HELIX
Environmental Planning

# Rocklin Academy-Citrus Heights

## Arborist Report

July 2021 | TII-01

*Prepared for:*

**TA II Acquisition, LLC**
3000 Olympic Blvd., Suite 2120
Santa Monica, CA 90404

*Prepared by:*

**HELIX Environmental Planning, Inc.**
1677 Eureka Road, Suite 100
Roseville, CA 95661

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| City | City of Citrus Heights |
| DBH | diameter at breast height |
| HELIX | HELIX Environmental Planning, Inc. |

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# 1.0 INTRODUCTION

Under contract with TA II Acquisition, LLC, HELIX Environmental Planning, Inc. (HELIX) has prepared this report to provide the City of Citrus Heights (City) with an inventory and assessment of trees that may be affected by the proposed Rocklin Academy-Citrus Heights Project (Figure 1**,** *Vicinity Map*).

The results presented in this report are a preliminary assessment of potential project impacts on protected trees based on preliminary site plans and conversations with the project applicant. A final impact assessment should be performed upon completion of final site plans and/or after completion of construction to more accurately assess actual project impacts to protected trees.

## 1.1 PROPOSED PROJECT

The proposed project consists of construction of a charter public school (Rocklin Academy) including classroom space, multipurpose buildings, parking, and open space on an approximately 3.6-acre site in the City of Citrus Heights. The project comprises APNs 224-0040-013 and 224-0040-014. Preliminary site plans were utilized to estimate tree impacts from the proposed project.

## 1.2 REGULATORY BACKGROUND

### 1.2.1 City of Citrus Heights Tree Ordinance

The City of Citrus Heights Tree Preservation and Protection Ordinance (Municipal Code Chapter 106.39.010) regulates the removal of and construction within the dripline of protected trees. Protected trees include native oaks with a single trunk greater than 6 inches in diameter, aggregate of trunks greater than 10 inches in diameter, and other trees with trunks greater than 19 inches in diameter (excluding willow, alder, fruit, eucalyptus, cottonwood, pine, catalpa, fruitless mulberry, and palm trees). A tree permit is required to remove, prune, or construct within the protected zone of protected trees. The protected zone is defined as a radius equal to one foot past the tree's canopy.

# 2.0 METHODS

Fieldwork for the arborist inventory was performed on July 6, 2020, by HELIX biologist and ISA Certified Arborist Zachary Neider (ISA #WE-11615A) and on March 16, 2021, by HELIX ISA Certified Arborist Patrick Britton (ISA #WE-7449A).

## 2.1 TREE MAP

All trees rooted in or overhanging the project site were mapped using a Trimble Geo XT GPS receiver with sub-meter accuracy. Trees were identified in the field with permanent numbered metal tags. A tree map is provided in Figure 2, *Approximate Tree Locations and Project Impacts*.

## 2.2 TREE INVENTORY

In accordance with the City's arborist report submittal requirements, the tree inventory included all native oak and protected non-native trees rooted in or overhanging the project site or that may be affected by off-site project-related construction.

## 2.3 ASSESSMENT

Inventoried trees were assessed in the field for parameters listed below. A summary of all data collected for onsite trees is provided in Appendix A.

### 2.3.1 Size

Size is the measured diameter of the trunk at 54 inches above grade (referred to in this report as diameter at breast height (DBH), rounded to the nearest inch. For multi-stem trees, all stems at least 1-inch DBH were measured and summed. Measurements were made using either a tree caliper or forester's diameter tape measure.

### 2.3.2 Root Protection Zone

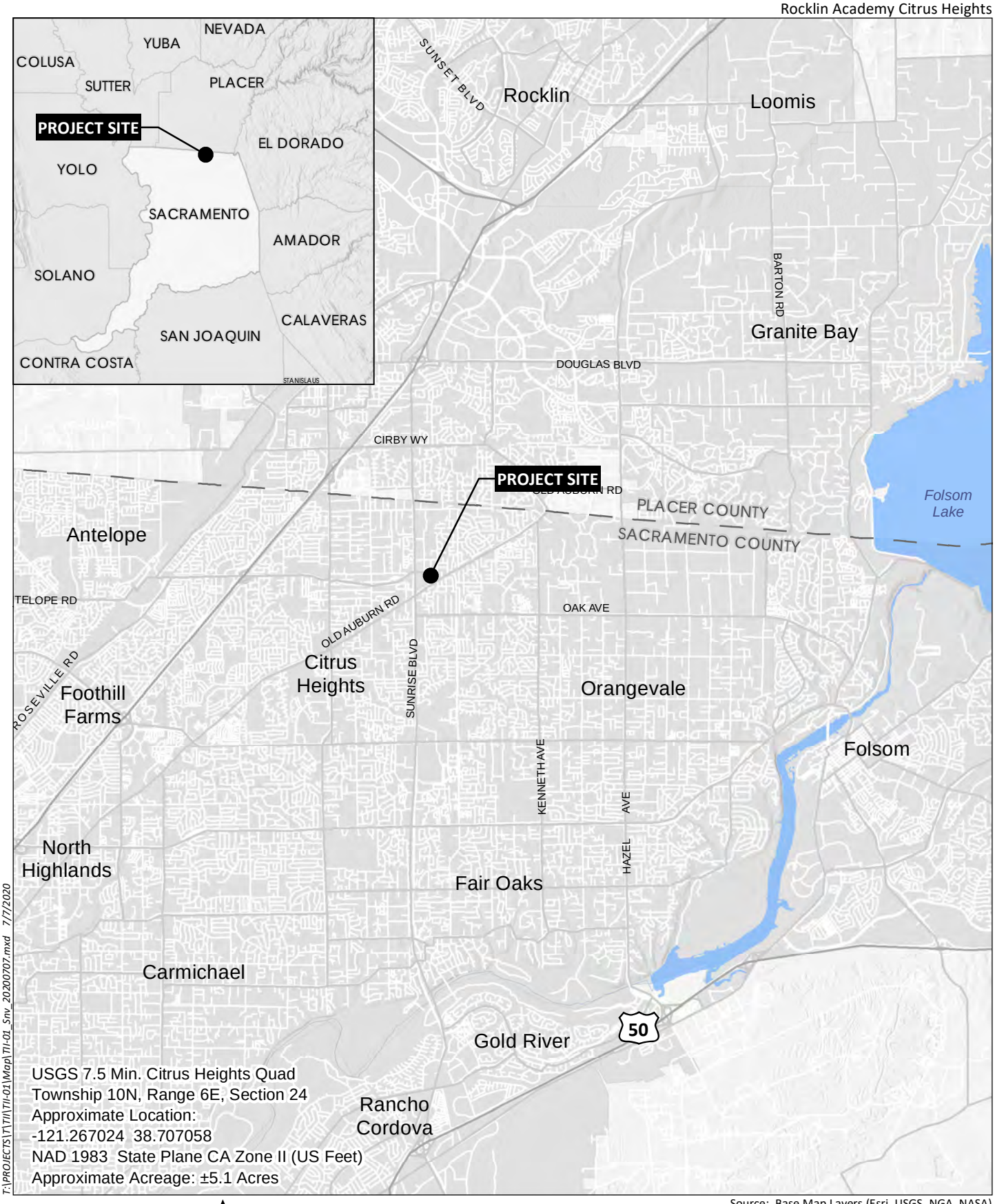
As specified by the City, the root protection zone is defined as a circle with a radius equal to the length of the longest limb measured from the trunk to the dripline plus one foot.

### 2.3.3 Health and Structure

The health and structural condition of each tree was rated according to Table 1. The health rating considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and/or insect infestation. The structural rating reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure. In cases where conditions fall between the Good, Fair, and Poor ratings, intermediate ratings Fair-Good and Poor-Fair were used.

**Table 1**
**TREE RATING GUIDELINES**

| Rating | Tree Health |
|---|---|
| ***Good*** | There is an average or below-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are typical for the species; buds are normal size, viable, abundant, and uniform throughout the canopy; current and past growth increments are generally average or better; any callusing is vigorous. This health rating indicates that there is very little, if any, evidence of stress, disease, nutrient deficiency, and/or insect infestation. |
| ***Fair*** | There is an above-average amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density may be below what is typically expected for the species; buds are normal size and viable, but slightly sparse throughout the canopy; current and past growth increments may be below average; tree may be slow to callus around old wounds. This health rating indicates that there is moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation. |

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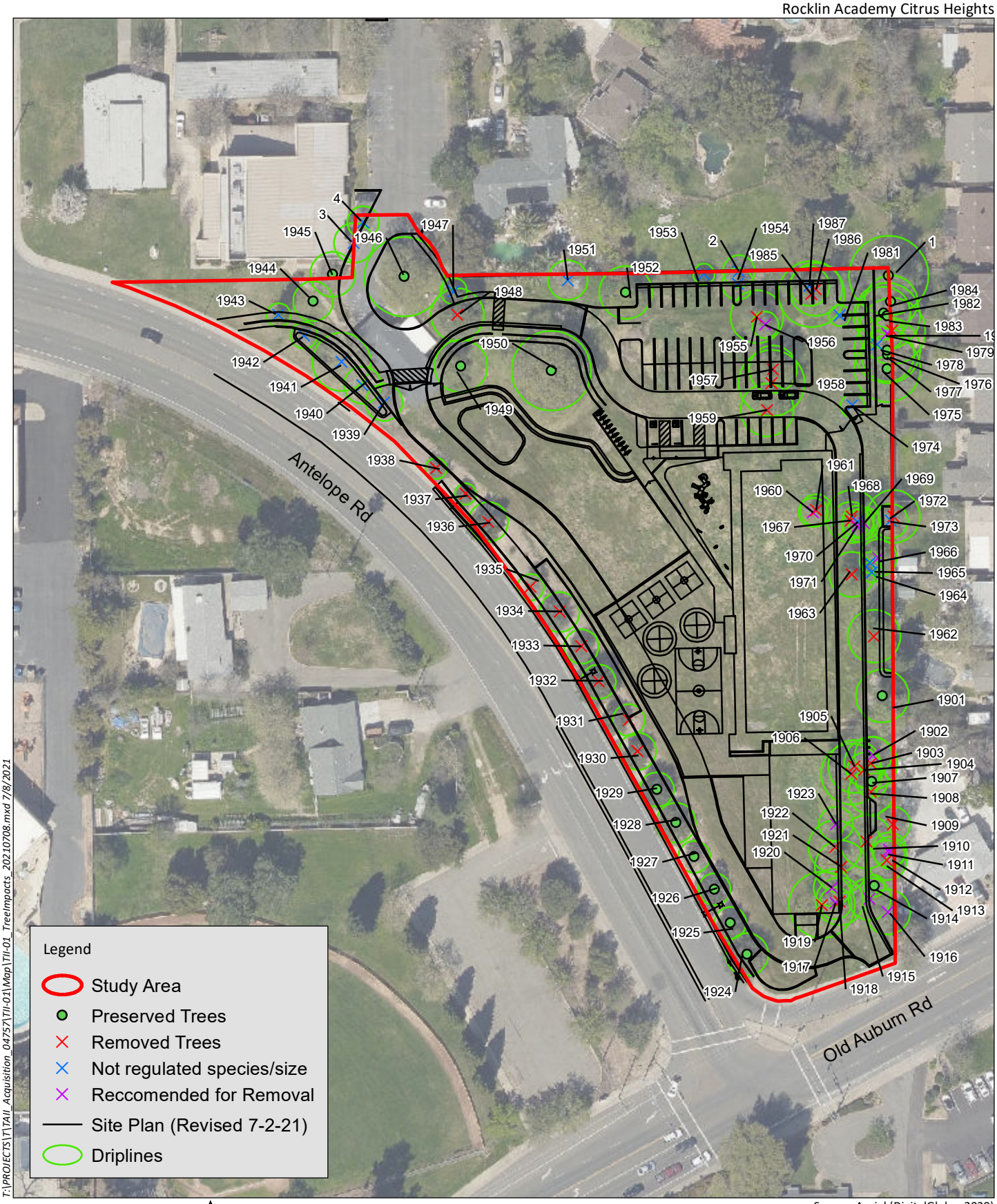
# Vicinity Map

Figure 1




Source: Aerial (DigitalGlobe, 2020)

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# Approximate Tree Locations and Project Impacts

Figure 2

| Rating | Tree Health |
|---|---|
| ***Poor*** | There is an extreme amount of deadwood/dieback with respect to the tree's size and growing environment; leaf size, color, and density are clearly compromised; very few viable buds are present throughout the canopy; current and past growth increments are meager; no evidence of callusing around old wounds. This health rating indicates that there is widespread evidence of stress, disease, nutrient deficiency, and/or insect infestation. |
| | **Tree Structure and Form** |
| ***Good*** | No wounds, cavities, decay, or indication of hollowness are evident in the root crown, trunk, or primary and secondary limbs; no anchor roots are exposed; no codominant branching or multiple trunk attachments are present; very little included bark at branch attachments exists; no dead primary or secondary limbs are present in canopy; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any decay is limited to small dead branches/stubs. This structure rating represents a low potential for failure. |
| ***Fair*** | With respect to the size of the tree, small to moderate wounds, cavities, decay, and indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed; codominant branching or multiple trunk attachments may be present, but included bark does not exist or is not well developed; minor to moderate amounts of included bark at branch attachments may exist; there may be small to moderate amounts of large dead limbs in canopy, but there is no evidence of large limb failures; limbs may be slightly overburdened; branching structure and/or canopy balance may be moderately altered by the tree's growing environment. This structure rating represents a moderate potential for failure. |
| ***Poor*** | With respect to the size of the tree, significant wounds, cavities, decay, and/or indication of hollowness may be evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots may be exposed and/or the tree may have lost anchorage; codominant branching or multiple trunk attachments may be present; significant amounts of included bark may exist in trunk and branch attachments; there may be significant amounts of large dead limbs in the canopy; there may be evidence of trunk or large limb failures; limbs may be severely overburdened; branching structure and/or canopy balance may be drastically altered by the tree's growing environment. This structure rating represents a high potential for failure. |

### 2.3.4 Dripline Environment

A brief description of the growing condition of the area inside the dripline. Examples of growing conditions include vegetation, slope, existing impermeable surfaces or structures, utility lines, drainage, previous cuts or fills, fire damage, or other existing conditions within the dripline that may affect the current condition of the tree.

### 2.3.5 Recommendation for Preservation or Removal

A recommendation was made for every tree either to remove the tree, identifying all significant health or structural defects of the tree that justify removal, or to preserve the tree. This recommendation is independent of the expected impacts from development and relates solely to the condition of the tree in respect to existing land uses on the project site.

# 3.0 RESULTS

## 3.1 GENERAL SITE CONDITIONS

The site is located immediately north of the intersection of Old Auburn Road and Antelope Road in the City of Citrus Heights. Residential development is located to the north and east of the site and a church is located to the northwest of the site. Commercial development is located to the west and south of the site. The site is generally composed of annual grassland habitats with both planted and naturally occurring trees including blue oaks (*Quercus douglasii*), interior live oaks (*Quercus wislizeni*), valley oaks (*Quercus lobata*), as well as a variety of non-native trees.

## 3.2 IMPACTED TREES

A total of 91 trees were inventoried in or overhanging the site (Appendix A). Of the 91 trees inventoried on the site, a total of 71 trees meet the definition of a protected tree under the City's Tree Ordinance including three blue oaks, 19 interior live oaks, and 49 valley oaks. Remaining non-protected trees inventoried onsite include: three valley oaks, one interior live oak, one blue oak, three burr oaks (*Quercus macrocarpa*), one apple (*Malus* sp.), one mulberry (*Morus alba*), three pecans (*Carya illinoinensis*), three pin oaks (*Quercus palustris*), one London plane (*Platanus* sp.), and three Northern California walnuts (*Juglans hindsii*) (Appendix A).

A total of 20 trees were recommended for removal by the arborist due to poor health and/or structure. Of these 20 trees, 14 are trees protected by the City Tree Ordinance (#1902, #1911 #1912, #1915, #1916, #1917, #1920, #1923, #1956, #1960, #1966, #1969, #1971, and #1979).

In addition to the above, there are 6 interior live oak trees bordering Antelope Road (#s 1924-1929) that are just outside of the current site plan for the school. The City is requesting that a sidewalk be built to connect existing sections of the sidewalk along Antelope Road near this alignment of trees. It is the current opinion of the arborist that these trees will not be significantly impacted by the sidewalk construction. Additionally, a water quality basin will be constructed near the corner of Antelope Road and Old Auburn Road which will create additional impacts within the dripline of tree #1924. These trees are planted in an area that is already constrained and has compacted soil adjacent, so the addition of a sidewalk alignment in this area is only expected to minimally impact these trees and the construction of the water quality basin will be constructed to minimize dripline impacts to tree #1924 to the extent practicable. It is recommended that these trees be monitored after construction of the sidewalk and basin to confirm that they have not been stressed by placement of the sidewalks or excavation of the basin into their root zones.

During project implementation, grading and ground disturbance impacts may occur to preserved trees within the study area. Impacts to these trees are not expected to be substantial enough to permanently affect the tree (less than 20% of the dripline), however, the General Protection Guidelines for Trees Planned for Preservation (Section 6.2) should be followed to ensure impacts are minimized to the extent feasible for all trees to be preserved on the site.

Grading, ground disturbance impacts, and permanent improvements will occur within the dripline of tree #1950. The proposed improvements would impact approximately 17.8 % of this tree's dripline area. Impacts are not expected to be substantial enough to permanently affect the tree, however, the General

Protection Guidelines for Trees Planned for Preservation (Section 6.2) should be followed to ensure impacts are minimized to the extent feasible.

Additional tree impact evaluations were conducted on three trees that had originally been identified as being impacted. Specifically, trees 1915 and 1918, which occur within and directly adjacent to the proposed access driveway, were evaluated. Direct and indirect impacts within this area will likely damage the trees and their root zones and the trees will not survive. Additionally, tree 1975 occurs between a hardscape and an eight foot masonry wall and as such this tree will have substantial impacts within its root zone and canopy and will likely not survive.

Several iterations of the sound wall alignment along the eastern edge of the study area were explored to work to reduce impacts to trees along and near its alignment. A field visit with the arborist, soundwall company, and the proposed construction contractor was conducted on January 6, 2021. The outcome of that meeting, and more specifically the described methodology of placement of the soundwall sections and support piles were discussed in detail, ultimately reducing impacts to trees located in the northeast corner of the study area. It is recommended that these trees be monitored after construction of the soundwall to confirm that they have not been stressed by placement of soundwall into their root zones.

Therefore, a total of 49 protected trees and 20 unprotected trees are expected to be removed or significantly impacted by project construction based on current site plans. Of these protected trees that are expected to be removed or significantly impacted, 14 were part of the cohort above recommended for removal by the surveying arborist. Therefore, a total of 35 protected trees are currently expected to be removed by the proposed project and have sufficient health and structure to require mitigation. These 35 trees have a cumulative trunk diameter of 592 inches. The trees expected to require mitigation are shown in Appendix A.

# 4.0 TREE MITIGATION

The City requires either the planting of replacement trees for each protected tree removed or the payment of $298 per trunk inch of tree removed. Planting of a 15-gallon tree replaces the loss of 1 trunk inch, planting of a 24-inch box tree replaces the loss of 2 trunk inches, and planting of 36-inch box tree replaces the loss of 3 trunk inches. The 35 protected trees subject to mitigation have a cumulative trunk inch measurement of 592 inches. Therefore, tree mitigation would require the planting of 592 15-gallon trees, 296 24-inch box trees, 198 36-inch box trees, or some combination of the three tree sizes to replace the 592 trunk inches lost.

The current proposed tree replacement/planting plan includes the planting of fifteen 15-gallon trees, twenty-five 24-inch box trees, and fifty-eight 36-inch box trees. Of the 98 trees currently proposed, fifty-eight (59%) are native oak species including coast live oak, canyon live oak, blue oak, black oak, valley oak, and interior live oak. The 98 trees would account for a total of 239 inches replaced onsite leaving a mitigation balance of 353 inches. The applicant could also provide an in-lieu payment of $105,194 ($298 per inch * 353 trunk inches removed).

# 5.0 SUMMARY

There are a total of 91 trees on or overhanging the site, including 71 protected trees (49 valley oaks, 19 interior live oaks, and three blue oaks). A total of 14 protected trees are recommended for removal

due to poor health and/or structure (see Table 2). A tree permit will be required from the City of Citrus Heights prior to construction activities within the dripline of protected trees on the site and for removal of protected trees.

**Table 2**
**SUMMARY TABLE**

| | Protected Trees | Unprotected Trees |
|---|---|---|
| Total Number of Surveyed Trees | 71 | 20 |
| Removed on Arborists Recommendation Due to Poor Health | -14 | -4 |
| Removed Due to Project Related Impacts | -35 | -16 |
| Number of Remaining Unimpacted Trees | 22 | 0 |

A review of final impacts to protected trees should be conducted based on a final site plan prior to submittal of the tree permit application or after the completion of construction to accurately assess actual tree impacts.

# 6.0 RECOMMENDATIONS

## 6.1 SITE-SPECIFIC RECOMMENDATIONS

Trees that will be preserved following project construction should have all materials cleared from within the dripline of all trees that will be preserved, and 4-6 inches of mulch should be applied to the ground surface to remediate soil compaction after construction.

This report provides an assessment based on tree and site conditions at the time of the inventory. Trees that will be preserved following project construction should be re-assessed by a qualified arborist for hazards to the project and its occupants following construction. Hazard trees should be removed or otherwise treated to remediate the hazard condition on the recommendation of the arborist.

## 6.2 GENERAL PROTECTION GUIDELINES FOR TREES PLANNED FOR PRESERVATION

The following tree protection guidelines are recommended for all onsite trees to be preserved as applicable.

To prevent soil compaction:

- 6-8 inches of wood chips should be spread inside the dripline of trees where temporary construction traffic or staging would occur. Chips should be removed after project completion, or the depth reduced to no more than 4 inches. Alternatively, bridging root areas with steel plates would reduce damage to roots within construction traffic areas.
    - A circle with a radius measurement from the trunk of the tree to the tip of its longest limb, plus one foot, shall constitute the critical root zone protection area of each protected tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum

protected area of each protected tree. Removing limbs that make up the dripline does not change the protected area.

To reduce damage due to raising the existing grade:

- Grading within the protected zone of a protected tree shall be minimized. Cuts within the protected zone shall be maintained at less than 20% of the critical root zone area. Grade cuts shall be monitored by the project Arborist. Any damaged roots encountered shall be root pruned and properly treated as deemed necessary by the Project Arborist.

- Construct an open-joint wall of shell, brick, rock or masonry in a circle around the tree trunk, with at least 1 to 2 feet between the wall and trunk. This wall should be as high as the top of the new grade. This opening is commonly referred to as a tree well.

- If fills exceed 1 foot in depth up to 20% of the critical root zone area, aeration systems may serve to mitigate the presence of the fill materials as determined by the Project Arborist.

- Construct an aeration system using 4-inch agricultural clay tile or 4-inch perforated plastic pipe arranged in five to six horizontal lines radiating from the tree well like spokes in a wheel to a point beyond the branch spread. Allow excess moisture to drain away by installing the radial lines so they slope away from the trunk. Connect the outer ends of the radiating system with a circle of tile or perforated plastic pipe.

- To provide vents, place 4- or 6-inch plastic pipe or bell tile upright over the junction of the radial lines with the circle. They should extend to the surface of the planned grade level. Extend the lower end of the aeration system to a curb or storm drain to carry excess moisture away from the root system.

- Cover the exposed soil and tile system with rock or coarse gravel to a depth of 6 to 18 inches, depending on the amount of fill. Follow this with a covering layer of gravel. Place a thin layer of straw, woven plastic or other porous material over the gravel to prevent soil from filtering into the gravel and stone. Fill with good topsoil to the desired grade.

- When fill materials are deemed necessary on two or three sides of a tree it is critical to provide for drainage away from the critical root zone area of the tree (particularly when considering heavy winter rainfalls). Overland releases and subterranean drains dug outside the critical root zone area and tied directly to the main storm drain system are two options.

- The construction of impervious surfaces within the dripline of a protected tree shall be minimized. When necessary, a piped aeration system shall be installed under the direct supervision of the Project Arborist.

- Preservation devices such as aeration systems, tree wells, drains, special paving and cabling systems must be installed in conformance with approved plans and certified by the Project Arborist.

- To discourage rodents, fill the tree well with enough coarse gravel to cover the ends of the lines opening into the well. Also fill the upright bell tile and cover with a screen or grill.

- Minor roots less than one inch in diameter encountered during approved excavation and/or grading activities may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area as deemed necessary by the Project Arborist.

- Major roots greater than one inch in diameter encountered during approved excavation and/or grading activities may not be cut without approval of the Project Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the roots and the tree.

- Cut faces, which will be exposed for more than 2-3 days, shall be covered with dense burlap fabric and watered to maintain soil moisture at least on a daily basis (or possibly more frequently during summer months). If any native ground surface fabric within the protected zone must be removed for any reason, it shall be replaced within 48 hours.

- In cases where a permit has been approved for construction of a retaining wall(s) within the protected zone of a protected tree the applicant will be required to provide for immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall within the protected zone of the protected tree shall be constructed within 72 hours after completion of grading within the root protection zone.

General Construction Site Recommendations:

- A minimum 4-foot tall, brightly colored, synthetic fence should be installed around the limits of the work area or around outermost edge of the protected zone of trees that are designated for retention on-site. Encroachment into the fenced areas should be restricted to the minimum amount feasible and fencing should remain in place until all construction activities have ceased. The protected zone is defined as the “dripline” plus 1 foot (which is an imaginary line that is drawn on the ground around the tree at the outermost limit of the canopy) or in cases where construction is encroaching on the dripline of a retained tree, the protected zone is the portion of the tree’s dripline that is being protected. Fencing shall be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the City. The developer shall contact the Project Arborist and the Planning Department for an inspection of the fencing prior to commencing construction activities on site.

- Signs shall be installed on the protective fence in four equidistant locations around each individual tree. The size of the sign must be a minimum of two by two feet and must contain the following language “Warning: This Fence Shall Not Be Removed or Relocated Without Written Authorization from The City of Citrus Heights”. Protective fencing shall remain in place throughout the entire construction period and shall not be removed, relocated, taken down or otherwise modified without prior written authorization.

- All portions of permanent fencing that will encroach into the protected zone of a protected tree shall be constructed using posts set no closer than ten feet on center. Posts shall be spaced in such a manner as to maximize the separation between the tree trunks and the posts in order to reduce impacts to the trees(s).

- The fenced area should be kept clear of building materials, waste, and excess soil.

- No digging, trenching, compaction, or other soil disturbance should be allowed in the fenced area.

- The storage of construction equipment or hazardous materials such as gasoline, oil, or other toxic chemicals should not be allowed in or adjacent to the fenced area.

- Storage areas for equipment, soil, and construction materials as well as burn sites (if permitted), cement washout pits, and construction work zones should be kept away from protected trees and outside the fenced in area.

- Cable, chain, rope or signage should not be attached to retained trees.

- Designated roads and parking areas should be established. All construction personnel should be restricted to driving and parking in designated areas.

- Grade changes should be avoided near fenced areas to the maximum extent possible.

- No sprinkler or irrigation system shall be installed in such a manner that sprays water or required trenching within the dripline of a protected tree. An above ground drip irrigation system is recommended. An independent low-flow drip irrigation system may be used for establishing drought tolerant plants within the protected zone of a protected tree. Irrigation shall be gradually reduced and discontinued after a 2-year period.

- Landscaping beneath native oak trees may include non-plant materials such as bark mulch, wood chips, boulders, etc. Planting live material under protected native oak trees is generally discouraged and is not recommended within 6 feet of the trunk of a native oak tree with a DBH of 18 inches or less, or within 10 feet of the trunk of a native oak tree with DBH of more than 18 inches. The only plant species which shall be planted with the dripline of native oak trees are those which are tolerant of the natural, semi-arid environs of the tree(s).

Recommendations for Construction Activities in the Vicinity of Retained Trees:

- Any protected trees on site which require pruning shall supervised by or be pruned by an ISA Certified Arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute (ANSI) A300 pruning standards, ANSI Standard 2133.1-2000 regarding safety practices, and the International Society of Arboriculture (ISA) “Tree Pruning Guidelines” and Best Management Practices.

- Trenching within the dripline of retained trees should be avoided to the maximum extent practicable and kept a minimum distance of 10 times the diameter of the tree away from its trunk. If necessary, this trenching should be conducted using hand excavation or compressed air to reduce impacts to tree roots. Machine trenching should not be allowed within the dripline of retained trees. Trenching inside the dripline should be monitored by a certified arborist who may direct the construction crew to use hand tools rather than heavy equipment. Hand saws, pass-through pruners, shovels and trowels, burlap cloth, and water should be available at all times during trenching inside the dripline. If pipes must be installed closer to the tree than a distance of 10 times the diameter of the tree away from its trunk, they should be bored beneath the tree a minimum of 3 feet below the ground surface to reduce impacts to roots.

- Excavation should also be minimized within the dripline of retained trees. Construction within the dripline of retained trees should be conducted in a manner that minimizes excavation and provides for the best preservation of roots as determined by the Project Arborist.

- If tree roots are severed outside of the fenced area, they should be severed cleanly and kept moist. All exposed roots outside of fenced areas should be covered with protective material during construction such as mulch or plywood sheets to reduce soil compaction. Protective material should be removed upon completion of construction activities.

- Construction activities involving soil disturbance should be avoided during hot, dry, weather and trees shall be watered before, during, and after trenching and excavation within the dripline of retained trees to offset water loss due to cut roots.

- Grading within the driplines of retained trees should be avoided wherever feasible.

- Any removal of paving or structures (i.e., demolition) that occurs within the dripline of a protected tree shall be done under the direct supervision of the Project Arborist.

- No sign, ropes, cables (except those which may be installed by an ISA Certified Arborist to provide limb support) or any other items shall be attached to the protected trees. Small metallic numbering tags for the purpose of identification in preparing tree reports and inventories shall be allowed.

- No vehicles, construction equipment, materials, or facilities shall be driven, parked, stockpiled or located within driplines of protected trees.

- Drainage patterns on the site shall not be modified so that water collects, stands or is diverted across the dripline of any protected tree.

- No trenching shall be allowed within the driplines of protected trees, except as specifically approved by the Planning Department as set forth in the project's Conditions of Approval and/or approved tree permit. If it is absolutely necessary to install underground utilities within the dripline of a protected tree the utilizing hand tools to avoid root injury under the direct supervision of the Project Arborist.

Recommendations for Protection of Trees Post-Construction:

- Post-construction inspections of the trees should be conducted by a Certified Arborist or Certified Tree Worker to determine if retained trees are stressed (e.g., water stress, nutrient stress) or damaged (e.g., broken branches, trunk damage). Appropriate corrective actions should be implemented as necessary. Such corrective actions may include remediation of severe soil compaction through vertical mulching or a similar technique, remedial pruning to repair damaged or broken limbs, application of mulch, application of root stimulant to encourage new

root growth in trees that have a significant portion of their roots lost due to cutting or soil compaction, etc.

- Aeration of soil by vertical mulching or similar technique should be implemented around retained trees to offset the impacts of soil compaction that has already occurred due to construction activities and other site uses.

- All trees that will be preserved following project construction should be periodically monitored by a qualified tree care professional for the life of the project. The project (i.e., homeowners association) should be responsible for providing for monitoring and ongoing care and maintenance of all preserved trees on the site.

# Appendix A

## Tree Data

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**Appendix A**
**Tree Data**

| Tree Number | Common Name | Scientific Name | # of Trunks | DBH (inches) | Total DBH | DLR (ft.) | Height | Health | Structure | Condition | Condition Ranking | Rec. for Removal | Protected | Impacted | Requires Mitigation | Mitigation Inches | Additional Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Valley Oak | *Quercus lobata* | 2 | 17, 10 | 27 | 30 | 60 | Fair-Good | Fair | Fair | 3 | No | Yes | No | No | 0 | codominant, dieback, no tag, behind fence |
| 2 | Walnut | *Juglans hindsii* | 5 | 11, 10, 9, 8, 8 | 46 | 12 | 20 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | codominant, dieback, no tag, behind fence |
| 3 | Pin Oak | *Quercus palustris* | 1 | 8 | 8 | 15 | 40 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | |
| 4 | London Plane | *Platanus sp.* | 1 | 6 | 6 | 12 | 15 | Fair | Poor | Fair | 3 | No | No | Yes | No | 0 | substantial lean |
| 1901 | Valley Oak | *Quercus lobata* | 1 | 20 | 20 | 20 | 50 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | No | No | 0 | wood pile at base |
| 1902 | Valley Oak | *Quercus lobata* | 1 | 7 | 7 | 14 | 25 | Fair | Poor | Poor | 1 | Yes | Yes | Yes | No | 0 | shaded, bent over |
| 1903 | Valley Oak | *Quercus lobata* | 3 | 12, 11, 11 | 34 | 20 | 50 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 34 | codominant, included bark, dieback |
| 1904 | Valley Oak | *Quercus lobata* | 1 | 11 | 11 | 13 | 40 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 11 | dieback |
| 1905 | Valley Oak | *Quercus lobata* | 1 | 13 | 13 | 20 | 50 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 13 | |
| 1906 | Valley Oak | *Quercus lobata* | 3 | 13, 13, 12 | 38 | 23 | 45 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 38 | codominant, dieback |
| 1907 | Valley Oak | *Quercus lobata* | 1 | 8 | 8 | 12 | 45 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1908 | Valley Oak | *Quercus lobata* | 2 | 10, 9 | 19 | 17 | 35 | Fair | Poor-Fair | Fair | 3 | No | Yes | Yes | Yes | 19 | codominant, lean, shaded |
| 1909 | Valley Oak | *Quercus lobata* | 1 | 13 | 13 | 13 | 50 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 13 | dieback, fence |
| 1910 | Valley Oak | *Quercus lobata* | 2 | 12, 9 | 21 | 20 | 45 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 21 | codominant, included bark |
| 1911 | Valley Oak | *Quercus lobata* | 2 | 12, 5 | 17 | 13 | 40 | Poor-Fair | Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | sparse canopy, dieback |
| 1912 | Interior Live Oak | *Quercus wislizeni* | 2 | 8, 5 | 13 | 12 | 25 | Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | shaded, codominant, lean |
| 1913 | Valley Oak | *Quercus lobata* | 1 | 12 | 12 | 15 | 50 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 12 | dieback |
| 1914 | Valley Oak | *Quercus lobata* | 1 | 6 | 6 | 8 | 30 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 6 | dieback |
| 1915 | Valley Oak | *Quercus lobata* | 5 | 6, 5, 5, 4, 4 | 24 | 16 | 30 | Fair | Poor | Poor | 1 | Yes | Yes | Yes | No | 0 | codominant, lean, dieback |
| 1916 | Valley Oak | *Quercus lobata* | 3 | 7, 7, 4 | 18 | 17 | 30 | Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | codominant, included bark, dieback |
| 1917 | Valley Oak | *Quercus lobata* | 1 | 8 | 8 | 12 | 25 | Fair | Poor | Poor | 1 | Yes | Yes | Yes | No | 0 | bent over, dieback, shaded |
| 1918 | Valley Oak | *Quercus lobata* | 1 | 13 | 13 | 18 | 45 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 13 | |
| 1919 | Valley Oak | *Quercus lobata* | 2 | 18, 13 | 31 | 25 | 50 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 31 | codominant, included bark, dieback |
| 1920 | Interior Live Oak | *Quercus wislizeni* | 2 | 10, 4 | 14 | 14 | 25 | Poor-Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | codominant, lean, dieback, shaded |
| 1921 | Valley Oak | *Quercus lobata* | 2 | 13, 10 | 23 | 20 | 40 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 23 | codominant, included bark, dieback |
| 1922 | Valley Oak | *Quercus lobata* | 1 | 14 | 14 | 20 | 50 | Fair | Fair-Good | Fair | 3 | No | Yes | Yes | Yes | 14 | dieback |
| 1923 | Valley Oak | *Quercus lobata* | 1 | 7 | 7 | 13 | 35 | Poor-Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | curved trunk, dieback |
| 1924 | Interior Live Oak | *Quercus wislizeni* | 2 | 19, 8 | 27 | 16 | 30 | Fair-Good | Fair | Fair | 3 | No | Yes | No, reassess after construction of sidewalk and water quality basin | No | 0 | codominant, included bark |
| 1925 | Interior Live Oak | *Quercus wislizeni* | 2 | 11, 7 | 18 | 12 | 25 | Fair-Good | Fair | Fair | 3 | No | Yes | No, reassess after construction of sidewalk | No | 0 | codominant, included bark, dieback |
| 1926 | Interior Live Oak | *Quercus wislizeni* | 1 | 16 | 16 | 12 | 30 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | No, reassess after construction of sidewalk | No | 0 | dieback |
| 1927 | Interior Live Oak | *Quercus wislizeni* | 1 | 8 | 8 | 12 | 25 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | No, reassess after construction of sidewalk | No | 0 | |
| 1928 | Interior Live Oak | *Quercus wislizeni* | 3 | 12, 7, 6 | 25 | 15 | 30 | Fair-Good | Fair | Fair | 3 | No | Yes | No, reassess after construction of sidewalk | No | 0 | codominant, included bark |
| 1929 | Interior Live Oak | *Quercus wislizeni* | 1 | 15 | 15 | 13 | 30 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | No, reassess after construction of sidewalk | No | 0 | |
| 1930 | Interior Live Oak | *Quercus wislizeni* | 1 | 12 | 12 | 14 | 30 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | Yes | Yes | 12 | |
| 1931 | Interior Live Oak | *Quercus wislizeni* | 1 | 12 | 12 | 12 | 25 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 12 | dieback |
| 1932 | Interior Live Oak | *Quercus wislizeni* | 1 | 13 | 13 | 13 | 30 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 13 | dieback |
| 1933 | Interior Live Oak | *Quercus wislizeni* | 1 | 10 | 10 | 13 | 25 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 10 | dieback |
| 1934 | Interior Live Oak | *Quercus wislizeni* | 1 | 12 | 12 | 15 | 30 | Fair | Fair-Good | Fair | 3 | No | Yes | Yes | Yes | 12 | dieback |
| 1935 | Interior Live Oak | *Quercus wislizeni* | 1 | 12 | 12 | 10 | 25 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 12 | dieback |
| 1936 | Interior Live Oak | *Quercus wislizeni* | 1 | 15 | 15 | 15 | 40 | Fair-Good | Fair-Good | Fair-Good | 3 | No | Yes | Yes | Yes | 15 | dieback |
| 1937 | Interior Live Oak | *Quercus wislizeni* | 1 | 9 | 9 | 8 | 25 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 9 | |
| 1938 | Interior Live Oak | *Quercus wislizeni* | 1 | 9 | 9 | 8 | 20 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 9 | dieback |
| 1939 | Pin Oak | *Quercus palustris* | 1 | 14 | 14 | 14 | 45 | Fair-Good | Good | Good | 4 | No | No | Yes | No | 0 | |
| 1940 | Burr Oak | *Quercus macrocarpa* | 1 | 9 | 9 | 14 | 40 | Fair-Good | Fair-Good | Fair-Good | 3 | No | No | Yes | No | 0 | dieback |
| 1941 | Mulberry | *Morus alba* | 1 | 27 | 27 | 22 | 35 | Poor | Fair | Poor | 1 | Yes | No | Yes | No | 0 | trunk wound, dieback, pruning cuts |
| 1942 | Burr Oak | *Quercus macrocarpa* | 1 | 8 | 8 | 10 | 35 | Poor | Fair | Poor | 1 | Yes | No | Yes | No | 0 | major dieback |
| 1943 | Burr Oak | *Quercus macrocarpa* | 1 | 13 | 13 | 9 | 35 | Fair | Fair-Good | Fair | 3 | No | No | Yes | No | 0 | dieback |
| 1944 | Valley Oak | *Quercus lobata* | 1 | 9 | 9 | 15 | 35 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1945 | Valley Oak | *Quercus lobata* | 1 | 11 | 11 | 17 | 45 | Fair | Fair-Good | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1946 | Blue Oak | *Quercus douglasii* | 1 | 27 | 27 | 30 | 55 | Fair | Fair-Good | Fair | 3 | No | Yes | No | No | 0 | dieback, limb wounds |
| 1947 | Pecan | *Carya illinoinensis* | 3 | 7, 4, 4 | 15 | 10 | 20 | Fair | Poor-Fair | Poor | 1 | Yes | No | Yes | No | 0 | codominant, included bark, dieback, trunk wound |
| 1948 | Interior Live Oak | *Quercus wislizeni* | 3 | 14, 12, 11 | 37 | 20 | 40 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 37 | codominant, dieback, included bark, pruning cuts |
| 1949 | Blue Oak | *Quercus douglasii* | 1 | 13 | 13 | 20 | 40 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1950 | Blue Oak | *Quercus douglasii* | 1 | 38 | 38 | 30 | 50 | Fair | Fair-Good | Fair | 3 | No | Yes | No | No | 0 | dieback, limb wounds |
| 1951 | Pin Oak | *Quercus palustris* | 1 | 11 | 11 | 15 | 45 | Fair-Good | Fair-Good | Fair-Good | 3 | No | No | Yes | No | 0 | dieback, fence |
| 1952 | Valley Oak | *Quercus lobata* | 2 | 11, 7 | 18 | 20 | 45 | Fair-Good | Fair | Fair | 3 | No | Yes | No | No | 0 | codominant, dieback, included bark |
| 1953 | Pecan | *Carya illinoinensis* | 5 | 6, 5, 4, 3, 3 | 21 | 8 | 25 | Poor-Fair | Poor | Poor | 1 | Yes | No | Yes | No | 0 | codominant, dieback |

## Appendix A
## Tree Data

| Tree Number | Common Name | Scientific Name | # of Trunks | DBH (inches) | Total DBH | DLR (ft.) | Height | Health | Structure | Condition | Condition Ranking | Rec. for Removal | Protected | Impacted | Requires Mitigation | Mitigation Inches | Additional Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1954 | Interior Live Oak | *Quercus wislizeni* | 2 | 5, 4 | 9 | 12 | 25 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | codominant, dieback |
| 1955 | Valley Oak | *Quercus lobata* | 2 | 11, 6 | 17 | 20 | 40 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 17 | codominant, included bark, dieback |
| 1956 | Valley Oak | *Quercus lobata* | 1 | 7 | 7 | 10 | 25 | Poor-Fair | Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | dieback, shaded |
| 1957 | Valley Oak | *Quercus lobata* | 1 | 13 | 13 | 18 | 45 | Fair | Fair-Good | Fair | 3 | No | Yes | Yes | Yes | 13 | lean, dieback |
| 1958 | Valley Oak | *Quercus lobata* | 1 | 15 | 15 | 25 | 45 | Fair | Fair-Good | Fair | 3 | No | Yes | Yes | Yes | 15 | dieback |
| 1959 | Valley Oak | *Quercus lobata* | 3 | 13, 11, 9 | 33 | 20 | 45 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 33 | codominant, included bark, dieback |
| 1960 | Valley Oak | *Quercus lobata* | 2 | 6, 5 | 11 | 11 | 30 | Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | codominant, included bark, dieback |
| 1961 | Valley Oak | *Quercus lobata* | 1 | 8 | 8 | 12 | 30 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 8 | dieback |
| 1962 | Valley Oak | *Quercus lobata* | 3 | 11, 10, 9 | 30 | 20 | 40 | Fair-Good | Fair | Fair | 3 | No | Yes | Yes | Yes | 30 | codominant, included bark, dieback |
| 1963 | Valley Oak | *Quercus lobata* | 1 | 12 | 12 | 17 | 40 | Fair | Fair-Good | Fair | 3 | No | Yes | Yes | Yes | 12 | dieback |
| 1964 | Blue Oak | *Quercus douglasii* | 1 | 5 | 5 | 8 | 25 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | dieback |
| 1965 | Valley Oak | *Quercus lobata* | 1 | 5 | 5 | 8 | 25 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | dieback |
| 1966 | Valley Oak | *Quercus lobata* | 1 | 9 | 9 | 14 | 35 | Poor | Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | dieback |
| 1967 | Valley Oak | *Quercus lobata* | 1 | 10 | 10 | 14 | 35 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 10 | dieback |
| 1968 | Valley Oak | *Quercus lobata* | 2 | 11, 7 | 18 | 20 | 35 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 18 | codominant, included bark, dieback |
| 1969 | Valley Oak | *Quercus lobata* | 2 | 8, 8 | 16 | 12 | 30 | Poor-Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | codominant, dieback |
| 1970 | Valley Oak | *Quercus lobata* | 1 | 5 | 5 | 12 | 25 | Poor-Fair | Poor-Fair | Poor | 1 | Yes | No | Yes | No | 0 | dieback, lean |
| 1971 | Valley Oak | *Quercus lobata* | 1 | 6 | 6 | 12 | 18 | Poor-Fair | Poor | Poor | 1 | Yes | Yes | Yes | No | 0 | bent over, dieback |
| 1972 | Valley Oak | *Quercus lobata* | 2 | 10, 8 | 18 | 20 | 45 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | codominant, dieback |
| 1973 | Apple | *Malus* sp. | 4 | 5, 4, 4, 4 | 17 | 13 | 25 | Fair-Good | Fair | Fair | 3 | No | No | Yes | No | 0 | codominant, lean |
| 1974 | Walnut | *Juglans hindsii* | 1 | 8 | 8 | 9 | 25 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | dieback |
| 1975 | Valley Oak | *Quercus lobata* | 1 | 27 | 27 | 25 | 50 | Fair-Good | Fair | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1976 | Valley Oak | *Quercus lobata* | 1 | 17 | 17 | 20 | 45 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | lean, dieback |
| 1977 | Valley Oak | *Quercus lobata* | 1 | 16 | 16 | 25 | 55 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | lean, dieback |
| 1978 | Valley Oak | *Quercus lobata* | 2 | 5, 2 | 7 | 10 | 25 | Poor | Poor | Poor | 1 | Yes | No | Yes | No | 0 | dieback, lean, limb wounds, shaded |
| 1979 | Valley Oak | *Quercus lobata* | 1 | 6 | 6 | 12 | 25 | Poor-Fair | Poor-Fair | Poor | 1 | Yes | Yes | Yes | No | 0 | dieback |
| 1980 | Valley Oak | *Quercus lobata* | 1 | 18 | 18 | 25 | 50 | Fair | Poor | Fair | 3 | No | Yes | Yes | Yes | 18 | lean, dieback |
| 1981 | Walnut | *Juglans hindsii* | 2 | 6, 5 | 11 | 8 | 25 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | codominant, dieback |
| 1982 | Valley Oak | *Quercus lobata* | 2 | 11, 9 | 20 | 20 | 50 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | codominant, included bark, dieback |
| 1983 | Interior Live Oak | *Quercus wislizeni* | 3 | 9, 8, 8 | 25 | 25 | 45 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | codominant, dieback |
| 1984 | Valley Oak | *Quercus lobata* | 1 | 13 | 13 | 20 | 50 | Fair | Fair | Fair | 3 | No | Yes | No | No | 0 | dieback |
| 1985 | Valley Oak | *Quercus lobata* | 1 | 15 | 15 | 25 | 50 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 15 | lean, dieback |
| 1986 | Valley Oak | *Quercus lobata* | 1 | 14 | 14 | 20 | 50 | Fair | Fair | Fair | 3 | No | Yes | Yes | Yes | 14 | dieback |
| 1987 | Pecan | *Carya illinoinensis* | 2 | 7, 6 | 13 | 15 | 22 | Fair | Fair | Fair | 3 | No | No | Yes | No | 0 | codominant, dieback, lean |

| Total Mitigation Inches | 592 |
|---|---|