolia* | Preserved | 37 | 2 | 3.8 |
| 307 | *Quercus agrifolia* | Preserved | 8 | 1 | 3.8 |
| 308 | *Quercus agrifolia* | Preserved | 24 | 3 | 3.6 |
| 309 | *Quercus agrifolia* | Preserved | 16 | 1 | 2.8 |
| 310 | *Quercus agrifolia* | Preserved w/MM | 28 | 3 | 3.8 |
| 311 | *Quercus agrifolia* | Preserved | 23 | 2 | 3.2 |
| 312 | *Quercus agrifolia* | Impacted | 19 | 1 | 3.4 |
| 313 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.0 |
| 314 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.0 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 315 | *Quercus agrifolia* | Impacted | 11 | 1 | 2.6 |
| 316 | *Platanus racemosa* | Impacted | 13 | 3 | 3.2 |
| 317 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.8 |
| 318 | *Quercus agrifolia* | Impacted | 27 | 1 | 3.2 |
| 319 | *Quercus agrifolia* | Impacted | 28 | 1 | 3.6 |
| 320 | *Quercus agrifolia* | Impacted | 20 | 2 | 3.4 |
| 321 | *Quercus agrifolia* | Impacted | 12 | 1 | 2.6 |
| 322 | *Quercus agrifolia* | Impacted | 16 | 2 | 2.6 |
| 323 | *Quercus agrifolia* | Impacted | 13 | 2 | 3.2 |
| 324 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.2 |
| 325 | *Quercus agrifolia* | Impacted-Buffer | 19 | 1 | 3.4 |
| 326 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.6 |
| 327 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.8 |
| 328 | *NO* | | | | |
| 329 | *Quercus agrifolia* | Impacted | 32 | 4 | 3.6 |
| 330 | *Quercus agrifolia* | Impacted | 23 | 1 | 3.2 |
| 331 | *Quercus agrifolia* | Impacted | 21 | 1 | 3.2 |
| 332 | *Quercus agrifolia* | Impacted | 13 | 2 | 2.4 |
| 333 | *Quercus agrifolia* | Impacted | 13 | 2 | 1.8 |
| 334 | *Quercus agrifolia* | Impacted | 11 | 1 | 1.8 |
| 335 | *Quercus agrifolia* | Impacted | 18 | 1 | 3.6 |
| 336 | *Quercus agrifolia* | Impacted | 13 | 2 | 3.2 |
| 337 | *Quercus agrifolia* | Impacted | 17 | 2 | 2.4 |
| 338 | *Quercus agrifolia* | Impacted | 9 | 1 | 3.0 |
| 339 | *Quercus agrifolia* | Impacted | 12 | 2 | 3.2 |
| 340 | *Quercus agrifolia* | Impacted | 20 | 2 | 2.6 |
| 341 | *Quercus agrifolia* | Impacted | 31 | 1 | 3.2 |
| 342 | *Quercus agrifolia* | Impacted | 12 | 1 | 2.8 |
| 343 | *Quercus agrifolia* | Impacted | 18 | 1 | 3.0 |
| 344 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.4 |
| 345 | *Quercus agrifolia* | Impacted | 14 | 1 | 3.0 |
| 346 | *Quercus agrifolia* | Impacted | 12 | 1 | 2.6 |
| 347 | *Quercus agrifolia* | Impacted | 29 | 3 | 3.2 |
| 348 | *Quercus agrifolia* | Impacted | 8 | 2 | 3.2 |
| 349 | *Quercus agrifolia* | Impacted | 12 | 2 | 3.6 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 350 | *Quercus agrifolia* | Impacted | 29 | 1 | 3.2 |
| 351 | *Quercus agrifolia* | Impacted | 20 | 1 | 2.8 |
| 352 | *Quercus agrifolia* | Preserved | 18 | 1 | 3.2 |
| 353 | *Quercus agrifolia* | Impacted | 19 | 1 | 1.8 |
| 354 | *Quercus agrifolia* | Impacted | 24 | 2 | 2.6 |
| 355 | *Quercus agrifolia* | Impacted | 32 | 4 | 3.0 |
| 356 | *Quercus agrifolia* | Preserved | 14 | 1 | 3.0 |
| 357 | *Quercus agrifolia* | Preserved | 33 | 1 | 3.0 |
| 358 | *Quercus agrifolia* | Preserved | 9 | 1 | 3.2 |
| 359 | *Quercus agrifolia* | Preserved | 26 | 3 | 3.2 |
| 360 | *Quercus agrifolia* | Preserved | 15 | 1 | 3.8 |
| 361 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.8 |
| 362 | *Quercus agrifolia* | Preserved | 33 | 2 | 3.8 |
| 363 | *Quercus agrifolia* | Preserved | 21 | 4 | 3.4 |
| 364 | *Quercus agrifolia* | Preserved | 10 | 1 | 3.8 |
| 365 | *Quercus agrifolia* | Preserved | 8 | 1 | 1.6 |
| 366 | *Quercus agrifolia* | Preserved | 19 | 2 | 3.8 |
| 367 | *Quercus agrifolia* | Preserved | 14 | 1 | 3.8 |
| 368 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.8 |
| 369 | *NO* | | | | |
| 370 | *Quercus agrifolia* | Preserved | 21 | 3 | 2.4 |
| 371 | *Quercus agrifolia* | Preserved | 16 | 2 | 3.6 |
| 372 | *Quercus agrifolia* | Impacted | 38 | 4 | 3.4 |
| 373 | *Quercus agrifolia* | Impacted | 31 | 1 | 3.6 |
| 374 | *Quercus agrifolia* | Preserved | 41 | 4 | 3.2 |
| 375 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.2 |
| 376 | *Quercus agrifolia* | Impacted | 29 | 1 | 3.8 |
| 377 | *Quercus agrifolia* | Preserved | 22 | 2 | 2.4 |
| 378 | *Platanus racemosa* | Preserved | 16 | 2 | 3.2 |
| 379 | *Platanus racemosa* | Preserved | 22 | 1 | 3.6 |
| 380 | *NO* | | | | |
| 381 | *Quercus agrifolia* | Preserved | 21 | 1 | 3.6 |
| 382 | *Quercus agrifolia* | Preserved | 25 | 5 | 3.0 |
| 383 | *Quercus agrifolia* | Preserved | 16 | 1 | 2.8 |
| 384 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.0 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 385 | *Quercus agrifolia* | Impacted-Buffer | 12 | 3 | 3.4 |
| 386 | *Quercus agrifolia* | Preserved w/MM | 17 | 3 | 3.4 |
| 387 | *Quercus agrifolia* | Preserved w/MM | 17 | 1 | 3.6 |
| 388 | *Quercus agrifolia* | Preserved w/MM | 8 | 1 | 3.0 |
| 389 | *Quercus agrifolia* | Preserved w/MM | 8 | 2 | 3.6 |
| 390 | *Quercus agrifolia* | Preserved | 8 | 5 | 3.0 |
| 391 | *Quercus agrifolia* | Preserved w/MM | 8 | 2 | 2.8 |
| 392 | *NO* | | | | |
| 393 | *Quercus agrifolia* | Preserved w/MM | 11 | 1 | 2.6 |
| 394 | *Quercus agrifolia* | Preserved | 14 | 1 | 2.8 |
| 395 | *Quercus agrifolia* | Preserved | 8 | 2 | 3.8 |
| 396 | *Quercus agrifolia* | Preserved | 9 | 1 | 2.6 |
| 397 | *NO* | | | | |
| 398 | *Quercus agrifolia* | Preserved | 13 | 3 | 3.4 |
| 399 | *Quercus agrifolia* | Preserved | 15 | 1 | 3.4 |
| 400 | *Quercus agrifolia* | Preserved | 13 | 1 | 2.8 |
| 401 | *Quercus agrifolia* | Preserved | 14 | 3 | 3.4 |
| 402 | *NO* | | | | |
| 403 | *Quercus agrifolia* | Impacted-Buffer | 12 | 5 | 3.0 |
| 404 | *Quercus agrifolia* | Impacted-Buffer | 10 | 2 | 3.6 |
| 405 | *Quercus agrifolia* | Impacted | 10 | 1 | 3.2 |
| 406 | *Quercus agrifolia* | Impacted | 9 | 2 | 3.8 |
| 407 | *Quercus agrifolia* | Impacted-Buffer | 13 | 2 | 3.4 |
| 408 | *Quercus agrifolia* | Impacted | 11 | 1 | 3.0 |
| 409 | *Quercus agrifolia* | Impacted | 12 | 1 | 3.4 |
| 410 | *Quercus agrifolia* | Impacted | 18 | 1 | 2.6 |
| 411 | *Quercus agrifolia* | Preserved w/MM | 17 | 1 | 2.6 |
| 412 | *Quercus agrifolia* | Preserved | 13 | 1 | 2.8 |
| 413 | *Quercus agrifolia* | Preserved | 12 | 1 | 3.0 |
| 414 | *Quercus agrifolia* | Preserved w/MM | 29 | 2 | 3.4 |
| 415 | *Platanus racemosa* | Impacted-Buffer | 28 | 1 | 3.8 |
| 416 | *Platanus racemosa* | Impacted | 30 | 2 | 3.8 |
| 417 | *Quercus agrifolia* | Impacted | 26 | 2 | 3.8 |
| 418 | *Quercus agrifolia* | Impacted | 18 | 2 | 3.4 |
| 419 | *Quercus agrifolia* | Preserved | 33 | 2 | 3.8 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 420 | *Quercus agrifolia* | Impacted | 9 | 1 | 2.6 |
| 421 | *Quercus agrifolia* | Impacted | 14 | 1 | 3.0 |
| 422 | *Quercus agrifolia* | Preserved w/MM | 23 | 2 | 2.6 |
| 423 | *Quercus agrifolia* | Impacted-Buffer | 33 | 1 | 3.4 |
| 424 | *Quercus agrifolia* | Impacted | 20 | 1 | 3.2 |
| 425 | *Quercus agrifolia* | Preserved w/MM | 29 | 1 | 2.0 |
| 426 | *Quercus agrifolia* | Preserved w/MM | 24 | 2 | 2.2 |
| 427 | *Quercus agrifolia* | Preserved w/MM | 34 | 3 | 2.0 |
| 428 | *Quercus agrifolia* | Impacted-Buffer | 24 | 4 | 3.0 |
| 429 | *Platanus racemosa* | Preserved w/MM | 16 | 1 | 2.6 |
| 430 | *Quercus agrifolia* | Impacted-Buffer | 16 | 1 | 2.4 |
| 431 | *Quercus agrifolia* | Preserved w/MM | 29 | 2 | 2.6 |
| 432 | *Platanus racemosa* | Preserved w/MM | 17 | 2 | 2.4 |
| 433 | *Quercus agrifolia* | Preserved | 22 | 1 | 2.0 |
| 434 | *NO* | | | | |
| 435 | *NO* | | | | |
| 436 | *Quercus agrifolia* | Preserved | 28 | 2 | 2.4 |
| 437 | *Quercus agrifolia* | Preserved | 29 | 1 | 2.6 |
| 438 | *Quercus agrifolia* | Preserved | 16 | 1 | 2.6 |
| 439 | *Quercus agrifolia* | Preserved | 20 | 1 | 2.0 |
| 440 | *NO* | | | | |
| 441 | *Platanus racemosa* | Preserved | 12 | 2 | 2.0 |
| 442 | *Quercus agrifolia* | Preserved | 24 | 2 | 2.4 |
| 443 | *Quercus agrifolia* | Preserved w/MM | 28 | 2 | 2.4 |
| 444 | *Quercus agrifolia* | Preserved | 14 | 1 | 2.4 |
| 445 | *Platanus racemosa* | Impacted-Buffer | 13 | 2 | 2.2 |
| 446 | *Quercus agrifolia* | Preserved w/MM | 18 | 1 | 2.4 |
| 447 | *Platanus racemosa* | Impacted-Buffer | 17 | 5 | 2.6 |
| 448 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.6 |
| 449 | *Platanus racemosa* | Impacted-Buffer | 14 | 3 | 2.8 |
| 450 | *Quercus agrifolia* | Preserved w/MM | 17 | 1 | 2.0 |
| 451 | *Platanus racemosa* | Preserved | 12 | 2 | 2.8 |
| 452 | *Platanus racemosa* | Preserved w/MM | 16 | 3 | 2.8 |
| 453 | *Platanus racemosa* | Preserved | 17 | 3 | 2.2 |
| 454 | *Quercus agrifolia* | Preserved | 23 | 1 | 2.6 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 455 | *Quercus agrifolia* | Preserved | 11 | 1 | 2.8 |
| 456 | *Quercus agrifolia* | Preserved | 11 | 1 | 2.0 |
| 457 | *Quercus agrifolia* | Preserved | 26 | 2 | 1.4 |
| 458 | *Quercus agrifolia* | Preserved | 21 | 2 | 1.4 |
| 459 | *Quercus agrifolia* | Preserved | 9 | 1 | 1.2 |
| 460 | *Platanus racemosa* | Preserved | 13 | 1 | 2.0 |
| 461 | *NO* | | | | |
| 462 | *NO* | | | | |
| 463 | *NO* | | | | |
| 464 | *Platanus racemosa* | Preserved | 19 | 5 | 2.2 |
| 465 | *Platanus racemosa* | Preserved | 24 | 5 | 2.4 |
| 466 | *Quercus agrifolia* | Preserved | 21 | 2 | 2.8 |
| 467 | *Platanus racemosa* | Preserved | 12 | 2 | 2.2 |
| 468 | *Quercus agrifolia* | Preserved | 36 | 1 | 2.4 |
| 469 | *Quercus agrifolia* | Preserved | 23 | 1 | 1.8 |
| 470 | *Quercus agrifolia* | Preserved | 39 | 2 | 2.2 |
| 471 | *Quercus agrifolia* | Preserved | 14 | 1 | 2.6 |
| 472 | *Quercus agrifolia* | Preserved | 27 | 2 | 2.6 |
| 473 | *Quercus agrifolia* | Preserved | 27 | 2 | 2.6 |
| 474 | *Quercus agrifolia* | Preserved | 27 | 3 | 2.2 |
| 475 | *Quercus agrifolia* | Preserved w/MM | 33 | 3 | 3.0 |
| 476 | *Quercus agrifolia* | Impacted-Buffer | 13 | 1 | 1.6 |
| 477 | *Quercus agrifolia* | Preserved | 15 | 1 | 2.8 |
| 478 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.0 |
| 479 | *Quercus agrifolia* | Impacted | 19 | 1 | 2.8 |
| 480 | *Quercus agrifolia* | Impacted | 17 | 1 | 2.6 |
| 481 | *Quercus agrifolia* | Preserved | 23 | 2 | 1.8 |
| 482 | *Quercus agrifolia* | Preserved | 21 | 1 | 2.4 |
| 483 | *Quercus agrifolia* | Preserved | 11 | 1 | 2.6 |
| 484 | *Quercus agrifolia* | Preserved | 10 | 1 | 3.0 |
| 485 | *Quercus agrifolia* | Preserved | 23 | 3 | 1.0 |
| 486 | *Quercus agrifolia* | Preserved | 14 | 1 | 1.2 |
| 487 | *NO* | | | | |
| 488 | *Platanus racemosa* | Preserved | 16 | 5 | 2.8 |
| 489 | *Platanus racemosa* | Preserved | 34 | 5 | 3.4 |

**Table IV.D-10 (continued)**
**Summary of Tree Inventory Data**
**Canyon Hills Project**

| Tree Number | Species name | STATUS | Effective DBH | No. of Trunks | Overall Rating |
|---|---|---|---|---|---|
| 490 | *Platanus racemosa* | Preserved | 14 | 2 | 1.6 |
| 491 | *Platanus racemosa* | Preserved | 25 | 3 | 2.4 |
| 492 | *Platanus racemosa* | Preserved | 26 | 3 | 2.4 |
| 493 | *Platanus racemosa* | Preserved | 20 | 2 | 2.8 |
| 494 | *Platanus racemosa* | Preserved | 33 | 7 | 2.6 |
| 495 | *Quercus agrifolia* | Preserved | 9 | 1 | 2.2 |
| 496 | *Quercus agrifolia* | Preserved | 23 | 3 | 3.6 |
| 497 | *Quercus agrifolia* | Preserved | 10 | 3 | 2.4 |
| 498 | *Quercus agrifolia* | Preserved | 26 | 2 | 3.4 |
| 499 | *Quercus agrifolia* | Preserved | 18 | 1 | 3.0 |
| 500 | *Quercus agrifolia* | Preserved | 20 | 2 | 3.2 |
| 501 | *Quercus agrifolia* | Preserved | 30 | 1 | 3.8 |
| 502 | *Quercus agrifolia* | Preserved | 27 | 4 | 3.6 |
| 503 | *Quercus agrifolia* | Preserved | 32 | 3 | 3.4 |
| 504 | *Quercus agrifolia* | Preserved | 19 | 3 | 3.0 |
| 505 | *Quercus agrifolia* | Preserved | 17 | 2 | 2.8 |
| 506 | *Quercus agrifolia* | Preserved | 10 | 1 | 2.8 |
| 507 | *Quercus agrifolia* | Preserved | 12 | 1 | 2.8 |
| 508 | *Platanus racemosa* | Preserved | 17 | 2 | 2.8 |
| 509 | *Platanus racemosa* | Preserved | 18 | 3 | 2.8 |
| 510 | *NO* | | | | |
| 511 | *NO* | | | | |
| 512 | *Quercus agrifolia* | Preserved | 20 | 1 | 2.6 |
| 513 | *Quercus agrifolia* | Preserved | 20 | 2 | 3.0 |
| 514 | *Quercus agrifolia* | Preserved | 17 | 1 | 1.6 |
| 515 | *Quercus agrifolia* | Preserved | 11 | 1 | 3.0 |
| 516 | *Quercus agrifolia* | Preserved | 33 | 4 | 2.6 |
| 517 | *Platanus racemosa* | Preserved | 56 | 4 | 3.4 |
| 518 | *Platanus racemosa* | Preserved | 30 | 3 | 3.0 |
| 519 | *Quercus agrifolia* | Preserved | 14 | 1 | 3.0 |
| 520 | *Platanus racemosa* | Preserved | 22 | 5 | 3.0 |
| 521 | *Quercus agrifolia* | Preserved | 21 | 1 | 3.0 |
| 522 | *Platanus racemosa* | Preserved | 38 | 5 | 3.0 |

**Estimated Native Trees on Project Site**

As previously discussed, the number of trees within the Development Areas were based upon a detailed onsite survey by qualified biologists who tagged and mapped individual trees within the limits of grading. The calculations used to estimate the number of trees on the entire project site are presented in Tables IV.D-11 and IV.D-12. The number of trees within the project site that are outside of the Development Areas (and therefore outside the survey area) were estimated based the relationship between mapped vegetation associations and the mapped number of trees within the Development Areas. Using this information, an average trees-per-acre factor was developed for each of the 11 vegetation associations (see Columns (f) and (h) in Tables IV.D-11 and IV.D-12). This factor was then applied to the remaining acres of each vegetation community on the project site to obtain an estimated total number of trees within that association outside of the Development Areas (see Column (i) in Tables IV.D-11 and IV.D-12). The total number of trees within the 11 vegetation associations were then added together to obtain an estimated total number of trees outside of the Development Areas. The number of surveyed trees within the Development Areas was added to the estimate number of trees outside the Development Areas, to obtain an estimated of the total number of trees within the project site (see Column (j) in Tables IV.D-11 and IV.D-12). As shown in Column (j) in Tables IV.D-11 and IV.D-12, there are approximately 1,247 coast live oaks and 133 western sycamores on the project site.

## ENVIRONMENTAL IMPACTS

**Thresholds of Significance**

In accordance with Appendix G to the CEQA Guidelines, a project may have a significant effect on the environment if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

**Table IV.D-11**
**Oak Trees on Project Site[a]**
**Canyon Hills Project**

| VEGETATION ASSOCIATION WITHIN PROJECT SITE | | DEVELOPED PROJECT SITE IMPACTS[b] | | | | UNDEVELOPED PROJECT SITE ESTIMATES | | | TOTAL PROJECT SITE ESTIMATES | |
|---|---|---|---|---|---|---|---|---|---|---|
| Code (a) | Type (b) | Total Project Site Acres (c) | Project Site Acres Impacted by Grading (d) | Project Trees Impacted (e) | Computed Trees/Acre Not Impacted (f) = (e ÷ d) | Project Site Acres Not Impacted (g) = (c - d) | Computed Trees/Acre Not Impacted (h) = (f) | Project Trees Not Impacted (i) = (g x h) | Total Trees On Project Site (j) = (e + i) | % of Total Trees Impacted by Development (k) = (e ÷ j) |
| 1 | Mixed Chaparral | 699.31 | 215.41 | 184 | 0.85 | 483.90 | 0.85 | 413 | 597 | 31% |
| 2 | Coastal Sage Scrub | 75.41 | 1.16 | 5 | 4.31 | 74.25 | 4.31 | 320 | 325 | 2% |
| 3 | Chamise Chaparral | 51.86 | 7.12 | 0 | 0.00 | 44.74 | 0.00 | 0 | 0 | 0% |
| 4 | Southern Mixed Riparian | 24.59 | 3.44 | 31 | 9.01 | 21.15 | 9.01 | 191 | 222 | 14% |
| 5 | Southern Coast Live Oak Riparian | 11.74 | 0.67 | 3 | 4.48 | 11.07 | 4.48 | 50 | 53 | 6% |
| 6 | Chamise Chaparral - Coastal Sage Scrub Ecotone | 8.89 | 3.29 | 0 | 0.00 | 5.60 | 0.00 | 0 | 0 | 0% |
| 7 | Deerweed Scrub | 8.13 | 2.36 | 0 | 0.00 | 5.77 | 0.00 | 0 | 0 | 0% |
| 8 | Southern Willow Scrub | 2.09 | 0.31 | 6 | 19.35 | 1.78 | 19.35 | 34 | 40 | 15% |
| 9 | Southern Coast Live Oak Woodland | 2.60 | 0.25 | 1 | 4.00 | 2.35 | 4.00 | 9 | 10 | 10% |
| 10 | Disturbed - Ruderal | 1.65 | 0.31 | 0 | 0.00 | 1.34 | 0.00 | 0 | 0 | 0% |
| 11 | Mulefat Scrub | 0.66 | 0.00 | 0 | 0.00 | 0.66 | 0.00 | 0 | 0 | 0% |
| | ***TOTAL*** | ***886.93*** | ***234.32*** | ***230*** | **--** | ***652.61*** | **--** | ***1,017*** | ***1,247*** | ***18%*** |

[a] *Oak trees as used in this exhibit are as defined in the City of Los Angeles' Oak Tree Ordinance, and include oak trees within the project site that are eight (8) inches or more in diameter at breast height (DBH). It does not include trees outside the project site or undersized oak, sycamore, or other trees that may exist within the project site.*

[b] *Vegetation association and tree locations are based upon field surveys by qualified arborists/biologists under the direction of GLA. Tree mapping utilized GPS equipment for the onsite location and tagging of the trees. Initial GIS mapping prepared by FORMA Systems was proofed in the field and further refined by GLA. The GIS mapping of the potential impact of development was prepared by FORMA Systems based upon a 1"= 100' Grading Plan for the project prepared by Templeton Planning Group and initially digitized by EarthCalc, Inc. The area impacted within the project site included all land within the limits of grading, plus 20 additional feet outside the limits of grading to allow for disturbance that may be caused by construction equipment during grading operations.*

**Table IV.D-12**
**Sycamore Trees on Project Site**
**Canyon Hills Project**

| VEGETATION ASSOCIATION WITHIN PROJECT SITE | | DEVELOPED PROJECT SITE IMPACTS[a] | | | | UNDEVELOPED PROJECT SITE ESTIMATES | | | TOTAL PROJECT SITE ESTIMATES | |
|---|---|---|---|---|---|---|---|---|---|---|
| Code (a) | Type (b) | Total Project Site Acres (c) | Project Site Acres Impacted by Grading (d) | Project Trees Impacted (e) | Computed Trees/Acre Not Impacted (f) = (e ÷ d) | Project Site Acres Not Impacted (g) = (c - d) | Computed Trees/Acre Not Impacted (h) = (f) | Project Trees Not Impacted (i) = (g x h) | Total Trees On Project Site (j) = (e + i) | % of Total Trees Impacted by Development (k) = (e ÷ j) |
| 1 | Mixed Chaparral | 699.31 | 215.41 | 18 | 0.08 | 483.90 | 0.08 | 40 | 58 | 31% |
| 2 | Coastal Sage Scrub | 75.41 | 1.16 | 0 | 0.00 | 74.25 | 0.00 | 0 | 0 | 0% |
| 3 | Chamise Chaparral | 51.86 | 7.12 | 0 | 0.00 | 44.74 | 0.00 | 0 | 0 | 0% |
| 4 | Southern Mixed Riparian | 24.59 | 3.44 | 7 | 2.03 | 21.15 | 2.03 | 43 | 50 | 14% |
| 5 | Southern Coast Live Oak Riparian | 11.74 | 0.67 | 1 | 1.49 | 11.07 | 1.49 | 17 | 18 | 6% |
| 6 | Chamise Chaparral - Coastal Sage Scrub Ecotone | 8.89 | 3.29 | 0 | 0.00 | 5.60 | 0.00 | 0 | 0 | 0% |
| 7 | Deerweed Scrub | 8.13 | 2.36 | 0 | 0.00 | 5.77 | 0.00 | 0 | 0 | 0% |
| 8 | Southern Willow Scrub | 2.09 | 0.31 | 1 | 3.23 | 1.78 | 3.23 | 6 | 7 | 15% |
| 9 | Southern Coast Live Oak Woodland | 2.60 | 0.25 | 0 | 0.00 | 2.35 | 0.00 | 0 | 0 | 0% |
| 10 | Disturbed - Ruderal | 1.65 | 0.31 | 0 | 0.00 | 1.34 | 0.00 | 0 | 0 | 0% |
| 11 | Mulefat Scrub | 0.66 | 0.00 | 0 | 0.00 | 0.66 | 0.00 | 0 | 0 | 0% |
| | ***TOTAL*** | ***886.93*** | ***234.32*** | ***27*** | **--** | ***652.61*** | **--** | ***106*** | ***133*** | ***20%*** |

[a] *Vegetation association and tree locations are based upon field surveys by qualified arborists/biologists under the direction of GLA. Tree mapping utilized GPS equipment for the onsite location and tagging of the trees. Initial GIS mapping prepared by FORMA Systems was proofed in the field and further refined by GLA. The GIS mapping of the potential impact of development was prepared by FORMA Systems based upon a 1"= 100' Grading Plan for the project prepared by Templeton Planning Group and initially digitized by EarthCalc, Inc. The area impacted within the project site included all land within the limits of grading, plus 20 additional feet outside the limits of grading to allow for disturbance that may be caused by construction equipment during grading operations.*

**Mapping and Data Reduction**

The location of each tree identified in the Study Area is depicted on the following maps. Figure IV.D-6 is a depiction of the project site and tree inventory and Figures IV.D-7 through IV.D-18 are detailed maps that provide enlargements of portions of the Study Area where a smaller scale is necessary to discern closely-spaced trees. These maps depict the oak trees in shades of green and sycamores in shades of orange, with darker shades of green or orange representing trees of greater DBH. As described above, oaks were broken down into three size categories: (1) 8-inch to 17-inch; (2) 18-inch to 35-inch; and (3) 36-inch and greater. Sycamores were broken down into three size categories: (1) 12-inch to 17-inch; (2) 18-inch to 35-inch; and (3) 36-inch and greater. These categories are intended solely to provide the reader with a gross visual means of assessing the relative DBH of the trees depicted on the maps.

Representative photographs depicting these trees are included in Exhibit 5 to the Tree Report. Figures IV.D-6 through IV.D-18 depict (1) the "Limits of Grading" line, (2) the "20-Foot Wide Disturbance Area", which is the area beyond the limits of grading, but within 20 feet of the Limits of Grading line, and (3) the limits of the "Minimum Tree Inventory Area" used to determine the tree impacts described in Table IV.D-10. Table IV.D-10, above, provides a summary of each tree's composite DBH, number of trunks, its overall health rating, as well as its status relative to impacts by the proposed project. The impact "Status" of each tree is either (1) "Preserved," (1) "Preserved w/MM," (3) "Impacted" or (4) "Impacted-Buffer". These four impact categories, and their relation to the grading limits and the 20-Foot Wide Disturbance Area, are described below. In addition to identifying the impact status of each tree, the Optimal Protection Zone (OPZ) of each tree was calculated. The OPZ is an analytical tool used to predict the actual extent of root penetration into the soil surrounding a tree for the purpose of identifying potential impacts and appropriate mitigation measures. The OPZ is calculated based on the species' tolerance to impacts, the age of the tree, and the tree's DBH.[9] This calculation acknowledges that a mature tree is more intolerant of disturbance from grading than a young tree[10] and therefore should be afforded greater protection from construction impacts.

Trees that are not subject to direct or indirect impacts from the proposed project and do not require mitigation measures to ensure their protection during grading are identified as "Preserved" in Table IV.D-10.

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[9] *Matheny, Nelda and James R. Clark. 1998. "Trees and Development." International Society of Arboriculture, Champaign, Illinois.*

[10] *A larger mature oak is more intolerant of disturbance from grading than a young oak because a larger mature oak has a more extensive root system that reaches far beyond its canopy, which could potentially be exposed to grading activities.*

Trees that are located outside of the 20-Foot Wide Disturbance Area, but with OPZs located within 50 feet of the outer edge of the 20-Foot Wide Disturbance Area, are identified as "Preserved-MM" in Table IV.D-10 (i.e., preserved, but possibly requiring implementation of mitigation measures to eliminate or reduce indirect construction impacts). A tree designated as "Preserved-MM" would likely require implementation of mitigation measures in the field in order to ensure avoidance or at least minimization of construction-related impacts. Trees located within 50 feet of the outer edge of the 20-Foot Wide Disturbance Area are strong candidates for such mitigation measures.

Trees whose trunks are located within the Limits of Grading line are identified as "Impacted" in Table IV.D-10. Impacted trees would be subject to removal and would require replacement pursuant to Section 46.02(c) of the LAMC.

Trees with trunks that are located within the 20-Foot Wide Disturbance Area are potentially subject to removal or substantial impact during grading operations.[11] These trees are categorized as "Impacted-Buffer" in Table IV.D-10.

**Project Impacts**

There are approximately 1,382 coast live oaks and western sycamores in the Study Area, including approximately 1,247 coast live oaks and 133 western sycamores on the project site (see Table IV.D-14). Of those estimated 1,382 trees, 486 trees with DBHs of eight inches or greater were identified-within or adjacent to the development footprint on the project site or within the southwestern portion of the Duke Property. Of these, up to 232 coast live oaks and 27 western sycamores could be removed or impacted by the proposed project. Table IV.D-13 provides a summary of impacts to coast live oaks and western sycamores.

[11] *For the purpose of defining impacts to trees within the 20-foot Wide Disturbance Area, a substantial impact is considered to be unavoidable damage that would lead to the direct decline and death of the tree. Substantial impacts might include, but are not limited to, removal or compaction of large areas of the root zone and loss of bark and cambium layer due to contact with construction equipment.*

**Table IV.D-13**
**Trees Subject to Impacts in Study Area**
**Canyon Hills Project**

| Common Name | Canyon Hills Project Site | | Duke Property Access Road | | Total Proposed Impacted |
|---|---|---|---|---|---|
| | Within Project Footprint | Within 20' Disturbance Area | Within Project Footprint | Within 20' Disturbance Area | |
| Coast Live Oak | 211 | 19 | 1 | 1 | 232 |
| Western Sycamore | 22 | 5 | 0 | 0 | 27 |
| ***TOTAL*** | ***233*** | ***24*** | ***1*** | ***1*** | ***259*** |

Tables IV.D-11 and IV.D-12 provide estimates of the "Percent of Total Trees Impacted by the Development" (see Column (k)). It is estimated that 259 of 1,382 (less than 19 percent) of the coast live oaks and western sycamores within the project site would be impacted by the proposed project. As indicated in Table IV.D-14, 1,017 coast live oak trees and 106 western sycamore trees would be preserved with the development of the proposed project.

**Table IV.D-14**
**Summary of Impact Figures and Estimate of Preserved Trees**
**Canyon Hills Project**

| Species | Impacted | 20-Foot Wide Disturbance Area | Preserved | Totals[a] |
|---|---|---|---|---|
| Coast Live Oak | 212 | 20 | 1,017 | 1,249[b] |
| Western Sycamore | 22 | 5 | 106 | 133 |
| ***TOTAL*** | ***234*** | ***25*** | ***1,123*** | ***1,382*** |

[a] *The total figures are taken from Tables IV.D-11 and IV.D-12.*

[b] *This figure is two greater than the total figure of 1,247 provided in Table IV.D-11 because the 1,249 figure includes the two trees within the Duke Property that would be impacted as part of the proposed project. These two trees were not included in the calculations provided in Table IV.D-11.*

**Avoidance and Minimization During Project Design**

The proposed project has been designed to cluster development within the eastern one-third of the approximately 887-acre project site, adjacent to existing residential development, and to minimize fill placement within the canyons within the project site. Several iterations of site design reduced fill within canyons and increased avoidance of protected trees, streambeds and wetlands. The site design was increasingly sensitive to existing topography and, as evidenced in the proposed project design,

grading for roads and home lots was designed to minimize cut, which in turn minimizes the need to place fill in adjacent canyons. Project planners estimate that total earthwork volumes have been reduced by as much as 75 percent relative to early site designs, which proposed traditional cut and fill grading over a majority of the project site. Clustering of home lots and site-sensitive road design have minimized impacts to natural open spaces, streambeds and riparian habitats, coast live oaks and western sycamores.

An estimated 1,017 coast live oaks and 106 western sycamores would be preserved versus proposed impacts to 232 coast live oaks and 27 western sycamores. Furthermore, the preserved oaks would be located in near-pristine chaparral, riparian and coastal sage scrub communities, landscapes that enhance their value as wildlife habitat. These facts represent evidence of an initial effort at mitigating project impacts through the minimization and avoidance of impacts to oak trees and native plant communities.

**Site-Sensitive Landscape Design**

The proposed project design integrates the development and common planting areas into the natural landscape, thereby lessening the visual impact a 280-home residential development might otherwise have on the surrounding community. As discussed below, the conceptual tree planting program incorporates a diversity of sizes of replacement oaks and sycamores, 15-gallons, 24-inch boxes, 36-inch boxes, and larger into a landscape palette that would include other chaparral, coastal sage scrub, and Mediterranean-type plants most suited to the arid Southern California climate. Accompanying plantings may include, among others, toyon (*Heteromeles arbutifolia*), scrub oak (*Quercus berberidifolia*), sage (*Saliva* spp.), sagebrush (*Artemisia* spp.), succulents (*Agave* and *Yucca*), and California lilac (*Ceanothus* spp.). Of course, these plantings will be designed in accordance with the Los Angeles Fire Department's regulations.

The placement of the replacement coast live oaks into a landscape that incorporates the similar climate-adapted Southern California heritage landscape will serve to enhance the long-term survival of all the coast live oak plantings and will also enhance the wildlife values of those oaks.[12] Well-designed and appropriate irrigation and irrigation scheduling will also enhance the establishment of coast live oaks, as well as the supporting plants, thereby ensuring resiliency during droughts and maximum fire retardation.

[12] *High water consumptive plantings adjacent to coast live oak plantings can cause root rot in the coast live oaks, therefore drought-tolerant plantings can improve the long-term survival of the coast live oaks.*

***Coast Live Oaks***

Table IV.D-15 presents the number of coast live oak trees that would be impacted by the proposed project. The data in Table IV.D-15 is organized by tree size and overall health rating. Due to natural and anthropogenic influences that have affected these trees over decades, these coast live oaks received an average overall rating of 2.99, with no tree receiving a rating higher than 3.8. Past fires have scarred and distorted the trunks and lower scaffold branches on a majority of the trees, causing structural defects and compromising tree health. Heart rot is also believed to be present on many of the oaks as this defect is common to coast live oaks and the presence of the cavities and calluses provide indirect evidence of its presence.

**Table IV.D-15**
**Summary of Impacted[1] Coast Live Oak Survey Data**
**Canyon Hills Project**

| Size Category | No. of Trees | Average Overall Health Rating |
|---|---|---|
| 8" – 17" | 93 | 2.9 |
| 18" – 35" | 131 | 3.0 |
| 36"+ | 8 | 3.3 |
| ***Total*** | ***232*** | ***2.99*** |

[1] *Trees classified as Impacted and Impacted-Buffer.*

*Note: See Appendix B (Tree Data) to the Tree Report for detailed rating information*

The impact of the proposed project on native trees would not conflict with the City's oak tree regulations set forth in Sections 46.00 et seq. of the LAMC. Section 46.02(c)(1) permits the replacement of a removed oak tree by at least two oak trees in 15-gallon or larger stock. As set forth below, the proposed tree mitigation plan would satisfy that requirement.

However, as discussed above, Appendix G to the CEQA Guidelines provides that a project may have a significant effect on the environment if the project would have a substantial adverse effect on any species identified as a candidate, sensitive or special status species in local plans, policies or regulations. While the City's oak tree regulations do not directly identify oak trees as a "candidate," "sensitive" or "special status" species, the special requirements in the City's oak tree regulations reflect its local status as a species afforded special protection.

In determining the relative significance of the impacted coast live oaks, several factors must be considered. First, as discussed above, the 232 coast live oaks found in the Study Area that could be impacted by the proposed project are almost exclusively of poor quality, with an average overall health rating of 2.99 out of a possible 5.0 (see Table IV.D-15, above). None of the coast live oaks on the

project site have an overall health rating higher than 3.8. The overall health ratings for the impacted coast live oaks range from 1.2 to 3.8. The relatively poor health and low ratings for the impacted oaks is primarily a manifestation of drought, fire and age. Past fires have scarred and distorted trunks and lower scaffold branches on the majority of the trees, causing structural defects and compromised tree health. Many of the oaks are also believed to suffer from heart rot because this defect is common to coast live oaks and many of the oaks have cavities and calluses, which is indirect evidence of the presence of heart rot.

Second, due to the micro-climate in the project vicinity, little coast live oak regeneration has occurred on the project site, skewing the population to older, mature trees that are typically less tolerant of insect pests, fire and disease than are younger, more vigorous trees. The existing oaks are producing a very small number of acorns. As a result, as the existing stands of coast live oaks in the Study Area decline over time, it appears unlikely that new stands will replace them.

Third, as discussed in the Wildlife Movement Study (see Section IV.D.3 (Wildlife Movement)), none of the impacted coast live oaks are located in the vicinity of a regional movement corridor, which minimizes the wildlife habitat value of the impacted trees. Conversely, the preservation of coast live oaks on the western portion of the project site supports the potential regional wildlife corridor between Tujunga Wash and the main body of the Verdugo Mountains south of La Tuna Canyon Road.

Fourth, the proposed project would preserve approximately 1,017 (or more than 81 percent) of the estimated 1,247 coast live oaks on the project site. It is estimated that less than 19 percent of the coast live oaks on the project site would be subject to removal or substantial damage during grading operations.

Fifth, a substantial portion of the coast live oaks that would be impacted by the proposed project are not accessible due to difficult terrain and dense vegetation. In addition, a significant number of the impacted oaks are not visible from designated scenic highways, other public viewing areas or existing residential communities. The existence of these coast live oaks was only discovered during the extensive and very difficult process of surveying all of the coast live oaks within the Study Area. Therefore, the loss of many of the impacted trees would not result in a negative aesthetic impact because they do not contribute to the existing visual environment.

Notwithstanding all of these moderating factors, the proposed project would nonetheless impact a substantial number of coast live oaks, which the City has identified as a native plant worthy of special protection. Therefore, on balance, the loss of up to 232 coast live oaks would be considered to have a substantial adverse effect on a species identified as worthy of protection in a local regulation, and would therefore constitute a significant impact prior to mitigation.

***Western Sycamore***

The City does not have any regulations protecting the western sycamore, nor is the western sycamore identified as a candidate, sensitive or special-status species in any local or regional plans, policies or regulations, or by CDFG or USFWS. Therefore the loss of up to 27 sycamores in conjunction with the proposed project would not constitute a significant impact. It should be noted, however, that the proposed project would preserve 106 (or almost 80 percent) of the estimated 133 western sycamores on the project site. In addition, as discussed below, the proposed tree mitigation plan would replace the impacted western sycamores at a ratio of approximately 6.7:1, which would further reduce the proposed project's less-than-significant impact on western sycamores. Table IV.D-12 provides a breakdown of the "Development Area Impacts" by vegetation community and relates those impacts to the number of western sycamores identified within each of the impacted vegetation communities.

## MITIGATION MEASURES

The proposed project's mitigation effort includes avoidance, minimization and compensation for proposed impacts to trees subject to Section 46.00 et seq. of the LAMC. The project developer could also pursue tree relocation subject to the discussion provided below. These aspects of the proposed mitigation are described below, as is the proposed means for determining the value of the trees that would be impacted.

**Avoidance and Minimization of Impacts**

There are 31 coast live oaks and four western sycamores with Optimal Protection Zones (OPZs) within 50 feet of the 20-Foot Wide Disturbance Area (see Table IV.D-10 for trees identified as "Preserved w/MM"). Without implementation of mitigation measures, these trees might be subject to indirect impacts or even direct impacts. However, the ultimate decision to implement any or all mitigation measures described below will be made by the project arborist in consultation with the project engineer.

The following mitigation measures are recommended to minimize impacts to trees whose OPZs are determined to overlap or closely approach the outer edge of the 20-Foot Wide Disturbance Area:

**D.2-1** The project's arborist shall identify the tree's OPZ in the field and staking of this zone in a half-circle adjacent to the development edge (Appendix D to the Tree Inventory and Impact Analysis provides the formulas necessary to calculate the OPZ of a coast live oak or western sycamore).

**D.2-2** The project's arborist shall ensure that protective fencing is installed around the perimeter of the tree's OPZ or at the edge of the limit of the 20-Foot Wide Disturbance Area, whichever is closer to the trunk (see Figure IV.D-19 illustration). The protective fencing

shall be temporary and shall be removed upon the completion of ground-disturbing activities. The fence shall be a chain link fence with posts placed no greater than 10 feet on center. The project arborist shall identify all trees requiring temporary fencing and shall verify that the fences are in place prior to commencement of grading operations within 50 feet of the OPZ of any tree not scheduled for removal or not identified as "impacted" in the permit issued by the City. Exceptions to the fencing requirement may be made where preserved tree locations make unintended impacts sufficiently unlikely due to the presence of steep terrain or other physical barrier.

**D.2-3** The project's arborist shall ensure the placement of four-inches of wood-chip mulch over the ground surface within the OPZ where that zone extends beyond the protective fencing and into the 20-Foot Wide Disturbance Area. This measure may be necessary to limit the compacting effect of heavy equipment on topsoil within the root zone of protected trees.[13] Where appropriate, the four-inch mulch layer shall be placed under the supervision of the project arborist and shall be placed upon first encroachment of grading equipment into the OPZ. Exceptions to the mulching requirement may be made where preserved tree locations make unintended impacts sufficiently unlikely due to the presence of steep terrain or other physical barrier.

**D.2-4** Should any protected tree's branches overlap the outer edge of the 20-Foot Wide Disturbance Area and require pruning in order to allow grading to proceed, the pruning shall be performed or supervised by the project arborist or a certified arborist.

**D.2-5** The project arborist shall follow or accompany the survey crews prior to the commencement of grading in order to confirm impacts to trees scheduled to be impacted and to confirm avoidance of trees scheduled for preservation. Should any adjustments to the total impact figures be necessary, the project arborist shall notify the project proponent and the project developer, which shall notify the City of the revision.

The 20 trees (tree numbers 236, 238-242, 385, 403-410, 415-418, 423 and 424 in Table IV.D-10) located beneath the footprint of the two proposed bridge crossings of La Tuna Canyon have each been categorized as impacted. These trees may be impacted by the construction of the two proposed bridge crossings. However, minimization of impacts to these trees may be possible depending on the precise method of bridge construction, which has not been determined yet.

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[13] *Matheny, Nelda and James R. Clark. 1998. "Trees and Development." International Society of Arboriculture, Champaign, Illinois.*

**Figure IV.D-19 Protective Fencing Placement**

**Relocation**

While the transplanting of mature, naturalized coast live oaks and western sycamores has been successful in limited instances, relocation of large, mature oak trees is generally fraught with problems and low success rates.[14] For this reason, it is not believed that the transplantation of mature coast live oaks or sycamores is a viable means of mitigating project impacts. Nevertheless, should the City insist that relocation be considered, it is recommended that healthy trees with DBHs of less than 12 inches, located on level terrain be considered as prime candidates. Trees located on steep slopes or on rocky outcrops are generally not suitable for relocation due to practical problems associated with boxing these trees when slopes hinder access or rocks hinder excavation. The identification of trees suitable for relocation should be done in coordination with the rough grading activities at the project site.

**Determination of Minimum Replacement Standards**

The City's ordinance regarding the "Preservation of Oak Trees" at Section 46.02(c)1 of the LAMC requires that a permittee replace an oak approved for removal or relocation "within the same property boundaries by at least two trees." Section 46.02(c)1 continues:

> *Each replacement tree shall be at least a 15-gallon, or larger, specimen in size, measuring one inch or more in diameter one foot above the base, and be not less than seven feet in height measured from the base. The size and number of replacement trees shall approximate the value of the tree to be replaced.*

The replacement standards provided in this Section suggest that they were not intended to address mitigation for larger properties with wildland oaks in natural settings. While the mitigation program described below satisfies this replacement standard, the simple, straightforward replacement of a targeted tree by two or more 15-gallon or larger trees is generally best suited to scenarios where the impacted oaks are easily viewable by or accessible to the public and aesthetic concerns are paramount. In this case, the replacement of a lost tree's aesthetic contribution by provision of some number of container stock is achievable, especially over time. But this is not the issue with respect to the wildland oaks at the project site. The positions of the oaks and sycamores in deep canyons and remote hillsides make them less of a community benefit and almost exclusively a wildlife resource. This wildlife resource cannot be replaced by the planting of container stock in a park or urban setting. Rather, the replacement of the entire habitat must be undertaken by the restoration of the lost community, in this case oak woodland, riparian forest, and mixed chaparral plant communities.

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[14] *Dagit, Rosi and Jim Downer. 1998. "Transplanted Coast Live Oaks (Quercus agrifolia) in Southern California." Western Arborist. Vol. 24, No. 4. Pages 36-41.*

Consequently, the in-kind replacement of the wildland oaks at the project site is best satisfied through the establishment of varied sizes of replacement oaks, ranging from acorns to large boxed specimens, in association with planting of other native plant species known to naturally coexist with coast live oak or sycamores, on hillsides, in open space areas, and in fuel modification areas adjacent to natural open spaces. Large boxed specimens, in 24-inch to 60-inch boxes, are appropriate where immediate visual statements of the landscape heritage are appropriate, such as at entry points and in common areas throughout a development. Smaller-sized container stock, including seedlings, one-gallon, and five-gallon stock, is appropriate in less visually critical areas, such as slope plantings, detention basin plantings, and private residential lots. Direct seeding of acorns is most appropriate in either non-irrigated or limited access sites where habitat enhancement is the key concern. Most if not all of these plantings would be associated with other native plant restoration efforts.

The goal of the mitigation program proposed herein is creation of a landscape that maximizes the compensation for lost habitat values while fully addressing the need to provide a community landscape that reflects the natural heritage of the Verdugo Mountains. This program would be superior to one that simply responded to arbitrary replacement ratios without concern for an overall landscape theme and wildlife benefit.

**Mitigation Plan**

The conceptual tree planting program, summarized in Table IV.D-16, provides for planting of 1,770 coast live oak trees, 181 western sycamores, and thousands of other container stock associated with oak woodlands, chaparral, coastal sage scrub, and riparian forests.

**D.2-6** The project developer shall implement the conceptual tree planting program summarized in Table IV.D-16, below. These plantings would more than compensate for the losses of 232 coast live oaks and 27 western sycamores. These replacement plants represent almost 8:1 replacement of coast live oaks and almost 7:1 replacement of western sycamores. Strictly relative to 15-gallon and larger stock, the replacement program described in Table IV.D-16 provides almost 5:1 replacement of coast live oaks and greater than 4:1 replacement of western sycamores. The plantings would occur within entry points, common areas, road right-of-ways, perimeters of detention basins, common slopes, flood control facilities, fuel modification managed slopes, and private residential lots. Table IV.D-16 provides a synopsis of the conceptual tree planting program based on container stock size and quantity of tree plantings.

It is estimated that the proposed conceptual tree planting program would provide approximately $189,800 of tree stock, ranging from acorns to 60-inch boxes. This figure includes $182,310 in tree stock of 15-gallon or greater in size and approximates the value of the trees to be replaced. In contrast,

the discussion below describes the value of the trees to be replaced as $182,298 under the Fair Market Value method. This tree planting would be only a part of the overall landscape palette, which, as described above, would also include plantings of native plantings and climate-adapted plantings. The costs for these non-tree plantings are not provided in Table IV.D-16.

**D.2-7** All tree plantings would be subject to a five-year monitoring effort by an independent certified arborist. This monitoring effort would consider growth, health, and condition of the subject trees in order to evaluate the project's success. This monitoring effort might result in recommendation of remedial actions should any of the tree plantings exhibit poor or declining health.

**Fair Market Valuation of Trees Proposed for Impact**

The value of a tree must have some tangible association with the fair market value of the land itself - the trees on a property cannot be valued higher than the property itself, and in fact must be valued less than the land itself because the land has some inherent value absent the trees.

In 1987, Diamond, Standiford, Passof and LeBlanc found that the maximum increased value that ideal[15] densities of blue oak (*Quercus douglasii*) could affect on gently sloped (5-10 percent) terrain was 27 percent.[16] This study evaluated the assessments of 30 real estate agents and appraisers specializing in acreage sales with respect to hypothetical properties in Ukiah and Santa Rosa located five miles from shopping and schools. The study found that the near-urban property in Santa Rosa increased a maximum of 22 percent when vegetated with an average of 40 oaks per acre and the rural property in Ukiah appreciated 27 percent when vegetated with an average of 40 oaks per acre (both relative to an unvegetated hypothetical baseline property). Lesser or greater densities of oaks were found to cause less, but still positive, appreciation of land values. Using this study as a benchmark and based on the assumption that the project site is most similar to the near-urban property evaluated in Santa Rosa,[17] the value of the coast live oaks on the project site would serve to improve the land value no more than 22 percent over what it might be were no trees present.

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[15] *"Ideal" is described in terms of the aesthetic and amenity-related benefits oak trees have on property values.*

[16] *Diamond, Nancy, Richard Standiford, Peter Passof, and John LeBlanc. 1987. "Oak trees have varied effect on land values." California Agriculture. September-October, 1987. Pages 4-6.*

[17] *The 22-percent figure associated with the Santa Rosa study subject is used here since the project site is not rural. Ukiah is located approximately 50 miles north of Santa Rosa, which lies at the northern end of the greater San Francisco/Oakland metropolitan area.*

**Table IV.D-16**
**Conceptual Tree Planting Program**
**Canyon Hill Project**

| Planting Area | Tree Species | Type | Quantity | Approximate Value Installed |
|---|---|---|---|---|
| Entry Points | Coast live oak | 36" box | 6 | $3,600.00 |
| | | 48" box | 6 | $10,800.00 |
| | | 60" box | 3 | $12,000.00 |
| Common Areas | Coast live oak | 24" box | 170 | $38,250.00 |
| | | 36" box | 35 | $21,000.00 |
| Road Right-of-Ways | Coast live oak | 15 gallon | 405 | $34,425.00 |
| | | 24" box | 110 | $24,750.00 |
| Detention Basins | Coast live oak | 1 gallon | 30 | $240.00 |
| | | 5 gallon | 10 | $270.00 |
| | | 15 gallon | 20 | $1,700.00 |
| | Western sycamore | 1 gallon | 20 | $160.00 |
| | | 5 gallon | 20 | $540.00 |
| | | 15 gallon | 50 | $4,250.00 |
| Slopes | Coast live oak | 1 gallon | 75 | $600.00 |
| | | 5 gallon | 25 | $675.00 |
| Flood Control | Coast live oak | 1 gallon | 25 | $200.00 |
| | | 5 gallon | 15 | $405.00 |
| | | 15 gallon | 20 | $1,700.00 |
| | Western sycamore | 1 gallon | 15 | $120.00 |
| | | 5 gallon | 15 | $405.00 |
| | | 15 gallon | 61 | $5,185.00 |
| Fuel Modification Areas | Coast live oak | acorns | 100 | $600.00 |
| | | seedlings | 100 | $600.00 |
| | | 1 gallon | 100 | $800.00 |
| | | 5 gallon | 25 | $675.00 |
| | | 15 gallon | 40 | $3,400.00 |
| Private Lots | Coast live oak | 15 gallon | 250 | $21,250.00 |
| Equestrian Trail | Coast live oak | acorns | 100 | $600.00 |
| | | seedlings | 100 | $600.00 |
| ***Total - all sizes of stock*** | | | ***1,951*** | ***$189,800.00*** |
| **Total - 15 gallons and larger (minimum sizes required by City)** | | | **1,176[a]** | **$182,310.00** |

[a] *Includes 1,065 coast live oaks in 15-gallon or larger stock and 111 western sycamores in 15-gallon stock.*

The project applicant estimates that the current "as-is" fair market value of the project site is $14,657 per acre (i.e., $13,000,000 for the 886.93-acre project site). Based on this fair market value, it is estimated that the 259 oaks and sycamores that would be removed or could be significantly impacted in connection with the proposed project should have an average value of no more than $182,298, or $704 per tree. This figure is calculated by first determining the maximum per acre value of the trees, then multiplying that per acre value by the total acreage considered to be the trees' "Area of Occupation."

The maximum per acre value of the trees is determined by first identifying the value of the project site if no trees were present. This exercise assumes that the trees at the project site extend maximum appreciation to the value of the land, which is assumed to be 22 percent. The first step in this exercise is the determination of "V" or the value of an acre of the property without trees:

$$V + (V \times 22\%) = \$14,657 \text{ (estimated per acre fair market value)}$$

or

$$V \times 1.22 = \$14,657$$

or

$$V = \$14,657/1.22$$

or

$$V = \$12,014$$

Therefore $12,014 is the value of an acre of the project site if no trees were present.

Then, subtracting the "value of an acre of the property if no trees were present" from the fair market value with trees gives us the per acre increase in land value that could be ascribed to the presence of trees:

$$\$14,656 - \$12,014 = \$2,642$$

$2,642 is then multiplied by the total land area determined to be the "Area of Occupation" of the trees to be removed in order to identify the fair market value of the trees: $2,642 x Area of Occupation in acres = fair market value of the trees proposed to be removed. Quantifying the Area of Occupation requires identification of some unit of land within the larger 886.93-acre project site deemed to be the Area of Occupation.

Because the 259 trees that would be impacted by the proposed project are typically clustered in the bottom of canyons or along north or east-facing slopes or canyons, it is not appropriate to consider the entire 886.93-acre project site or the 234.32 acre area that would be graded or subject to significant disturbance to be the Area of Occupation because there is currently no visual access to many of the impacted trees and portions of the project site are not located within the same sub-watershed as the impacted trees. For this reason, a more objective means of defining Area of Occupation is appropriate.

Exhibit 8 to the Tree Report depicts an acre-square grid overlaid upon the entire project site. The Area of Occupation is defined as the acre-square grid units that include one or more impacted trees. The grid units are 208 feet on each side and the beginning point of the grid was Range 13 West, Township 2 North, Section 30.

Exhibit 8 to the Tree Report indicates that 69 acre-square grid units support at least one impacted coast live oak or western sycamore. This equates directly to an Area of Occupation of 69 acres. This figure appears logical as it results in an average of 3.75 trees per acre, which in turn is less dense than some surveyed portions of the Study Area, but denser than other areas where only one or two trees were found to occupy a hillside or narrow canyon.

Therefore, the fair market value of the impacted trees is $2,642 x 69 acres = $182,298. This dollar figure examined with respect to the 259 trees proposed for removal suggests that each tree, on average, is valued at $704 ($182,298/259).

## CUMULATIVE IMPACTS

The only related project proposed for the Verdugo Mountains that could potentially affect biological resources is the Duke Project. As discussed above, the loss of up to 232 coast live oaks would constitute a significant impact in the near-term, but with implementation of the mitigation described below, would mitigate that significant impact over the long-term. The additional loss of a limited number of severely damaged oak trees on the Duke Property would not materially change the extent of that impact, but the cumulative impact of the Duke Project and the proposed project on coast live oaks would nonetheless be significant (prior to mitigation) because the contribution of the proposed project to the impact on these trees would be cumulatively considerable.

## LEVEL OF SIGNIFICANCE AFTER MITIGATION

As discussed above, prior to mitigation, the proposed impact to as many as 232 coast live oaks would constitute a significant impact, notwithstanding the presence of several moderating factors. The mitigation plan described above would replace the impacted oaks trees at a ratio of more than 7.6 to 1 (1,770:232). The impacted coast live oaks would be replaced by new coast live oaks in 15-gallon or larger stock at a ratio of almost 4.6 to 1 (1,065:232). The latter replacement ratio substantially exceeds the minimum replacement ratio of 2 to 1 set forth in Section 46.02(c)(1) of the LAMC.

Over the long-term (i.e., 10 to 20 years), the implementation of the conceptual tree planting program would be sufficient to mitigate the proposed project's impact on coast live oaks to a less-than-significant level. Over a period of 10 to 20 years, the growth of the replacement oaks would be sufficient to provide seed production and nesting opportunities in the replacement tree stock to compensate fully for the loss of the mature trees proposed for impact. In addition, the conceptual tree planting program

would ensure the long-term survival of the oak stands in the Study Area. As discussed above, there is currently very little oak tree regeneration occurring within the Study Area due to the age and relatively poor health of many of the existing coast live oaks. In the absence of the proposed mitigation program, the number of coast live oaks in the Study Area is expected to decline significantly over time.

However, over the short-term, it is anticipated that, even with the implementation of the conceptual tree planting program, the impact on coast live oaks would remain significant. As discussed in the preceding paragraph, this near-term significant impact should be mitigated to a less-than-significant level 10 to 20 years following the completion of the conceptual tree planting program.

The mitigation program also includes the planting of 181 western sycamore trees. Since the proposed project would impact up to 27 sycamores, the replacement ratio would be approximately 6.7 to 1. While the western sycamore has not been identified as a candidate, sensitive or special status species, the replacement planting would be sufficient to mitigate the adverse, but less-than-significant, impact to western sycamores as part of the proposed project.