THE BROOKSIDE PROJECT
DRAFT FINAL
ENVIRONMENTAL IMPACT REPORT
(Volume IIA)

SCH NO. 2016051030

Lead Agency:

Prepared by:
Morse Planning Group

February 2020

DRAFT FINAL
ENVIRONMENTAL IMPACT REPORT
Volume IIA

THE BROOKSIDE PROJECT

SCH NO. 2016051030

Lead Agency:

CITY OF WALNUT
21201 La Puente Road
Walnut, California 91789
Contact: Mr. Chris Vasquez

Prepared by:

MORSE PLANNING GROUP
Contact: Ms. Collette L. Morse, AICP

February 25, 2020

DRAFT FINAL ENVIRONMENTAL IMPACT REPORT

In accordance with California Environmental Quality Act (CEQA) Guidelines Sections 15120 through 15132 and Section 15161, the City of Walnut has prepared an Environmental Impact Report (EIR) for The Brookside Project (SCH #2016051030)

The Draft Final EIR is comprised of the following:

- Draft EIR (Volume I)
- Draft EIR Technical Appendices (Volume II)
- Mitigation Monitoring Program (Volume IA)
- Comments and Responses (Volume IA)
- Errata for Final EIR (Volume IA)
- New or Revised Technical Appendices (Volume IIA)

This page intentionally left blank.

TABLE OF CONTENTS

VOLUME IA

APPENDICES (VOLUME IIA)

This page intentionally left blank.

APPENDIX D1
ARROYO CHUB AND SOUTHERN WESTERN POND TURTLE SURVEY

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

December 10, 2018
Rincon Project No: 18-06801

Dan Rosie
Project Manager/Ecologist
Michael Baker International
5 Hutton Center Drive, Suite 500
Santa Ana, California 92707
Via email: dan.rosie@mbakerintl.com

Subject: **Results of the Arroyo Chub Presence/Absence Survey and Opportunistic Survey for Southern Western Pond Turtle for the Brookside Housing Project, City of Walnut, California**

Dear Mr. Rosie:

This letter documents the results of arroyo chub (*Gila orcutti*) presence/absence survey and opportunistic survey for southern western pond turtle (*Actinemys marmorata pallida*) conducted by Rincon Consultants, Inc. (Rincon) for the Brookside Housing Project in Lemon Creek, City of Walnut (City), California. The presence/absence survey was conducted in response to the comments received by the City from California Department of Fish and Wildlife (CDFW) on the Draft Environmental Impact Report ([DEIR], SCH# 2016051030) in a letter dated July 26, 2018. Per CDFW's request (Comment #1), a survey within Lemon Creek is recommended to confirm the presence or absence of arroyo chub and to confirm impacts to arroyo chub from the project would be less than significant. As noted in the comment letter, impacts to arroyo chub could occur as a result of vegetation removal, in-stream grading, increased siltation, decreased water quality and/or quantity, introduction of pesticides or herbicides, and other disturbances, resulting in direct mortality, habitat degradation, and additional stress to arroyo chub individuals, if the species are present in Lemon Creek

CDFW issued a Special Use Scientific Collection Permit (Permit ID: S-183100001-18313-001) to Rincon on November 26, 2018 to conduct the requested survey for arroyo chub. An opportunistic visual survey was conducted for western pond turtle from the bank of Lemon Creek by biologists prior to the initiation of the arroyo chub presence/absence survey. This letter report summarizes the surveys performed, methodology, species observed, and water quality parameters.

Project Overview

Project Location and Description

The project site is located in the City of Walnut. The City of Walnut is in the San Gabriel Valley, approximately twenty-five (25) miles east of the City of Los Angeles in the County of Los Angeles. The City of Walnut is situated in the San Jose Hills and is bordered by the City of West Covina to the west and northwest, unincorporated County of Los Angeles to the north, California State Polytechnic University, Pomona and the City of Pomona to the east, and the City of Industry to the south. The project site is

approximately two (2) miles north of the Pomona Freeway (State Route 60). Locally, the project site is north of La Puente Road, south of Meadow Pass Road, east of North Lemon Avenue, and west of Broken Lance Road. The address associated with the project site is 800 Meadow Pass Road. The project site is surrounded by single family homes and paved roads to the north, east, south, and west.

The project site is located on a former equestrian center adjacent to Lemon Creek. The site is approximately 25.8 acres and the proposed project is a large lot residential community that involves the development of twenty-eight (28) single-family detached home lots. Lemon Creek occurs to the west of the proposed residential development, and traverses the property from northeast to south through the central portion of the project site. Lemon Creek is approximately 2,130 linear feet within the boundaries of the project site. Existing trails currently parallel Lemon Creek in the north-south direction. Lemon Creek is heavily incised, and the steep-sloped banks on the western side of the creek are approximately 30 feet high. An existing pedestrian bridge crosses Lemon Creek in the central and southern portions of the site. The natural course of Lemon Creek has been altered and flows are conveyed through portions of channelization, rock rip-rap, and several culverts. The portion of Lemon Creek that occurs within the project site receives stormwater from four culverts. Drainage improvements proposed include several crossings, culverts, grouted rip-rap for erosion control and channelization.

Purpose

Arroyo chub is a state species of special concern (SSC) within its native range, which includes the project site. CDFW provided comments and recommendations regarding those activities involved in the project that may affect California fish and wildlife in a letter dated July 26, 2018 (Appendix A). CDFW expressed concerns that the DEIR concludes that there is a less than significant impact without disclosing if the species is present within Lemon Creek. Rincon was contracted to support Michael Baker International on behalf of the project proponent to conduct surveys for arroyo chub and confirm the presence / absence of the species in Lemon Creek. Specifically, the presence/absence survey for arroyo chub was conducted to address Comment #1: Arroyo Chub. Rincon also performed opportunistic surveys for the southern western pond turtle in response to CDFW comments regarding the DEIR's analysis of this species.

Below in italicized text are issues and recommendations raised in CDFW's July 26, 2018 letter.

Issue: The DEIR states the arroyo chub has moderate potential to occur in the project.

Focused surveys for arroyo chub have not been provided for the Department's review. Thus, the Department is concerned how the DEIR concludes that there is a less than significant impacts without disclosing if this state sensitive species is present. The intent of the Biological Assessment (DEIR Volume II) compiled for this CEQA document was to preliminarily evaluate the project site, identify existing plant and wildlife species, and assess the potential for any special status species that may be affected by the project. General reconnaissance biological survey are not designed to determine presence/absence of specific sensitive species. If the general reconnaissance biological survey indicates there is a chance of a special status or sensitive species may be present, additional surveys based on species-specific protocol should be conducted to fully disclose potential project impacts.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure #1

During a site visit on July 17, 2018, Department biologists determined Lemon Creek within the Project site contained suitable habitat to support arroyo chub, and recommended surveys be conducted in consultation with Department fisheries program, Senior Environmental Scientist, (Supervisory) John O'Brien at John.OBrien@wildlife.ca.gov. Surveys should follow recommended protocol to allow the Department to determine the extent of potential impacts to arroyo chub associated with the Project and provide meaningful avoidance, minimization, and mitigation measures. The Department recommends the DEIR be recirculated after these surveys are completed to fully disclose the potential impacts to arroyo chub if present during focused surveys.

In addition, CDFW submitted a comment with regard to southern western pond turtle. Specifically, Comment #4: Southern Western Pond Turtle states:

Issue: ***The biological Habitat Assessment (DEIR Volume II) does not appear to follow the California Natural Diversity Database protocol of using a nine-quadrangle search to determine a list of species potentially present at project sites. Because a two-quadrangle search was used, the potential presence of southern western pond turtle (Actinemys marmorata pallida), a species of special concern, was missed. During a site visit on July 17, 2018, Department biologists observed conditions in Lemon Creek that could support southern western pond turtle.***

Southern western pond turtles are found in permanent and intermittent waters of rivers and creeks, and can spend upwards to 200 days out of water. Males may be found on land for up to ten months annually, while females can be found on land during all months of the year due to nesting and overwintering. Project implementation could result in direct and indirect mortality of CEQA rare pond turtle. Vegetation removal, development of the upland adjacent to Lemon Creek, construction activities, bridge and culvert construction, human introduced disturbances and conversion of site to an urban neighborhood could all result in impacts from the Project to southern western pond turtle.

Recommended Potentially Feasible Mitigation Measure(s)

Mitigation Measure #1

Surveys for southern western pond turtle should follow accepted scientific protocol (https://sdmmp.com/upload/SDMMP_Repository/0/q4x2pztbkns61wv9hy30rjc78fg5dm.pdf) to allow the Department to determine the extent of impacts to the species associated with the Project and provide meaningful avoidance, minimization, and mitigation measures. The Department recommends the DEIR be recirculated after these surveys are completed to fully disclose the potential impacts to the number and kind of turtles. Additionally, any proposed mitigation area should include a discussion on the territory size and breeding locations and how all life cycle functions will be mitigated.

Special Status Species Background

Arroyo Chub

Arroyo chubs are physiologically adapted to survive in habitats with low oxygen concentrations and wide temperature fluctuations, conditions common in southern coastal streams. They are found in habitats characterized by slow-moving water, mud or sand substrate, and depths greater than 40 cm (Wells and Diana 1975). However, they have also been found in pool habitats with gravel, cobble and boulder substrates (Feeney and Swift 2008). Arroyo chub has not been documented within the project site. They are most common in streams with gradients of less than 2.5% slope (Feeney and Swift 2008), where water temperatures range from 10 to 28 ºC (J. O'Brien, CDFW, unpublished data). Most spawning occurs in habitats with low velocity, such as pools or edge waters, at temperatures of 14- 22 ºC. They are most abundant in low gradient pools and flat-water habitats with gravel and sand substrate that support at least some aquatic/emergent vegetation (J. O'Brien, CDFW, unpublished data, 2009). Juveniles spend their first 3-4 months in the water column, usually in habitats with still water and vegetation or other submerged cover (Tres 1992). Arroyo chubs spawn primarily in June and July, but can breed more or less continuously from February through August, as the eggs of females ripen in small batches (Tres 1992). Arroyo chubs are true omnivores that feed on algae, insects, and small crustaceans, but they prefer to feed on algae.

Southern Western Pond Turtle

The southern western pond turtle has been documented within the nine-quad search area surrounding the project site. This species is an aquatic turtle that occurs in ponds, marshes, rivers, streams and irrigation ditches that typically support aquatic vegetation. It requires downed logs, rocks, mats of vegetation, or exposed banks for basking. Southern western pond turtles lay their eggs in nests that are dug along the banks of streams or other uplands in sandy, friable soils. Southern western pond turtles, especially those that reside in creeks, are also known to over-winter in upland habitats, or during the dry season when waterways dry. Upland movements can be quite extensive and individuals have been recorded nesting or overwintering hundreds of meters from aquatic habitats. The typical nesting season is usually from April through August; however variation exists, depending upon geographic location. Portions of Lemon Creek within the project site, as well as adjacent riparian area, are suitable habitat for the southern western pond turtle. Due to the steep sloped banks of Lemon Creek, suitable nesting sites and upland refuge are limited in adjacent riparian areas.

Methodology

Three (3) Rincon Qualified Fisheries Biologists completed the presence/absence survey utilizing a beach seine and dip-nets to determine the presence or absence of arroyo chub in the portions of Lemon Creek that will be impacted by project activities. Rincon's Fisheries Specialist Lindsay Griffin led the operation under the Specific Use Scientific Collection Permit ([SCP];Permit ID: S-183100001-18313-001) issued by CDFW for the survey effort. Rincon Fisheries Biologists, Danielle Yaconelli and Jaime McClain, assisted Ms. Griffin with the survey.

The biologists conducted the survey on November 27, 2018, focusing survey efforts on the three (3) areas of impact proposed by project activities. The arroyo chub presence/absence surveys were accomplished by seining Lemon Creek between La Puente Road (downstream Limit -117.86538, 34.02153) and Meadow Pass Road (upstream limit -117.86516, 34.0253) with a beach seine at intervals of 100 paces to capture all age classes of arroyo chub. All seining was completed using a 10-foot-long x 6-foot-high nylon minnow seine with 1/8 inch mesh and poles on each end of the seine. Length of

individual seine hauls varied based on shore configuration, bottom configuration, substrate, vegetation, debris and current. Beginning at the downstream end of the creek, biologists conducted the seining at regular intervals to determine presence/absence of arroyo chub and habitat suitability. At all locations, GPS coordinates of seine points were recorded and plotted on a map (Figure 1). Dip nets were used in areas where a beach seine was not effective. Water quality samples were collected at the upstream and downstream limits of the survey reach (dissolved oxygen, pH, turbidity, temperature), and results are summarized in Table 1. All fish species captured were identified. Non-native fish species captured in seine passes were extirpated and not returned to the channel.

Prior to initiating the survey for arroyo chub, the biologists walked the western bank of the creek, and conducted an opportunistic visual survey for southern western pond turtle. The biologists focused on areas within the creek with undercut banks where aquatic cover, basking sites, and deeper pools were present.

Results

The presence/absence survey for arroyo chub was conducted prior to the rain event that commenced in the afternoon on November 28, 2018, and resulted in approximately 1.4 inches of precipitation. No arroyo chub were observed during the presence/absence survey. In addition, no southern western pond turtle individuals were observed.

Flowing water was present within Lemon Creek throughout the survey reach. However, the average depth of surface flow throughout the survey reach was less than one foot. Several larger pools occur within Lemon Creek; all pools observed were less than two feet deep and 3 feet wide. The natural course of Lemon Creek has been altered and flows are conveyed through portions of channelization, rock rip-rap, and several culverts. Lemon Creek is a heavily incised creek with vegetation consisting of mixed native and non-native tree species, non-native grasses, and shrubs.

Approximately 80 fathead minnow (*Pimephales promelas*), 30 red swamp crayfish (*Procambarus clarkii*), and 2 mosquitofish (*Gambusia affinis*) were captured in seine hauls throughout the survey reach. Although suitable habitat is present for southern western pond turtle, it is marginal. Pools of water within the survey reach were generally less than two feet deep, basking sites were limited, and steep-sloped banks would constrict movement of turtles within the narrow channel.

Figure 1 Project Location

Imagery provided by Microsoft Bing and its licensors © 2018.

Table 1 summarizes the water quality results from water samples collected at the downstream and upstream limits of the survey reach.

Table 1 Water Quality Sampling Results from November 27, 2018

Constituent	Upstream	Downstream
DO (mg/L)	9.6	9.4
pH	7.53	7.10
Turbidity (NTU)	19.0 NTU 19.0 NTU 20.0 NTU	4.30 NTU 6.10 NTU 7.10 NTU
Temperature (°C)	15.3	16.2

Conclusion

The Draft Environmental Impact Report (DEIR) determined that the project site has a moderate potential to support arroyo chub. The presence/absence survey conducted on November 27, 2018 confirmed the absence of arroyo chub within the portion of Lemon Creek that occurs within the project site. Additionally, based on the opportunistic survey, no southern western pond turtles were observed. In addition, the survey confirmed the presence of several non-native fish species, some of which are predators of arroyo chub (i.e. red swamp crayfish).

References

Feeney, R. and C. C. Swift. 2008. Description and ecology of larvae and juveniles of three native cypriniforms of coastal southern California. Ichthyological Journal, 55(1) (IN PRESS)

Moyle PB. 2002. Inland fishes of California. Berkeley: Univ. Calif. Press.

Tres, J. 1992. Breeding biology of the arroyo chub, *Gila orcutti* (Pisces: Cyprinidae). MS Thesis, California State University, Pomona, CA 73 p.

We appreciate your consideration of Rincon to assist you with this important project. Please do not hesitate to call if you have any questions regarding the conclusions of this analysis.

Sincerely,
Rincon Consultants, Inc.

Lindsay Griffin
Senior Biologist/Project Manager

Steven J. Hongola
Principal/Senior Ecologist

Attachments

Appendix A CDFW Comment Letter dated July 26, 2018

Appendix B Site Photographs

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

July 26, 2018

Mr. Chris Vasquez, Senior Planner
City of Walnut
21201 La Puente Road, Walnut, CA 91789
Email: cvasquez@ci.walnut.ca.us

Subject: The Brookside Project (PROJECT)
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) SCH# 2016051030

Dear Mr. Vasquez:

The California Department of Fish and Wildlife (Department) received a Notice of Availability of a DEIR from the City of Walnut for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.1

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

DEPARTMENT'S ROLE

The Department is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & Game Code, §§ 711.7, subdivision (a) & 1802; Public Resources Code, § 21070; CEQA Guidelines § 15386, subdivision (a)]. The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, the Department is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

The Department is also submitting comments as a Responsible Agency under CEQA (Public Resources Code, § 21069; CEQA Guidelines, § 15381). The Department expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & Game Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by state law, of any species protected under the California Endangered Species Act (CESA) (Fish & Game Code, § 2050 et seq.), or state-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish and Game Code §1900 et seq.), authorization as provided by the applicable Fish and Game Code will be required.

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

PROJECT DESCRIPTION SUMMARY

Proponent: Unknown

Objective: The proposed Project is located on a former equestrian center, which closed in 2014. The Project proposes to retain two of the existing structures and demolish all other existing structures to build 28 single-family detached home lots. Additional features of the Project include a central street system with access to Meadow Pass Road, a 26-foot wide emergency vehicle access road from La Puente Road into the Project site, water quality flush basins, and landscaping.

Areas of natural open space will be left within privately owned open space lots, which includes Lot A (0.01 acre), Lot B (0.55 acre), Lot C (0.09 acre), and Lot F (1.12 acres). The DEIR states these lots will be placed within an open space easement maintained by the Homeowners Association (HOA) and delineated to 1) limit the homeowner from disturbing the creek edge and 2) provide for maintenance. Existing vegetation and trees within Lots A, B, C, and F will be preserved and maintained by the HOA. Any non-native trees that die or require removal will be replaced at a 1:1 ratio, while native trees will be replaced at a 3:1 ratio. Lemon Creek is located within Lots D and H. The Project proposes to install an unspecified type of vehicle crossing within Lemon Creek as well as a new bridge for trail crossing, and replace several existing culverts.

The Project site is approximately 26 acres of partially developed land in the City of Walnut. The Project area is located north of La Puente Road, south of Meadow Pass Road, east of North Lemon Avenue, and west of Broken Lance Road.

Location: Los Angeles County

Timeframe: Site preparation and grading would be implemented in one phase which is anticipated to occur over approximately six months.

COMMENTS AND RECOMMENDATIONS

The Department offers the comments and recommendations below to assist the City of Walnut in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological including botanical) resources. Editorial comments or other suggestions may also be included to improve the document.

Project Description and Related Impact Shortcoming

Comment #1: Arroyo Chub

Issue: The DEIR states the arroyo chub (*Gila orcutti)* has a moderate potential to occur in the Project.

Focused surveys for arroyo chub have not been provided for the Department's review. Thus, the Department is concerned how the DEIR concludes that there is less than significant impacts without disclosing if this state sensitive species is present. The intent of the Biological Assessment (DEIR Volume II) completed for this CEQA document was to preliminarily evaluate

the Project site, identify existing plant and wildlife species, and assess the potential for any special status or sensitive species that may be affected by the Project. General reconnaissance biological survey are not designed to determine presence/absence of specific sensitive species. If the general reconnaissance biological survey indicates there is a chance a special status or sensitive species may be present, additional surveys based on species-specific protocol should be conducted to fully disclose potential Project impacts.

Specific Impact: Project implementation may result in reduced reproductive capacity, population declines, or local extirpation of rare, special-status, or threatened and endangered species.

Why impact would occur: Project implementation could result in vegetation removal, in-stream grading, increased siltation, decreased water quality and/or quantity, introduction of pesticides and/or herbicides, and other disturbances, resulting in direct mortality, habitat degradation, and additional stress to arroyo chub individuals.

Evidence impact would be significant: CEQA provides protection not only for CESA-listed and candidate species, but any species including California Species of Special Concern, which can be shown to meet the criteria for State-listing (CEQA Guidelines §§ 15380 (d), 15065 (a)). Without avoidance and mitigation measures, the Project may continue to result in 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 Department or U.S. Fish and Wildlife Service (USFWS).

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #1: During a site visit on July 17, 2018, Department biologists determined Lemon Creek within the Project site contained suitable habitat to support arroyo chub, and recommended surveys be conducted in consultation with Department fisheries program, Senior Environmental Scientist, (Supervisory) John O'Brien at John.OBrien@wildlife.ca.gov. Surveys should follow recommended protocol to allow the Department to determine the extent of potential impacts to arroyo chub associated with the Project and provide meaningful avoidance, minimization, and mitigation measures. The Department recommends the DEIR be recirculated after these surveys are completed to fully disclose the potential impacts to arroyo chub if present during focused surveys.

Comment #2: Burrowing Owl (*Athene cunicularia*)

Issue: The biological Habitat Assessment (DEIR Volume II) does not appear to follow the California Natural Diversity Database protocol of using a nine-quadrangle search to determine a list of species potentially present at project sites. Because a two-quadrangle search was used, the potential presence of burrowing owl was missed. During a site visit on July 17, 2018, Department biologists observed burrows and whitewash potentially indicative of the presence of burrowing owl.

Specific Impact: The project site and adjacent areas may support foraging, breeding, and wintering habitat for western burrowing owl. Burrowing owl utilize native, semi-natural, and agricultural habitats, including highly degraded and marginal habitat where natural nest burrows (or burrow surrogates) and adequate foraging habitat is available. The Department has

designated burrowing owl a "species of special concern" because their population viability and survival is adversely affected by risk factors such as precipitous declines or other vulnerability factors.2

Why impact would occur: Project implementation could result in direct and indirect mortality of burrowing owl through earth moving, vegetation removal, construction activities, human introduced disturbances and conversion of site to an urban neighborhood.

Evidence impact would be significant: Take of individual burrowing owls and their nests is defined by Fish and Game Code (FGC) section 86, and prohibited by sections 3503, 3503.5 and 3513. Take is defined in FGC Section 86 as "hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill." Burrowing owl qualifies for enhanced consideration afforded to species under CEQA which can be shown to meet the criteria for listing as endangered, rare or threatened (CEQA Guidelines § 15380 (d)).

CEQA provides protection not only for CESA-listed and candidate species, but for any species including California Species of Special Concern, which can be shown to meet the criteria for State-listing (CEQA Guidelines §§ 15380 (d), 15065 (a)). Given that the Department observed indicators of potential presence of burrowing owl, the Department is concerned that DEIR does not disclose presence/absence surveys, adequately analyze impacts to burrowing owl, or provide any avoidance strategies. Without avoidance and mitigation measures, the Project may continue to result in 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 Department or USFWS.

Recommended Potentially Feasible Mitigation Measure(s):

The Department recommends Lead Agencies utilize the three-tiered approach detailed in the Department's March 7, 2012, Staff Report on Burrowing Owl (Guidelines) to analyze the potential for impacts to the species. The Guidelines include three components in evaluating a project's impact on burrowing owl: 1) a habitat assessment, 2) protocol surveys, and 3) an impact assessment. Projects that may have a significant effect on burrowing owl must be considered CEQA significant by lead agencies and noticed under an Environmental Impact Report (CEQA Guidelines § 15065 (a)).

The Department recommends that a burrowing owl survey are performed that focus on previously documented burrowing owl burrows located on the Project site. This should occur prior to any actions that may result in take or otherwise have additional direct or indirect significant effects on burrowing owl on or adjacent to a proposed project site. Surveys for burrowing owl should conform to the protocol described within Guidelines. The Guidelines are designed to assist in maximizing detection of burrowing owl presence and use of the site by burrowing owl in order to assist in avoiding project related take and on-site habitat loss and degradation. The guidelines also provide mitigation measures that will assist in reducing

---

2 Shuford, W.D., and T. Gardali, Eds. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Department of Fish and Game, Sacramento.

unavoidable project impacts to burrowing owl to less than significant levels under CEQA. The Guidelines may be downloaded from the Department's website: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.

The Guidelines stress that in order to maximize detection of burrowing owl and document their use of the site, both winter and breeding seasons must be conducted. Breeding surveys should consist of four site visits to be conducted on four separate days and should be performed between April 15 and July 15 to maximize detection.

Surveys should be conducted following Department protocol to allow the Department to determine the extent of impacts to owls associated with the Project and provide meaningful avoidance, minimization and mitigation measures. The Department recommends the City recirculate the DEIR after these surveys are completed to fully disclose the quantity of burrows and potential impacts to burrowing owls. Additionally, any proposed mitigation area should include a discussion on the territory size requirements and how the impacted territory will be mitigated.

Comment #3: Bats

Issue: The DEIR states several species of bats have a moderate or high potential to occur onsite. Impacts to bats are not disclosed and mitigation for impacts are not proposed.

Specific Impact: The DEIR states several species of bats have a moderate or high potential to occur onsite; however, during a site visit with the Department and City of Walnut on July 17, 2018, the biological consultant indicated bat surveys were not conducted prior to circulation of the DEIR.

The Project site contains mature trees, abandoned structures and riparian habitat with perennial water associated with Lemon Creek. The Project site has the potential to support several species of bats. Although several species of bats have potential to occur onsite, surveys for these species were not provided for the Department's review during the circulation of the DEIR. Therefore, the Department is concerned that the DEIR does not adequately describe the potential for impacts to bats or provide mitigation for those impacts.

Why impact would occur: Project implementation could result in direct and indirect mortality of CEQA rare bat species, and potentially roosts. Vegetation removal, removal of abandoned structures on-site, construction activities, human introduced disturbances and conversion of site to an urban neighborhood could all result in impacts to rare bat species if present on-site.

Evidence impact would be significant: Given the moderate to high potential presence of bat species, the Department is concerned that DEIR does not disclose presence/absence surveys, adequately analyze impacts to bats, provide any avoidance strategies, or include mitigation for the loss of occupied bat habitat. Bats are considered non-game mammals and are protected by state law from take and/or harassment (Fish and Game Code §4150, CCR §251.1). Several bat species are also considered Species of Special Concern (SOC), which meet the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines §15065). The Department considers adverse impacts to a SOC, for the purposes of CEQA, to be significant without mitigation. Mitigation is not just avoiding maternity roosts, wintering sites, night roosts, mating roosts and foraging sites, but providing similarly functioning habitat to what is impacted.

Recommended Potentially Feasible Mitigation Measure(s):

The Department recommends bat surveys be conducted by a qualified bat specialist to determine baseline conditions within the Project and within a 500-foot buffer, and analyze the potential significant effects of the proposed Project on the species (CEQA Guidelines §15125). The Department recommends the DEIR include the use of acoustic recognition technology to maximize detection of bat species to minimize impacts to sensitive bat species. The DEIR should document the presence of any bats over different seasons, and include species-specific mitigation measures to reduce impacts to below a level of significance.

To avoid the direct loss of bats that could result from removal of trees and structures that may provide roosting habitat (winter hibernacula, summer, and maternity), the Department recommends the following steps are implemented:

1. Identify the species of bats present on the site using acoustic survey techniques over different seasons;

2. Determine how and when these species utilize the site and what specific habitat requirements are necessary [thermal gradients throughout the year, size of crevices, tree types, location of hibernacula/roost (e.g., height, aspect, etc.)];

3. Avoid the areas being utilized by bats for hibernacula/roosting; if avoidance is not feasible, a bat specialist should design alternative habitat that is specific to the species of bat being displaced and develop a relocation plan in coordination with the Department;

4. The bat specialist should document all demolition monitoring activities, and prepare a summary report to the Lead Agency upon completion of tree disturbance and/or building demolition activities. The Department requests copies of any reports prepared related to bat surveys (e.g., monitoring, demolition);

5. If confirmed occupied or formerly occupied bat roosting/hibernacula and foraging habitat is destroyed, habitat of comparable size, function and quality should be created or preserved and maintained at a nearby suitable undisturbed area. The bat habitat (not bat houses) mitigation shall be determined by the bat specialist in consultation with the Department;

6. A monitoring plan should be prepared and submitted to the Lead Agency. The monitoring plan should describe proposed mitigation habitat, and include performance standards for the use of replacement roosts/hibernacula by the displaced species, as well as provisions to prevent harassment, predation, and disease of relocated bats; and,

7. Annual reports detailing the success of roost replacement and bat relocation should be prepared and submitted to Lead Agency and the Department for five years following relocation or until performance standards are met, whichever period is longer.

Comment #4: Southern Western Pond Turtle

Issue: The biological Habitat Assessment (DEIR Volume II) does not appear to follow the California Natural Diversity Database protocol of using a nine-quadrangle search to determine a list of species potentially present at project sites. Because a two-quadrangle search was used, the potential presence of southern western pond turtle (*Actinemys marmorata pallida*), a species of special concern, was missed. During a site visit on July 17, 2018, Department biologists observed conditions in Lemon Creek that could support southern western pond turtle.

Specific Impact: Project implementation may result in direct mortality, reduced reproductive capacity, population declines, or local extirpation of a CEQA rare, Department special-status species.

Why impact would occur: Southern western pond turtles are found in permanent and intermittent waters of rivers and creeks, and can spend upwards to 200 days out of water. Males may be found on land for up to ten months annually, while females can be found on land during all months of the year due to nesting and overwintering. Project implementation could result in direct and indirect mortality of CEQA rare pond turtle. Vegetation removal, development of the upland adjacent to Lemon Creek, construction activities, bridge and culvert construction, human introduced disturbances and conversion of site to an urban neighborhood could all result in impacts from the Project to southern western pond turtle.

Evidence Impact would be significant: CEQA Guidelines sections 15070 and 15071 require the DEIR to analyze if the Project may have a significant effect on the environment as well as review if the Project will 'avoid the effect or mitigate to a point where clearly no significant effects would occur'. In order to analyze if a project may have a significant effect on the environment, the Project related impacts, including survey results for species that occur in the entire Project footprint should to be disclosed during the public comment period. This information allows the Department to comment on alternatives to avoid impacts as well as to assess the significance of the specific impact relative to the species (e.g., current range, distribution, population trends, and connectivity).

Recommended Potentially Feasible Mitigation Measure: Surveys for southern western pond turtle should follow accepted scientific protocol (https://sdmmp.com/upload/SDMMP_Repository/0/q4x2pztbkns61wv9hy30rjc78fg5dm.pdf) to allow the Department to determine the extent of impacts to the species associated with the Project and provide meaningful avoidance, minimization, and mitigation measures. The Department recommends the DEIR be recirculated after these surveys are completed to fully disclose the potential impacts to the number and kind of turtles. Additionally, any proposed mitigation area should include a discussion on the territory size and breeding locations and how all life cycle functions will be mitigated.

Comment #5: Tree Mitigation and Planting List

Issue 1: The DEIR states, "Replace three hundred fifty-eight (358) non-native trees at a ratio of 1:1 ratio for a total of three hundred fifty-eight (358) trees...All replacement trees will be selected from the City Parkway or Los Angeles County Landscaping and Lighting Act Districts (LLAD) Special Districts approval list, and will be planted and maintained in accordance with applicable City or County standards".

The DEIR provides a 3:1 mitigation ratio for city-protected trees (walnut, valley oak and coast live oak). Additional native riparian tree species (alder, sycamore and cottonwood) are identified as occurring onsite and being impacted. However, these native trees require the same mitigation planting ratio as non-native trees at a 1:1 ratio.

Issue 2: The City of Walnut's tree policy and ordinance (http://www.cityofwalnut.org/for-residents/community-resources/city-maintenance/city-trees) indicate *Schinus molle* or Peruvian pepper tree (erroneously called California pepper tree in this policy) is a City approved landscaping tree. *Schinus Molle* is designated as an invasive species by the California Invasive Pest Plant Council (Cal-IPC). The list of invasive plants is available at https://www.cal-ipc.org/wp-content/uploads/2018/05/InvasivePlantChecklistforCaliforniaLandscaping.pdf.

Specific Impact: Habitat loss and invasive plants are a leading cause of native biodiversity loss. Invasive plant species spread quickly and can displace native plants, prevent native plant growth, and create monocultures. Invasive plants reduce native plant species diversity.

Why impact would occur: Lemon Creek is heavily impacted by invasive plant species, impairing the biological function of this riparian habitat. The Department is concerned that planting known invasive trees, or any invasive plant species, as part of this Project, would further contribute to the degradation of Lemon Creek and other nearby natural open space or riparian habitats. The Department is concerned that by not requiring all native trees be replaced by similar native tree species, the replacement trees would not be fully mitigating the function and value of the impacted native tree species.

Evidence Impact would be significant: Invasive species have contributed to the decline of forty-two percent of U.S. threatened and endangered species.3 The ecosystem of Lemon Creek has been greatly impacted by invasive plant species, with few remaining native tree species currently present. The Department is concerned that introducing more invasive species into the area would further degrade both Lemon Creek on- and off-site as well as further degrade natural areas in the vicinity. Evidence suggests increased competition of water from invasive tree species stresses native tree species, increasing the probability of being attacked by invasive insects.4

The Department is also concerned about the cumulative effect that has occurred as a result of the city actively recommending an invasive tree be planted throughout the City of Walnut, which contains sensitive, natural habitat such as Lemon Creek.

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #1: The Department recommends that the Project prohibit the planting of any species contained in the Cal-IPC Invasive Plant Checklist (https://www.cal-ipc.org/wp-content/uploads/2018/05/InvasivePlantChecklistforCaliforniaLandscaping.pdf) listed for any region.

---

3 https://www.fs.fed.us/wildflowers/invasives/index.shtml
4 https://www.fs.fed.us/pnw/invasives/index.shtml

Mitigation Measure #2: The Department recommends the City of Walnut revise the City of Walnut's tree policy and ordinance (http://www.cityofwalnut.org/for-residents/community-resources/city-maintenance/city-trees) to remove any invasive species listed by Cal-IPC from this list.

Mitigation Measure #3: The Department recommends the use of native tree species or non-invasive drought tolerant tree species be used to replace the 358 non-native trees being impact by the Project. Only native trees should be planted within and adjacent to (500 feet) Lemon Creek.

Mitigation Measure #4: The Department recommends all native trees impacted by the Project be mitigated at a 3:1 ratio. Sycamore, alder, and cottonwood are all riparian trees typically associated with the active channel or the floodplain. These trees are likely naturally occurring as the site is located in the historic riparian transition zone and floodplain of Lemon Creek.

Mitigation Measure #5: The Department recommends that all open space preservation/mitigation land be protected in perpetuity with minimal human intrusion by recording and executing a perpetual conservation easement in favor of an approved agent dedicated to conserving biological resources. In addition, the Department recommends all mitigation lands be owned or managed by an entity with experience in managing habitat. The Department has encountered problems with using portions of privately owned lots as open-space-habitat mitigation under CEQA because homeowners may grade and remove vegetation on their land with little legal recourse to remedy this loss under CEQA. Mitigation lands should be owned or managed by a conservancy or other land management company to allow for legal remedies should trespass and clearing/damage occur. A management and monitoring plan, including a funding commitment, should be developed for any conserved land, and implemented in perpetuity to protect existing biological functions and values. Permeable wildlife fencing should be erected around any conserved land to restrict incompatible land uses and signage posted and maintained at conspicuous locations communicating these restrictions to the public.

Comment #6: Deferred Mitigation

Issue: The DEIR states an unspecified type and size of vehicle stream crossing and several horse trail crossing culverts are part of the Project, but does not provide any specific impact information and relies on obtaining a Lake and Streambed Alteration Agreement from the Department as mitigation.

Specific Impact: Project implementation may result in impacts to a streambed. This could result in direct mortality, reduced reproductive capacity, population declines, or local extirpation of potentially several CEQA rare and Department special-status species.

Why impact would occur: The DEIR states a Lake and Streambed Alteration Agreement will be obtained from the Department as mitigation for impacts resulting from this activity. CEQA Guidelines sections 15070 and 15071 require the DEIR to analyze if the Project may have a significant effect on the environment as well as review if the Project will "avoid the effect or mitigate to a point where clearly no significant effects would occur." Relying on future surveys, the preparation of future management plans, or mitigating by obtaining permits from the Department are considered deferred mitigation under CEQA.

In order to analyze if a project may have a significant effect on the environment, the Project related impacts, including survey results for species that occur in the Project footprint need to be disclosed during the public comment period. This information is necessary to allow the Department to comment on alternatives to avoid impacts, as well as to assess the significance of the specific impact relative to the species (e.g., current range, distribution, population trends, and connectivity).

Evidence Impact would be significant: CEQA Guidelines sections 15070 and 15071 require the DEIR to analyze if the Project may have a significant effect on the environment as well as review if the Project will 'avoid the effect or mitigate to a point where clearly no significant effects would occur'. In order to analyze if a project may have a significant effect on the environment, the Project related impacts, including survey results for species that occur in the entire Project footprint should to be disclosed during the public comment period. This information allows the Department to comment on alternatives to avoid impacts as well as to assess the significance of the specific impact relative to the species (e.g., current range, distribution, population trends, and connectivity).

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #1: The Department recommends including specific information regarding impacts to streambed impacts. This should include the acreage of any temporary and permanent construction impacts, types of bridges or culverts proposed, sizes of culverts and bridges and a hydrology analysis evaluating flow design capacity.

Mitigation Measure #2: The Department recommends the use of bottomless culverts and span bridges to reduce impacts to Lemon Creek. Additionally, the Department recommends bridges and culverts are designed and sized adequately to allow storm flow to pass unhindered.

Editorial Comments and/or Suggestions

Comment #1: Rodent Control

The Department recommends the DEIR contain language disallowing the use of rodenticides that could result in direct or secondary poisoning to native mammals, birds, and raptors. Raptors were observed by Department biologists using the site and displaying territorial behavior. This language is recommended for parcels containing single-family homes as well as all open space areas of the Project maintained by the HOA.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB

can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

The Department appreciates the opportunity to comment on the DEIR to assist the City of Walnut in identifying and mitigating Project impacts on biological resources. The Department recommends addressing the information raised in this letter. The Department also recommends the City and Project Applicant consult with the Department regarding these issues.

Questions regarding this letter and further coordination on these issues should be directed to Kelly Schmoker at (949) 581-1015 or Kelly.Schmoker@wildlife.ca.gov.

Sincerely,

Erinn Wilson
Environmental Program Manager I
South Coast Region

ec: Eric Chan, CDFW, Los Alamitos
Andrew Valand, CDFW, Los Alamitos
Scott Harris, CDFW, Ventura
Erinn Wilson, CDFW, Los Alamitos
Office of Planning and Research, State Clearinghouse, Sacramento

Photograph 1. View of a 2 foot deep pool at the downstream limit of Lemon Creek within the project site. Seine hauls in this pool yielded approximately ten fathead minnow (*Pimephales promelas*), and five red swamp crayfish (*Procambarus clarkii*).

Photograph 2. View of the vegetated upland slope on the west side of Lemon Creek within the project site.

Photograph 3. View of a 2.5 foot deep pool in the middle of the project site within Lemon Creek where fathead minnow were observed.

Photograph 4. View of red swamp crayfish that were captured in a seine pass in Lemon Creek.

Photograph 5. View of an adult fathead minnow that was captured in a seine pass in Lemon Creek within the project site.

Photograph 6. View of several fathead minnow captured in seine passes at the upstream limit of Lemon Creek within the project site.

APPENDIX F1
Tree Survey and Arborist Report
February 2020

Tree Survey and Arborist Report

THE BROOKSIDE DEVELOPMENT TENTATIVE TRACT NO. 72798
CITY OF WALNUT

Prepared for:

Alpine Pointe Development, Inc.
18217 Gale Avenue, Suite A
City of Industry, CA 91718
Contact: Jack Su
(626) 817-6989

Prepared as a coordinated effort by:

Golden State Land & Tree Assessment
George J Wirtes, MS, ISA Certified Arborist

Michael Baker International
5 Hutton Centre Drive, Suite 500
Santa Ana, CA 92707

Originally Submitted July 7, 2017
Complete Revision February 20, 2020

TABLE OF CONTENTS

SECTION 1: EXECUTIVE SUMMARY

This arborist survey has been performed at the request of Michael Baker International (Michael Baker) for a proposed residential site, The Brookside (project), in the City of Walnut, California. *During this survey, public safety was the primary goal when determining each tree's ability to remain within the proposed project. Tree health, as well as functional and aesthetics value were also considered when making a final determination.* Only trees within the grading limits of the proposed project were surveyed. There were a substantial number of trees along the boundary of the property that were not assessed as they will be preserved with the project.

The trees assessed were identified using a GPS with digitized grading limits (see Section 2.4 below), and decisions to include individual species were based on their typical growth form (tree vs. shrub), and the City's municipal code (minimum stem circumference of 6 inches (see Section 2.6 below) at breast height). Given the number of trees onsite, the primary goal of this tree survey was to inventory and rapidly assess the health and integrity of each tree within the grading limits. The surveys associated with this report were performed during the months of September and October 2016, and an additional survey was performed on February 12, 2020 of an additional area within the northern portion of the property located outside of the original grading limits. Details of each tree were recorded documenting their species, stature, health, environment/conditions in which they occur, and potential for failure (risk). The subject trees were tagged with an aluminum tag containing a unique number. The species onsite are listed in Appendices A and B below along with each tree's stature and health characteristics.

During the surveys, 504 trees were assessed onsite involving 52 distinct species comprising 45 ornamental tree species and seven native species (see section 3.1 below). Many of the trees onsite are diseased, stressed, lacking vigor, or are in a state of decline. A number of trees pose a substantial risk to public safety due to a considerable lean, codominant stem with included bark, disease, or other conditions. Evidence was found suggesting borer and termite infection along with the persistence of other diseases (viral/bacterial). In addition, many trees were planted or sprouted in close proximity to others leading to situations with increased risk of failure (unbalanced canopy mass).

A number of trees should be removed immediately due to the immediate risk of failure they pose. In all, 354 trees are recommended for removal and another 92 will be removed because they directly conflict with the proposed project. Of the 354, 205 trees are recommended for removal due to their poorly maintained condition, degraded health, or general appearance (Health rating 3.0 to 4.0). Of the 354, 149 should be removed due to the potential risk of failure they pose to future development (Risk rating 3.0 to 4.0). The 92 trees that directly conflict with the site plan are labeled "Remove with Project" in Appendix A and Appendix B below. Any remaining individuals must be pruned and monitored. Of the remaining individuals, there are 9 trees that need to be treated and monitored to remain as part of the new development. Ornamental trees removed as part of the project may be mitigated at a 1:1 ratio (removed native trees at a 3:1 ratio) at the discretion of the Community Development Director and in compliance with the City's

Municipal Code 25-178.8 (see Section 4.1.2 below). It should be considered to replace native trees removed with native species nursery stock.

Finally, 39% of the trees onsite are listed as invasive by the California Invasive Plant Council (CAL-IPC); these specific trees have adaptations that give them an advantage over native tree species and can potentially outcompete them for local resources, crowding them out. This is evidenced by the numerous sprouting noted throughout the site and the resultant recurring, theme of competing canopies. This situation has in turn; lead to offset canopy mass among many of the trees onsite and their increased risk of failure and potential liability. The project will likely benefit by replacing many of these invasive tree species with native species that can contribute to the overall ecological function of the nearby Lemon Creek and local vicinity.

SECTION 2: BACKGROUND

2.1 - Project Location and Description

This Tree Survey and Arborist Report (report) has been prepared for Alpine Pointe Development, Inc. in order to quantify the number of trees (and assess their condition) within the grading limits of the Brookside Development Lot 1 & 2 Tract No. 45378 (project site) in order to determine the number of replacement trees required to mitigate ecological impacts of their removal. This report has been prepared according to the City of Walnut's Oak/Walnut Tree Preservation Code and International Society of Arboriculture (ISA) standards. The fieldwork for this report was conducted on multiple days throughout the months of September and October 2016 and in February 2020. The project site is located northwest of the confluence of State Route (SR) 57 and SR 60, and north of Valley Boulevard, and south of Amar Road in the City of Walnut, Los Angeles County, California. The project site is depicted on the San Dimas, California United States Geological Survey (USGS) 7.5-minute quadrangle within Township 2 south, Range 9 west, San Bernardino Base and Meridian. Specifically, the project site is located north of La Puente Road, south of Meadow Pass Road, east of North Lemon Avenue, and west of Broken Lance Road. Refer to Exhibit 1, Regional Vicinity, and Exhibit 2, Site Vicinity.

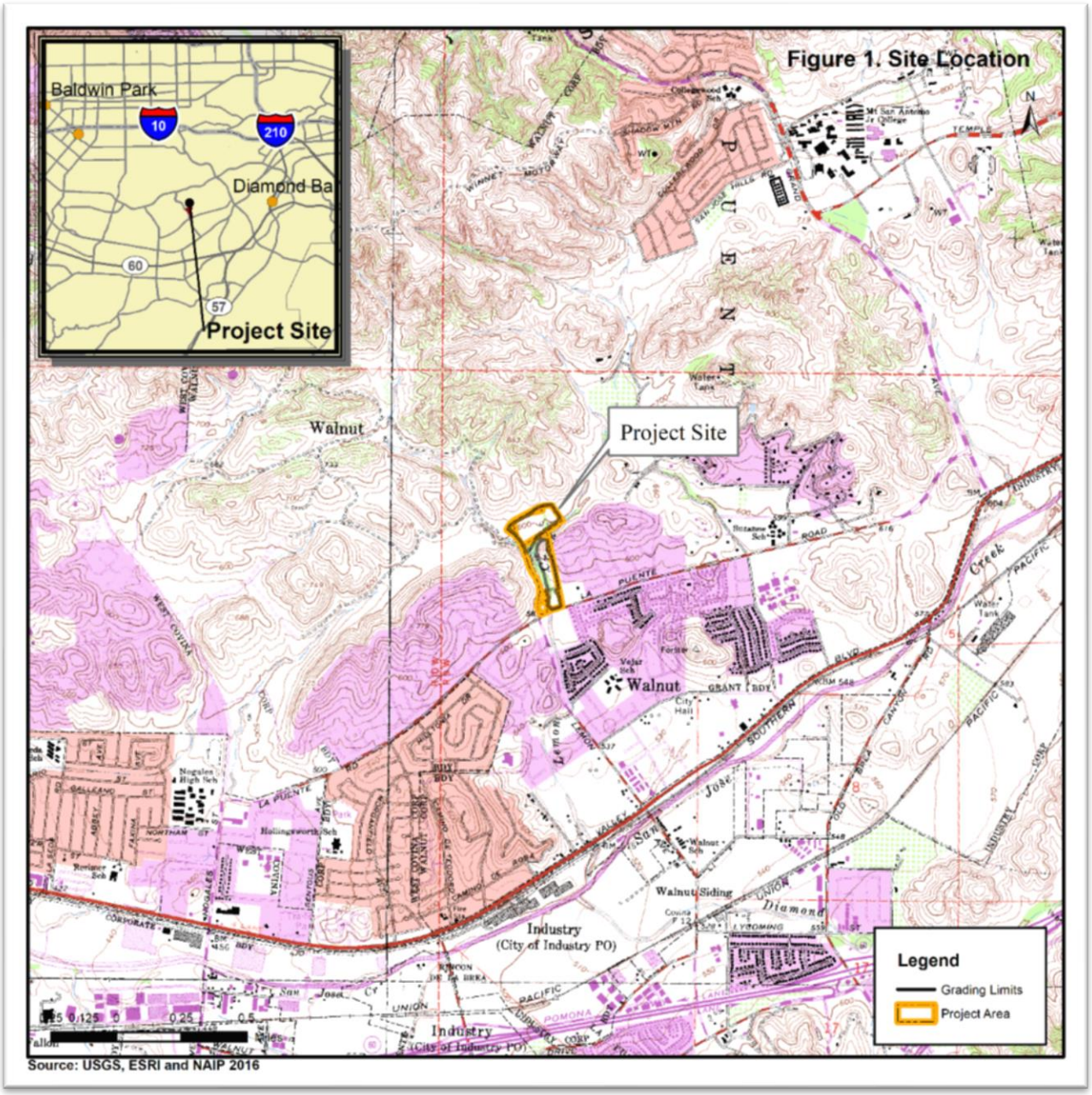


Figure 1. Map of site vicinity.

2.2 - Site and Vicinity Characteristics

The project site has many topological and ecological features that contribute to a diverse set of conditions within the property. The elevation of the site ranges from approximately 560 to 700 feet above mean sea level. Lemon Creek enters the property from the NE side of the site and exits through the southern boundary. The property is composed of small plateaus and terraces that serve as a watershed for this creek. The soils onsite are undescribed by the National Resource Conservation Service; however, they were

derived from sandstone and mudstone, marine deposits from then Oligocen to Pliocene Eras. The soils on site are comprized from clay loam.

2.3 - Scope of Survey

In a joint effort, Golden State land & Tree Assessment (GSL&T) conducted a tree survey and health assessment of all trees within the grading limits of the project area (TTM 72790) with the assistance of Michael Baker International (Michael Baker) biologists determining trees within the area of impact and taking stature and canopy spread measurements. The survey was performed to identify the different tree species found within the project grading area, assess their health, and provide insight as to which trees may be retained as part of the planned improvement. The health assessment included, but was not limited to; recording total diameter at breast height (DBH), canopy spread, tree height, apparent decay, other signs of potential hazard, and pest damage. A potential risk assessment was also conducted keeping public safety in mind. All documentation in this report is in compliance with standards and requirements published by the International Society of Arboriculture (ISA). This report includes recommendations and mitigation measures meant to satisfy all applicable ordinances and permit guidelines.

2.4 - Survey Method and Health Assessment

Prior to the field survey, the City of Walnut's website was accessed to review specific tree protection guidelines. An aerial photograph was used as a visual guide during the assessment. A handheld Global Positioning System (GPS) device and GPS-enabled smartphone and tablet with digitized project boundaries and grading limits were used to identify the precise location of each subject tree. The initial survey team included ISA arborist George Wirtes of Golden State Land and Tree Assessment (GSLTA) and Michael Baker International associates, Stephen Anderson (biologist), and Linda Nguyen (biologist). The Michael Baker crew used this GPS-enabled device to determine all trees within the grading zone. They documented trunk diameters measured in inches at 4.5 feet above ground level (termed total diameter at breast height (DBH)). The crown-width was estimated by pacing, and the height of each subject tree was visually estimated using a tangent height gauge. These data were recorded on field sheets, and associated aluminum numeric tags were affixed to trees on the north side at BH for later reference. Trees with a circumference of less than 6 inches at breast height were excluded from this assessment. The metal tags started numerically at #51, and ended with #569. Note: Six Mexican fan palm trees were cataloged, but not given a metal tag, and fourteen bushes were tagged onsite, but were not included in this assessment due to their typical "bush" growth form (tag # 344, 345, 346, 350, 351, 352, 354, 356, 357, 358, 360, 361, 372, 373, 401, 402, 403, 492, 498, 499).

Tree status (relative condition, stature, and health) was conducted by arborist, George Wirtes from ground level with the aid of binoculars. To estimate wood integrity, a rubber mallet was often used to assess possible decay within the tree stem and flare. As indicated earlier, no invasive procedures were performed. Visual characteristics were recorded on field sheets and twig/leaf samples as well as digital photographs were taken as needed to assure accurate identification.

The positions of the subject trees were recorded using a GPS whose data was shared among the team and exported into GIS for periodic illustration over aerial photographs. Given that the fieldwork was conducted over several days, the GPS data (.gpx/.kmz) were projected on GIS layouts as available, and communicated occurred among the group to assure all trees affected by the project were identified and assessed to the greatest extent feasible by the team.

Following a review by the City in August 2019, adjustments to the final site design were made necessitating a tree inventory. In October of 2019, Michael Baker staff completed this limited survey documenting the location and species of all trees within this area. On February 12, 2020, these trees were formally assessed by George Wirtes, Stephen Anderson, and Anisha Malik (restoration ecologist). The data have been integrated within this report, and the survey data is provided in Appendix B below. *Note: All bushes/trees counted in the tree inventory were tagged and assessed, however, several specimens were included that were marginal in stature having a large shrub-like stature.*

2.5 - Hazard Risk Assessment

The International Society of Arboriculture (ISA) recommends a Hazard Assessment be included with arborist reports. Such an assessment is an important component of any such report and is critical if trees are to be located near public areas such as parks, walkways, residences, and buildings. This tree assessment includes a *Level 2 Basic Risk Assessment* as defined by ISA Best Management Practices. This type of assessment is limited to evaluating trees and obvious signs of defects such as:

- Dead or broken structures
- Cracks
- Weakly attached branches and codominant stems
- Missing or decayed wood
- Unusual tree architecture or distribution
- Obvious loss of root support

A risk rating is assigned to each tree based on its defects, aesthetics, apparent health, location and the nearby targets (people or property). The ratings are defined below as defined by ISA:

1. *Low* - Low-risk category applies when consequences are negligible, and likelihood is unlikely, or consequences are minor, and likelihood is somewhat likely.

2. *Moderate* - Moderate risk situations are those for which consequences are minor and likelihood is very likely or likely or likelihood is someone likely and the consequences are significant or severe.

3. *High* - High-risk situations are those for which consequences are significant and likelihood is very likely or likely or Consequences are severe, and likelihood is likely

4. *Extreme* - The extreme risk category applies in situations in which failure is imminent, there is a high likelihood of impacting the target, and the consequence of the failure is severe. The tree risk assessor should recommend that mitigation measures be taken as soon as possible

It is impossible to maintain a tree free of risk. A tree is considered hazardous when it has a structural defect that predisposes it to failure, and it is located near a target.

- A target is person or property that may sustain potential injury or property damage if a tree or a portion of a tree fails.
- Target areas include sidewalks, walkways, roads, vehicles, structures, playgrounds, or any other area where people are likely to gather.
- Structurally sound and healthy trees may also be hazardous if they interfere with utilities, roadways, walkways, and sidewalks, or if they obstruct motorist vision.
- Common hazards include dead and diseased trees, dead branches including bark, stubs from topping cuts, broken branches (hangers), multiple leaders, tight-angled crotches, and an unbalanced crown. Evaluation of risk is as follows: 1-Excellent, 2-Good, 3-Fair, 4-Poses risk, and 5-Hazardous.

2.6 - Local Tree Regulation

According to Chapter 25-178 (Ord. No. 03-05, § 1) of the Code of the City of Walnut, California (Walnut City Code), the City lies in the Walnut Valley, the beauty and natural setting of which is greatly enhanced by the presence of large majestic trees (see References). These indigenous trees are recognized for their significant historical, aesthetic and environmental value. They are indicator species for the natural communities, in which they exist, supporting a broad spectrum of other native plant and animal species. As one of the most picturesque trees in the Southern California area, they lend beauty and charm to the natural and fabricated landscape, enhance the value of property and preserve the character of the communities in which they exist. Development within the Walnut Valley has resulted in the removal of most of these trees. Further uncontrolled and indiscriminate destruction of this diminishing plant heritage would detrimentally affect the general health, safety and welfare of the citizens of Walnut. The preservation program and procedures outlined in these guidelines contribute to the welfare and aesthetics of the community and retain the great historical and environmental value of these last remaining trees. No person, partnership, firm, corporation, government agency, or other legal entity shall cut, prune, remove, relocate, endanger or damage any tree protected by this division on any land located within the incorporated areas of the City of Walnut except in accordance with the conditions of a valid tree permit issued by the city.

Chapter 25-178 of the Walnut City Code addresses only Oak and Walnut Tree Preservation and Protection. Native trees with a circumference at breast height of 6 inches including oak (*Quercus spp.*), California black walnut (*Juglans californica*), require preservation under this ordinance. *Other tree species within the City are not protected within this regulation.* Specific mitigation ratios are not identified in the ordinance. The City has many provisions outlined in their Municipal Code that must be adhered to during the pre-construction and constructions phase of the proposed developments. A tree location map must be available and a fencing plan in place during ground-disturbing activity.

The Walnut City Code indicates, “It shall be the policy of the City of Walnut to require the preservation of all healthy trees[1] unless compelling reasons justify the removal of such trees. This policy shall apply to the removal, pruning, cutting and/or encroachment into the protected zone of the trees. The community

development department shall have the primary and overall responsibility to administer, evaluate and monitor this policy to assure strict compliance" (Ord. No. 03-05, § 1).

Finally, the City also provides specific protection for species of "heritage" oak or walnut trees as defined below (Chapter 25-178.2). *Note: None of the trees within the project footprint qualifies as a candidate for specific protection using the guidelines within this regulation.*

> *"Heritage oak/walnut tree" means any tree[1] measuring forty inches or more in circumference or, in the case of a multiple trunk tree, two or more trunks measuring thirty inches or greater in circumference, measured three feet above the natural grade surrounding such tree. In addition, the planning commission and/or city council may classify a tree, regardless of size, as a heritage oak/walnut tree if it is determined by a majority vote thereof that such tree has exceptional historic, aesthetics and/or prominence to the community.*

[1] "Tree" means any oak tree of the genus *Quercus* including, but not limited to, Blue Oak (*Quercus douglasii*), California Black Oak (*Quercus kelloggi*), Valley Oak (*Quercus lobata*), California-Live Oak (*Quercus agrifolia*), Canyon Oak (*Quercus chrysolepis*), Interior Live Oak (*Quercus wislizenni*), Scrub Oak (*Quercus Dumosa*), and California Black Walnut (*Juglans californica*).

2.7 - Limitations and Exceptions of Assessment

This survey was conducted in accordance with industry standards and ethics. This survey was conducted in a manner that draws upon past education, acquired knowledge, training, experience, and research. It was conducted to the greatest extent feasible, and although the information gathered reduces risk of tree failure/decline, it does not fully remove it. No diagnostic testing was performed during this assessment. This survey associated with this Arborist Report included no soil sampling, root excavation, trunk coring/drilling or any other invasive procedure. The determinations of damage due to pest infestation and decay were made solely on outward appearance and inspection of the tree structures. Not all tree defects may be visible from the ground. Epiphytic growth and structures can also obscure defects on the stem, limbs and in the canopy of a tree. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. Many aspects of tree health and environmental conditions are often not detectable (internal decay, poor root anchoring, etc.). Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time.

The statements made in this report do not take into account the effects of extremes of climate, wind, vandalism, or accident (whether physical, chemical, or fire). In addition, this area is known to have periodic, high velocity Santa Ana winds from transient high-pressure ridges. Golden State Land & Tree Assessment cannot, therefore, accept any liability in connection with these factors, or where prescribed work is not carried out in a correct and professional manner in accordance with current ISA good practice. The authority of this report ceases at any stated time limit within it, after one year from the date of the survey (if none stated), when any site conditions change, or after pruning (or other activity) not specified in this report. This is report is the compilation of two surveys conducted approximately three years apart. The trees surveyed in 2016 were not reevaluated after their original assessment.

The goal of this survey was not to diagnose all pathogens noted, but to assess each tree's potential to serve the project long term. It is also to recommend measures to limit risk exposure while enhancing the beauty and health of each tree onsite. The trees assessed within the grading limits of the project were surveyed, and decisions and conclusions were based primarily on public safety going forward. Other features of the trees were taken in consideration to draw conclusions. Clients may choose to accept or disregard the recommendations contained within this report, or seek additional advice. ***To live near trees is to accept some degree of risk. The only way to eliminate all risk is to remove all trees onsite***.

SECTION 3: SUBJECT TREES AND OBSERVATIONS

During the site surveys, specific measurements and parameters of all trees onsite were recorded on tree assessment worksheets; the data have been transferred into the table in Appendices A (2016 survey) and B (2020 survey) at the end of this document. In total, 504 ornamental or native trees consisting of 52 distinct species were found within the project impact area. The species observed are displayed in the figure below (see Figure 2) and summarized in Table 1 below.

There were many trees onsite that were in site need of maintenance or in a state of decline. In addition, the site has not been adequately irrigated exacerbating their distressed status. Numerous instance were also noted where trees had been planted too close together, or volunteer spouting occurred where resulting tree canopies were poorly developed leading to situations with increased liability of tree failure (stem lean, offset canopy mass, etc.).

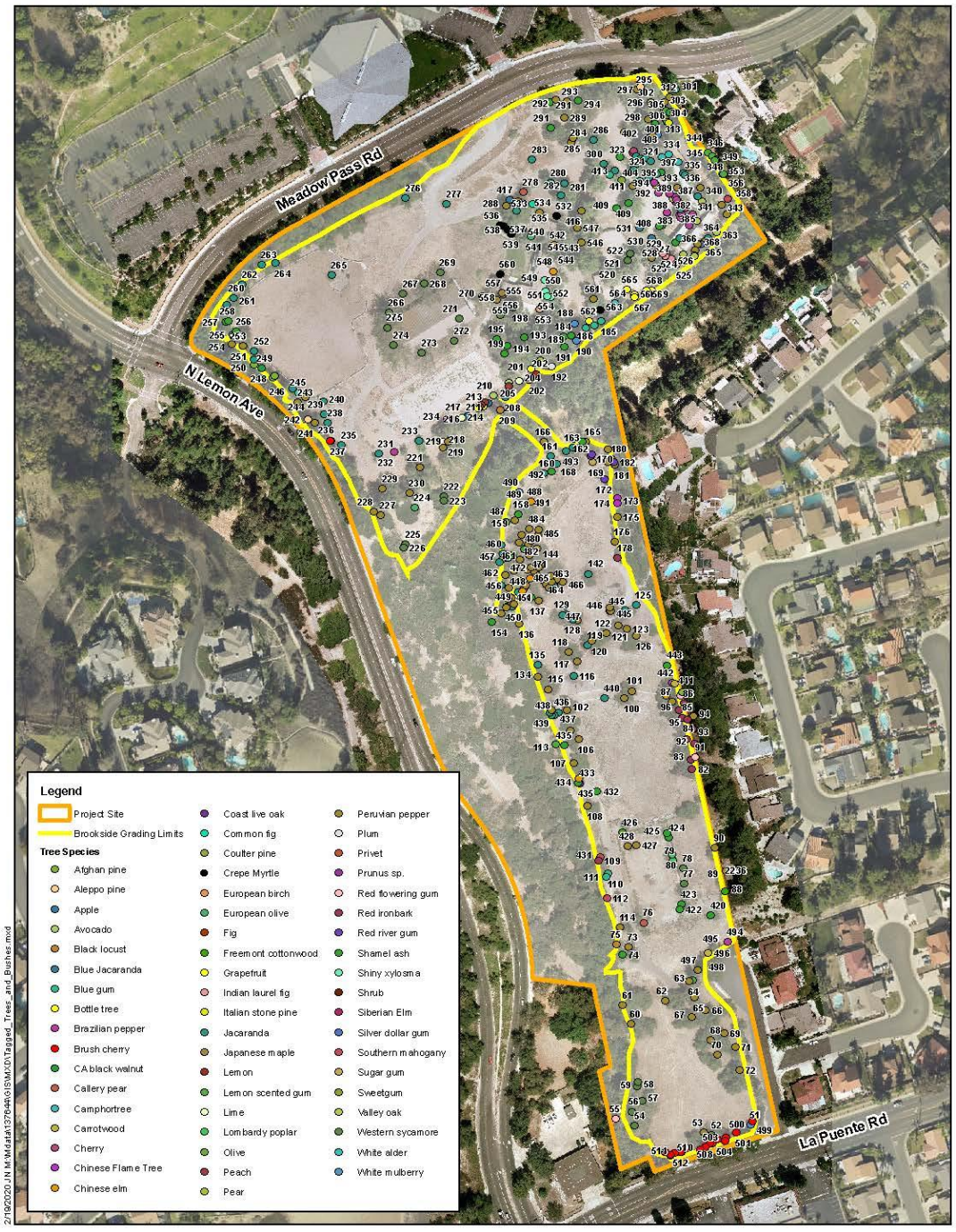


Figure 2. This is a layout of the trees noted within and near the project boundary.

3.1 - Tree Species Composition

During the survey, tree assessments were conducted according to general ISA and City requirements; GPS waypoints were recorded, as were specific details of each tree. The species onsite are described in detail below and a comprehensive table is provided in Appendix A of this report. In general, the variety of species onsite was appropriate for the location.

As indicated, the project site includes 504 trees within 52 distinct species (see Table 1 below). Of the tagged tree species within the property, seven are native species, and 45 are considered exotic. Eight of these exotics are classified as invasive ("Limited") by the California Invasive Plant Council (Cal-IPC). The age of the trees onsite ranged from mature to senescent and the health from rigorous to dead. Figure 3 below shows the location of the native trees onsite that will be preserved or replaced.

Table 1. Tree Species Observed

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Apple tree *Malus domestica*	The Common Apple tree is a small deciduous tree. Height: 12 - 30 feet. Width: 20-25 feet. Growth Rate: 24-36 inches per season. Longevity 50 to 150 years. Its branch Strength Rated as medium to strong and root damage potential is rated as low.	4
Avocado tree *Persea americana*	This species is native to South Central Mexico. There are many commercial varieties available of this species. Height: 30-40 feet. Width: 25-35 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. Its branch Strength Rated as medium and root damage potential is rated as high.	3
Grapefruit tree *Citrus × paradisi*	This species is native to Barbados and is best suited for hot inland areas. This species has fragrant flowers. It has a compact and erect or spreading canopy. It has a rounded, umbrella or vase shape with evergreen foliage. Height: 25 - 30 feet. Width: 15 - 25 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. Its branch Strength Rated as medium and root damage potential is rated as moderate.	3
Lemon tree *Citrus aurantifolia*	This evergreen species is native to Asia and is very sensitive to cold; it is one of the least hardy of the citrus. It has rounded, umbrella canopy is low. Height: 5 - 10 feet. Width: 5 - 10 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. Its branch strength rated as medium, and its root damage potential is rated as low.	1
Lime tree *Citrus aurantifolia*	This species is native to southeastern Asia and is very sensitive to cold; it is one of the least hardy of the citrus. It has rounded, umbrella or vase shape habit and has evergreen foliage. Height: 10 - 15 feet. Width: 5 - 10 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. Its branch strength rated as medium, and its root damage potential is rated as low.	3
Orange tree *Citrus sinesis*	This species needs good drainage. It has a compact and erect or spreading with a low canopy with evergreen foliage. Height: 20 - 30 feet. Width: 15 - 25 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years.	1

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
	It prefers exposure full sun and clay, loam or sand texture soil. It is susceptible to aphids, mealy bugs, scales, spider mites, thrip and white fly, brown rot, chlorosis, crown rot, oak root rot, *phytophthora*, root rot, sooty mold and virus. Its branch strength rated as medium and root damage potential rated is low.	
Peach tree *Prunus persica*	This species is native to China. Its form is erect or spreading with a low rounded, umbrella or vase shaped canopy. This is a deciduous species. Height: 25 feet. Width: 25 feet. Growth Rate: 36 Inches per Season. Longevity Less than 50 years. Exposure Full Sun. It prefers moist soil with clay, loam or sand texture. Susceptible to aphids, beetle borers, husk fly and scales, brown rot, canker, chlorosis, crown rot, gummosis, oak root rot, leaf blight, phytophthora, powdery mildew, root rot, rust, sooty mold and verticillium. Its branch strength is rated as medium weak and root damage potential is rated as low.	3
Cherry *Prunus sp.*	This species needs good drainage. Cross pollination usually necessary for fruiting. Erect or spreading with a low canopy. It typically has an oval, rounded or umbrella shape and has deciduous foliage. Height: 50 - 70 feet. Width: 20 - 30 feet. Growth Rate: 24 Inches per Season. Longevity Less than 50 years. Exposure Full Sun. Moist soil is best for this species with a loam or sand texture. Susceptible to aphids, caterpillars, scales and spider mites, brown rot, crown rot, gummosis, oak root rot, phytophthora, powdery mildew, root rot, rust, sooty mold, verticillium and virus. Its branch strength rated as medium and root damage potential rated as moderate.	2
Plum *Prunus domestica*	This species requires annual pruning for quality fruit. Favorable plant climate zones depends on varieties. Its growth habit is erect or spreading with a low oval, rounded or umbrella shaped canopy. It has deciduous foliage. Height: 10 - 15 feet. Width: 10 - 15 feet. Growth Rate: 24 Inches per Season. Longevity 40 to 150 years. Exposure Full Sun. Moist Soil. Clay, Loam or Sand Texture. Susceptible to Aphids, Beetle Borers, Caterpillars and Spider Mites, Anthracnose, Fire Blight, Brown Rot, Canker, Crown Rot, Gummosis, Powdery Mildew, Root Rot, Rust, Sooty Mold and Verticillium. Its branch strength is rated as medium weak and root damage potential is rated as low.	2
Common Pear *Pyrus communis*	This species has many cultivars and edible varieties. Its form is Erect or Spreading with a Low Canopy. It has a Conical or Oval Shape with Deciduous foliage. Height: 30 - 40 feet. Growth Rate: 24 to 36 Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun and prefers moist to dry clay, loam or sand textured soil. Its branch strength is rated as medium and its root damage potential is rated as low.	1
The fruit trees south of the equestrian pavilion showed many signs of desiccation and water stress. Because of this, many of the trees are in a state of decline and susceptible to disease.		
lemon-scented gum *Corymbia citriodora*	This species is smog tolerant. Bark can be a litter problem. Its habit is erect or spreading and requires ample growing space. It has evergreen foliage. Height: 80 - 160 feet. Width: 50 - 100 feet. Growth rate: 36 or more inches per season. Longevity 50 to wet to dry soil. 150 years. This species is susceptible to beetle borers and thrip, oak root rot, phytophthora and root rot. Branch strength rated as medium and root damage potential rated is moderate.	10
Red flowering gum *Corymbia ficifolia*	The red flowering gum is very desirable as a flowering accent tree, with its profusion of bright flower clusters in late summer, and sporadically throughout the year. It is drought and smog tolerant. Erect or Spreading with a Low Canopy. Rounded Shape and has evergreen foliage. Height: 18 - 45 feet. Width: 15 - 60 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. It prefers moist to dry soil and is drought tolerant. It prefers loam or sand texture soil. Its branch strength rated as medium and root damage potential rated as moderate.	3

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Southern red mahogany *Eucalyptus botryoides*	This species is native to southeastern Australia and is desired commercially for its strong and durable wood in its native Australia. Its habit is erect or spreading and requires ample growing space. It has a rounded shape with evergreen foliage. Height: 40 - 120 feet. Width: 30 - 75 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. It tolerates wet to dry soil and is drought tolerant. Its branch strength rated as strong and root damage potential is rated as moderate.	3
Red river gum ** *Eucalyptus camaldulensis*	This species is native to Australia. Its bark and twigs can be a litter problem. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as limited. Its growth habit is erect or spreading and requires ample growing space. This species has evergreen foliage. Height: 45 - 150 feet. Width: 45 - 105 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. This species prefers wet to dry soil and is drought tolerant. It prefers clay, loam or sand textured soil. It is susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and root damage potential rated as moderate.	5
Sugar gum *Eucalyptus cladocalyx*	This species is smog tolerant and is native to Southern Australia. Its growth habit is erect or Spreading and requires ample growing space. Its shape is rounded with evergreen foliage. Height: 40 - 90 feet. Width: 45 - 75 feet. Growth Rate: 36+ inches Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. It prefers moist to dry loam or sand textured soil and is drought tolerant. It is susceptible to beetle borers, oak root rot, *phytophthora* and root rot. Its branch strength rated as medium and its root damage potential rated as moderate.	1
Blue gum ** *Eucalyptus globulus*	This species has a compact and Erect or Spreading growth habit and requires ample growing space. It has an oval or Rounded Shape with evergreen foliage. Height: 40 - 70 feet. Width: 20 - 30 feet. Growth Rate: 36+ Inches per Season. Longevity 50 to 150 year Exposure Full Sun to Partial Shade. It tolerates moist to dry soil and is drought tolerant. It tolerates clay, loam or sand texture. Susceptible to beetle borers and thrip, oak root rot, phytophthora and root rot. Its branch strength rated as medium and its root damage potential rated as moderate.	5
Silver dollar gum *Eucalyptus polyanthemos*	This species is native to Southeastern Australia. Its growth habit is erect or spreading and requires ample growing space. It typically has an oval Shape with evergreen foliage. Height: 30 - 75 feet. Width: 15 - 45 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun to partial shade and wet to dry soil. It is drought tolerant and tolerates clay, loam or sand texture. Susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and its root damage potential rated as moderate.	1
Red ironbark *Eucalyptus sideroxylon*	This species is native to Eastern Australia. It is Erect or Weeping and requires ample in form and requires a large growing space. It has Evergreen foliage. Height: 30 - 90 feet. Width: 30 - 60 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. It tolerates moist to Dry Soil and is drought tolerant. It tolerates cay, loam or sand texture. Susceptible to beetle borers and thrip, chlorosis, oak root rot, phytophthora and root rot. Its branch strength is rated as medium and root damage potential rated as high.	11
Lack of maintenance was noted in the gum trees as a group. There was a large number of trees that had large, broken limbs and stems that possess a significant lean. Limb failure is very dangerous, especially with this type of tree.		
Carrotwood *Cupaniopsis anacardiodes*	This species is native to Australia and tolerates hot and dry winds. Some mature trees produce marble size fruits, which drop and can be a nuisance, some never fruit. Its growth habit is erect or spreading with a low canopy. Has evergreen foliage. Height: 40 feet. Width: 30 feet. Growth Rate: 12 to 24 Inches per Season.	6

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
	Longevity 50 to 150 years. It prefers moist soil clay, loam or sand type soil. Its branch strength is rated as medium weak. Its Root damage potential is rated as moderate.	
One specimen of this species was added in the survey of February 12, 2020.		
Common fig ** *Ficus carica*	This species is native to western Asia and the Eastern Mediterranean. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as moderate. Its growth habit is spreading with a low canopy, with a rounded, umbrella or vase shape form. It has deciduous foliage. Height: 20 - 30 feet. Width: 10 - 20 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun to partial shade as well as moist to dry soil. It tolerates clay, loam or sand texture. Susceptible to canker, fusarium, oak root rot, root rot and virus. Its branch strength is rated as medium and its root damage potential is rated as low.	2
The fig trees onsite are hardy and adaptive as is expected by their label as an invasive species.		
Shamel ash *Fraxinus uhdei*	This species is resistant to oak root fungus. Susceptible to Texas root rot and is used widely in Southern California. It is native to Mexico, and had a growth habit that is erect or Spreading and requires ample growing space. Oval Shape. Has Evergreen to Partly Deciduous foliage. Height: 80 feet. Width: 60 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates exposure full sun to partial shade and moist to dry soil. It tolerates clay, loam or sand texture. Susceptible to aphids, scales and white fly, fusarium, root rot, sooty mold and verticillium. Its branch strength is rated as medium weak and root damage potential is rated as high.	42
This is of the most abundant species on site. Shamel ash trees can grow very large and this species can be prone to limb failure as it is listed on our State Tree failure Database as having the most frequent limb failings. Any trees preserved within the site must be annually reviewed. One specimen of this species was added in the survey of February 12, 2020.		
Jacaranda *Jacaranda mimosofolia*	This species is native to northwestern Argentina and Bolivia. Spreading with a high canopy. Its growth habit is oval, rounded, umbrella or vase shape and has deciduous to deciduous foliage. Height: 40 - 50 feet. Width: 20 - 30 feet. Growth Rate: 24 Inches per Season. Longevity 40 to 150 years. Exposure Full Sun. It prefers moist soil composed of loam or sand texture. It is susceptible to aphids, phytophthora and root rot. Its branch strength rated as weak and its root damage potential rated as low.	85
There is a large number of jacaranda trees within the project area with varying degrees of health and vigor. Many are in good shape needing only maintenance. Many of the others planted (or sprouted) too close to other trees where it competes with other species leading to an unbalanced canopy. Three specimens of this species were added in the survey of February 12, 2020.		
White alder * *Alnus rhombifolia*	This species is relatively tolerant of heat and wind in landscaped areas. It is native to California, Western North America from the Sierra Nevada to Montana and has deciduous foliage. Height: 50 - 90 feet. Width: 40 - 70 feet. Growth Rate: 36 or More Inches per Season. Longevity 40 to 150 years. Its branch strength rated as medium and root damage potential rated as high. This species is susceptible to aphids, beetle borers, caterpillars and spider mites, powdery mildew.	3
Most of the white alder species onsite have been infected showing stained wood and lack vigor. White alder is a known host to the polyphagous shot hole borer (PSHB).		

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Chinese flame tree *Koelreuteria bipinnata*	This species is a good shade tree and is native to Asia. Its habit is spreading with a low rounded, umbrella or vase shape canopy with deciduous foliage. Height: 20 - 40 feet. Width: 15 - 30 feet. Growth Rate: 12 to 24 Inches per Season. Longevity is 50 to 150 years. It tolerates exposure full sun to partial shade and prefers moist soil with clay, loam or sand texture. It is susceptible to beetle borers and scales. Its branch strength is rated as medium and root damage potential is rated as low.	3
Sweetgum *Liquidambar styraciflua*	This species is native to eastern united states. Its habit is erect or spreading and requires ample growing space. It has a conical shape with deciduous foliage. Height: 80 feet. Width: 40 feet. Growth Rate: 24 to 36 Inches per Season. Longevity Greater than 150 years. Exposure Full Sun to Partial Shade. It tolerates wet to dry soil with clay, loam or sand texture. This species is susceptible to aphids, caterpillars, scales and spider mites, anthracnose, chlorosis and sooty mold. Its branch strength rated as medium, and its root damage potential rated as high.	2
White mulberry *Morus alba*	This species is native to China and has a Spreading with an oval, rounded or umbrella shaped high canopy. It has deciduous foliage. Height: 30 - 50 feet. Width: 30 - 50 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. Moist to Dry Soil. Clay, Loam or Sand Texture. It is susceptible to beetle borers, caterpillars, spider mites and white fly, chlorosis, crown rot, fusarium, oak root rot, leaf blight, phytophthora and root rot. Its branch strength rated as weak. Its root damage potential rated as high.	8
European olive ** *Olea europaea*	This species is drought tolerant and does well in heat. It tolerates moderate short-term dryness. Multi-trunk specimens can be trimmed-up to expose the attractive gray trunks. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as limited. Erect or spreading with a low canopy. Rounded, Umbrella or Vase Shape. Has Evergreen foliage. Height: 25 - 30 feet. Width: 25 - 30 feet. Growth Rate: 12 to 24 Inches per Season. This species' longevity is greater than 150 years. It tolerates exposure full sun to partial shade and moist to dry soil. Clay, loam or sand texture. Susceptible to scales, anthracnose, oak root rot, phytophthora, root rot, sooty mold and verticillium. Its branch strength is rated as strong. Its root damage potential is rated as moderate.	2
One specimen of this species was added in the survey of February 12, 2020.		
Coulter pine * *Pinus coulteri*	This species is drought tolerant or resistant. It has very large cones, 12 inches or more in size, and can be dangerous. Native to Southern California and Northern Baja California. Erect or Spreading and requires ample growing space. Its habit is conical Shape and has Evergreen foliage. Height: 80 feet. Width: 30 - 40 feet. Growth Rate: 24 to 36 Inches per Season. Longevity greater than 150 years. It tolerates exposure to full sun to partial shade and prefers moist to dry soil composed of clay, loam or sand texture. Susceptible to aphids and beetle borers, pitch canker. Its branch strength is rated as medium and root damage potential is rated as moderate.	1
Afghan pine *Pinus eldarica*	This species is drought resistant. It is native to Armenia, Azerbaijan, Georgia, Northern Iran and Northern Iraq and thrives in hot dry climates and poor soils. Its growth habit is erect or Spreading and requires ample growing space. It has a conical Shape with evergreen foliage. Height: 30 - 80 feet. Width: 15 - 25 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. It tolerates moist to Dry Soil. Its branch Strength Rated as Medium Strong and its root Damage Potential Rated as Moderate. It is susceptible to Aphids.	4
Aleppo pine *Pinus halepensis*	This species is drought resistant and is native to western Mediterranean. It is erect or spreading and requires ample growing space. It has conical shape with evergreen foliage.	3

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
	Height: 30 - 60 feet. Width: 20 - 40 feet. Growth Rate: 24 to 36 Inches per Season. This species has longevity greater than 150 years. Exposure it prefers full sun to partial shade and moist to dry soil. It is drought tolerant. Clay, loam or sand texture. Its branch strength is rated as strong and root damage potential is rated as moderate.	
Italian stone pine *Pinus pinea*	This species native to Mediterranean Region. It is a broad, flat-topped tree with age and needs ample room. It is a source for pine nuts. Its growth habit is erect or Spreading and requires ample growing space. Its form is conical, rounded or umbrella shape with evergreen foliage. Height: 40 - 80 feet. Width: 40 - 60 feet. Growth Rate: 24 to 36 Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. Moist to Dry Soil. Drought tolerant. Loam or Sand Texture. Susceptible to Aphids, Phytophthora, Root Rot and Pitch Canker. Branch Strength Rated as Weak to Medium Weak. Root Damage Potential Rated as Moderate.	1
The pine species within the property are generally planted along the boundary of the site adjacent to other trees. In many cases, the tree canopies overlap and have cause an offset or unbalance canopy.		
Southern California black walnut * *Juglans californica*	This species usually has multiple main trunks from ground level and is smaller than its northern counterpart. It is native to southern California and is erect or spreading and requires ample growing space. Rounded Shape. Has Deciduous foliage. Height: 30 feet. Width: 30 feet. Growth Rate: 24 Inches per Season. Longevity is 50 to 150 years. Exposure Full Sun to Partial Shade. Moist to Dry Soil. It is drought tolerant and tolerates loam or Sand Textured soil. It is susceptible to aphids and caterpillars, mistletoe, phytophthora, root rot and sooty mold. Its branch strength rated as medium and root damage potential is rated as moderate.	1
Fremont cottonwood * *Populus fremontii*	This species is a California native riparian tree. Its form is Erect or Spreading and requires ample growing space. Its growth form is Oval, Rounded or Umbrella Shape with deciduous foliage. Height: 40 - 80 feet. Width: 30 - 50 feet. Growth Rate: 36 Inches per Season. Longevity 40 to 150 years. Exposure Full Sun. It prefers wet to dry soil with a loam or sand texture. Its branch strength is rated as weak and root damage potential is rated as high.	2
Coast live oak * *Quercus agrifolia*	This California native species is a massive but graceful tree. Its habit is spreading or weeping and requires ample growing space. Its form is oval, rounded or umbrella shape with evergreen foliage; it is an important native species. Height: 20 - 70 feet. Width: 110 feet. Growth Rate: 24 Inches per Season. Longevity Greater than 150 years. It prefers full sun to partial shade and moist to dry loam or sand textured soil. Its branch strength is rated as strong. this species is susceptible to gold spotted oak borer, aphids, beetle borers, beetle grubs, caterpillars, coddling moths, insect galls, scales and white fly, sudden oak death, crown rot, mistletoe, oak root rot, phytophthora, powdery mildew, root rot and sooty mold.	1
Valley oak * *Quercus lobata*	This California native species is a massive but graceful tree. Its habit is erect, spreading or weeping and requires ample growing space. Its form is oval, rounded or umbrella shape with deciduous foliage. Height: 50 - 70 feet. Width: 50 feet. Growth Rate: 24 to 36 Inches per Season. Longevity Greater than 150 years. It prefers full sun to partial shade and moist to dry loam or sand textured soil. Susceptible to beetle borers, caterpillars, insect galls and scales, crown rot, mistletoe and root rot. Its branch strength is rated as medium to medium strong and root damage potential is rated as moderate.	7

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Valley oak trees planted onsite are struggling near the horse stables. Some have been infected with possible PSHB. This is a large species planted in an area where cars have been parked compacting the soil.		
Western sycamore * *Platanus racemosa*	This species is a riparian, California native tree that tolerates extreme heat and wind. Its form is erect or Spreading and requires ample growing space. Its form is oval, rounded or umbrella shape. It has deciduous foliage. Height: 30 - 80 feet. Width: 20 - 50 feet. Growth Rate: 36 Inches per Season. Longevity Greater than 150 years. This species prefers exposure of full sun to partial shade with moist to dry soil. It tolerates clay, loam or sand textured soil. It is susceptible to leaf miner, scales and spider mites, anthracnose, oak root rot, phytophthora, mistletoe, *Apignomonia venata* and root rot. Its branch strength is rated as medium and its root damage potential is rated as moderate.	28
Western sycamores within the property are large. Many of them trees within the vicinity of the central horse pavilion have been attacked and are diseased. Within the group, there are varying degrees of health and vigor. Those with significant damaged are flagged for removal.		
Three specimens of this species were added in the survey of February 12, 2020.		
Lombardy poplar *Populus nigra*	This species is a classical columnar form tree. It is widely adapted but needs large extensive area for full development. Its form is erect and requires ample growing space. It has a Columnar Shape with deciduous foliage. Height: 40 - 100 feet. Width: 15 - 30 feet. Growth Rate: 36 Inches per Season. Longevity 40 to 150 years. Exposure full sun. It prefers wet to dry soil with a clay, loam or sand texture. It is susceptible to beetle borers, scales and thrip, anthracnose, stem canker, crown rot and mistletoe. Its branch strength is rated as weak and root damage potential is rated as high.	2
Callery pear *Pyrus calleryana*	This species is native to china and is resistant to fireblight. It has a fragrant flower and an erect or spreading low or high canopy with an oval or rounded shape. It has deciduous foliage. Height: 50 feet. Width: 50 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. It tolerates exposure full sun with moist to dry soil and clay, loam or sand texture. Its branch strength is rated as medium and its root damage potential rated as moderate.	3
Black locust ** *Robinia pseudoacacia*	This species tolerates smog. Its seeds, leaves and bark are poisonous. Has become established in natural areas (undisturbed, undeveloped environments) in California. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. Has thorns. This species is native to eastern and central united states. Its form is erect or spreading and requires ample growing space. It has an oval shape with deciduous foliage. Height: 40 - 70 feet. Width: 25 - 35 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. Wet to dry soil composed of clay, loam or sand texture. Its branch strength is rated as medium weak to medium and its root damage potential is rated as high.	2
This species can be invasive; such small volunteer sprouting is seen in different areas within the site. The young sapling have sizeable thorns.		
Peruvian pepper ** *Schinus molle*	This species tolerates saline soil and smog. Susceptible to Texas root rot, especially in desert. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. It is native to Northern South America and has Evergreen foliage. Height: 25 - 50 feet. Width: 25 - 40 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. This species tolerates full sun and it prefers partial shade and moist to dry soil. It is drought tolerant and can be planted in clay, loam or sand textured soils. Susceptible to aphids, psyllid, scales and thrip, phytophthora, root rot, sooty mold and verticillium. Its branch strength is rated as medium weak and root damage potential is rated as high.	148

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Peruvian pepper trees planted onsite have been permitted to grow or sprout with limited maintenance. There are many instances with offset or overlapping canopies, failed branches, poor cuts, and several of the individuals are senescent and pose a liability risk to future development. This particular species is the most abundant type of tree within the site. Six specimens of this species were added in the survey of February 12, 2020.		
Brazilian pepper tree ** *Schinus terebinthifolia*	This species Requires a moderate amount of water. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. It is native to South America and grows erect or spreading with a low umbrella shape canopy. It has evergreen foliage. Height: 15 - 30 feet. Width: 15 - 30 feet. Growth Rate: 24 Inches per Season. Longevity 50 to 150 years. It prefers full sun to partial shade. It prefers moist to dry clay, loam or sand textured soil. Its branch strength is rated as medium weak and its root damage potential is rated as moderate.	21
Brazilian pepper trees were within the site as relatively healthy with some exceptions. This species was often planted adjacent to stables and other structures to where their growth was inhibited. In a few cases, inappropriate cuts were made compromising the overall integrity of the tree itself.		
Brush cherry *Syzygium paniculatum*	This species is drought tolerant and is known to attract pollinators and birds. The main pest of brush cherry is the lillypilly psyllid (*Trioza eugeniae*), which causes unsightly pitting of the foliage. This pest is native to Australia but has made its way into certain areas of the western and southern United States. It is commonly cultivated in eastern Australia and elsewhere. It grows to a height of 15-20 feet, 10 – 30 feet wide, and can tolerate full sun to partial shade. It has evergreen foliage and can tolerate mildly acidic to alkaline soils. Its growth habit is rounded, and it prefers moist to dry clay, loam or sand textured soil.	18
This species has been used extensively as a blind along the southern wall of the site. This species can be a bush or small tree, so it needs ample room to grow. The brush cherry trees onsite were planted as a wind and view screen resulting in overlapping and mis-shaped canopies. These are small tree and pose little liability as a hazard, but many have been overrun with epiphytic vegetation or are simply aesthetically unpleasant.		
Chinese elm *Ulmus parvifolia*	This species is drought tolerant, but is susceptible to Texas root rot in the desert. It has same problems as other elms but not as extensively. Susceptible to Dutch elm disease, but relatively few pests and diseases compared to other elms. Native to china, Japan, north Korea, and Vietnam. Its form is erect, spreading or weeping and requires ample growing space. Its growth habit is oval, rounded or umbrella shape with evergreen to partly deciduous foliage. Height: 40 - 60 feet. Width: 50 - 70 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates full Sun to Partial Shade and prefers moist Soil. Clay, loam or sand texture. Susceptible to aphids, beetle borers, beetle leaves, caterpillars and scales, Dutch elm disease, oak root rot, phytophthora, root rot, sooty mold and verticillium. Its branch strength is rated as medium weak to medium and root damage potential is rated as moderate.	7
Two specimens of this species were added in the survey of February 12, 2020.		
Mexican fan palm ** *Washingtonia robusta*	This species tolerates drought conditions. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as moderate. It is native to Northwestern Mexico, Sonora, and Baja California. Erect and requires ample growing space. It has a fan Palm Shape with evergreen foliage. Height: 80 - 100 feet. Width: 10 - 15 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates full sun to partial shade with wet to dry loam or sand textured soil. It is susceptible to beetle borers. Its branch strength is rated as medium strong and root damage potential is rated as moderate.	6

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Most of the Mexican fan palms within the site are young and appear to be volunteer sprouters. They show good vigor.		
Crape myrtle *Lagerstroemia indica*	The Crape Myrtle tree is native to China and is a commonly used single or multi-trunk tree. It is commonly used as in the urban setting in Southern California for its flowering, foliage, and bark features. Erect or Spreading with a Low Canopy. Has Deciduous foliage. Height: 25 feet. Width: 25 feet. Growth Rate: 24 Inches per Year. Longevity 50 to 150 years. Exposure Full Sun. Moist to Dry Soil. Drought tolerant. Clay, Loam or Sand Texture. Branch Strength Rated as Medium. Root Damage Potential Rated as Low. Susceptible to Aphids, Powdery Mildew and Sooty Mold.	7
Severn specimens of this species were added in the survey of February 12, 2020.		
Privet Ligustrum lucidum	This species is native to China, Korea, and Japan. The glossy privet is an evergreen and is used extensively as a shrub or tree standard. It is tough and durable, and its dark shiny green foliage makes it desirable. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. Height: 35 - 50 feet. Growth Rate: 36 Inches per Year. Its longevity ranges 50 to 150 years. Sunset zones 5, 6 and 8 - 24. USDA hardiness zones 8 - 10. It tolerates exposure of full sun to partial shade in moist to dry soil. It is also drought tolerant. It can grow in clay, loam or sand texture with highly acidic to highly alkaline soil pH. It is susceptible to aphids and leaf miner, armillaria, phytophthora, root rot, sooty mold and verticillium. Its branch strength rated as medium, and its root damage potential rated as moderate. Cal-IPC (California) classifies the invasiveness of this plant as *limited*.	5
Five specimens of this species were added in the survey of February 12, 2020.		
Japanese maple Acer palmatum	The Japanese Maple is a commonly used accent tree in lawns or moderately moist settings, beneath an overstory of taller shade trees, and as a residential patio tree. There are a multitude of hybrids, including variegated, lace leaf, miniature and purple-leaved varieties. This species is native to Japan and Korea and is from the family Sapindaceae (previously listed in the Aceraceae family). This is a small tree species and it has deciduous foliage. Height: 15 - 25 feet. Width: 15 - 25 feet. Growth Rate: 12 to 24 Inches per Year. Its longevity ranges 50 to 150 years. Sunset Zones 2 - 10, 12 and 14 – 24. USDA Hardiness Zones 5 - 8. It tolerates sun exposure partial shade to full shade with moist but well drained soil with clay, loam or sand texture. It also tolerates highly acidic to slightly alkaline soil ph. It is susceptible to invasive shot hole borer and aphids, armillaria, root rot and verticillium. Its branch strength rated as medium, and its root damage potential rated as low.	3
Three specimens of this species were added in the survey of February 12, 2020.		
Camphor tree *Cinnamomum camphora*	Erect or Spreading and requires ample growing space. Rounded or Umbrella Shape. Has Evergreen foliage. Height: 50 - 65 feet. Width: 50 - 60 feet. Growth Rate: 24 Inches per Year. Longevity 50 to 150 years or more. Sunset Zones 8, 9 and 12 - 24. USDA Hardiness Zones 9 - 11. Exposure full sun to partial shade and can tolerate moist soil consisting of clay, loam or sand texture. Slightly acidic to highly alkaline soil ph. Susceptible to anthracnose, armillaria, phytophthora, root rot and verticillium. Its branch strength rated as strong, and its root damage potential rated as high.	1
One specimen of this species was added in the survey of February 12, 2020.		

Common Name ***Botanical Name***	**Species Profile**	**Qty.**
Indian Laurel Fig *Ficus microcarpa*	This tree species is native from the Malaysian peninsula to Borneo. It is a common street tree in California and is valued for its massive canopies with dark green foliage that stands in contrast with its light gray bark. Family: *Moraceae* Has Evergreen foliage. Height: 25 - 35 feet. Width: 35 - 40 feet. Growth Rate: 24 Inches per Year. Longevity 50 to 150 years. Sunset Zones 9, 13 and 16 - 24; USDA Hardiness Zones 9 - 12. Exposure Full Sun to Partial Shade. This tree thrives in moist soil composed of loam or sand texture. It thrives in slightly acidic to highly alkaline soil pH. Its branch Strength Rated as weak and root damage potential is rated as moderate. Susceptible to thrip.	5
Five specimens of this species were added in the survey of February 12, 2020.		
European White Birch *Betula pendula*	This tree has deciduous foliage and is native to Europe to Asia Minor. It is from the family *Betulaceae*. It has a poor tolerance of drought. The yellow leaves in fall contrast gracefully with striking white bark. Height: 40 - 50 feet. Width: 15 - 25 feet. Its growth rate is about 36 inches per year. Its longevity ranges 40 to 150 years, and it grows in Sunset Zones 1 - 12 and 14 - 24. USDA hardiness zones 2 – 7, and it tolerates exposure full sun to full shade in wet to moist soil composed of clay, loam or sand texture. It can grow in highly acidic to highly alkaline soil pH, and it is resistant to *verticillium*. Susceptible to aphids and beetle borers, armillaria, phytophthora, root rot and sooty mold. Its branch strength rated as medium, and its root damage potential rated as moderate.	2
Two specimens of this species were added in the survey of February 12, 2020.		
Bottle Tree *Brachychiton populneus*	This hardy, drought tolerant tree has evergreen foliage and.is native to Australia. It is part of the Malvaceae family. It is hardy to 25 degrees F. Height: 30 - 50 feet. Width: 30 feet. Its growth rate is about 24 inches per year. Its longevity ranges 50 to 150 years, and it grows in Sunset Zones 12 - 24. USDA hardiness zones 8 – 11, and it tolerates exposure full sun with moist to dry soil composed of loam or sand texture. It can grow in slightly acidic to highly alkaline soil ph. It is resistant to *Armillaria*, and it is susceptible to invasive shot hole borer, root rot. Its branch strength rated as weak, and its root damage potential rated as moderate.	6
Six specimens of this species were added in the survey of February 12, 2020.		
Shiny Xylosma *Xylosma congesta*	This species is native to China. It can be used as a hedge or large screen, or can be trained as a tree. This tree is from the family *Flacourtiaceae* and has evergreen foliage. Height: 8 - 10 feet. Width: 8 - 15 feet. Its growth Rate is up to 24 Inches per Year. Its longevity ranges 50 to 150 years, and it thrives in Sunset Zones 8 - 24. It tolerates exposure Full Sun to Partial Shade. It thrives in moist Soil composed of clay, Loam or Sand Texture. It can tolerate slightly Acidic to Highly Alkaline Soil pH. This tree is susceptible to Invasive Shot Hole Borer, Giant Whitefly, Scales and Spider Mites, Chlorosis. Its branch strength rated as medium, and its root damage potential rated as low.	4
Four specimens of this species were added in the survey of February 12, 2020.		

* California native tree species

** Cal-IPC (California Invasive Plant Council) invasive tree species

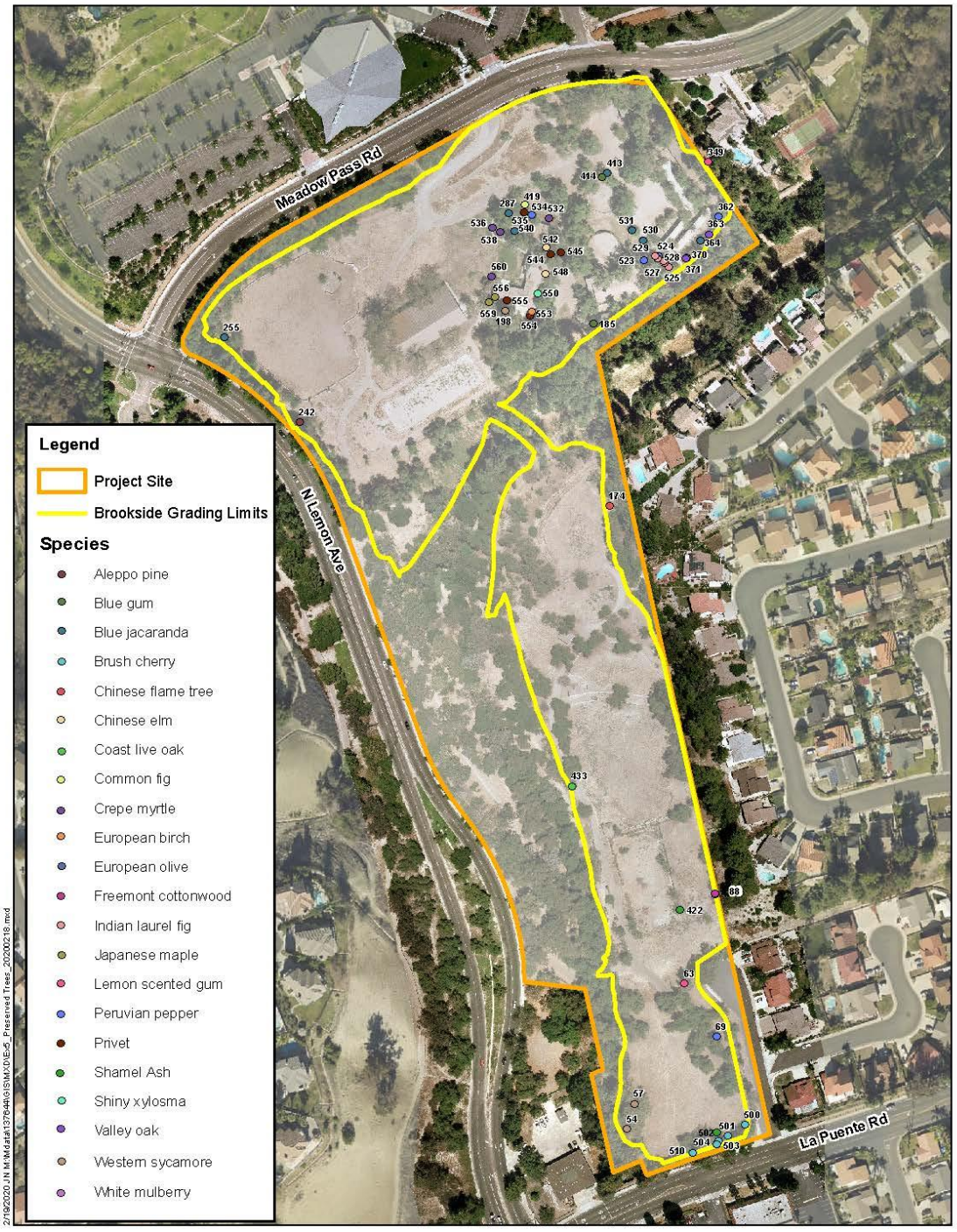

Meadow Pass Rd
N Lemon Ave
La Puente Rd
Legend
Project Site
Brookside Grading Limits
Species
Aleppo pine
Blue gum
Blue jacaranda
Brush cherry
Chinese flame tree
Chinese elm
Coast live oak
Common fig
Crepe myrtle
European birch
European olive
Freemont cottonwood
Indian laurel fig
Japanese maple
Lemon scented gum
Peruvian pepper
Privet
Shamel Ash
Shiny xylosma
Valley oak
Western sycamore
White mulberry
2/19/2020 J:\N M:\Wdata\137644\GIS\MXD\E6_Preserved Trees_20200218.mxd
Michael Baker INTERNATIONAL
0 125 250
Feet
Source: Eagle Aerial Imaging
THE BROOKSIDE DEVELOPMENT
Preserved Trees

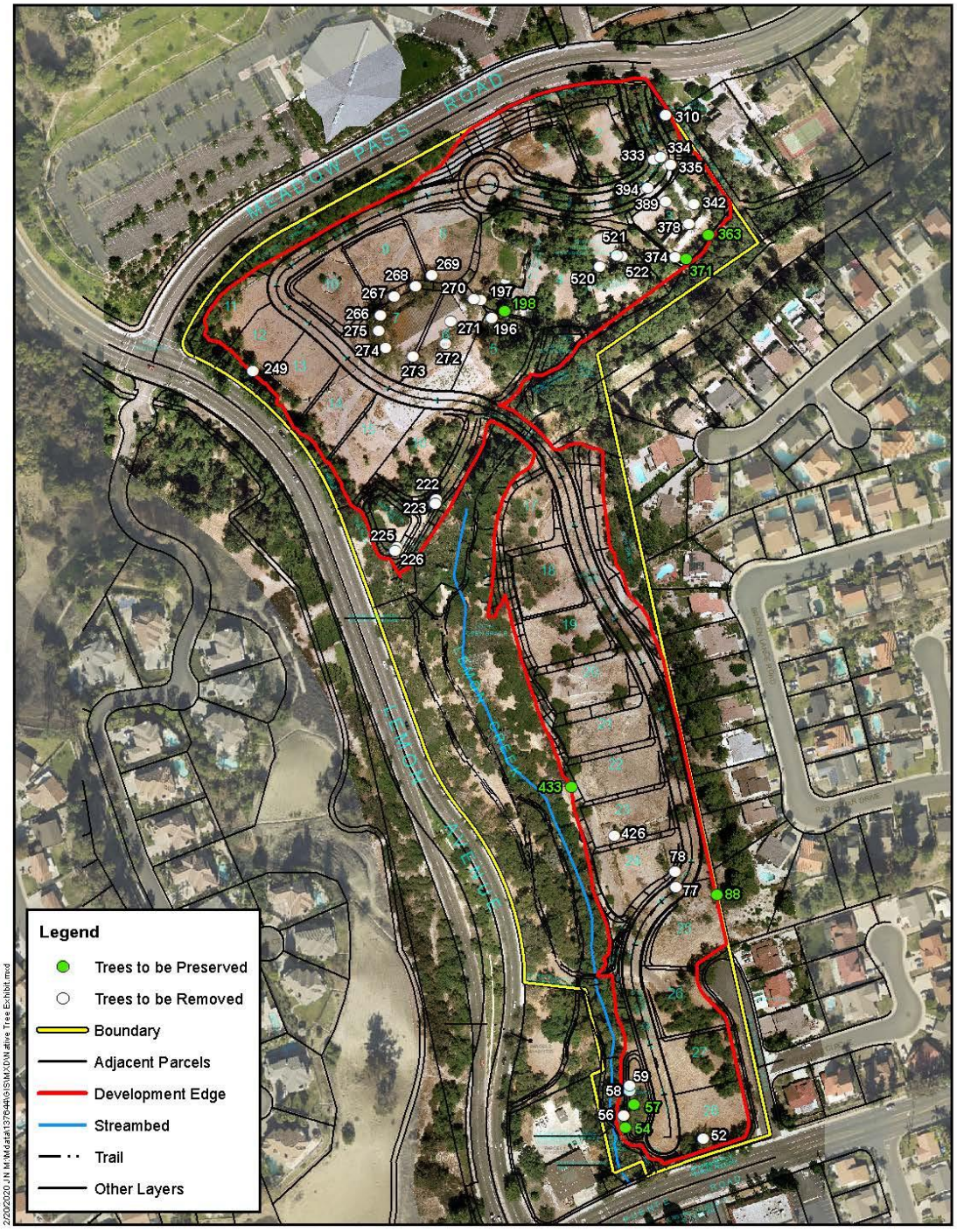
Figure 3

3.1.1 - Native Trees

Within the grading limits of the project, 43 native trees were identified, as described in Section 2 above. Table 2 below identifies their tag number, status, and proposed mitigation for each tree's removal. As shown in Table 2, 36 native trees will be removed and seven will be preserved (six of which will be pruned and monitored and one of which will be treated and monitored). Figure 4 below shows the precise location of each tree from an aerial view.

Table 2. Native Trees Surveyed

Tree Tag #	Species	Conclusion	Mitigation
52	Western sycamore	Remove	3:1 Replacement
54	Western sycamore	Prune and monitor	NA
56	Western sycamore	Remove	3:1 Replacement
57	Western sycamore	Prune and monitor	NA
58	Western sycamore	Remove	3:1 Replacement
59	Western sycamore	Remove	3:1 Replacement
77	Western sycamore	Remove	3:1 Replacement
78	Western sycamore	Remove	3:1 Replacement
88	Freemont cottonwood	Prune and monitor	NA
196	Western sycamore	Remove	3:1 Replacement
197	Western sycamore	Remove	3:1 Replacement
198	Western sycamore	Treat and Monitor	NA
222	Western sycamore	Remove	3:1 Replacement
223	Western sycamore	Remove	3:1 Replacement
225	Western sycamore	Remove	3:1 Replacement
226	Western sycamore	Remove	3:1 Replacement
249	CA black walnut	Remove	3:1 Replacement
266	Western sycamore	Remove with Project	3:1 Replacement
267	Western sycamore	Remove	3:1 Replacement
268	Western sycamore	Remove	3:1 Replacement
269	Western sycamore	Remove with Project	3:1 Replacement
270	Western sycamore	Remove	3:1 Replacement
271	Western sycamore	Remove	3:1 Replacement
272	Western sycamore	Remove	3:1 Replacement
273	Western sycamore	Remove	3:1 Replacement
274	Western sycamore	Remove	3:1 Replacement
275	Western sycamore	Remove	3:1 Replacement
310	Coulter pine	Remove with Project	3:1 Replacement
333	White alder	Remove	3:1 Replacement
334	White alder	Remove	3:1 Replacement
335	White alder	Remove	3:1 Replacement
342	Valley oak	Remove with Project	3:1 Replacement
363	Valley oak	Prune and monitor	NA
371	Valley oak	Prune and monitor	NA
374	Valley oak	Remove	3:1 Replacement
378	Valley oak	Remove	3:1 Replacement
389	Valley oak	Remove with Project	3:1 Replacement
394	Valley oak	Remove with Project	3:1 Replacement
426	Fremont cottonwood	Remove	3:1 Replacement
433	Coast live oak	Prune and monitor	NA
520	Western Sycamore	Remove	3:1 Replacement
521	Western Sycamore	Remove	3:1 Replacement
522	Western Sycamore	Remove	3:1 Replacement



THE BROOKSIDE DEVELOPMENT

Native Tree Exhibit

Figure 4

3.2 - Observations

As previously indicated, the stature and condition of each tree within the project grading limits were assessed at the time of the survey. Below are a few representative examples of the conditions found within the project site among the trees. *The pictures below were taken in October 2016 unless otherwise indicated.*

3.2.1 - Canopy Crowding

Plants and trees compete for available resources such as light, water and nutrients. Strategies employed by each individual plant take place above and below the soil. If adequate spacing is not permitted, it can also lead to offset canopies/above ground biomass, poor uptake of nutrients, stressed trees with lack of vigor and canopy dieback among many other conditions. Overcrowded plants must compete with each other for soil nutrients, which can result in increased fertilizer needs. Soil contains a finite amount of nitrogen and other necessary plant nutrients. The more plants there are in a small space, the more quickly these nutrients are used up. In addition, Poor air circulation can lead to an increase of fungal diseases, such as powdery mildew. Pests, including aphids and mites, can also more easily move between plants if they are spaced so closely that they touch.

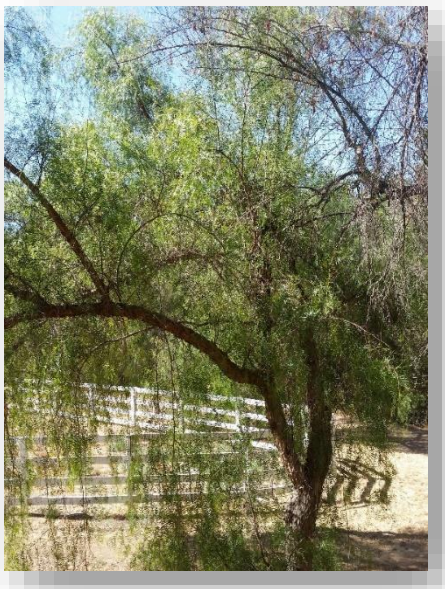


Plate 1. This a view of a young Peruvian pepper with an unbalanced canopy (tree #137).

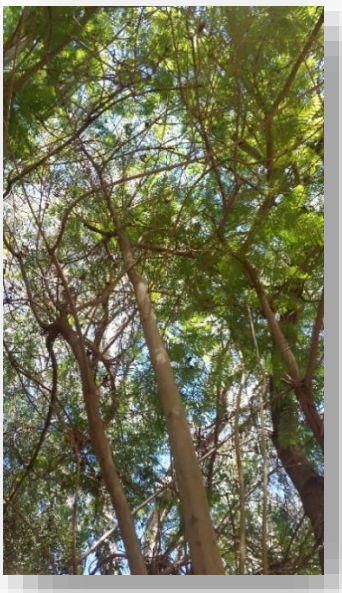


Plate 2. This a view of crowded canopies, a common situation within the project site (tree #329).

3.2.2 - Inadequate Irrigation and Maintenance

Trees need periodic maintenance and regular irrigation; this is especially important as trees become established.

Plate 3. This is a view of leaf tip burn of a shamel ash within the project site.

Plate 4. This is a view of an inappropriate cut with resultant water sprouting on Tree 136.

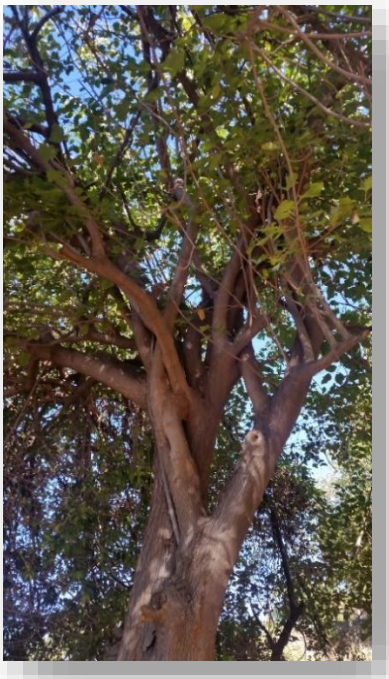


Plate 5. This is a view of poor branch scaffolding within a white mulberry (tree #290).

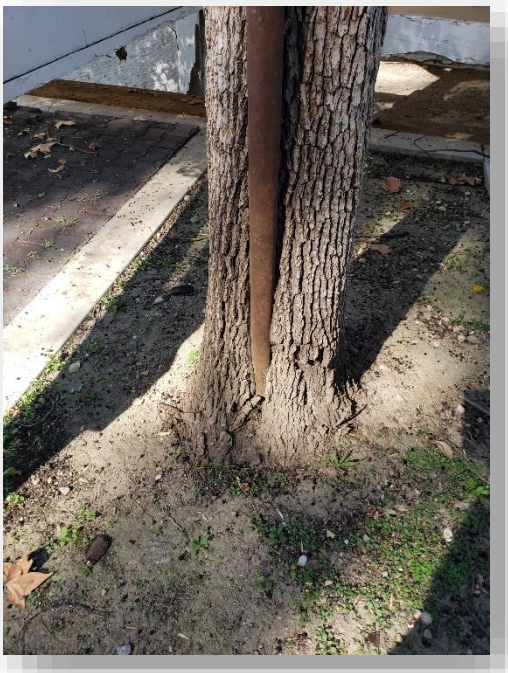


Plate 6. This is a view of an embedded pipe within the stem of a tree (tree #564). *This was taken in February 2020.*

Plate 7. This is a view of an embedded string of ornamental lights girdling a tree (tree #539). *This was taken in February 2020.*

Plate 8. This is a view of surficial roots and compacted soil (tree #520). *This was taken in February 2020.*

3.2.3 - Senescent Trees

Many of the pepper trees within the property are senescent or over-mature. Mature and over-mature trees are less able to tolerate construction impacts and remain assets than young semi-mature individuals. As a tree ages, it loses its ability to feed and protect the tissues where it stores energy; the tree sheds the parts that are most vulnerable.

Plate 9. This is a view of a senescent Peruvian pepper within the project site (tree #229).

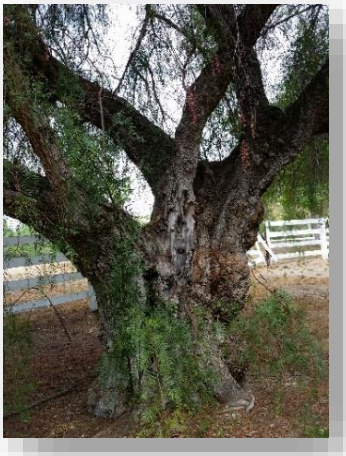


Plate10. This is a view of a Peruvian pepper with a hollowed stem and burls at its base (tree #221).

3.2.4 - Pest and Disease

Plate 11. This is a view of termite damage localized in an open branch cut of a fruit tree onsite (tree #214).

Plate 12. This is a view of sapsucker damage penetrating much of the cambial layer of the tree (tree # 216).

Plate 13. This is a view of stained wood of a white alder typically associated with a borer (tree # 335).

Plate 14. This is a view of stained wood of a western sycamore typically associated with a PSGB borer (tree # 226).

Plate 15. This is a view of an exuding canker on Tree 172.

Plate 16. This is a view of infected eucalyptus foliage, possibly lerp psyllid.

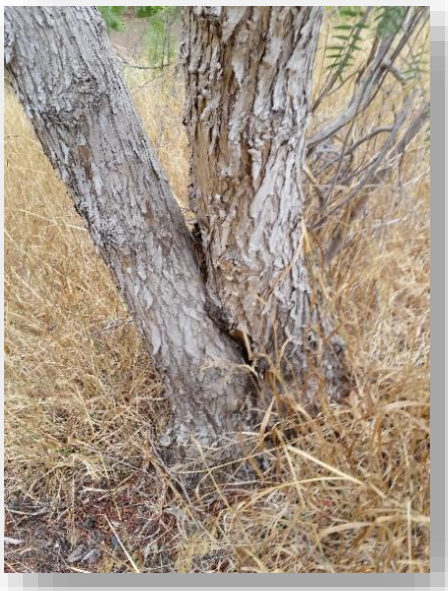
Plate 17. This is a view of significant canopy dieback of a tree competing with the canopy of another.

3.2.5 - Potential or Immanent Hazard

Because of the prolonged lack of maintenance, several trees within the site pose a significant threat of failure. These trees may show signs of stem cracking, significant lean (or have fallen), serious decay, or are simply dead. Trees showing indication for immediate removal include the following individuals:

Plate 18. This is a view of a jacaranda tree slowly falling. Poor flare and root development are noted (tree #328).

Plate 19. This is a view of a shamel ash slowly falling due to a grade change (tree #294).



Photoplate 20. This a view of a Peruvian pepper with codominant stems and included bark (tree #142).

Photoplate 21. This a view of a large shamel ash with partially girdling roots (tree #194).

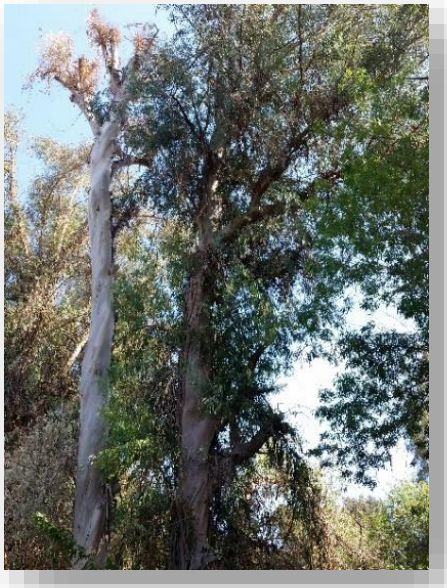


Plate 22. This a view of a dead blue gum (tree #188).

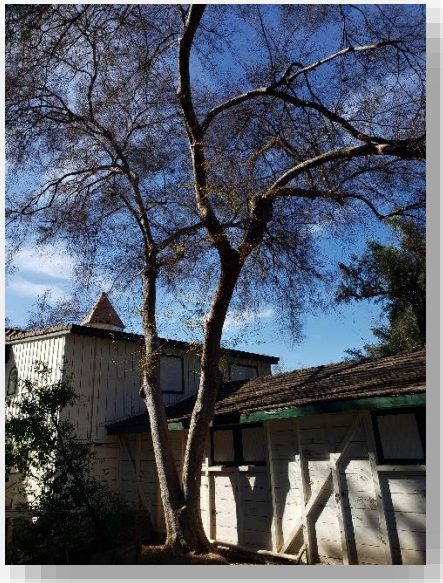


Plate 23. This a view of a dead blue gum (tree #542). *This was taken in February 2020.*

SECTION 4: CONCLUSION AND RECOMMENDATIONS

4.1 - Conclusion

The surveys for this project originally took place in October 2016, and a supplemental survey took place in February 2020 following a change in project design.

Within the project grading boundary limit, 504 trees composed of 52 distinct species were assessed. No Heritage Trees are present onsite as defined in the City's Municipal Code (see Section 2.6 above). In general, many of the trees onsite show signs of decline. Of the trees assessed, 354 trees should be removed due to their increased risk of failure, diseased status, poor structural integrity or vigor, reduced functionality and poor aesthetics. An additional nine are recommended to be preserved and treated and monitored. Another 92 trees directly conflict with the site plan. Excluding the conflicting trees, the trees flagged for removal in general are diseased, pose immanent hazards, in decline, or posing significant liability if not maintained (see Table 3 below). In some cases, the trees can be preserved, but must be regularly maintained and monitored if accessed by the public. A detailed list is each tree is provided in Appendices A and B below.

Table 3. Arborist Recommendations/Conclusions

Prune and Monitor - Trees appeared to present the health and stature necessary for long-term preservation. Tree protection during construction is necessary and re-evaluation is warranted once project has been implemented. Treatment is warranted for 9 trees and may be warranted for certain due to the level of stress tolerated. Note: Many trees require additional assessment, especially following installation of the proposed development. These trees were added in this sum.	58
Remove with Project - These trees are viable, but directly conflict with the proposed project	92
Recommended for Removal - These trees present certain health, stature, or liability risks that replacement with younger, more viable trees will benefit future community and natural environment.	354
Total	**504**

4.2 - Discussion

As indicated above, there has been a lack of irrigation for an extended period of time posing a significant and prolonged stress on the trees within the site. Trees will continue to endure stress associated with lack of irrigation exacerbating their condition until the implementation of the project. In addition, under these conditions, the status of trees may have changed since they were assessed in October 2016.

A total of 194 trees of the 504 (38.5%) trees onsite are classified by CAL-IPC as invasive. This status basically means these species have evolved characteristics that give them an advantage over native flora. It is important to understand that this particular area has an ecological connection to Lemon Creek. Because of these factors, it would benefit the end development to install native trees to the extent feasible as allowed by the City. The change in tree composition from exotic to native with the associated vegetation may better serve the ecological functionality of the local riparian environment.

Note: During the course of this tree assessment and final report review, at least ten trees failed as a result of weather conditions. Stemming from the January 21-22, 2017 rain event, trees 65, 81, 84, 93, 244, 254, 284 (damaged tag), 294, 415, and 416 were removed as a result of failure or hazardous condition. None of these trees were native species. Of these, eight earmarked to be removed due to health or liability, one (tree # 284) was in conflict with the project, and tree # 84 was already dead at the time of the survey.

4.3 - Recommendations

Decisions to determine a tree as viable were made primarily keeping future public safety in mind and secondarily by the ecological contribution and aesthetics of each individual tree.

4.3.1 - Trees to be Preserved

The surveys conducted as part of this report identified many trees in a state of decline likely spurred through lack of proper irrigation and maintenance during concurrent drought conditions.. If any trees are to be preserved, an update to their status is recommended to determine their viability to survive. During the short course of this assessment, many trees conditions were noted as worsening due to lack of water. Continued irrigation may reduce stress on existing trees and may increase the number of trees that could be potentially preserved. There are a number of trees on site with indication of a boring pest. Species such as the polyphagous shot hole borer favor western sycamores, white alders, coast live oaks, valley oaks, and other native species. All trees preserved must be determined to be free of any boring pest, or treated or removed as feasible. As previously indicated, a tree location map must be available and a fencing plan in place during ground-disturbing activity. Figure 3 above shows the trees within the grading limits that have been identified for preservation. There were 92 additional trees that appeared viable, but their removal and replacement is necessary due to conflict with the proposed site plan. Figure 4 also shows the location of the native tree species onsite. This figure also identifies which native trees will be preserved and their strategic location within the proposed project.

4.3.2 - Tree Removal Mitigation Plan

There were 211 trees that have been determined to be dead, in decline, or have substantial defects to where they pose a liability or are aesthetically unappealing. The removal of living, native trees may result in a biological impact. Recommended mitigation for living non-native trees removed is replacement with "approved" species in accordance with Section 25-178.8 of the City's municipal code at a 1:1 ratio (native species should be replaced at a 3:1 ratio with 24" boxed native nursery stock) or at the discretion of the Community Development Director. Replacing the trees that must be removed with native species will better serve the existing ecological setting and riparian vegetation community associated with Lemon Creek. A Tree Preservation / Replacement has been submitted to the City to show where trees are to be replaced. A Tree Preservation and Replacement Plan is provided in Appendix C below detailing the proposed location of native and non-native tree replacement. Non-native tree species are located along the boundary of each lot while native species are installed as a contiguous extension of the riparian vegetation communities onsite.

4.3.3 - Strategic Pruning and On-going Monitoring

Several species listed in Appendix A require maintenance and ongoing monitoring if preserved; this is to ensure public safety and minimize liability due to potential tree failure. Strategic pruning compliant with ISA standards must be performed to subordinate codominant stems, and canopy deadwood should be removed. Regular maintenance according to ISA standards is recommended for all trees onsite.

4.3.4 - Post Development Tree Survey

As indicated above, the original assessment associated with this survey took place in October 2016. The site has had limited (if any) supplemental irrigation. This likely has adversely affected the status of trees identified within this Report. It is important that a follow-on tree survey be conducted by an ISA Certified Arborist following the installation of the proposed development and prior to occupancy.

4.3.5 - Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act (MBTA) and CDFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions.

4.3.6 - Tree Protection during Construction

A Tree Protection Zone (TPZ) is the designated area that encompasses the area under the tree canopy; it typically extends to the edge of the canopy or dripline. The Critical Root Zone (CRZ) is smaller extending to 1 foot for every in at DBH (ex. 10" DBH equals a 10-foot radius CRZ extending from the center of the trunk. The main stresses and risks of construction are:

- Soil compaction
- Lack of water or changes in the site hydrology

- Change of grade in the root zone
- Physical damage to tree roots and stem structure
- Dumping of potentially toxic construction wastes
- Dust
- Human error

Building/grading near trees requires that they are healthy at the start of the project for the stand to recover well. Some older trees have little tolerance for root damage or other stress factors. Younger, more vital trees are more tolerant of changes in their surroundings. However, each change in soil compaction, irrigation, under plantings, and other condition takes some of an older tree's strength and vigor and further diminishes its health. The City of Walnut's Municipal Code contains specific provisions regarding construction.

> Work within the Protected Zone. Because of the high sensitivity of these trees, great care must be taken when work is being conducted within the protected zone. For this reason, the city has established specific procedures to ensure that the trees receive maximum protection. The procedures are as follows:
>
> a) Onsite Supervision. All work conducted within the protected zone of the *tree* shall be performed in the presence of the applicant's oak *tree* consultant, and verified by the city's oak *tree* consultant.
> b) Forty-eight Hour Notice. Except for deadwooding and pruning of limbs which are six inches or less in circumference, the applicant shall provide a forty-eight hour notice to the department of community development and the appropriate *tree* consultant before beginning any work within the protected zone.
> c) Hand Tools. Unless otherwise approved, all work conducted within the protected zone underneath the *tree* shall be accomplished using hand tools only. Use of tractors and other vehicles within the protected zone is prohibited. The use of chainsaws for cutting branches is permitted.
> d) Certification Letter. Certification letters are required for all work conducted upon the trees. In this regard, the applicant's *tree* consultant shall submit a certification letter to the department of community development within ten working days after completion

The main stresses and risks of construction are:

- Soil compaction
- Lack of water or changes in the site hydrology
- Change of grade in the root zone
- Physical damage to tree roots and structure
- Dumping of potentially toxic construction wastes
- Lack of pest control and other care
- Dust
- Human error

Mature trees take a long time to heal from, or respond to, injury. It could take 10 years for some trees to make a visible improvement in health after construction impacts occur. On the other hand, it could take 10 years for a tree to visibly start declining after cutting roots, compacting the soil, or raising the grade.

The following measure must be taken for any trees that are to be preserved onsite (or as dictated by the City's guidelines).

1. Dripline fencing must be placed a minimum of 1 foot in radius from the tree per 1 inch of diameter at breast height (for example, 6-inch trunk = 6 feet protection radius/12 feet diameter).

2. Dripline fencing must be erected so that it is visible and structurally sound enough to deter construction equipment, foot traffic, and the storing of equipment under tree canopies.

3. Raising or lowering the grade in the root zone of trees can be fatal or ruin the health of trees for years to come. Grade change and soil compaction force out the oxygen and literally press the life out of the soil. A retaining wall can be used to minimize the amount of the root zone that is affected, but it is essential that the footing is not continuous. Gravel and aeration pipes should be placed inside the retaining wall before the fill is placed. Consult with a qualified civil engineer for proper design calculations.

4. Trenching within the protection zone must be avoided wherever possible. Most of the roots are in the top 1 to 2 feet of soil, and trenching can sever a large percentage of roots.

5. Oil from construction equipment, cement, concrete washout, acid washes, paint, and solvents are toxic to tree roots. Signs should be posted on the fencing around trees notifying contractors of the fines for dumping. Portable latrines that are washed out with strong detergents can damage the fine roots of the trees. Portable latrines should not be placed near trees, nor where frequent and regular foot traffic to them will compact the soil below the trees.

6. Construction creates large amounts of dust, and the oaks and any other trees to be preserved will need to be kept clean. Dust reduces photosynthesis on all trees. Strict dust control measures must be implemented during construction to minimize this impact, and an occasional rinsing with a solution of water and insecticidal soap will help control pests.

SECTION 5: QUALIFICATIONS OF ARBORIST

Mr. Wirtes is a Certified Arborist with the International Society of Arboriculture (CH-08084) and a member of the American Society of Consulting Arborists. Mr. Wirtes was certified in November of 2005 and has conducted numerous tree assessments for residential properties that involve oak and other tree species. Most notably, Mr. Wirtes has created an oak regeneration plan for a 2.3-acre project site in Ventura County as mitigation within a specific plan development. Mr. Wirtes' education includes a Bachelor of Science in Biology and a Master of Science in Environmental Science from California State University at Fullerton.

I certify that the details stated herein this report are true and accurate:

February 20, 2020

George Wirtes, MS

ISA Certified Arborist

SECTION 6: REFERENCES

Calflora. 2007. Website at http://www.calflora.org.

California Geological Survey, 2016. Website at https://mrdata.usgs.gov/geology/state/state.php?state=CA

City of Walnut 2016. Municipal Code website at http://qcode.us/codes/walnut/view.php?topic=vi-25-xvi-5-25_178&frames=on

Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Natural Resource Conservation Service. 2008. Website at http://ortho.ftw.nrcs.usda.gov/

University of California, 2016. California Tree Failure Report Program website at http://ucanr.edu/sites/treefail/

University of Florida Environmental Horticulture Department 2008. Website at http://hort.ifas.ufl.edu/

UFEI, 2016. Urban Forest Ecosystems Institute website at https://selectree.calpoly.edu/

Virginia Tech, Dendrology Dept. 2008. Website at http://www.cnr.vt.edu/DENDRO/dendrology/main.htm

Appendix A - Species Matrix (Initial Survey)

Note - This tree survey and the details recorded below are meant to characterize the trees within the property. The assessment is not exhaustive, but is a balance between the competing forces of in-depth description and cost effectiveness. The goal was to accumulate enough data to make a judgment as to what role, if any, the existing trees may have in the proposed project.

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) -up is N			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
51	White mulberry	18.9	34	16	12	10	Multi-stemmed, internal decay, included bark. Leaves opposite	2.5	2	2.5	Remove
				16		10					
				11	15	15					
52	Western sycamore	14.7	53	20	22	22	Infection noted, exuding sap - stained wood, good vigor, but poor prognosis	3	2	2.5	Remove
				16		15					
				16	15	12					
53	Peruvian pepper	18.1	37	30	23	14	Lean, offset canopy, increased risk, poor flare	2.5	2	3	R
				28		14					
				8	7	8					
54	Western sycamore	11.2	53	12	16	16	Exuding from bark, somewhat distress canopy	2.5	2	2.5	Prune and monitor
				13		18					
				13	13	19					
55	Red flowering gum	13.5	61	5	5	15	lean to S at approx. 45 deg, stem damage, embedded tube, elevated risk	2.5	2	4	Remove
				10		20					
				25	29	26					
56	Western sycamore	12.9	72	8	6	7	exuding sap, unbalanced canopy, increased risk	3	2	2.5	Remove
				15		14					
				18	16	20					
57	Western sycamore	26.5	81	18	16	30	Pest borings, nutrient deficiency indication, vigor OK, close monitoring if preserving	1.5	2	2	Prune and monitor
				20		33					
				20	24	25					
58	Western sycamore	11.6	73	8	6	16	Tree in decline, mistletoe present, poor canopy health and vigor, mower damage and epicormic shoots	3	2	3	Remove
				8		9					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				8	10	13					
59	Western sycamore	20	69	16	22	8	Stem and bark damage, pole compartmentalized in stem, powdery mildew on leaves, decreased canopy health and vigor, leaf curl-possible infection	2.5	2	2	Remove
				6		9					
				8	4	10					
60	Peruvian pepper	59.4	64	14	12	23	Codominant stem, approx. 40 deg lean, hollow stem	2.5	2	3	Remove
				10		40					
				18	20	22					
61	Peruvian pepper	38.5	47	16	13	24	Hollow stem with decay noted, increased deadwood or dieback in canopy, gnarled buttress, good vigor, elevated risk	2	2	3	Remove
				20		29					
				22	20	27					
62	Peruvian pepper	21	40	16	15	14	Water sprouting, some boring, large dead limb, poor maint., poor branch cut, canopy dieback noted	2	2	2	Remove with Project
				17		13					
				18	17	16					
63	Lemon scented gum	21.8	71	7	7	4	poor maintenance, good trunk flare, some canopy deadwood/dieback	2	1.5	1.5	Prune and monitor
				7		5					
				16	17	12					
64	Peruvian pepper	22.6	58	14	11	9	Increased canopy dieback, large uncovered branch cut, poor aesthetics	2	2	2	Remove with Project
				19		5					
				17	20	7					
65	Peruvian pepper	16.7	36	5	34	4	Approx 60 deg lean, canopy dieback noted, poor branch cut, stem damage	2	3	3	Remove
				8		9					
				32	26	12					
66	Peruvian pepper	20.8	37	12	18	16	minor canopy dieback, increased callus wood in stem	2	2	2	Remove with Project
				19		12					
				15	18	14					
67	Peruvian pepper	22	50	15	11	6	Minor canopy deadwood, large branch with increased risk of failure	2	2	2.5	Remove with Project
				32		13					
				12	11	17					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
68	Peruvian pepper	20	42	10	7	13	Canopy offset/unbalanced, large broken branch, poor aesthetics, sapsucker pest damage,	2.5	2	2.5	Remove
				10		13					
				20	15	16					
69	Peruvian pepper	33	44	13	17	13	Epicormic sprouting, vigor OK, some canopy dieback, lean 10-15 deg	2	1.5	3	Prune and monitor
				15		11					
				17	14	13					
70	Peruvian pepper	19	42	25	8	7	Some callus wood noted, good canopy structure, unsound hollow wood	2	1.5	4	Remove
				18		6					
				12	13	11					
71	Peruvian pepper	19.6	32	18	11	12	Water sprouting, minor unsound wood in west end of flare, marginal specimen	2	1.5	3	Remove
				10		12					
				6	8	10					
72	Peruvian pepper	36.8	42	22	16	13	Large lower limb, reaction/callus wood, unsound wood	2	1.5	4	Remove
				32		18					
				32	18	22					
73	Peruvian pepper	15.9	50	4	3	8	Approx. 20 deg lean to the southeast, poor canopy development, poor vigor	3	2	3.5	Remove
				4		15					
				12	14	17					
74	Shamel ash	8.8	44	8	10	11	Canopy vigor OK, good compartmentalization	1.5	1	1.5	Remove with Project
				6		8					
				5	4	10					
75	Black locust	12.4	67	11	11	19	Canopy unbalanced, canopy competition, 10-15 deg lean to SE, wound compartmentalized	2	1.5	2.5	Remove
				15		17					
				10	16	20					
76	Callery pear	10	25	4	2	5	Poor canopy dev, possible viral leaf infection, 4-4.5 in leaf	3.5	1.5	4	Remove
				6		12					
				10	10	16					
77	Western sycamore	9.6	37	10	11	9		2.5	1.5	2	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				12		12	10 deg lean to S, stained bark…possible indication of borer, some epicormic shoots, vigor fair to poor				
				10	14	12					
78	Western sycamore	7.8	38	9	11	11	Approx 10 degree lean to SE, decreased vigor, stem cracks	2.5	1.5	2	Remove
				10		11					
				9	9	11					
79	Lombardy poplar	14.7	38	10	7	5	2.5 in leaves, 1-2 in petiole, chlorotic leaves, poor flare, increased basal sprouting, vigor ok, embedded pipe	2	2	2.5	Remove with Project
				8		7					
				9	7	6					
80	Lombardy poplar	11.2	39	9	10	10	Chlorotic/nutrient deficient, embedded pipe, vigor ok30-40 deg lean to W, offset canopy, large uncompartmentalized branch cut, increased canopy dieback	2	2	2.5	Remove with Project
				10		6					
				7	6	6					
81	Peruvian pepper	22	50	15	10	12	30-40 deg lean to W, offset canopy mass, large, uncompartmentalized branch cut, increased canopy dieback	3	2	4	Remove
				22		9					
				21	16	12					
82	Red ironbark	15.3	42	16	7	5	30 deg lean to SW, canopy malformed due to competition, large branch cut, unsound wood!	3	2	4	Remove
				36		5					
				24	12	5					
83	Red ironbark	29.3	81	24	22	19	4-5" leaf, good canopy development, codominant stem with weak attachment, stress fissure possible	2	2	3.5	Remove
				16		21					
				18	26	18					
84	Red ironbark	13.3	60	8	2	6	Dead	4	2	4	Remove
				22		7					
				21	15	8					
85	Red ironbark	15	39	10	12	6	30 deg lean, canopy offset, stem decay, split stem	4	2	4	Remove
				15		5					
				16	15	16					
86	Red ironbark	15.5	61	5	7	7	Offset canopy mass, epicormic sprouting, broken limb	3	2	4	Remove
				27		3					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				20	16	5					
87	Peruvian pepper	18.8	54	18	15	8	30 deg lean, epicormic sprouting, basal sprouts	2	2	3	Remove
				16		11					
				18	13	8					
88	Freemont cottonwood	10.2	48	16	13	8	5-10 deg lean, marginal to preserve due to prognosis with possible borer, embedded metal pipe and exuding bark	2	2	3	Prune and monitor
				12		12					
				13	12	5					
89	Peruvian pepper	12.4	20	20	16	4	Dead wood/canopy dieback, 20 deg lean to N, termite damage	4	2	4	Remove
				10		3					
				8	7	4					
90	Peruvian pepper	27.7	24	22	14	20	Very poor trunk flare with decay, poor prognosis, basal sprouts, canopy vigor fair	3	2	3	Remove
				26		22					
				26	10	24					
91	Red flowering gum	20.6	56	18	9	11	Poor canopy , codominant stem with included bark, increased canopy dieback	4	1.5	4	Remove
				15		15					
				10	6	7					
92	Red ironbark	15.3	60	10	5	3	20-30 deg lean to west, broken limb, exuding sap/resin, reaction wood noted.	3	1.5	4	Remove
				11		2					
				22	16	11					
93	Red ironbark	9.8	32	6	2	1	30 deg lean, offset canopy mass, 5% canopy dieback	3	1.5	3.5	Remove
				20		1					
				19	15	6					
94	Peruvian pepper	8	15	4	5	5	20 deg lean, Approx 50% canopy dieback, severe pest damage	3	2	3	Remove
				6		6					
				11	9	10					
95	Red ironbark	16.1	33	6	3	7	Aesthetically poor, exuding sap, stressed, 20 deg lean (sweep), 5-10% canopy dieback	3	1.5	3	Remove
				10		6					
				16	18	15					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
96	Red ironbark	11	37	4	6	4	Poor canopy development, stressed	3	1.5	2.5	Remove
				12		5					
				16	14	18					
97	Red flowering gum	15.3	51	4	1	0	Lean, codominant stem, unsound wood, large cavity noted	4	1.5	4	Remove
				15		0					
				22	5	0					
98	Afghan pine	10.2	35	16	2	0	Cone 4", 2 needles per fascicle, 5" needles, poor maint, offset canopy due to competition	2	1.5	3.5	Remove
				18		0					
				14	5	2					
99	Chinese elm	6.6	21	15	7	4	Sapsucker damage, topped, large scar, canopy offset, basal sprouting	2	2	3	Remove
				20		5					
				12	10	6					
100	Peruvian pepper	13.9	29	6	6	4	Deadwood/dieback noted, decay, basal sprouting	3.5	2	3.5	Remove
				16		14					
				20	20	15					
101	Peruvian pepper	13.7	31	20	12	20	Sprouting at large cuts, poorly maintained, significant cavity on main stem	2	2	3.5	Remove
				15		15					
				16	12	11					
102	Peruvian pepper	20.8	38	16	14	12	Poor trunk flare, lean approx. 15 deg to W, Strong crotch, decay at flare and sprouting noted	2	2	3	Remove
				16		20					
				11	22	15					
103	Jacaranda	7.8	30	5	7	4	Fair canopy health, minor stress, uncompartmentalized cut, basal and epicormic sprouting noted	2	2	2	Remove with Project
				7		6					
				6	5	6					
104	Peruvian pepper	17.9	19	10	10	11	Competing canopy, canopy mass offset	3	2	3.5	Remove
				8		15					
				20	30	25					
105	Peruvian pepper	17.3	33	16	4	10		3	2	3	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				16		5	Competing canopy with offset foliage, poor maint., unbalanced, poor trunk flare				
				11	22	16					
106	Peruvian pepper	16.9	27	9	15	15	Poor maintenance, large cavity on primary stem	3	2	4	Remove
				10		11					
				11	17	10					
107	Peruvian pepper	20.8	45	16	15	20	Offset canopy, 15% canopy dieback, embedded pipe, open cavity	2.5	2	3.5	Remove
				19		12					
				20	12	15					
108	Peruvian pepper	11.4	37	7	9	14	Sweep lean, numerous epicormic sprouting, poor growth habit…poor prognosis	3	2	3	Remove
				16		18					
				15	16	22					
109	Red ironbark	14.9	49	18	14	16	Large open scar, increased canopy dieback, exuding	2.5	2	3.5	Remove
				20		18					
				9	9	10					
110	Blue gum	30.5	81	11	8	9	Large dead branches in canopy, poorly maintained, increased predated leaves (pest), exuding	3	2	3	Remove
				10		11					
				4	6	10					
111	Blue gum	30.3	75	30	5	5	20-30 deg lean, 20% canopy dieback, increased leaf damage due to pests	3	2	3.5	Remove
				30		5					
				10	5	5					
112	Southern mahogany	14.3	53	4	5	5	Ovate leaf 1.25" and 2 mm petiole, large uncompartmentalized scar	2.5	2	3	Remove
				5		5					
				6	4	5					
113	Lemon scented gum	10.8	43	6	4	5	Possible viral/bacterial infection in canopy, increased canopy deadwood	3	2	3	Remove
				18		4					
				4	4	4					
114	Peruvian pepper	8.2	27	12	6	8	Poor flare, vigor/health is ok, but poorly closed branch cut is infested with termites	2.5	2.5	2.5	Remove
				8		10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				8	16	14					
115	Peruvian pepper	23.4	39	18	24	26	Increased canopy dieback at approx. 30%, large area of decay at angle in stem, poor prognosis	2.5	2	3.5	Remove
				14		13					
				8	7	11					
116	Jacaranda	10.6	22	10	10	10	Stressed, poor flare/buttress	1.5	2	2	Remove with Project
				11		11					
				12	10	15					
117	Peruvian pepper	8	20	4	6	5	Good condition, improper, unhealed cuts	1.5	2	1.5	Remove with Project
				4		8					
				6	7	8					
118	Peruvian pepper	20.8	43	18	20	20	Canopy unbalanced, large canopy, unsound wood	2	2	3	Remove
				12		22					
				12	13	10					
119	Jacaranda	7.2	23	5	4	5	Severe decline, termite damage, mostly dead	4	2	4	Remove
				7		11					
				9	11	10					
120	Peruvian pepper	19.6	31	12	10	10	Cavity in trunk, unclosed cuts, 3+scars/cavity with poor prognosis, increased canopy dieback at 10-15%	2.5	2	3	Remove
				16		15					
				18	25	15					
121	Peruvian pepper	12.2	31	12	12	10	Good flare/taper, epicormic shoots, good canopy, unclosed cut	1.5	2	1.5	Remove with Project
				13		10					
				15	10	12					
122	Peruvian pepper	12.1	26	11	9	5	Sapsucker damage, codominant stems	2	2	2	Remove with Project
				10		5					
				11	10	5					
123	Peruvian pepper	11.3	27	11	8	10	Multi-stemmed with large angle, remove due to poor prognosis, may be preserved if pruned and closely monitored	1.5	2	2	Remove
				17		11					
				14	8	10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
124	Jacaranda	9.6	20	10	8	6	Fair taper, needs strategic pruning to fix crown	1.5	2	1.5	Remove with Project
				12		8					
				13	10	9					
125	Jacaranda	6.6	23	7	4	5	Tree tie encased in crotch, poor trunk flare, needs strategic pruning to keep, poor bark cover, vigor ok	2.5	2	2	Remove with Project
				11		8					
				8	9	11					
126	Peruvian pepper	22.2	27	18	14	10	Unhealed branch cut, 30-40 deg lean, broken branches, poor trunk flare	3	2	3.5	Remove
				20		13					
				25	15	16					
127	Peruvian pepper	20.8	35	17	15	22	Poor crown development, water pipe embedded, tree center of mass over path, stressed	3	2	3.5	Remove
				10		16					
				12	12	15					
128	Jacaranda	7.4	29	10	10	10	Cavity at flare, unhealed wound cut	2.5	2	3	Remove
				7		8					
				6	4	4					
129	Jacaranda	7.4	30	0	1	0	Unhealed cuts, lean, angled stem, Canopy dieback and poor canopy development	3	2	2	Remove
				10		0					
				15	6	1					
130	Jacaranda	11.2	29	0	10	10	Fair canopy development, needs limb subordinated to keep, open cut noted, slight lean to south	2	2	2	Remove with Project
				22		11					
				22	8	6					
131	Jacaranda	9.6	29	0	11	8	Poor pruning, large branch cut, poor prognosis	2	2	2	Remove
				12		6					
				15	6	4					
132	Shamel ash	9	27	0	6	6	Poor crown development, bore holes noted, increased deadwood/dieback, sapsucker/woodpecker damage	2.5	2	3	Remove
				8		5					
				10	8	8					
133	Chinese elm	9.2	35	0	18	13		3	2	3.5	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				14		12	Codominant stems with included bark, increased canopy dieback, large scar, tree in decline, poor vigor				
				16	19	12					
134	Peruvian pepper	20	31	0	7	15	Lean to N, Bad cut with sprouting, severe rot in stem	2.5	2	3	Remove
				7		15					
				6	8	15					
135	Jacaranda	10	33	0	6	6	Severe decline, split stem, hazard	4	2	4	Remove
				10		7					
				11	8	12					
136	Peruvian pepper	13.9	28	0	7	7	Poor flare, embedded pole, poor structure, Some canopy deadwood	2.5	2	3	Remove
				8		8					
				10	10	10					
137	Peruvian pepper	10.8	25	0	5	4	Topped stem, poor canopy development, codominant stem, health and vigor fair, unsealed cut and decay noted	2.5	2	2.5	Remove
				7		6					
				9	15	12					
138	Peruvian pepper	11.6	29	0	12	11	Severe decline, increased deadwood/canopy dieback	3	2	3	Remove
				11		8					
				8	18	14					
139	Peruvian pepper	8.8	29	0	8	11	Pest damage, decline, may be saved with neighboring jacaranda removed and continued monitoring	2	4	2	Remove
				9		10					
				10	8	9					
140	Jacaranda	9.2	23	0	4	6	Decline and poor canopy development/vigor	3	4	2	Remove
				9		7					
				13	10	6					
141	Peruvian pepper	6.8	23	0	4	3	Young, sweep lean to S, Canopy competition, but vigor is OK	2	2	2	Remove with Project
				10		4					
				5	16	15					
142	Jacaranda	15.3	33	0	15	11	Large tree with some canopy dieback, bark damage, Poor trunk flare	2.5	2	3	Remove
				15		8					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				20	20	14					
143	Peruvian pepper	22	36	0	18	20	Codominant stem, decay in crotch, decay at flare	2.5	2	3.5	Remove
				18		18					
				22	20	20					
144	Peruvian pepper	29.5	42	0	30	14	Increased deadwood/canopy dieback, pruning needed, codominant stem, may be preserved, but no public access	2.5	2	3	Remove
				20		12					
				26	32	10					
145	Peruvian pepper	7.4	18	0	1	3	Codominant stem severe decline, deadwood in canopy	4	2	4	Remove
				5		3					
				10	18	15					
146	Peruvian pepper	16.7	31	0	10	5	Severe decay with large dead limb, basal sprouts, offset canopy, cavity in flare	4	2	4	Remove
				11		4					
				18	20	10					
147	Peruvian pepper	20	30	0	6	20	Internal decay, offset canopy, decline	3	2	3	Remove
				20		18					
				25	20	25					
148	Peruvian pepper	8.4	29	0	5	20	Codominant stems , poor vigor, decreased canopy health, poor canopy structure, poor scaffolding, included bark	2.5	2.5	3.5	Remove
				20		20					
				15	20	10					
149	Peruvian pepper	20.6	46	0	12	20	Codominant stem poor vigor with offset canopy, poor cuts/large cuts, increased canopy/dieback	2	2	3	Remove
				35		16					
				16	18	0					
150	Peruvian pepper	18.8	41	0	5	5	20 deg lean to W, canopy dieback, poor maint, vigor is fair, large limb cuts with sprouting	3	2.5	2.5	Remove
				20		8					
				20	15	10					
151	Jacaranda	9	39	0	8	5	Sweep lean of approx. 30 deg., decreased vigor, offset canopy mass with some dieback	3	2.5	2.5	Remove
				10		8					
				12	11	11					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
152	Peruvian pepper	18.7	35	0	12	8	Severe decline with increased deadwood in canopy (dieback)	4	2.5	4	Remove
				25		2					
				18	13	4					
153	Peruvian pepper	13.1	10	0	3	2	Codominant stem, sever lean due to competition, included bark on slope	3	3	3	Remove
				26		6					
				25	18	5					
154	Shamel ash	7	27	0	8	8	Stressed canopy, browned foliage…leaf scorch, decreased vigor, may be saved with watering	2.5	2	2	Remove
				10		13					
				8	15	20					
155	Peruvian pepper	12.9	30	13	6	8	Basal sprouting, offset canopy, on steep slope, vigor is fair	3	2.5	3	Remove
				25		6					
				20	5	7					
156	Peruvian pepper	11	41	12	6	12	On slope, basal sprouting, Lean to SE, decreased canopy vigor, water sprouts	2.5	2.5	2	Remove with Project
				10		18					
				20	30	22					
157	Peruvian pepper	9	35	12	15	20	Internal decay, thin-stress canopy, tree in decline	2.5	2	2.5	Remove
				20		16					
				20	18	20					
158	Shamel ash	12.5	39	14	12	12	Stressed, decreased canopy vigor, codominant stem with included bark	3	2	3	Remove
				11		18					
				12	12	18					
159	Peruvian pepper	20.8	43	14	20	30	Codominant stem, good canopy, NEST	2	2	2	Remove with Project
				16		25					
				14	13	20					
160	Jacaranda	14.7	35	10	6	12	Stressed, multi--stemmed tree with minor sapsucker damage, monitor if preserved	2	2	2	Remove with Project
				13		16					
				15	14	20					
161	Jacaranda	9	36	6	7	7		2.5	2	3	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				9		12	Included bark, poor branch collar attachment, poor scaffolding, vigor is fair, limb failure is not compartmentalized				
				12	10	12					
162	Jacaranda	9	32	5	1	0	Poor crotch development, poor canopy development	3	2	2	Remove with Project
				12		12					
				10	10	16					
163	Jacaranda	7.4	30	4	6	7	Severe decline, poor canopy health and decreased vigor	4	2	4	Remove
				4		15					
				8	15	20					
164	Jacaranda	8.6	33	10	6	6	Competing canopy with neighboring pepper tree, canopy is poorly developed, volunteer sprouting at basal flare, mechanical damage, aesthetically poor, internal decay	3	2	3	Remove
				10		10					
				8	8	17					
165	Peruvian pepper	18.1	41	22	10	16	Dying canopy, significant lean to W, prone to limb failure, poor flare development	3	2	3	Remove
				19		10					
				20	18	20					
166	Peruvian pepper	12.1	27	4	4	4	Poor canopy development, codominant stem with offset canopy, lean, limb mechanical damage	3	2	3.5	Remove
				8		8					
				9	12	12					
167	Shamel ash	5.9	25	10	10	10	Browned leaves…leaf scorch possibly due to desiccation, on slope, poor canopy health	3	2	2.5	Remove
				4		12					
				4	2	12					
168	Red river gum	15.1	49	18	12	12	Deep longitudinal fissures in bark with decay, poor prognosis,	2.5	2	3	Remove
				18		15					
				18	20	20					
169	Sugar gum	16.7	73	10	6	15	Some minor canopy dieback, good flare, but cracks in stem, minor sapsucker damage	2	2	3.5	Remove
				15		13					
				15	14	13					
170	Red river gum	4.9	28	2	2	5	Stressed canopy, frost cracks?, longitudinal fractures, marginal health, may be saved.	2	2	2	Remove
				2		7					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				3	6	8					
171	Red river gum	6.8	41	0	0	0	Stressed, lean to W, increased pest damage	2.5	2	3	Remove
				4		2					
				14	7	3					
172	Red river gum	12	49	24	2	0	Spitting in stem, in decline, lean, scale of psyllid on leaves	3	2	3	Remove
				22		5					
				10	1	2					
173	Chinese Flame Tree	3.8	19	6	5	5	Dead	/	/	/	Remove
				1		0					
				4	6	1					
174	Chinese Flame Tree	3.3	20	5	18	15	Sap sucker damage, good vigor, invasive	2	1.5	2	Prune and monitor
				5		8					
				6	7	6					
175	Peruvian pepper	19	27	16	11	16	Decreased vigor, codominant stem with 15-20 deg lean, basal sprouting and offset canopy mass	2.5	2	2.5	Remove
				17		15					
				15	8	15					
176	Peruvian pepper	9	17	10	2	0	Severe lean, poorly maintained, internal decay and unclosed cut	2	2	4	Remove
				20		0					
				6	0	0					
177	Peruvian pepper	12.5	21	22	0	0	Competing canopy with offset/unbalance mass, decreased aesthetics, sweep lean and boreholes noted	2.5	2	3	Remove
				20		0					
				25	25	0					
178	Red ironbark	4.2	24	2	1	1	Codominant stem, bad cuts made, severe distress	3	2	3	Remove
				2		1					
				2	2	1					
179	Peruvian pepper	5	20	10	4	4	Multi-stemmed, health ok, poor growth habit	2.5	3	2	Remove
				6		5					
				12	7	3					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
180	Peruvian pepper	6.2	20	12	4	4	Root ball exposed, distressed, lean/toppled, multi-stemmed	3	2	3.5	Remove
				10		3					
				15	12	7					
181	Peruvian pepper	4.8	15	12	4	3	Severe lean, poor prognosis, poor canopy development and growth habit	3	3	3	Remove
				15		3					
				12	10	10					
182	Red river gum	9.4	34	8	5	4	Codominant stem, dense shrubs, good vigor, but increased liability and poor prognosis	2.5	2.5	2.5	Remove
				10		3					
				10	5	1					
183	Peruvian pepper	7.7	30	4	4	2	Multi-stemmed, vigor is fair, poor prognosis	2	2	2.5	Remove
				8		2					
				6	10	6					
184	Shamel ash	36	79	26	16	22	Codominant stem with girdling root, decay noted at branch collar	2	1.5	3	Remove
				42		23					
				26	43	32					
185	Blue gum	37.5	79	6	20	16	Poor flare, stem is ok, canopy is fair to poor, may be saved with structural pruning and monitoring	2	1.5	2	Prune and monitor
				7		35					
				12	10	20					
186	Blue gum	47.8	77	5	5	5	DEAD, remove immediately	4	2	4+	Remove
				5		5					
				5	5	5					
187	Blue gum	50.3	97	20	10	6	Decreased canopy health and vigor, poor aesthetically, exuding sap from several locations (borer?), predated foliage	3	2	2.5	Remove
				30		4					
				10	50	20					
188	White mulberry	5.4	23	6	13	10	Multi-stemmed, stem decay, poor scaffolding, necrotic leaf edge, poor maint	/	/	/	Remove
				2		14					
				5	6	5					
189	Shamel ash	14.5	60	9	14	13		2	2	3	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				6		18	Competing, offset canopy, dead/dying upper canopy, aesthetically poor, poor maint				
				11	17	18					
190	White mulberry	3.1	15	10	11	10	Internal decay on many limbs, poor prognosis, poor scaffolding	3	2	2.5	Remove
				9		6					
				9	2	2					
191	Shamel ash	27.5	73	24	33	20	Codominant stems with fair crotch, some canopy dieback, skilled pruning of deadwood is needed	2	1.5	2.5	Remove with Project
				26		20					
				24	18	25					
192	Plum	13.3	17	8	7	6	Severe decline, predated foliage, poor canopy scaffolding, borers,	3	2	3	Remove
				9		6					
				8	10	9					
193	Shamel ash	28.1	89	36	21	18	Internal decay on main branch, termite infested, some root girdling, good canopy	3	1.5	4	Remove
				14		12					
				18	25	20					
194	Shamel ash	18.8	79	14	16	14	Dead wood with termite damage	2	1.5	3	Remove
				26		20					
				18	22	22					
195	Shamel ash	22.8	73	25	21	17	Increased internal decay, poor canopy development, unsealed branch cuts with decay noted	2	1.5	4	Remove
				18		10					
				14	13	6					
196	Western sycamore	13.3	43	14	8	6	Poor canopy decay, increased dieback, stem wounds, disease (borer?), decay on stem	3	2	4	Remove
				14		0					
				14	14	6					
197	Western sycamore	12.4	39	15	16	16	Exuding with decay, poor canopy dev, increased dieback, stem wounds diseased	3	2	3	Remove
				17		14					
				17	18	12					
198	Western sycamore	19.8	77	20	19	18	Possible borer or fungal infection, poor prognosis, canopy is fair, exuding sap. May be able to be saved if irrigated and treated.	2.5	2	2.5	Treat and monitor
				22		10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				21	16	10					
199	Shamel ash	27.5	75	18	16	21	Poor scaffolding, health fair, stressed	2.5	2	2	Remove with Project
				20		16					
				16	15	20					
200	Pear	8.6	19	6	10	6	Girdling roots, codominant stems, canopy dieback, stressed, poor prognosis	2.5	2	3	Remove
				7		8					
				6	6	6					
201	Grapefruit	6.6	19	6	6	6	Highly stressed, poorly pruned, likely too far gone to save	2.5	2	2	Remove
				6		6					
				6	6	6					
202	Lemon	4.9	19	8	8	8	Under nurse plant, poor prognosis, desiccated, decayed limb	3	2	3	Remove
				8		8					
				10	10	10					
203	Orange	2.9	17	0	2	15	Desiccated and in decline with a 40-50 deg lean, in distress, tree unstable and roots dislodges	3	2	3	Remove
				0		15					
				0	10	12					
204	Lime	5.1	13	6	6	6	In understory with limited light, Some signs of distress, replace	2.5	3	2	Remove
				6		6					
				6	6	6					
205	Avocado	7.8	32	4	6	5	Severe decline, sap sucker damage, approx. 90% dead, lean to S	/	/	/	Remove
				5		5					
				8	12	10					
206	Peach	3.5	10	0	10	0	Severe lean with competing crown, stress with increased dieback	3	2	3	Remove
				0		0					
				0	0	0					
207	Avocado	8.2	28	4	4	15	Severe competition with nearby apple, internal decay and unclosed cut	3	2	2.5	Remove
				4		15					
				5	15	15					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
208	Apple	12.7	26	8	6	12	Stress, codominant stem, internal decay, sap sucker damage	2	2	2	Remove
				8		14					
				6	10	13					
209	Black locust	19.8	63	10	14	8	23 leaflets, vigor is good, internal decay, but split in stem, burrowing mammal in root crown	2	2	4	Remove
				10		13					
				15	8	7					
210	Avocado	5.9	15	4	5	5	Chlorotic, severe decline	3	2	2.5	Remove
				5		5					
				5	5	5					
211	Apple	10.6	24	8	8	8	Split longitudinally through bark, sap sucker damage, decay by pest damage	2.5	2	2	Remove
				8		8					
				10	8	9					
212	Peach	5.3	20	4	10	8	Dead likely due to borers	4	2	4	Remove
				4		8					
				12	12	12					
213	Grapefruit	3.5	13	6	6	6	Dead/dying	4	2	3	Remove
				6		6					
				6	6	6					
214	Peach	8.1	15	8	2	2	Codominant stem, vertical fissures with lenticels in bark, large dead limb, offset canopy	3	2	3	Remove
				10		4					
				10	12	5					
215	Grapefruit	11.3	15	8	5	5	Severe dieback likely due to lack of irrigation, winged petiole	3.5	2	3	Remove
				8		5					
				10	10	6					
216	Apple	16	21	15	15	15	Fuzzy simple leaves, ovate, serrated, 3in petiole, sapsucker damage, canopy a little thin	3	2	3	Remove
				13		12					
				8	8	12					
217	Lime	9.4	23	10	15	10	Dense canopy, needs pruning	2	2	2	Remove with Project

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				8		5					
				8	12	8					
218	Plum	7.8	10	8	8	6	Mild serrated, leaf tip burn, lean 40-50 deg	3	2	3	Remove
				8		4					
				15	6	2					
219	Peruvian pepper	29.7	30	15	15	15	Increased reaction wood, codominant stem, decay in S stem, poor canopy dev	2	2	3	Remove
				20		15					
				15	25	20					
220	Peruvian pepper	12.7	25	10	5	7	40 deg lean to west, poor canopy dev/mass, increased liability	3	2	3.5	Remove
				25		4					
				20	6	5					
221	Peruvian pepper	62.4	41	25	14	18	Reaction wood, deadwood in stem, broken limb, hollow limbs, dying understory of canopy	3	2	3	Remove with Project
				25		16					
				20	18	18					
222	Western sycamore	23.2	73	16	20	15	Some infection, young, competing crown with nearby sycamore, topped with water sprouting	2	2	3	Remove
				28		18					
				28	26	28					
223	Western sycamore	5.9	23	10	10	12	Infected with possible borer, mistletoe, poor vigor, poor prognosis	3	3	3	Remove
				12		12					
				15	20	12					
224	European olive	52.6	41	8	11	10	Hollow, older specimen, deadwood under canopy, well-dev and attractive	2	2	3,5	Remove
				12		15					
				16	16	15					
225	Western sycamore	11.4	35	12	10	14	Severe infection with possible shot borer, exuding, decline, decreased crown health	3	2	3	Remove
				16		13					
				14	16	13					
226	Western sycamore	10.4	23	15	14	9	Severe infection with possible shot borer, exuding, decline, decreased crown health	3	2	3	Remove
				14		10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				15	14	12					
227	Peruvian pepper	49.3	45	4	8	25	Codominant stem, risk of toppling, increased canopy dieback, eroded flare, huge tree	2	2	3	Remove
				2		18					
				12	25	32					
228	Peruvian pepper	16.3	37	10	4	2	Poor canopy dev, on slope, huge dead limb increased dieback	2.5	2	2.5	Remove
				8		10					
				5	30	16					
229	Peruvian pepper	63.5	53	18	33	32	Hollow trunk/limbs due to decay, increased deadwood, burrowing animals under stem	2	2	4	Remove
				26		22					
				20	35	26					
230	Peruvian pepper	53.9	31	18	21	15	Shelf fungus, burrowing animal under flare, hollow stem	2	2	4	Remove
				14		15					
				18	8	10					
231	Jacaranda	4.6	21	5	6	4	Good form, needs maint, good structure	2	2	2	Remove with Project
				4		8					
				6	5	8					
232	Brazilian pepper	5.1	19	6	10	8	Good form, poor pruning, uncompartmentalized cut, exposed roots	2	2	2	Remove with Project
				7		8					
				7	5	8					
233	Jacaranda	16.9	22	8	6	5	Multi-stemmed, good vigor, some included bark, good vigor but increased risk	2	2	3	Remove with Project
				10		6					
				11	12	12					
234	Brazilian pepper	64.9	35	10	17	17	Hollow stem, 2 large branch cuts, decreased canopy development, gnarled base	2.5	2	3.5	Remove
				15		12					
				12	10	15					
235	Jacaranda	6.6	25	3	5	7	Canopy offset, basal sprouting, codominant stem	2.5	2	2	Remove with Project
				6		5					
				7	7	7					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
236	Carrotwood	3.1	27	5	2	5	Dense shrubs, on slope, poor prognosis and severe competition, health ok	2.5	3	2.5	Remove
				5		8					
				5	5	5					
237	Brush cherry	4.5	30	5	5	5	Dense shrubs, poor prognosis, severe competition, on slope	2.5	3	2.5	Remove
				5		5					
				5	5	5					
238	Jacaranda	6.6	21	3	5	10	Young, good vigor, needs pruning	2	2	2	Remove with Project
				2		15					
				6	10	10					
239	Jacaranda	8.9	35	3	3	4	Young, poor maintenance, tied near crown, basal burls	3	2	3	Remove with Project
				2		10					
				8	8	15					
240	Jacaranda	4.1	24	4	5	6	Decline, poor crown with increased dead canopy	3	2	3	Remove
				4		8					
				4	4	5					
241	Peruvian pepper	16.1	34	25	20	0	In dense area of trees with overlapping canopy, poor canopy dev, offset mass	3	2.5	3	Remove
				25		0					
				4	0	0					
242	Aleppo pine	22.8	60	16	18	18	Angled central stem, among many trees with overlapping crowns	2	2.5	3	Prune and monitor
				16		16					
				18	18	18					
243	Peruvian pepper	10.1	21	8	17	9	Young, canopy structure is poor, poor prognosis due to canopy development	2.5	2	2	Remove
				7		7					
				5	8	8					
244	Peruvian pepper	11.6	26	2	15	7	Young, toppled stem, Poor prognosis due to codominant stem	2.5	2	2	Remove
				4		5					
				4	6	5					
245	Common fig	9.1	15	12	12	10	Good vigor, multi stemmed, needs pruning	2	1.5	2	Remove with Project

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				10		15					
				8	5	8					
246	Jacaranda	7.2	30	4	4	7	In decline, competing with a fig, codominant stem, stressed	3	2	3	Remove
				2		15					
				4	2	1					
247	Afghan pine	6.9	33	0	12	12	Increased lean 10-15 deg, wounds, stressed, poor canopy development and scaffolding	3	2	3	Remove
				0		10					
				0	4	5					
248	Afghan pine	3.9	15	10	8	8	Broken apical stem, poor aesthetics	3	2	3	Remove
				5		6					
				0	0	0					
249	CA black walnut	6.2	27	8	7	8	Highly stressed, decreased vigor, and significant dieback	3	2	3	Remove
				8		8					
				8	5	8					
250	Afghan pine	11.8	55	9	12	15	Sweep lean, long crack, poorly developed crown, two needles per fascicle	3	2	3	Remove
				1		12					
				0	0	7					
251	Jacaranda	10.2	45	6	10	10	Basal sprouts, competing crowns, offset crown mass, vigor OK, but poor prognosis	3	2	2.5	Remove
				6		10					
				8	8	8					
252	Jacaranda	12.5	41	12	10	20	Basal sprouting with offset canopy	2.5	2	2	Remove with Project
				12		14					
				2	0	4					
253	Peruvian pepper	23.7	50	4	10	13	Codominant stem, poor canopy development, reaction wood	2.5	2	2.5	Remove
				10		16					
				15	18	12					
254	Peruvian pepper	14.5	45	16	9	16	Substantial lean approx. 30 deg to E, basal sprouts, fair health	2.5	2	2.5	Remove
				2		30					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env	Risk	Conclusion
				3	2	16					
255	Jacaranda	9.2	38	5	10	15	Codominant stems, basal sprouts, needs maintenance	2.5	2	2.5	Prune and monitor
				5		15					
				5	6	6					
256	Shamel ash	4.9	22	7	8	6	Basal sprouts, healthy canopy, poor prognosis unless sprouts removed	2.5	2	2	Remove with Project
				4		6					
				8	2	4					
257	Shamel ash	5.9	25	8	10	12	Good health, offset crown, codominant stems, subordinate stem if preserving	2	2	2.5	Remove with Project
				5		10					
				5	5	9					
258	Shamel ash	4.7	36	6	6	8	Poor canopy development, prune and monitor if preserving	2.5	2	2	Remove with Project
				4		8					
				4	5	6					
259	Jacaranda	9.5	39	4	5	6	Hollow stem, codominant leaders with included bark, poor canopy development	3	2	3.5	Remove
				4		8					
				4	4	9					
260	Jacaranda	9.2	33	0	1	10	Lean 15-20 deg. Codominant stem, possibly hollow, healthy crown but offset	2.5	2	3	Remove with Project
				0		25					
				0	1	20					
261	Jacaranda	11.2	45	5	2	7	Codominant stem with included bark, healthy crown but poor prognosis	2.5	2	3	Remove with Project
				4		20					
				9	15	9					
262	Jacaranda	7.8	36	0	1	8	Healthy crown but leaning with offset mass, poor prognosis	2.5	2	2.5	Remove
				0		25					
				0	8	20					
263	Jacaranda	6.2	23	2	4	6	Multi-stemmed, healthy crown, poor outlook and prognosis, may be able to save with maintenance	3	2	2	Remove
				2		8					
				2	2	6					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
264	Jacaranda	8.3	23	1	5	6	Highly stressed, multi-stemmed, poor crown development	3	2	2.5	Remove
				1		6					
				1	6	10					
265	Jacaranda	6.6	21	8	8	8	Sprouted, along retaining fence, good vigor, multi-stemmed, poor prognosis	3	3.5	3	Remove
				8		8					
				8	8	8					
266	Western sycamore	6.2	69	23	17	26	Possible minor root girdling, canopy shows sign of stress, epiphyte=mistletoe, health fair to poor	2.5	2	2	Remove with Project
				28		26					
				26	28	25					
267	Western sycamore	12.2	47	12	16	6	Irrigation valve cover at flare, clear decline, crown dieback, infection signs noted	3	2	3	Remove
				15		8					
				10	17	22					
268	Western sycamore	16.7	51	17	22	10	Bore entry holes in trunk, exuding sap, some canopy deadwood at 25%, some signs of other infection	2.5	2	2.5	Remove
				18		17					
				25	20	25					
269	Western sycamore	16.5	51	15	11	15	Some signs of distress and canopy deadwood, vigor is fair, sloughing bark, canopy dieback, possible decline	2.5	2	2.5	Remove with Project
				16		18					
				19	18	14					
270	Western sycamore	16.7	37	18	14	14	Increased canopy dieback, decline. May be able to be saved. Irrigate, treat	3	2.5	3	Remove
				7		14					
				8	8	8					
271	Western sycamore	15.7	45	20	16	16	Boreholes on NE side, minor root girdling, poor crown living mass, health fair to poor, remove due to poor prognosis	2.5	2	2.5	Remove
				19		15					
				18	19	21					
272	Western sycamore	13.1	43	16	10	10	Termites, increased crown dieback, boreholes, and decreased living mass	3	2	2.5	Remove
				17		14					
				12	16	12					
273	Western sycamore	27.5	87	16	22	14		3	2	2.5	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				20		20	Checkered trunk bark, poor canopy development with mistletoe, epicormic shoots, decline, poor prognosis, poor trunk flare				
				18	18	14					
274	Western sycamore	20.8	77	20	16	14	Diseased/decline E side of trunk, borers, Fair to poor canopy living mass, poor prognosis	3	2	2.5	Remove
				22		22					
				22	22	26					
275	Western sycamore	20.4	79	20	12	20	Diseased/infection, exuding bark, increased canopy dieback, decline	3	2	3	Remove
				22		22					
				22	16	18					
276	Jacaranda	9.8	21	2	2	4	Offset canopy due to canopy competition, included bark, health good but risk and prognosis are poor, poor canopy scaffolding	2.5	2	2.5	Remove
				2		6					
				11	10	10					
277	Jacaranda	13.1	25	4	4	1	Distressed canopy with codominant stems, decreased living mass, sprouts, water stress	3	2	2	Remove
				6		1					
				9	9	9					
278	Callery pear	9.8	29	7	8	8	Poor trunk flare, good canopy health, wood sound is ok, further evaluation if preserving	1.5	2	3	Remove with Project
				9		8					
				9	8	9					
279	Jacaranda	8.2	40	12	10	11	Codominant stems X 2 with included bark, good canopy structure, increased risk, good vigor	2	2	3	Remove
				12		11					
				12	11	11					
280	Jacaranda	5.9	25	12	12	7	Good canopy health, trunk flare obscured by shrubs, 10-15 deg lean to W, good canopy health	2	2	2	Remove with Project
				12		7					
				12	11	7					
281	Jacaranda	13.1	45	20	15	16	Sprouting at base, good scaffolding, included branch cut, scar from pipe	2	2	1.5	Remove with Project
				20		18					
				16	20	18					
282	Jacaranda	15.15	51	19	10	8	Offset canopy due to competing crowns, encased rubber tube	2	2	2	Remove with Project
				16		18					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				15	17	18					
283	Jacaranda	17.4	21	9	4	2	Distressed canopy, multi-stemmed, may be beneficial to replace due to poor form	2.5	2	2.5	Remove with Project
				10		2					
				12	8	7					
284	Peruvian pepper	24.8	57	6	8	16	Longitudinal cracks and 50% canopy dieback, some internal decay due to unsealed branch cut	3.5	2	3.5	Remove
				10		10					
				12	18	8					
285	Peruvian pepper	19.6	48	8	17	16	Poor prognosis, some canopy dieback, compensated lean, grade cut 2 feet from tree - canopy impacted	2.5	2.5	3	Remove
				16		20					
				14	22	10					
286	Jacaranda	15.9	45	9	10	12	Strong primary limb/crotch, unclosed cut, slight lean to south	2	2	2	Remove with Project
				15		13					
				15	20	18					
287	Jacaranda	5.5	17	19	12	8	Off center canopy, codominant stem and poor prognosis, young, lean to N	2.5	3	2.5	Remove
				14		4					
				10	2	2					
288	Peruvian pepper	22	45	18	14	10	10-15 deg lean balanced by canopy, health fair, crown competes with jacaranda, good scaffolding	2	2	2	Remove with Project
				18		15					
				20	20	25					
289	Peruvian pepper	10.6	27	9	4	4	Poorly maintained, offset canopy, slight lean, scaffolding is poor	2.5	2	2	Remove with Project
				10		6					
				14	10	8					
290	White mulberry	20	26	20	22	16	Codominant stems with included bark, poorly stratified canopy, immediate threat, grade cut	2	3	4	Remove
				20		14					
				16	24	14					
291	Shamel ash	6.8	33	9	20	15	Competing canopy, offset canopy, poorly developed, fruit hang in strobes,	2.5	2	2	Remove with Project
				7		8					
				8	8	8					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
292	Peruvian pepper	13.4	31	15	10	6	Offset canopy with codominant stems. Canopy competition, some included bark, poor prognosis due to growth habit	3	2.5	3	Remove
				18		5					
				15	3	0					
293	Peruvian pepper	16.2	39	10	10	8	Grade cut, poor prognosis, remove or fix grade and prune	2	3	3	Remove
				12		9					
				12	8	10					
294	Shamel ash	11	55	16	12	8	Slowly falling tree/tilting, distressed canopy, codominant stem with included bark, grade cut	3	3.5	3.5	Remove
				22		12					
				30	20	10					
295	Peruvian pepper	11.4	25	2	2	2	Slowly falling due to grade cut, offset canopy mass, immanent failure	3	3.5	3.5	Remove
				2		0					
				20	25	0					
296	Peruvian pepper	14.5	37	8	8	11	Distressed tree canopy, 40 deg lean, grade cut, compacted soil	3	3	3.5	Remove
				14		12					
				20	25	20					
297	Aleppo pine	26.3	67	12	10	16	Dead understory, 2 needled per fascicle, cone 5-6 inches long, increased liability due to lean, poor flare and canopy health	2.5	2	3	Remove
				12		18					
				20	20	24					
298	Peruvian pepper	13.7	35	6	6	10	Highly stress canopy, grade cut and 15-20 deg lean, compacted soil, canopy dieback	3	3.5	3	Remove
				12		8					
				30	26	13					
299	Peruvian pepper	18.8	27	14	0	2	Codominant stem but good crotch, health and vigor fair, canopy fair	2	2	2	Remove with Project
				13		2					
				10	9	2					
300	Jacaranda	18.4	29	5	8	9	Codominant stem with included bark, flare is poor, termites in deadwood, increased liability	2	2	3	Remove
				4		18					
				10	16	16					
301	Jacaranda	5.5	23	0	7	4		3	2.5	2.5	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				0		4	Poor canopy structure/development, offset mass, large branch cut, growing beneath a larger tree, compacted soil				
				12	14	6					
302	Peruvian pepper	4.8	15	6	0	4	Codominant stem, poor prognosis, decreased canopy vigor	3	3	2	Remove
				6		10					
				6	5	10					
303	Peruvian pepper	8.4	43	12	6	16	Epiphytic cover (English ivy), dense cover, canopy offset, health fair	3	3	3	Remove
				12		10					
				18	18	14					
304	Peruvian pepper	18.3	45	15	5	10	Dense understory at base from other trees, 20-30 degree lean, competing canopy on slope	3	2.5	3	Remove
				30		15					
				35	30	12					
305	Peruvian pepper	4.3	33	10	0	0	Dense understory from other species, slight lean to W	3.5	3	2.5	Remove
				10		0					
				10	15	10					
307	Lemon scented gum	20	75	20	18	20	Dense understory from other species	2	2.5	2	Remove with Project
				20		10					
				18	15	10					
308	Lemon scented gum	25.1	75	15	15	15	Dense understory from other species, on slope, large limb cut	2	2.5	3	Remove with Project
				25		10					
				25	30	5					
309	Shamel ash	10.6	45	5	5	5	Competing canopy, poor prognosis as it grows under the canopy of another tree	2.5	3	2	Remove
				10		5					
				15	18	18					
310	Coulter pine	13.3	45	0	5	15	Sweep lean, slightly distressed canopy, on slope, but adapted, Flare ok. May be preserved with pruning and monitoring	2	3	2.5	Remove with Project
				5		18					
				15	15	15					
311	Aleppo pine	12	15	0	0	0	Fallen/topped	4	3	4	Remove
				0		0					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				0	15	0					
312	Peruvian pepper	3.1	15	0	15	15	Lean, no real canopy	3	3.5	2	Remove
				0		10					
				0	0	10					
313	Peruvian pepper	20.8	25	19	0	10	Decreased canopy structure, decreased living mass, large limb cut	3	2	2.5	Remove
				12		15					
				30	20	18					
314	Lemon scented gum	6.8	20	2	2	2	Decreased canopy growth structure due to competition, included bark. May be saved if nearby pepper is removed	2.5	2	2	Remove with Project
				2		2					
				10	10	12					
315	Italian stone pine	9.2	20	0	0	0	Topped trunk/stem	3	2	4	Remove
				0		0					
				20	25	20					
316	Shamel ash	1.9	9	1	2	2	Chlorotic leaves, decline, growing in understory, poorly developed	3	2	2	Remove
				2		0					
				4	0	0					
317	Jacaranda	10.7	25	0	0	0	Decreased canopy structure, but health/vigor is ok. Decreased aesthetics, volunteer sprouting, compacted soil	3	2.5	2	Remove
				0		6					
				15	20	15					
318	White mulberry	6.3	15	10	12	10	Decreased canopy health/poorly developed, multi-stemmed with epiphytic growth, multi-stemmed and poorly stratified	2.5	3	2	Remove
				0		0					
				10	10	13					
319	White mulberry	4	15	12	10	12	Multi-stemmed, growing in understory, epiphytic growth	2.5	3	2	Remove
				13		12					
				15	15	13					
320	Peruvian pepper	7.4	27	0	0	0	Decreased aesthetics, poor canopy structure, lean and offset mass	3	2	3.5	Remove
				2		2					
				25	30	25					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
321	Silver dollar gum	25.1	50	24	20	20	Urn fruit, exuding sap, lean of 10-15 deg with offset mass, health and vigor is fair	2.5	2	3.5	Remove
				23		25					
				25	20	20					
322	Peruvian pepper	17.2	20	25	5	0	Poor canopy development, decreased health and vigor, codominant stem	3	2.5	3	Remove
				25		5					
				25	30	30					
323	Cherry	8.5	6	12	5	5	Serrated leaves, petiole is 2-3 mm, co-dominant stems and distressed due to overhead canopy	2.5	3	2	Remove with Project
				12		10					
				14	14	12					
324	Cherry	1.9	6	5	5	5	Serrated leaves, petiole is 2-3 mm, co-dominant stems and distressed due to overhead canopy	2	3	2	Remove
				5		5					
				5	5	5					
325	Shamel ash	11.3	19	5	5	10	Burnt leaf tips, dense shrubs at base, decreased aesthetics, decline and stressed, compacted soil.	3	2	2.5	Remove
				10		8					
				12	12	12					
326	Jacaranda	10.6	27	20	10	20	Good health, some included bark, some internal decay is possible	2	2	2	Remove with Project
				25		25					
				30	30	30					
327	Jacaranda	11.4	34	10	2	10	Codominant stem noted, health ok, offset canopy mass, stem crack	3	2	2.5	Remove with Project
				20		15					
				22	20	22					
328	Jacaranda	8.6	34	4	2	4	Poor root development, poor scaffolding, lean/falling, poor flare, canopy competition	3	2	4	Remove
				10		10					
				20	25	20					
329	Jacaranda	3.3	25	4	10	5	Decreased canopy due to competition, decreased vigor, dieback noted, poor aesthetics, decline	3	3	2.5	Remove
				4		4					
				5	10	4					
330	Peruvian pepper	6.8	22	4	2	5		3	2.5	2	Remove with Project

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				8		5	Offset canopy due to competition, may be saved with pruning				
				20	20	13					
331	Jacaranda	19.5	30	12	15	12	Increased dieback, increased liability, included bark	2	2	3	Remove
				10		10					
				12	15	15					
332	Jacaranda	4.2	19	0	0	0	Competing canopy offset, small but mature, health fair but poorly maintained	2.5	3	2.5	Remove with Project
				5		5					
				8	8	8					
333	White alder	11.6	35	15	15	15	Termite infested, longitudinal cracks, dead, hazardous	4	2	4	Remove
				15		15					
				15	15	15					
334	White alder	7.8	30	8	15	10	Diseased, canopy dieback 40-50%, increased liability, decline	3	2	3	Remove
				10		10					
				12	12	10					
335	White alder	10.2	35	10	10	10	Multiple infection spots and internal decay, exuding, diseased, large limb removed	2.5	2	3	Remove
				10		10					
				10	10	10					
336	Peruvian pepper	18.1	33	20	14	5	Offset canopy, lean, uneven flare, internal decay	3	2	4	Remove
				20		5					
				5	4	4					
337	Jacaranda	10	33	6	5	0	Poor canopy development due to structure nearby, water sprouting at former large cut, decreased aesthetics, health fair	3	2	2.5	Remove
				20		0					
				25	10	8					
338	Jacaranda	8.1	30	12	10	5	Offset canopy due to structure nearby, bark removed, and deadwood exposed in places, topped with water sprouting	2.5	2	3	Remove
				15		20					
				18	0	12					
339	Peruvian pepper	21.2	50	10	16	16	Tree is starting to hollow out. Large branch cut is entry point for termites and decay, poor prognosis	2	2	3.5	Remove
				15		9					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				20	16	20					
340	Peruvian pepper	15.5	23	15	5	15	Poor trimming, poor growth habit, topped limbs, 30-40 deg lean, crown dieback, hazard, exposed decay	3	2	3.5	Remove
				20		15					
				30	25	30					
341	Jacaranda	2.36	17	5	5	5	Offset canopy, decreased aesthetics, decreased vigor, lean due to competing trees	3	2	3.5	Remove
				5		5					
				10	5	5					
342	Valley oak	7.48	29	12	6	6	Infected with borer, decrease in vigor, need to evaluate further if keeping	2	2	2.5	Remove with Project
				15		6					
				15	12	12					
343	Peruvian pepper	14.7	32	25	15	15	Many large branch cuts, poor canopy dev, lean, poor prognosis, basal sprouting, health and vigor fair	3	2	3	Remove
				25		5					
				20	12	4					
347	Lemon scented gum	18.1	81	10	30	15	Sweep lean, some canopy dieback, poorly anchored due to nearby cement-lined V-ditch	2.5	3	3.5	Remove
				10		8					
				10	15	15					
348	Lemon scented gum	55	73	25	20	5	Sweep lean, possible internal decay, damaged/fallen limb, increased liability.	2.5	3	3.5	Remove
				25		4					
				20	10	2					
349	Lemon scented gum	49	80	12	8	12	Codominant stems, fair canopy development,	2	3	3	Prune and monitor
				15		0					
				18	20	15					
353	Lemon scented gum	46	60	10	10	10	Shaded tree, some signs of stress, leaf curl, poor prognosis	2	3.5	4	Remove
				25		20					
				30	30	30					
355	Lemon scented gum	19.5	47	4	5	4	Indication of pest infestation on leaves (psyllid ?), lean, hazard	2.5	3	3.5	Remove
				8		10					
				8	12	10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
359	Southern mahogany	47.5	25	25	20	15	Severe lean/fallen on fence, immanent hazard, still living, epicormic sprouting at base	3	2.5	4	Remove
				15		22					
				12	20	20					
362	Peruvian pepper	23.1	29	15	10	2	Too close to fence, poor prognosis, canopy offset, health fair but leans to W, limbs growing through fence	2.5	3	2.5	Prune and monitor
				15		2					
				12	12	2					
363	Valley oak	6.4	23	8	13	10	Minor distress, minor borer infection, may be treated. Some epicormic shoots	2.5	2	2.5	Prune and monitor
				6		5					
				6	6	6					
364	Jacaranda	8	35	18	11	11	Some dead wood, lower small limbs with included bark, poorly formed canopy but maybe saved if pruned, some signs of distress	2.5	2	2	Prune and monitor
				17		6					
				15	8	12					
365	Jacaranda	7.2	34	18	5	5	Rubbing on fence, canopy dieback, shedding bark/distressed, many limbs with decay, offset canopy with some dieback	2.5	2	3	Remove
				16		5					
				20	20	7					
366	Peruvian pepper	3.1	16	0	10	0	Fallen on fence, decreased aesthetics, offset canopy mass	3.5	2	4	Remove
				5		4					
				10	5	0					
367	Silver dollar gum	5.5	31	14	6	9	Fair vigor, some distress likely due to lack of water, good canopy development, fair taper, compensated lean with new growth	3	2	2	Remove with Project
				15		10					
				8	6	9					
368	Peruvian pepper	3.9	21	14	10	8	Topped ,poor growth form, compensated, distress canopy, decreased aesthetics	3	3	3	Remove
				14		5					
				3	2	2					
369	Peruvian pepper	5.1	20	12	11	10	Braced with rope! Lean, poor vigor, competing canopy, tree planted too close to fence	2.5	3	4	Remove
				4		12					
				5	4	4					
370	White mulberry	9	21	15	12	13		2.5	3	2	Prune and monitor

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				15		11	Multi-stemmed, Likely desiccated with water distress, poor scaffolding, planted too close to fence				
				6	12	8					
371	Valley oak	6.1	31	10	10	10	Distressed, may be saved with irrigation, some dieback at 10-20%	2	2	2	Prune and monitor
				10		10					
				10	10	10					
374	Valley oak	6.1	21	5	4	6	Highly distressed, very poor development, epicormic sprouting along main stem	3	2	3	Remove
				5		5					
				5	5	5					
375	Shamel ash	8	25	12	6	10	Distressed possibly due to desiccation, increased dieback	3	2	2.5	Remove with Project
				12		12					
				12	8	8					
376	Jacaranda	3.3	19	4	4	6	Severe decline/poor health, next to stable, little living canopy mass	3.5	2.5	3	Remove
				5		8					
				12	15	13					
377	Brazilian pepper	1.9	13	2	0	0	Severe decline, few canopy leaves	4	2.5	2.5	Remove
				2		0					
				2	5	4					
378	Valley oak	6.8	26	5	6	12	Distressed tree, epicormic shoots and leaves, poor canopy health	3	2.5	2.5	Remove
				5		10					
				6	7	10					
379	Callery pear	5.5	16	10	8	8	Water desiccation distress likely, in decline, shape and flare OK	3	2	3	Remove with Project
				8		14					
				6	8	13					
380	Brazilian pepper	8.1	15	5	6	7	Offset canopy/deformed due at horse stable structure, borer?, poor prognosis	2.5	3	3	Remove
				5		10					
				5	10	6					
381	Brazilian pepper	4	15	6	6	6	Codominant stem with included bark, poor prognosis, deformed canopy, inappropriate location	2	3	2.5	Remove with Project
				6		6					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				6	6	6					
382	Brazilian pepper	3.8	25	3	3	6	Mechanical stem damage, health fair, poor prognosis	2	2	3	Remove
				10		6					
				10	10	5					
383	Brazilian pepper	6.1	21	8	6	7	Stem damage, tied codominant stem with included bark	3	2	2.5	Remove
				12		5					
				12	10	6					
384	Brazilian pepper	7	25	9	4	6	Fair canopy with poor maintenance, unsealed bark (borer?), poor canopy development with poor scaffolding	2	2	2	Remove with Project
				8		8					
				8	8	9					
385	Brazilian pepper	5.5	21	5	6	10	Fair to poor canopy development, poor scaffolding	2.5	2	2.5	Remove with Project
				6		10					
				6	5	8					
386	Jacaranda	3.9	22	10	3	2	Dead	4	2	4	Remove
				10		0					
				5	10	0					
387	Brazilian pepper	6.2	24	6	5	6	Fair canopy development, health and vigor is fair	2	2	2	Remove with Project
				6		6					
				8	8	8					
388	Brazilian pepper	4.5	19	5	4	5	Some stress, fair canopy development	2	2	2	Remove with Project
				6		12					
				6	5	12					
389	Valley oak	8.4	25	10	8	6	Codominant stem, termite frass, some exuding from fork in stem and flare. Further evaluation if preserving	2	2	2	Remove with Project
				13		10					
				14	14	12					
390	Brazilian pepper	4.5	25	6	4	2	Poor canopy development due to lack of maint., poor prognosis, water sprouting noted	3	2	2	Remove
				6		6					
				4	4	12					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
391	Brazilian pepper	7.8	19	9	6	8	Good stratification and fair crotch development	2	2	2	Remove with Project
				9		10					
				10	10	10					
392	Brazilian pepper	5.3	15	3	1	3	Lean, unclosed stem cuts, poor scaffolding, fair health and vigor	2.5	2.5	2.5	Remove with Project
				5		5					
				8	8	8					
393	Brazilian pepper	6.8	21	8	2	4	Large limb cut, lean, health fair	2.5	2.5	2.5	Remove
				8		12					
				12	12	15					
394	Valley oak	9.8	45	11	7	12	Borer infection? Compressed roots, stressed canopy, epicormic sprouting, treat and monitor if feasible	2.5	2.5	2	Remove with Project
				10		15					
				9	8	15					
395	Brazilian pepper	5.1	17	8	8	10	Competing canopy, health OK, lean	2.5	2.5	2	Remove with Project
				6		8					
				4	4	8					
396	Brazilian pepper	5.9	14	6	7	6	Internal decay on major limb, poor maint., health OK but poor prognosis overall	2.5	2.5	2.5	Remove
				5		12					
				6	5	12					
397	Shamel ash	7.4	39	10	12	12	Health OK, codominant stem with good crotch, near structure (target), borer and stained wood	2	2	2	Remove
				10		12					
				10	9	15					
398	Jacaranda	6.2	30	8	6	10	Health OK, canopy offset, 10 deg lean to W	2.5	2.5	3	Remove
				8		5					
				10	8	4					
399	Brazilian pepper	7.2	17	8	8	5	Fair scaffolding, possible internal decay, poor prognosis	2	3	2.5	Remove
				8		6					
				8	6	6					
400	Brazilian pepper	5.9	20	10	10	8	Good form, decay internally at branch collar	2	2	2	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				8		10					
				10	8	8					
404	Jacaranda	9	23	0	0	0	Significant lean, poorly developed canopy due to crowding, health fair	3	2.5	3	Remove
				0		0					
				7	9	7					
405	Jacaranda	9.8	25	0	0	0	Significant lean due to crowding, poor canopy development, health OK	3	2.5	3	Remove
				0		0					
				10	10	10					
406	Jacaranda	12.2	31	0	0	4	Lean due to competing canopy, off center mass	2.5	3	2.5	Remove
				0		6					
				0	12	10					
407	Shamel ash	5.9	15	5	5	5	Dead	4	3	4	Remove
				5		5					
				5	5	5					
408	Shamel ash	10.6	27	6	6	7	Highly distressed, may have internal decay, buried in shrubs, leaf tip burn and some canopy dieback	3	3	3	Remove
				4		7					
				8	10	6					
409	Shamel ash	16.1	41	8	6	8	Good taper and canopy, some exuding, good form	1.5	2	2	Remove with Project
				8		10					
				12	15	9					
410	Peruvian pepper	16.9	43	18	12	10	Good flare and vigor is OK	1.5	2	1.5	Remove with Project
				14		20					
				18	18	18					
411	Peruvian pepper	17.7	45	12	10	12	Healthy and good canopy, some water sprouting	1.5	2	1.5	Remove with Project
				13		11					
				8	8	11					
412	Sweetgum	6.6	17	5	3	3	Stressed, exuding, chlorotic leaves may be from nutrient deficiency, water desiccation likely	2.5	2	2	Remove with Project
				5		3					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				4	3	3					
413	Jacaranda	14.5	31	6	6	8	Codominant stem configuration, lean to S, health is OK, prognosis may be limited due to sprouting and lean	2	2	2.5	Prune and monitor
				6		13					
				10	10	14					
414	Sweetgum	7	18	3	2	2	Some distress, minor chlorotic leaves	2	2	2	Prune and monitor
				4		1					
				3	3	5					
415	Peruvian pepper	23.6	43	2	12	26	Offset canopy mass, internal decay, increased liability due to internal termites and deadwood	3	2	3	Remove
				6		23					
				4	8	22					
416	Peruvian pepper	19.8	50	20	18	18	Large tree with 15-20 deg lean to N, some scaffolding noted, health is ok, but increased liability	2.5	2	3	Remove
				18		10					
				6	8	12					
417	Apple	5.9	25	8	7	4	Canopy fair to poor, planted too close, shaded	2.5	2	2	Remove with Project
				6		4					
				8	10	12					
418	Peruvian pepper	17.7	41	22	6	5	Lean , canopy offset, large limb failure, offset mass	2.5	2	3	Remove
				25		2					
				25	15	7					
419	Common fig	7.6	10	6	6	6	reduced vigor and living mass, stressed, prognosis is limited	2.5	2	2	Prune and monitor
				6		6					
				6	6	6					
420	Shamel ash	5.11	25	6	5	9	Distressed due to lack of water, reduced living canopy mass, may be saved with irrigation and maint.	2.5	2	2	Remove
				6		10					
				5	12	8					
421	Shamel ash	3.3	17	5	5	7	Young, distressed, excavation at flare, decline likely due to lack of water	2.5	2	2	Remove
				5		5					
				4	4	5					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
422	Shamel ash	5.9	19	8	8	9	Severe distress due to lack of water, well stratified, may be salvaged	2.5	2	2.5	Treat and Monitor
				10		6					(marginal - re-evaluate after project if preserved)
				10	6	7					
423	Shamel ash	4.5	23	5	5	4	Mostly dead	4	2	4	Remove
				5		6					
				6	4	4					
424	Shamel ash	4.3	22	4	4	4	Water stress, leaf curl, poor flare, may be salvaged	3	2	2	Remove with Project
				5		4					
				6	6	5					
425	Shamel ash	4.7	25	7	7	8	Water stress vertical cracks, poor flare	3	2	2	Remove
				7		7					
				8	5	8					
426	Fremont cottonwood	25.8	41	6	5	5	Shot borer? Leaf tip burn, codominant stem with included bark, canopy stress	2.5	2	3	Remove
				6		6					
				5	4	4					
427	Peruvian pepper	4.2	12	5	5	5	Young, good health, may be relocated	1	3	1	Remove
				5		5					
				5	5	5					
428	Peruvian pepper	3	10	6	6	6	Young, good health, may be relocated	1	3	1	Remove
				6		6					
				6	6	6					
429	Peruvian pepper	2.7	10	5	5	5	Young, good health, may be relocated	1	3	1	Remove
				5		5					
				5	5	5					
430	Peruvian pepper	10.1	20	8	8	10	Stump sprouts only, health OK but poor prognosis	3	3	3	Remove
				10		12					
				8	10	8					
431	Southern mahogany	5.5	30	1	2	5	Distressed, offset canopy, termites and signif. lean	3	2	3	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				1		10					
				1	5	6					
432	Shamel ash	4.8	15	4	5	4	Severe decline, decreased canopy mass, poor health	3	2	2.3	Remove
				7		4					
				7	6	7					
433	Coast live oak	6.6	17	4	3	4	Codominant stem, sucker damage, competes with elm poor canopy development	2.5	2.5	2	Prune and monitor
				6		8					
				8	4	6					
434	Chinese elm	9.8	30	9	8	10	Codominant stems, poor scaffolding, health fair, basal sprouts	2.5	2	2.5	Remove
				12		8					
				12	10	12					
435	Shamel ash	9.8	23	6	6	6	Multi-stemmed, stressed canopy, poor health, internal decay, canopy dieback	2.5	2	2.5	Remove
				6		6					
				6	6	6					
436	Jacaranda	4.6	25	8	0	0	Severe decline, planted too close to other trees, mostly dead	4	3	4	Remove
				8		5					
				6	6	6					
437	Jacaranda	2.7	27	0	1	0	Lean, almost dead, too close to others	4	3	4	Remove
				2		4					
				4	10	7					
438	Jacaranda	3.5	17	2	0	8	Lean, almost dead, too close to others	4	3	4	Remove
				6		4					
				8	5	5					
439	Jacaranda	3.8	21	0	0	0	Lean, almost dead, too close to others	4	3	4	Remove
				1		0					
				1	8	1					
440	Jacaranda	1.5	13	6	2	2	Codominant leaders, some stress noted, poor prognosis, health fair to poor	2.5	2	2.5	Remove
				6		0					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				6	0	0					
441	Brazilian pepper	18.2	25	6	8	6	Health Ok. codominant stems, decay on main branches	2	2	2.5	Remove
				10		6					
				10	11	6					
442	Carrotwood	4.3	19	8	6	6	Sapsucker damage, deformed canopy	3	3	2	Remove
				12		5					
				8	8	4					
443	Shamel ash	6.6	15	4	5	4	60% dead canopy, codominant stems, highly stressed	3	2	3	Remove
				6		6					
				6	8	7					
444	Carrotwood	10.8	24	10	6	6	Removed				Removed
				12		5					
				12	13	5					
445	Peruvian pepper	11.3	23	8	6	4	Multi-stem, vigor good, stem cracking, poor prognosis	2.5	2	3	Remove
				12		6					
				8	8	6					
446	Peruvian pepper	9.7	21	10	6	8	Codominant stem, vigorous, but poor prognosis due to increased liability	2.5	2	2	Remove
				6		8					
				8	6	6					
447	Jacaranda	1.9	10	5	5	5	Stressed canopy with dieback. Tree is flowering though. Health is marginal	2.5	2	2	Remove
				5		5					
				5	5	5					
448	Jacaranda	3.1	25	0	0	0	Mostly dead, competing canopy	4	2.5	4	Remove
				7		10					
				10	7	10					
449	Jacaranda	3.9	15	0	0	0	Mostly dead	4	3	4	Remove
				5		5					
				6	6	6					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
450	Jacaranda	7	27	2	0	0	Mostly dead, increased, decay, sprouting next to pepper	4	2.5	4	Remove
				4		0					
				2	6	4					
451	Jacaranda	4.5	21	1	1	2	Lean, internal decay, mechanical damage, decreased aesthetics	3.5	2.5	3	Remove
				6		2					
				15	30	6					
452	Jacaranda	4.7	25	15	0	0	Mostly dead, planted too close to other trees	4	2.5	4	Remove
				10		2					
				10	10	10					
453	Peruvian pepper	5.1	25	8	8	6	Sweep lean, poorly developed canopy, poor health	3	3	2.5	Remove
				8		6					
				3	4	4					
454	Peruvian pepper	8.2	12	5	5	2	Sweep lean, some canopy deadwood, health is fair to poor, decreased aesthetics	3	3	3	Remove
				15		5					
				6	2	4					
455	Peruvian pepper	5.9	25	4	5	5	Distressed, canopy poorly developed, tag removed, foliage absent	3	3	3	Remove
				4		8					
				15	15	10					
456	Peruvian pepper	1.9	16	3	3	3	Mostly dead, on slope, sprouting only	3.5	2	3	Remove
				5		3					
				3	3	3					
457	Peruvian pepper	7	20	0	5	5	Water sprouting, sweep lean due to competing canopies, stressed, dieback at 40%	2.5	3	2.5	Remove
				15		8					
				20	10	6					
458	Jacaranda	3.7	21	5	4	2	Highly stressed, canopy dieback at 70%, next to road	3	2.5	3	Remove
				10		5					
				8	6	6					
459	Jacaranda	4.3	27	2	0	5	Next to road, reduced living canopy mass	3	2.5	3	Remove

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				4		5					
				8	5	5					
460	Jacaranda	3.5	25	11	0	0	Deformed canopy, on slope and competing with other trees	2.5	3	2.5	Remove
				15		0					
				15	6	0					
461	Jacaranda	5.1	23	6	12	6	On slope, decline in health, some dieback, 10-15% lean	3	3	2.5	Remove
				15		9					
				15	10	8					
462	Jacaranda	5.5	25	0	0	0	Broken limb, deformed canopy due to competition, health fair to poor	2.5	3	2.5	Remove
				8		4					
				8	8	8					
463	Peruvian pepper	6.8	23	2	3	5	On slope. Lean, offset canopy	2.5	2.5	2	Remove with Project
				8		4					
				4	4	10					
464	Peruvian pepper	2.7	15	2	5	4	Planted in too close proximity to others, health is fair, offset canopy with minor sweep	2	3	2	Remove
				4		5					
				4	8	15					
465	Peruvian pepper	4.3	25	0	1	2	Distressed canopy, poorly developed crown, internal decay	3	3	2.5	Remove
				1		10					
				1	1	16					
466	Peruvian pepper	4.3	17	4	4	18	Guy wire permanent, fallen/lean, severe distress, too close to others	3.5	3	3.5	Remove
				4		15					
				3	4	5					
467	Peruvian pepper	10.9	21	2	2	4	Codominant leaders, tied together with rope	3	3	3.5	Remove
				1		10					
				2	18	16					
468	Peruvian pepper	5.4	15	4	1	2	Pealing bark, poor prognosis, sweep lean, poor canopy due to competition	2.5	3	2.5	Remove
				5		0					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				13	18	0					
469	Peruvian pepper	3.9	12	0	1	10	45 deg lean due to competition, distressed due to local conditions, codominant leaders/stems	2	3	3	Remove
				13		12					
				15	15	6					
470	Peruvian pepper	1.9	11	1	1	1	Offset canopy due to competition, in understory of other peppers, poor spacing	2.5	3	2	Remove
				4		2					
				5	10	10					
471	Peruvian pepper	2.3	10	1	1	2	Sapling, likely from sprouting, poor prognosis due to close proximity to others	2	3	2.5	Remove
				4		3					
				0	5	5					
472	Peruvian pepper	7.4	20	5	6	3	Codominant stems, health fair, poor prognosis, competing canopy	2	2	2.5	Remove
				3		4					
				13	13	15					
473	Peruvian pepper	9.1	20	8	2	2	Canopy dieback at 25%, 3 stems, poor prognosis	2.5	2	2.5	Remove
				11		15					
				15	20	18					
474	Peruvian pepper	3.8	16	1	1	4	Codominant stems, under nurse tree, competing leading to deformed canopy, poor prognosis	3	3	2.5	Remove
				2		2					
				10	15	10					
475	Chinese elm	3.9	19	7	6	6	Severe decline, highly stressed, poor health, basal sprouting, water stress	3	2	2.5	Remove
				8		8					
				10	11	10					
476	Peruvian pepper	3.1	15	3	4	6	Stress and decline, decreased vigor, bark peeling, canopy dieback	3	2.5	2	Remove
				8		6					
				11	5	7					
477	Carrotwood	2.9	25	1	1	1	Codominant stems, decline with internal decay, stressed	2.5	2	2.5	Remove
				7		8					
				8	9	10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
478	Peruvian pepper	4.5	26	0	0	0	Severe sweep lean due to competition, on slope next to road	2.5	3	2.5	Remove
				4		20					
				5	5	22					
479	Shamel ash	3.7	37	8	15	10	Leaf tip burn, canopy dieback, canopy competition, stressed	2.5	3	2	Remove
				8		10					
				6	6	10					
480	Shamel ash	5.1	30	9	9	9	Severe dieback and stress	3	2	2.5	Remove
				9		9					
				9	9	9					
481	Peruvian pepper	4.2	25	6	5	0	Severe distress, dead codominant stem	3	2	3	Remove
				6		4					
				2	1	4					
482	Peruvian pepper	3.9	22	2	1	2	Distressed canopy, dead leader, increased canopy competition, poor development	3	3	2.5	Remove
				4		6					
				0	18	5					
483	Peruvian pepper	3.5	20	0	0	5	Lean, poor canopy development, some signs of distress, health fair to poor	2.5	2	2.5	Remove with Project
				4		5					
				0	20	18					
484	Peruvian pepper	5.8	25	6	6	4	Codominant stem, health fair	2	2	1.5	Remove with Project
				8		2					
				7	3	2					
485	Peruvian pepper	6	17	6	6	6	Multi-stemmed, bush like, good vigor, Poor prognosis	2.5	2	3	Remove
				6		6					
				6	6	6					
486	Peruvian pepper	6.6	17	8	8	8	Multi-stemmed, bush like, good vigor, Poor prognosis	2.5	2	3	Remove
				8		8					
				8	8	8					
487	Shamel ash	2.7	28	12	6	6	Some leaf tip burn, decreased canopy health, distressed	2.5	2	2	Remove with Project

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				10		12					
				6	5	10					
488	Chinese elm	3.5	21	5	8	5	Distressed/decline, poor prognosis	2.5	2	2.5	Remove
				6		6					
				5	5	6					
489	Shamel ash	4.5	20	10	10	5	Distressed/decline, poor canopy development, poor prognosis	2.5	2	2	Remove
				8		8					
				7	10	9					
490	White mulberry	8.5	25	6	7	8	Stem decay,75% dieback, codominant stems	3	2	3	Remove
				6		10					
				6	8	8					
491	Shamel ash	2.7	12	6	4	4	In decline, 90% dead canopy, fungus n leaves	3	2	2.5	Remove
				5		5					
				6	4	5					
492	Shamel ash	2.5	19	5	5	7	Dieback, distressed, poor health	3	2	2	Remove
				5		8					
				5	8	6					
493	Jacaranda	9.8	23	1	8	8	Fair health, some distress, canopy uneven due to jacaranda nearby	2	2	2	Remove with Project
				1		20					
				11	6	15					
494	Brazilian pepper	21.5	24	6	6	8	Along fence, inappropriate location, competing crown, codominant stem, vigor OK	2.5	3	3	Remove
				6		10					
				16	16	14					
496	Carrotwood	1.9	19	0	0	0	Distressed, likely due to crowding, better if replaced, health and vigor is fair	2	3	2	Remove
				10		2					
				12	8	5					
497	Peruvian pepper	12.2	41	18	14	18	Along fence, competes with gum tree, leaning, health is okay	3	3	2.5	Remove
				18		10					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
				19	20	6					
500	Brush cherry	3.1	13	3	2	4	Health OK, stature is fair	2	2.5	2	Prune and monitor
				4		8					
				4	3	2					
501	Brush cherry	2.3	12	3	2	3	Some deadwood, minor chlorotic leaves	2	2.5	2	Prune and monitor
				6		5					
				4	2	4					
502	Shamel ash	3.7	36	8	9	5	Increased competition with pepper, poor canopy development, health OK, poor prognosis	2.5	3	2	Prune and monitor
				2		5					
				5	7	8					
503	Brush cherry	1.9	10	1	1	1	Epiphytic Virginia creeper, suppressed canopy, health fair	2.5	2.5	2	Prune and monitor
				2		2					
				2	1	2					
504	Brush cherry	2.7	11	2	2	1	Epiphytic Virginia creeper, suppressed canopy, health fair	2.5	2.5	2	Prune and monitor
				2		3					
				2	2	3					
505	Brush cherry	5.1	15	2	1	2	Highly stressed, dieback noted	3	3	2.5	Remove
				2		1					
				2	2	1					
506	Brush cherry	4.1	13	2	1	2	Topped, poor aesthetics, reduced living mass	3	2.5	2.5	Remove
				2		2					
				2	2	2					
507	Brush cherry	5.9	15	2	4	4	Topped, sprouting, stressed, along fence	2.5	2.5	2.5	Remove
				4		2					
				4	3	5					
508	Brush cherry	4	12	0	1	1	Topped, sprouting, stressed, along fence	3	2.5	2.5	Remove
				3		2					
				4	4	4					

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health	Env	Risk	Conclusion
								(see definitions below)			
509	Brush cherry	3.4	11	1	1	1	Topped, stressed, along fence	3	3	2.5	Remove
				1		1					
				1	1	1					
510	Brush cherry	7.8	21	4	5	6	Health OK, large specimen	2	2	1.5	Prune and monitor
				6		6					
				4	4	6					
511	Brush cherry	6.4	16	2	2	4	Codominant stem with weak attachment, topped with sprouting, health OK	2	2.5	2.5	Remove with Project
				4		5					
				2	2	4					
512	Brush cherry	4.7	16	2	2	2	Epiphytic growth, stressed canopy, decreased aesthetics	3	3	2.5	Remove
				2		2					
				4	1	4					
513	Brush cherry	4.7	23	2	2	3	Health fair, epiphytic growth, canopy competition	2.5	2	2	Remove with Project
				2		4					
				6	2	4					
514	Brush cherry	6	15	2	2	4	Reduced canopy mass, poor aesthetics, densely planted, reduced health	3	2.5	2.5	Remove
				2		4					
				6	3	4					
515	Brush cherry	5.9	17	4	6	6	Reduced canopy mass, poor aesthetics, densely planted, poor maintenance	3	2.5	2.5	Remove
				5		8					
				6	2	5					
516	Brush cherry	7.3	13	4	4	6	30-40 deg lean, poor prognosis, health ok	2.5	2.5	2.5	Remove
				4		10					
				2	4	6					
517	Brush cherry	5.6	17	1	1	1	Poor canopy development, densely planted, poor maintenance, may be saved with maintenance	2.5	2.5	2	Remove
				6		2					
				8	6	6					
518	Chinese flame tree	8.5	24	4	6	6		2	2.5	2.5	Remove with Project

Tree Tag #	Species	Diameter at Breast Height (in)	Height (feet)	Canopy Width (feet) *-up is N*			Notes	Health (see definitions below)	Env (see definitions below)	Risk (see definitions below)	Conclusion
				3		6	Dense shrub, competing canopy, health ok, poor scaffolding, along fence, some dieback noted				
				4	8	5					
519	Lime	10	12	3	3	3	In decline due to lack of water, multi-stemmed, canopy competition	2.5	3	2	Remove
				2		3					
				3	4	3					
No	Mexican fan palm	NA	8	3	3	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	3	3					
No	Mexican fan palm	NA	7	3	3	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	3	3					
No	Mexican fan palm	NA	7	3	3	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	3	3					
No	Mexican fan palm	NA	8	3	3	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	3	3					
No	Mexican fan palm	NA	9	3	0	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	0	3					
No	Mexican fan palm	NA	9	3	0	3	Young, good vigor	2	2	2	Prune and monitor
tag	(no tag)			3		3					
				3	0	3					

Health Rating	**Environment Rating**	**Risk Assessment**
1-Good	1-Good	1-Low
2-Fair	2-Fair	2-Moderate
3-Poor	3-Poor	3-High
4-Decline/dead	4-Inappropriate	4-Extreme

Appendix B – Species Matrix (February 2020 Survey)

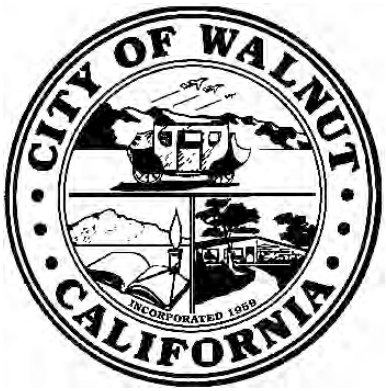
Tree Tag #	Species[1]	Diameter at Breast Height (DBH) (inches)	Height (feet)	Canopy Width (feet)			Notes	Health	Env	Risk	Conclusion
520	Western Sycamore	19	56	20	14	8	Multiple Cankers, In decline, compacted soil, near stable, good form	3	2-3	3	Remove
				20		10					
				20	20	8					
521	Western Sycamore	18	44	12	22	6	In decline, embedded pole, internal termite damage, increased liability, multiple cankers, over stables	3	3	3-4	Remove
				20		6					
				18	18	10					
522	Western Sycamore	16	50	18	18	6	Embedded pole, multiple cankers, in decline, poor prognosis	2-3	2-3	3	Remove
				16		8					
				10	10	10					
523	Peruvian Pepper	23	58	18	18	20	Good structure, on slope, competing canopy, preserve and prune	2-3	2-3	2-3	Prune and monitor
				20		6					
				12	12	6					
524	Peruvian Pepper	21	66	6	10	10	On slope, poor stem development, lower canopy dieback, may be saved, questionable, prune and preserve	2-3	2-3	2-3	Prune and monitor
				8		6					
				4	14	8					
525	Indian Laurel Fig	8	20	12	4	6		2-3	2-3	2-3	Prune and monitor
				12		10	Multiple stem, internal stem decay, prune, mold under trees				
				12	12	10					
526	Indian Laurel Fig	9.5	24	6	4	4		2	2-3	2-3	Prune and monitor
				4		4	Multi-stem, fair form				
				8	10	10					
527	Indian Laurel Fig	5	18	4	4	6		2	2-3	2-3	Prune and monitor
				2		4	Fair form,				
				4	6	4					
528	Indian Laurel Fig	4	22	4	4	4		2	2-3	2-3	Prune
				4		2	Fair form, competing canopy				
				6	6	2					
529	Indian Laurel Fig	6.5		6	6	6		2	2-3	2-3	Prune
				4		6	Fair form				
				4	4	2					
530	Blue Jacaranda	8	30	0	8	4		2	2-3	2	Prune
				6		4	Stature is fair, on slope				
				6	12	6					
531	Blue Jacaranda	22.5	24	10	8	12		2	2-3	2	Prune
				8		14	On slope, interlaced canopy, vigor good, minor canopy deadwood				
				8	12	12					
532	Crape Myrtle	8	16	8	4	6		2	2	2	Prune
				6		6	Deciduous, some upper canopy deadwood				
				8	10	8					
533	Privet	0.5	7	2	18	2	Less than 2 inches DBH, Poor location, competing with Carrotwood	1	1	1	Remove

Tree Tag #	Species[1]	Diameter at Breast Height (DBH) (inches)	Height (feet)	Canopy Width (feet)			Notes	Health	Env	Risk	Conclusion
				2		2					
				2	2	2					
534	Peruvian Pepper	13	36	10	4	10	Good form, over horse stables, on slope	2	2	2-3	Prune
				12		8					
				14	18	20					
535	Carrotwood	1	10	2	2	2	Less than 2 inches DBH, Poor location, competing with Carrotwood	1-2	1-2	1-2	Prune
				2		2					
				2	4	2					
536	Crape Myrtle	8	14	2	1	1	In decline, poor aesthetics, substantial upper canopy deadwood. May be	3	2-3	2-3	Treat and monitor
				6		2	able to save if irrigated and treated, re-evaluate post project and pre				
				6	6	6	occupant if preserved				
537	Crape Myrtle	4.5	15	1	1	0	Embedded ornamental lights, in decline, strangled/girdled	3	3	2-3	Remove
				2		1					
				6	6	6					
538	Crape Myrtle	15	18	12	10	8	Embedded tie-wire, good vigor despite, better to replace due to	2-3	3	2-3	Treat and monitor
				8		8	circumstances. May be able to save if irrigated and treated, re-evaluate				
				8	6	8	post project and pre occupant if preserved				
539	Crape Myrtle	8	18	4	6	6	Girdled with ornamental lights, poor aesthetics	2-3	3	2-3	Remove
				2		4					
				2	4	4					
540	Blue Jacaranda	17	52	8	8	8	Unbalanced canopy, strategic prune to rebalance canopy	2-3	3	3	Prune
				16		10					
				18	16	14					
541	European olive	64	46	6	10	10	Increased liability, codominant stem, soil compaction,	2-3	3	3-4	Remove
				16		8					
				12	6	6					
542	Chinese Elm	36	46	16	32	22	Increased liability, codominant stem, vigor appears ok, brace to save	2-3	3	3	Treat and monitor
				20		14					
				20	24	18					
543	Privet	2.5	12	1	1	1	Growing in box, poor root establishment, poor prognosis	3	3	3	Remove
				2		1					
				2	6	2					
544	Privet	4	10	4	1	2	Lean, decreased aesthetics, good vigor	2-3	2-3	2-3	Prune
				6		2					
				6	2	2					
545	Privet	3.5	8	2	2	1	Less than 4 inches DBH	2-3	2-3	2-3	Prune
				2		2					
				2	2	2					
546	Peruvian Pepper	68	68	14	8	12	Rotted stem, hollowed out stem, increased liability	2-3	2-3	3-4	Remove
				36		22					
				30	26	20					
547	Peruvian Pepper	27	42	16	12	10	Poor root/flare development, poor canopy development	2-3	2-3	3-4	Remove

Tree Tag #	Species[1]	Diameter at Breast Height (DBH) (inches)	Height (feet)	Canopy Width (feet)			Notes	Health	Env	Risk	Conclusion
				14		6					
				10	5	6					
548	Chinese Elm	12	36	10	8	10	Vigor is poor, treat and re-evaluate, lean	2-3	3	2-3	Prune
				18		12					
				14	18	12					
549	Shiny xylosma	14	30	10	10	18	Lean, poor canopy development, good vigor	2-3	3-4	3-4	Remove
				10		24					
				8	12	26					
550	Shiny xylosma	18	34	10	10	12	Over house, poor flare development, increased liability. May be able to save if irrigated, braced for safety and treated, re-evaluate post project and preoccupant if preserved	2-3	3	3	Treat and monitor
				14		16					
				22	18	16					
551	Shiny xylosma	18	36	10	10	18	Large canker, increased liability	2-3	3	3-4	Remove
				10		18					
				12	12	20					
552	Shiny xylosma	8	20	2	2	2	Large cavity, increased liability	2-3	3	3-4	Remove
				4		4					
				14	20	10					
553	European Birch	1.5	14	4	6	2	Lean, in decline. May be able to save if irrigated, braced for safety and treated, re-evaluate post project and preoccupant if preserved	3	3	3	Treat and monitor
				6		2					
				4	4	4					
554	European Birch	2	10	4	6	2	Vigor fair	2-3	2-3	2-3	Prune
				4		2					
				4	2	2					
555	Privet	15.5	28	4	6	2	Fair form, good vigor, sprouting at flare	2-3	2-3	2-3	Prune
				4		2					
				4	2	2					
556	Japanese Maple	11.5	14	6	6	4	Good form	2	2	2	Prune
				6		6					
				4	6	6					
557	Japanese Maple	4	10	1	1	1	In decline, competing canopy, poor form	3	3	2	Remove
				2		2					
				4	6	6					
558	Shamel Ash	2	13	2	2	2	In decline, poor form	3	3	2	Remove
				4		2					
				4	4	2					
559	Japanese Maple	5	16	4	2	8	In decline, competing canopy. May be able to save if irrigated, treated, re-evaluate post project and preoccupant if preserved	3	2	2-3	Treat and monitor
				4		8					
				2	4	4					
560	Crape Myrtle	15	26	10	2	2	In decline due to no irrigation. May be able to save if irrigated, braced for safety and treated, re-evaluate post project and preoccupant if preserved	3	2-3	2-3	Treat and monitor
				16		2					
				12	12	4					
561	Peruvian Pepper	32	44	14	16	16	Hollow stem, increased liability	2-3	2-3	2-3	Remove

Tree Tag #	Species[1]	Diameter at Breast Height (DBH) (inches)	Height (feet)	Canopy Width (feet)			Notes	Health	Env	Risk	Conclusion
				14		16					
				12	12	14					
562	Bottle Tree	15	32	6	10	12	Codominant stem, included bark, brace tree, strategic pruning if	2-3	3	3	Remove with Project
				6		6	Preserved, braced for safety, re-evaluate post project and preoccupant if				
				8	8	8	preserved				
563	Crape Myrtle	3	20	2	4	6	In decline, stressed	3	2-3	3	Remove with Project
				2		4					
				6	4	4					
564	Camphor Tree	12	40	14	16	12	Good form, embedded pole, poor prognosis	2-3	3	3	Remove
				10		10					
				10	8	10					
565	Bottle Tree	11	32	8	16	8	Good form, lack of water	2-3	2-3	2-3	Remove with Project
				6		6					
				6	6	5					
566	Bottle Tree	8	38	4	4	6	Form fair, missing lower canopy	2-3	2-3	2-3	Remove with Project
				4		2					
				2	2	2					
567	Bottle Tree	8	26	10	6	4	Good vigor and form	2-3	2-3	2-3	Remove with Project
				8		4					
				8	4	4					
568	Bottle Tree	17	26	6	10	6	Included bark, increased liability	2-3	3	3	Remove
				4		6					
				6	6	6					
569	Bottle Tree	9	32	10	10	6	Good form and vigor	2-3	2-3	2-3	Remove with Project
				10		6					
				8	6	6					

Appendix C- Tree Preservation Plan



APPENDIX M
Hydrology and Hydraulics Report
(January 2019)

Michael Baker
INTERNATIONAL

80 YEARS Making a Difference

TECHNICAL MEMORANDUM

To: Chris Vasquez
City of Walnut, Los Angeles County, California

JN 137644

From: Rebecca Kinney, P.E. Rebecca Kinney

Date: February 14, 2020

Subject: The Brookside Tentative Tract No. 72798 Hydrology – Lot 4

The proposed Brookside development includes 28 single family residential community lots which will occupy approximately 12.7 acres of the site. The development area will also include the construction of public and private streets, wet and dry utilities, a recreation center, improvements to the existing trail adjacent to Lemon Creek, sidewalk improvements adjacent to and along the private streets, three biofiltration devices, and vegetated landscaped areas.

Lot 4 of the tract has been modified from a 1.74 acre lot with two existing structures to remain, to one 0.76 acre proposed residential lot with one structure, and the remaining 0.98 acre lot to serve as open space with one structure. Proposed grading for Lot 4 has not been modified. Per the Hydrology and Hydraulics Report, by Michael Baker International dated January 2019, any change in the post-development runoff for Sub-Area 1A would be insignificant as a result of this minor modification. Lot 4 modifications do not require revision of the hydrology calculations.

5 Hutton Centre Drive Suite 500 | Santa Ana, CA 92707 | Office: 949.472.3505 | Fax: 949.472.8373 | mbakerintl.com

TENTATIVE TRACT MAP NO. 45378

Hydrology and Hydraulics Report

January 2019

Prepared for:

Spring Meadows Homes LLC
Meadow Pass Estates LLC
18217 Gale Ave., Suite A
City of Industry, CA 91748

Prepared by:

Michael Baker International
5 Hutton Centre Drive
Santa Ana, CA 92707
Phone: (949) 472-3505

Michael Baker
INTERNATIONAL

Table of Contents

Figures

Tables

Maps

Appendices

1 PROJECT DESCRIPTION

The approximate 25.4-acre Alpine Pointe Development Lot 1 & 2 Tract No. 45378 is located north of La Puente Road, south of Meadow Pass Road, east of North Lemon Avenue and West of Broken Lance Road, in the City of Walnut, Los Angeles County, California. The subject site consists of three Assessor's Parcel Numbers (APNs) 8709-093-001, -002, and -003, and the associated address 800 Meadow Pass Road. The subject site currently consists of the Brookside Equestrian Center and associated equestrian land uses and is generally located northwest of the confluence of State Route 57 (SR-57) and SR-60, north of Valley Boulevard, and south of Amar Road in a residential area of the City of Walnut. A vicinity map is provided as Figure 1 and Project Site map as Figure 2.

The proposed development includes 28 single family residential community lots which will occupy approximately 12.7 acres of the site. The development area will also include the construction of private streets, wet and dry utilities, a recreation center, improvements to the existing trail adjacent to Lemon Creek, sidewalk improvements adjacent to and along the private streets, three biofiltration devices, and vegetated landscaped areas.

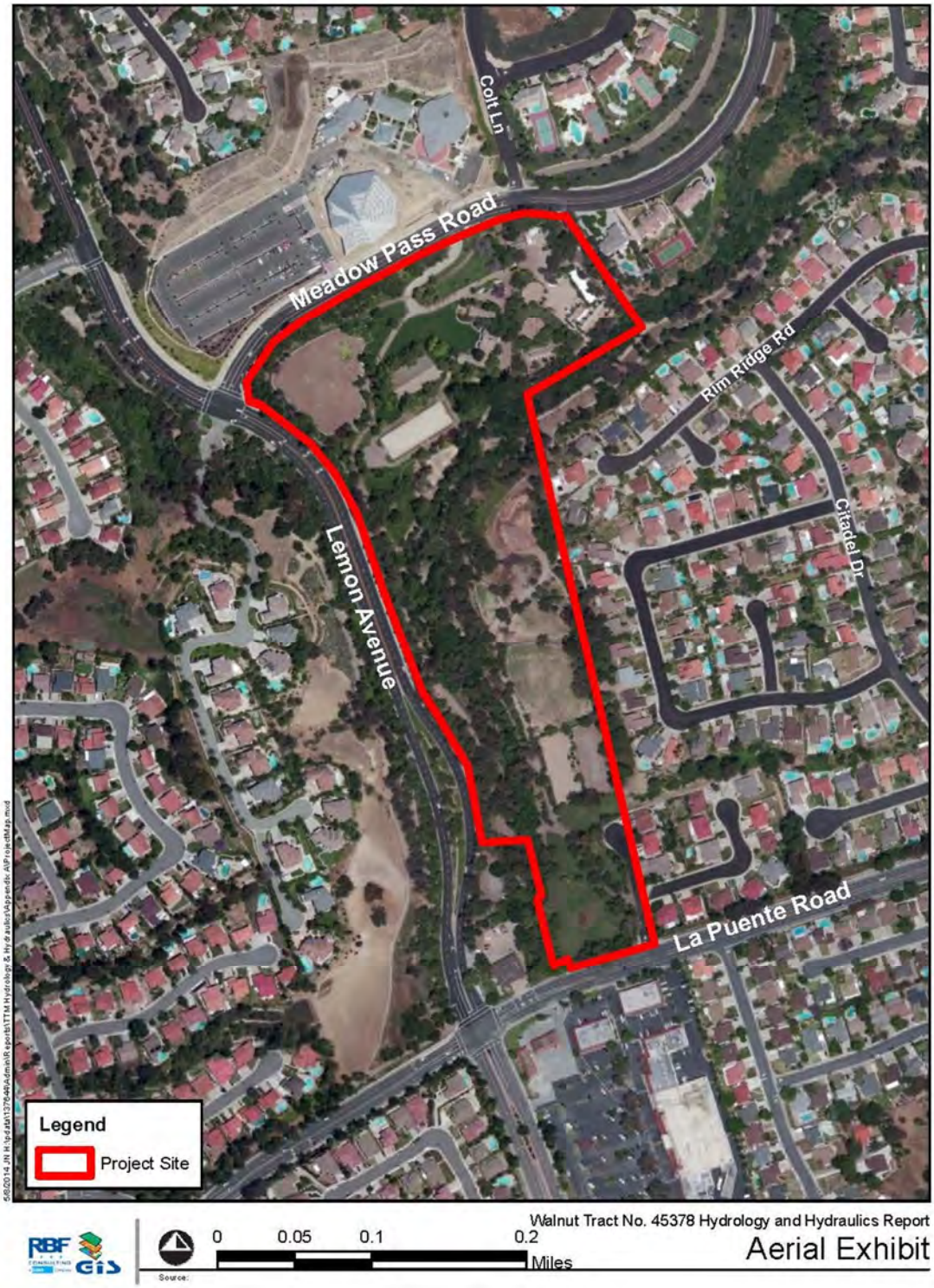
The objectives of this report are outlined below:

- Quantify the pre- and post-development 25- and 50-year hydrology values for the two project site discharge locations (not including upstream tributary area),
- Quantify the capacity of existing and proposed, on-site storm drain infrastructure,
- Quantify the capacity of off-site storm drain infrastructure,
- Show that the proposed project will not have a hydrologic or hydraulic adverse impact, as compared to pre-development conditions.

Refer to the project specific Standard Urban Stormwater Mitigation Plan (SUSMP), prepared by Michael Baker International on April 22, 2016, for information pertaining water quality and hydromodification mitigation measures.

Figure 1: Project Vicinity and Location Map.

Figure 2: Project Site Map



1.1 Pre-Development Conditions

The project site receives run-on from approximately 10.3 acres of developed land north of Meadow Pass Road. There is existing storm drain infrastructure on-site, although there are no catch basins or inlets to the existing storm drain lines within the project limits. Flow from the hills above the project site is conveyed in the street gutters to catch basins on Meadow Pass Road and Colt Lane. Three storm drain conduits convey the flow from the catch basins on Meadow Pass Road to Lemon Creek. Refer to Map 1, the Pre-Development Condition Hydrologic Work Map, for on-site infrastructure.

The 24" storm drain line to the east receives flow from three catch basins at the corners of Colt Lane and Meadow Pass Road. The hydrologic conditions and hydraulics of this 24" line were not analyzed as no on-site flow would be added to the existing line in the proposed condition. In order to address potential site impacts, flows from the tributary area to the upstream end of the system were not considered run-on.

The discussion below outlines the significant drainage nodes and flow paths under pre-development conditions. Refer to 'Section 3 Hydraulics' for more information pertaining to existing and proposed storm drain infrastructure. Refer to Map 1 of this report for the Pre-Development Hydrologic Work Map.

Node 3A: Represents the inlet to the existing 81" culvert at the creek crossing. Flow from subarea 1A, approximately 1.87 acres, and 2A, about 6.26 acres, sheet flow to this point. Subarea 1A will remain unaltered in the proposed condition whereas flow from subarea 2A will be redirected to a point farther downstream to Node 6AB.

Subarea 5B: Project site run-on conveyed to Lemon Creek, approximately 3.81 acres in size. A catch basin on the north side of Meadow Pass Road captures runoff from the area where it enters an 18" storm drain pipe. Runoff is conveyed to a confluence with a 33" pipe and continues southerly, as pipe flow, and is ultimately discharged into Lemon Creek within Subarea 4A, which is approximately 6.29 acres.

Subarea 6B: Project site run-on conveyed to Lemon Creek, approximately 6.49 acres. Catch basins on the north and south sides of Meadow Pass Road capture runoff from the area where it enters a 33" storm drain pipe. Runoff is conveyed to the confluence mentioned above and continues southerly, as pipe flow, and is ultimately discharged into Lemon Creek within Subarea 4A.

Node 7AB: Represents a confluence location for pipe flow from subareas 5B and 6B, sheet flow from subarea 4A, and open channel flow from Node 3A. The node is located immediately upstream of the 72" culvert and Lemon Creek crossing. Runoff continues south as open channel flow to Node 10A.

Node 10A: Represents a confluence immediately upstream of the trail bridge crossing. This point receives the open channel flow from node 7AB and sheet flow from subareas 8A and 9A, 6.55 and 2.53 acres in size respectively.

Node 13A: Represents a confluence immediately upstream of the La Puente Road culvert crossing. This point receives the open channel flow from node 10A and sheet flow from subareas 11A and 12A, 3.15 and 1.89 acres in size respectively.

1.2 Post-Development Conditions

Proposed improvements will not result in a significant diversion of runoff. Runoff from the site under pre-development conditions enters Lemon Creek as entirely sheet flow with the exception of off-site pipe flow from Subareas 4B and 5B. The post-development conditions will convey most of the runoff as pipe flow into Lemon Creek. The discussion below outlines the significant drainage nodes and flow paths under post-development conditions. Refer to Map 2 of this report for the Post-Development Hydrologic Work Map.

Subarea 1A: This area increased in size in comparison to the pre-developed condition by approximately 2.62 acres due to the addition of area on the right bank (looking downstream). Proposed grading directs a portion of this area downstream through pipe flow to Node 6AB.

Subarea 2B: The runoff in this area will flow into catch basins at the Street A roundabout. The subarea was slightly reduced in size compared to the pre-developed condition due to area being added to subarea 1A and slight changes in boundary lines. The flow will no longer enter Lemon Creek upstream of the bridge crossing. Instead it will be conveyed as pipe flow and discharge into the creek downstream of the bridge at Node 6AB.

Subarea 3B: Runoff flows from the north high point in Street A to the catch basins west of the bridge. Area on the opposite side of Lemon Creek from Lot 17 was added due to the proposed grading and slope of the road. The subarea measures approximately 6.54 acres.

Subarea 5B: Same as pre-development condition.

Subarea 6B: Same as pre-development condition.

Node 6AB: Represents the discharge point of pipe flow from Subareas 2B, 3B, 4B, 5B, and the addition of open channel flow from Subarea 1A. Runoff continues southerly to Node 8A as open channel flow.

Node 8A: Corresponds to Node 7AB of the pre-development conditions. This node receives open channel flow from node 6AB and sheet flow from subarea 7A. The node is located immediately upstream of the 72" culvert and Lemon Creek crossing. Runoff continues south as open channel flow to Node 10A.

Subarea 9A: Represents an initial subarea starting at Lot 18 and ending at a proposed catch basin at the end of the cul-de-sac. Runoff is then directed as pipe flow to Node 13A at the La Puente Road culvert.

Subarea 10A: Runoff from the undeveloped area along Lemon Creek (3.97 acres) is added to the channel at Node 10A. Runoff continues south as open channel flow to Node 13A.

Node 13A: Remains unchanged from the pre-development conditions. Represents a confluence immediately upstream of the La Puente Road double 10'x5' box culvert. This node will still receive open channel flow from Node 10A and runoff from Subarea 11A.

2 HYDROLOGY

Lemon Creek is a tributary stream to San Jose Creek which is part of the larger San Gabriel River Watershed system. Lemon Creek enters the project site at the northeast end of the site and exits the site to the south at the double 5'x10' box at La Puente Road. A tributary stream to Lemon Creek passes under Lemon Avenue through an 81-inch culvert. This stream joins the main reach of Lemon Creek at a confluence point in the center of the project site. There are three storm drain lines that enter the project site from Meadow Pass Road to the north. Currently, there are no catch basins within the project limits. The combination of on-site storm drain infrastructure and off-site hydrology flow means that local and regional hydrology has been analyzed.

2.1 Regional Hydrologic Methodology

Existing hydrology reports for the area were sought in order to determine the proper design flows that would be used to analyze the hydraulics of Lemon Creek through the project site. Michael Baker contacted the Los Angeles Department of Public Works and was provided with minimal data from a hydrology study performed in 1972 for the San Jose Creek Watershed. The data included 50-year design flows for the tributary branches of San Jose Creek and a map of the delineated drainage areas of those branches. The flow rates provided were calculated based on Zone Method and a 50-year frequency rainfall event. A flow of 2,021 cfs enters the site in Lemon Creek before reaching the stream confluence. Flow from the Lemon Avenue culvert adds 1,153 cfs to Lemon Creek for a total flow of 3,182 cfs. At the La Puente Road culvert the flow measures 3,255 cfs.

Since the Los Angeles County Department of Public Works (LACDPW) Water Resources Department has changed its hydrology methodology from that used in 1972, the validity of these flow rates from San Jose Creek study was analyzed. The main areas of concern are the changes in land use, percent impervious surface area, and transition from rainfall zone curves to isohyets. The San Jose Creek study assumed 21-percent imperviousness for the watershed and used a 24-hour, 50-year frequency, zone mass curve with a cumulative rainfall depth of 8-inches.

To calculate the current imperviousness of the watershed upstream of the project site, the tributary drainage area to the project site was delineated using the San Jose Creek hydrology map and aerial photography. Current land uses for the watershed were referenced from the LACDPW Water Resources Publications website. This website contains links to the LACDPW Hydrology Manual, LACDPW GIS database of soils and land uses, and Modified Rational Method Hydrology Support Files. The current land uses were cross referenced with the delineated drainage area using ArcGIS. From this intersection of elements, the area that each land use occupied of the total area was drainage area was determined. Each land use was assigned a percent impervious number in accordance with the LACDPW Hydrology Manual Appendix D table. Using the composite imperviousness equation specified in Section 6.3 of the LACDPW Hydrology Manual, it was concluded that the current imperviousness of the watershed is 20.5%, slightly under the 21% used in the San Jose Creek study.

The project site is located in the San Dimas hydrology map for the 50-year, 24-hour isohyet. The rainfall depth at the project site is 6.7-inches, 1.3-inches lower than the 8-inch rainfall zone used in the San Jose Creek study.

The minimal change in imperviousness for the watershed, and decrease in rainfall depth, mean that the flow values from the San Jose Creek study will be on the conservative side but still acceptable for analyzing the hydraulics through Lemon Creek.

2.2 Local Hydrologic Methodology

HydroCalc 0.2.0 was used for Modified Rational Method hydrologic modeling of the project site and upstream tributary area, in accordance with the Los Angeles County Department of Public Works Hydrology Manual (January 2006). A CSV file with the hydrologic information of each subarea was imported into the program. This study includes pre- and post-development hydrologic analyses for the 25- and 50-year storm events.

On-site drainage basins were delineated using project specific, one-foot contour topography, and the proposed site plan. Off-site drainage basins were delineated using United States Geological Services (USGS) 10-foot contour topography and aerial photography obtained from Environmental Data Resources Inc. (EDR).

Runoff coefficients were determined based upon land-use and hydrologic soil type support files from the LACDPW Water Resources Publications website, and supplemented with aerial topography. Under pre-development, Subareas 2A and 4A are modeled as '2700 – Horse Ranches.' The remaining areas are modeled as '3100 – Vacant Undifferentiated.' Under pre- and post-development conditions, the off-site areas are modeled as '1245 – Religious Facilities' and Subarea 12A/11A (pre-development/post-development) is modeled as '1243 – Fire Stations.' Under post-development, Subareas 1A, 7A, and 9A are modeled as '3100 – Vacant Undifferentiated. The project site is modeled as "1111 – High-Density Single Family Residential" under post-development conditions. Refer to Table 1 below, for Percent Impervious values used in hydrologic calculations.

Table 1: Hydrologic Land Use Types

Land Use Types	Percent Impervious
1111 – High-Density Single Family Residential	42%
1243 – Fire Stations	91%
1245 – Religious Facilities	82%
2700 – Horse Ranches	42%
3100 – Vacant Undifferentiated	1%

Soil types were selected according to the soil classification maps provided on the LACDPW Water Resources Publications website. Three soil types were present within the project site limits. Soil number 89 – Upper San Gabriel River-X can be found to the northwest, number 17 – Yolo Clay Loam, runs along the northern site limits, and number 2 – Altamont Clay Loam, covers most of the site to La Puente Road.

Rainfall depth was determined from the San Dimas 50-Year 24-Hour Isohyet. A depth of 6.7 inches was chosen for the project hydrology. The soil, land use, and rainfall data was compiled in a CSV file that was then imported the HydroCalc Program. Refer to Appendix A for the San Dimas Isohyet and soil type map. Refer to Appendix B for the HydroCalc input data for each subarea.

2.2.1 Hydrology Design Flows

The two tables below summarize the hydrologic analyses for the project site discharge locations under pre- and post-development conditions. The change in flow was also analyzed at the river confluence of Lemon Creek and the 81-inch RCP culvert. Flow generated from the off-site hydrologic areas was not considered in the summary tables below. The flow from the off-site area was analyzed when determining the capacity of the existing and proposed storm drain infrastructure in Section 3 – Hydraulics. Refer to Appendix B for all HydroCalc input and output.

Table 2: Hydrologic Summary – Discharge to Lemon Creek (Node 7AB-pre and 8A-post development)

	Total Area	25-Year	50-Year
	(ac)	(cfs)	(cfs)
Pre	15.58	43.89	50.47
Post	16.27	45.96	55.60
	**Off-Site Area and Flow Omitted*		

Table 3: Hydrologic Summary – Discharge to La Puente Road Culvert (Node 13A)

	Total Area	25-Year	50-Year
	(ac)	(cfs)	(cfs)
Pre	28.54	77.60	91.04
Post	28.54	76.26	92.16
	**Off-Site Area and Flow Omitted*		

Discharge flows from the project site into the upper portion of Lemon Creek increased slightly. The tributary area to this point increased by approximately 0.70 acres, adding 2.07 cfs to the Creek during a 25-year storm event and 5.13 cfs during a 50-year event. The total amount of flow from the project site is discharged at Node 13A into the La Puente Road culvert. The total flow from the site in the pre-development condition for the 50-year storm was 91 cfs. In the Post-development condition this number increased to approximately 92 cfs. The total change in flow between the pre- and post-development conditions is minimal and would not have a significant impact on the existing hydraulics of Lemon Creek.

2.2.2 Project Mitigation

The off-site storm drain culvert at La Puente Road immediately south of the project site was originally designed for a 25-year storm event. As shown on 2 of 5 on the Storm Drain Improvement Plans for P.M. No. 14987(included in Appendix D of this report), 1,750 cfs has been used to size the existing off-site system between station 10+72.00 and 19+02.64. The upstream end of the double 5'x10' box culvert under La Puente Road is identical to Node 13A in both the pre- and post-development conditions.

The proposed project's 1-cfs increase in the 50-year design flow between pre- and post-development is not expected to adversely impact the off-site storm drain system. The 50-year design flow will overtop the exiting culvert at La Puente Road in both the pre- and post-development conditions and the small increase in on-site flow will be negligible.

3 HYDRAULICS

3.1 Regional Hydraulics

Lemon Creek experiences large flows due to its large tributary area upstream of the project site. Flow enters the project site at the northeast limits as open channel flow through the main reach. Downstream of this point there is discharge point from an 81-inch culvert under Lemon Avenue. The Lemon Creek channel and 81-inch culvert can be seen on Map 1, the Existing Hydrologic Work Map. A flow of 2,021 cfs enters the site in Lemon Creek before reaching the confluence. Flow from the Lemon Avenue culvert adds 1,153 cfs to Lemon Creek for a total flow of 3,182 cfs. At the La Puente Road culvert the flow measures 3,255 cfs. Four culverts are located along the Lemon Creek reach within the site limits and serve as trail crossings across the creek. A study of the pre- and post-development hydraulics of the Creek was conducted in order to compare the existing and proposed improvements to the project site.

3.1.1 Model Setup

The hydraulics of the Lemon Creek reach and culverts were modeled using the Army Corp of Engineer's River Analysis Program, HEC-RAS. Data entered into the program consists of topography, river flow data, and cross sections along the river reach. A topographic map of the project site was taken and the data imported into TERRAModel. The contour lines were extracted from this file and imported into AutoCAD Civil 3D. Using AutoCAD Civil 3D, an existing 3-dimensional surface was created from the contour lines. This surface was then exported as an .xml file. Using ArcGIS, the .xml surface file was imported and converted into a TIN surface.

A stream centerline, flow path, and left and right bank lines were drawn for Lemon Creek in AutoCAD Civil 3D using the referenced contour lines and topo map as guides. Cross section lines were drawn across Lemon Creek perpendicular to the flow path and contour lines of the stream. Cross section lines were drawn at locations where the channel changed geometry or contained a culvert. The stream centerline, bank lines, and cross section lines were then imported into the same ArcGIS file containing the existing TIN surface.

Using the HEC-GeoRAS tool within ArcGIS, cross-sections along the channel were cut across the surface. Information about the cross sections, including the location of the bank line points on each cross section and distances to the next downstream cross section, were calculated using the HEC-GeoRAS tools. This information was exported to HEC-RAS from ArcGIS.

HEC-RAS uses a geometry data file, cross sections, bridge/culvert builder, and flow data to analyze the hydraulics of the channel. The water surface elevations at each cross section and culvert are displayed in the program. A profile plot of the water surface elevation is also produced. The flow data used in both the existing and proposed conditions was that of the San Jose Creek hydrology study. At the upstream end of Lemon Creek, station 31+05, the 2,021 cfs flow was added to the model. Refer to Maps 3 and 4 for the existing and proposed HEC-RAS station numbers. At station 23+27, flow from the culvert was added to this section; however, the total flow of 3,255 cfs was used to account for the added on-site flow.

3.1.2 Existing Regional Hydraulics

Map 3, the 50-Year Existing Floodplain, shows the extent of the flooding that occurs in the Lemon Creek reach in the pre-development conditions. All four culverts do not have the capacity to convey the 50-year design flows. The existing 81-inch pipe culvert, at station 26+26 in the Lemon Creek reach, experiences a water surface elevation of 595.3 feet, with approximately 1,460 cfs flowing over the top of the trail. The existing 72-inch pipe culvert at station 22+30 experiences the most flooding in both the pre- and post-development conditions. Major flooding occurs at this point due to the 1,153 cfs entering the Lemon Creek reach from the 81-inch culvert from Lemon Avenue. The top width of the WSE extends from the lower trail on the east side of the creek to the 81-inch concrete pipe culvert from Lemon Avenue. The water surface for the 50-year design flow is 584.5 feet.

The bridge located at station 14+13 includes a 10.25-ft high by 13.5-ft wide arch culvert. A water surface elevation of 579.0 feet at this location is a result of lack of capacity of the bridge to convey the 50-year design flow of 3,255 cfs. The flooded width at this bridge also extends about 150 feet past the east bank due to the low elevations in the open field. The 72-inch pipe culvert at station 11+16 is also undersized and most of the flow overtops this culvert resulting in a water surface elevation of 573.2 feet.

The existing double 10'x5' box culvert under La Puente road is undersized for 50-year design flows and does not have the capacity to convey the entire 3,255 cfs flow through the culvert. The lack of capacity means that water will pond upstream of the road until it reaches an elevation in which it will flow over the road as weir flow. In order to determine the controlling water surface elevation at the La Puente Road culvert, hydraulic calculations had to be performed for surface overflow and culvert flow simultaneously for the road crossing. This analysis was performed using an iterative approach of culvert (inlet control) hydraulics via WSPGW and Bentley FlowMaster. The system was set up in WSPGW initially from the HEC-RAS cross section at station 11+02, to the outlet of the double 7'x8' box culvert downstream. Refer to Appendix D for P.M. No. 14987 plans of the downstream box culvert. A FlowMaster model using a Broad Crested Weir was set up for the surface flows. A weir elevation of 571.5 feet was used and crest lengths of 400 and 300 feet used for the pre- and post-development conditions respectively.

Since these two programs are not linked, flow combinations were evaluated (totaling the 50-year design flow) until both water surface elevations matched. For example, at a specific flow rate, the max HGL was found in WSPGW at the headworks of the culvert. The remainder of the 50-year flow was then modeled in FlowMaster over the road surface (above the culvert). If the max resulting FlowMaster HGL was higher than the WSPGW HGL, then more flow had to be added to the WSPGW model, or vice versa. This iterative approach of adding and/or subtracting flows from the WSPGW model was performed until the two model HGLs matched. This indicates that the appropriate flow and hydraulic head was utilized for the WSPGW and FlowMaster models. Consequently, the capacity of the existing La Puente culvert and the water surface elevation for the HEC-RAS model, for the 50-year design storm was found. The culvert capacity of the double 5'x10' box was 2,000 cfs and the starting water surface elevation for the existing condition HEC-RAS model is 572.5 feet.

Refer to Appendix C for all WSPGW, HEC-RAS, and FlowMaster input and output data.

3.1.3 Proposed Regional Hydraulics

To determine the starting water surface elevation in the proposed condition, the same process with WSPGW and FlowMaster was utilized. The crest length was reduced to 300 feet as the post-development conditions and proposed lots would constrict the overflow on the road by about 100 feet in comparison to the pre-development condition. The resulting water surface elevation was 572.75 feet, 3 inches above the pre-development elevation. The water conveyed through the culvert measured 2,025 cfs, slightly higher than the existing condition.

At station 26+61, a 10'x14' box culvert has been proposed for the post-development condition which lowers the WSE to 591.2 feet. The resulting water surface elevation is below the proposed grading, minimizing the need for additional bank protection. Flooding in the post-development condition will not have any effect on the proposed grading along the banks of the creek. Flooding along the east bank of the Lemon Creek was a concern at the bridge/culverts located at station 14+13 and 11+16. The low elevation of the east bank in the pre-development condition resulted in major flooding towards San Vicente Drive and overtopping of both trail crossings. In order to address the issue, the downstream culvert at 11+31 will be removed so the channel does not experience a constriction. In addition, the trail across the bridge at 14+26 will be graded in such a way to act as a small levee to keep water from entering the proposed road. The result of these improvements yields a water surface elevation at the bridge of 578.2 feet.

Downstream of the bridge, the water surface at station 11+51 is 573.2 feet. Flooding in this area is a result of the undersized culvert at La Puente Road. The ponding depth at the bridge does not allow water to be conveyed efficiently through these sections. The flood waters will inundate the water quality control basin and proposed road. However, the proposed pad elevations on Lots 25, 26, 27, and 28 are above the water surface elevation. The pad elevation of Lot 26 is 578 feet, about 5.5 feet above the water surface elevation at station 12+58 which measured 572.5 feet. Lot 28 has an elevation of 574 feet, 1.25 feet above overflow water surface elevation which is 572.75 feet. All pads are a minimum of one foot above the 50-year flood level.

3.1.4 Existing Local Hydraulics

Existing on-site infrastructure includes 24-inch, 18-inch, and 33-inch storm drain pipes. No as-built plans were available for the systems. Flow through these pipes is strictly from off-site flows as no on-site catch basins are present. The 24 inch pipe receives flow from 3 catch basins located at the intersection of Colt Lane and Meadow Pass Road. Hydraulic calculations were not analyzed for this pipe as no on-site flow will be added to the system. The discharge point for this pipe is located at station 29+40 on the Lemon Creek reach. The 18 inch and 33 inch pipes receive flow from catch basins located on Meadow Pass Road. The two pipes join at a confluence and discharge into Lemon Creek at station 24+46. Refer to Map 1 for the location of the existing storm drain lines and Map 3, for the existing HEC-RAS stations.

Bentley's Flow Master has been used to perform a full flow capacity computation for the existing storm drain lines capacities. A slope of 2% was assumed and the peak 25-year design flow rates analyzed. The full flow capacity of the existing 18-inch and 33-inch RCPs is 14.9 and 74.8 cfs respectively. The capacity of 18-inch RCP exceeds the 8.3 cfs entering from Subarea 5B. The existing capacity of the 33-inch RCP exceeds the 14.9 cfs from Subarea 6B upstream of the pipe confluence and the 23.2 cfs from the addition of flow from both Subarea 5B and 6B.

Refer to Appendix C for all FlowMaster input and output data.

3.1.5 Proposed Local Hydraulics

The proposed storm drain lines have been designed to convey the 25-year design flows to Lemon Creek. Refer to Map 2 for the location of the proposed storm drain lines. To convey flow from Subarea 2B to Subarea 3B in the post-development condition, a 21-inch pipe is proposed. The full flow capacity of the 21-inch RCP is 22.4 cfs, which exceeds the 11.2 cfs flow entering from Subarea 2B during a 25-year storm event. To convey flow from Subarea 5B to the mainline 33-inch RCP, an 18-inch pipe is proposed which has a capacity of 14.9 cfs. The flow produced from Subarea 5B is 9.1 cfs, below the 18-inch pipe's full flow capacity.

The proposed 33-inch RCP has a capacity of 74.8 cfs. In the post-development condition, the flow at the confluence of the proposed 18-inch and 33-inch RCPs is 23.6 cfs. This flow was determined by the adding the peak flows of Subarea 5B and 6B. At the discharge location of the 33-inch pipe into Lemon Creek the flow measures 52.3 cfs. This discharge flow is the addition of all peak flows from Subareas 2B, 3B, 5B, and 6B.

All proposed on-site inlets and storm drains will be sized to comply with Los Angeles County Department of Public Works drainage design criteria.

4 FEMA

Lemon Creek through the project site is a mapped Zone D floodplain. A Zone D floodplain is defined as an "Area of Undetermined Flood Hazard". See attached Map 4, the FEMA National Flood Hazard Layer FIRMette, depicting the Zone D flood limits in the project vicinity.

5 CONCLUSIONS

The proposed project will not adversely impact the hydrologic and hydraulic properties of the site and tributary area. The proposed project will increase the 50-year total discharge to the existing La Puente Road culvert by 1 cfs, compared to pre-development conditions. Per P.M. No. 14987 storm drain improvement plans, the off-site system was designed to accommodate a 25-year 1,750-cfs flow rate from the upstream reach of Lemon Creek.

The post-development conditions by La Puente Road will increase the weir flow of water across the road by a small amount. The change in water surface elevation at the road increases from 572.5 feet to 572.75 feet, an increase of 3 inches. This change is a result of the higher elevations at the proposed road and building pads which cause a slight constriction of the flooded width outside of the existing stream banks. Approximately 2,025 cfs will be conveyed through the existing culvert, while the remaining 1,230 cfs will flow over La Puente Road at a depth of about 1.25 feet.

The proposed hydromodification basins seen in Map 2 are anticipated to provide some level of peak flow attenuation and have not been accounted for at this discretionary stage. Addressing the stream stability of Lemon Creek was outside of the scope of this preliminary tentative map study and should be addressed during final engineering.

6 REFERENCES

Reference 1
Los Angeles County Department of Public Works (LACDPW) Hydrology Manual (January 2006)

Reference 2
LACDPW Publications Hydrology Map GIS
http://ladpw.org/wrd/hydrologygis/

Reference 3
LACDPW Publications Modified Rational Method Hydrology Support Files: Soil Types
http://ladpw.org/wrd/Publication/index.cfm

Reference 4
LACDPW Publications Modified Rational Method Hydrology Support Files: Land Use 2005
http://ladpw.org/wrd/Publication/index.cfm

LEGEND

- DRAINAGE BOUNDARY
- SUBAREA BOUNDARY
- FLOW PATH
- B-12 / 11.3 — SUBAREA DESIGNATION / AREA (ACRES)
- 1000 — HYDROLOGY NODE

SCALE 1"=100'

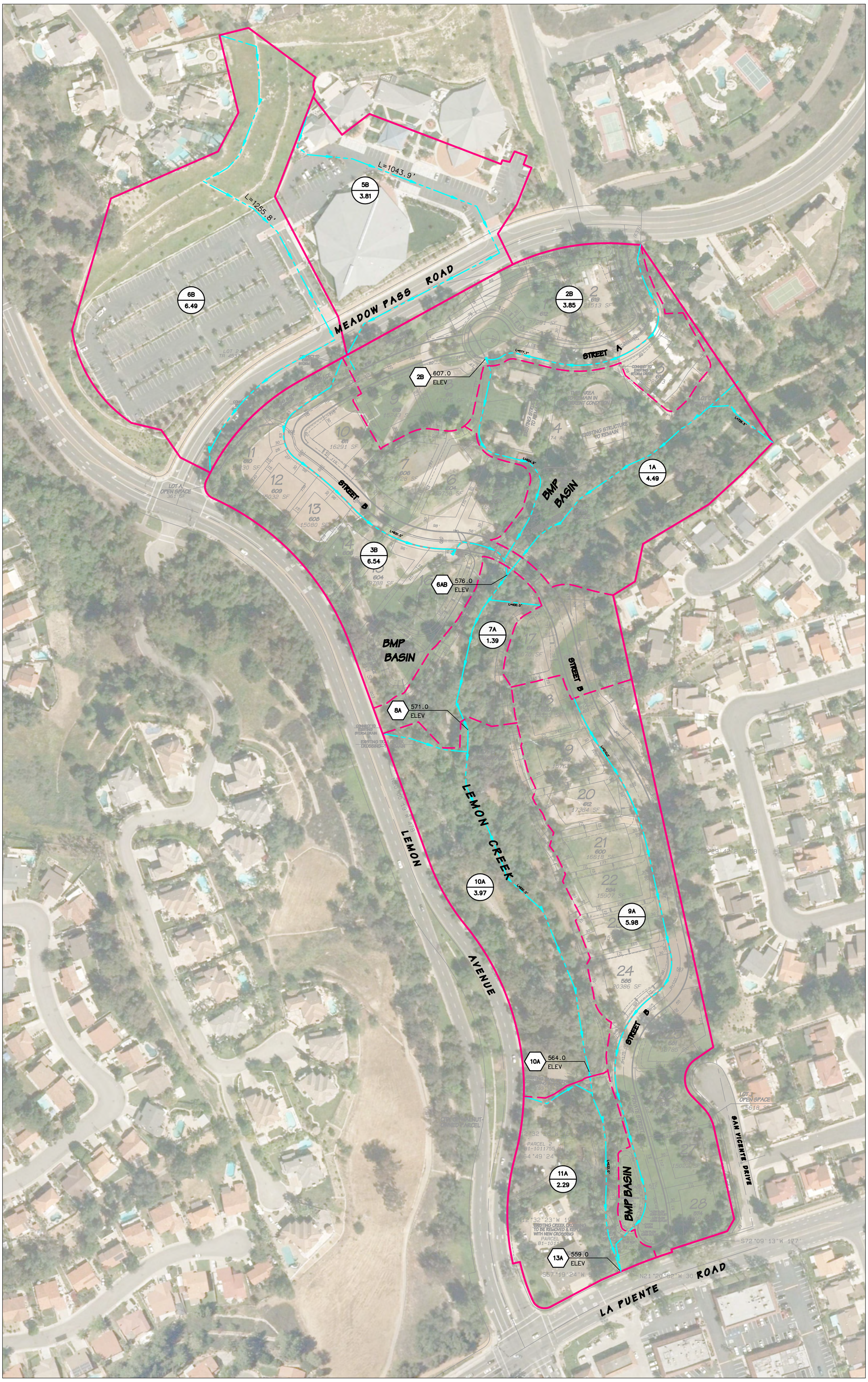
100 0 100 200 300

GRAPHIC SCALE

Michael Baker INTERNATIONAL
14725 Alton Parkway, Irvine, CA 92618
Phone: (949) 472-3505 · MBAKERINTL.COM

MAP 1
CITY OF WALNUT
EXISTING CONDITION
HYDROLOGIC WORK MAP

H:\pdata\137644\CADD\Wst\Irvine\C-7644-Existing Hydrology.dwg 04/21/16 - 6:48am MARKJAMES



LEGEND

- DRAINAGE BOUNDARY
- SUBAREA BOUNDARY
- FLOW PATH
- B-12 / 11.3 — SUBAREA DESIGNATION / AREA (ACRES)
- 1000 — HYDROLOGY NODE

SCALE 1"=100'

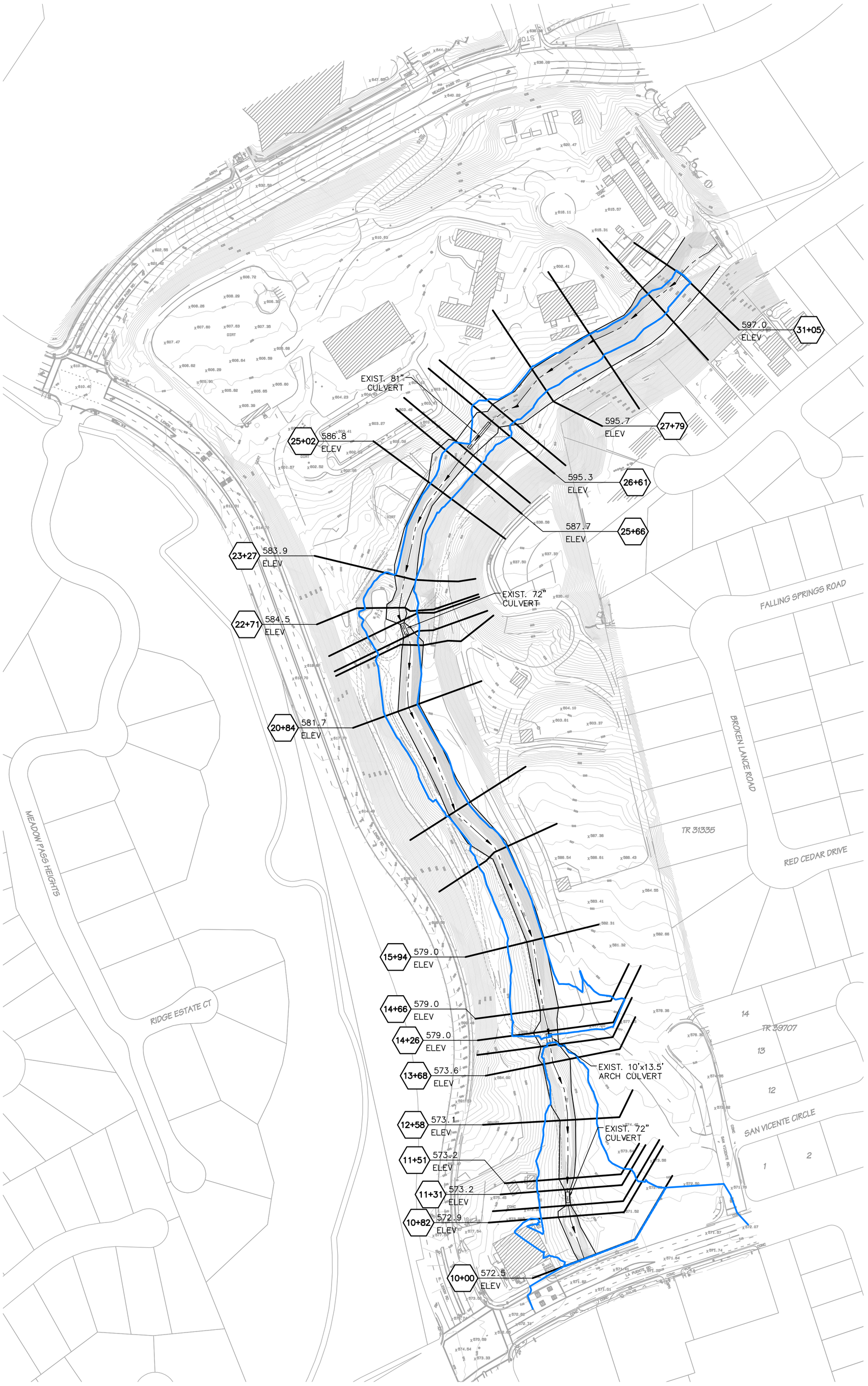
100 0 100 200 300

GRAPHIC SCALE

Michael Baker INTERNATIONAL
14725 Alton Parkway, Irvine, CA 92618
Phone: (949) 472-3505 · MBAKERINTL.COM

MAP 2
CITY OF WALNUT
PROPOSED CONDITION
HYDROLOGIC WORK MAP

H:\pdata\137644\CADD\Mst\Irvine\C-7644-Proposed Hydrology.dwg 04/21/16 - 2:33pm MARKJAMES



LEGEND

- 50-YEAR FLOODPLAIN
- HEC-RAS CROSS SECTION
- FLOW PATH
- 10+00 / 572.0 ELEV — HEC-RAS STATION AND WATER SURFACE ELEV.

SCALE 1"=100'

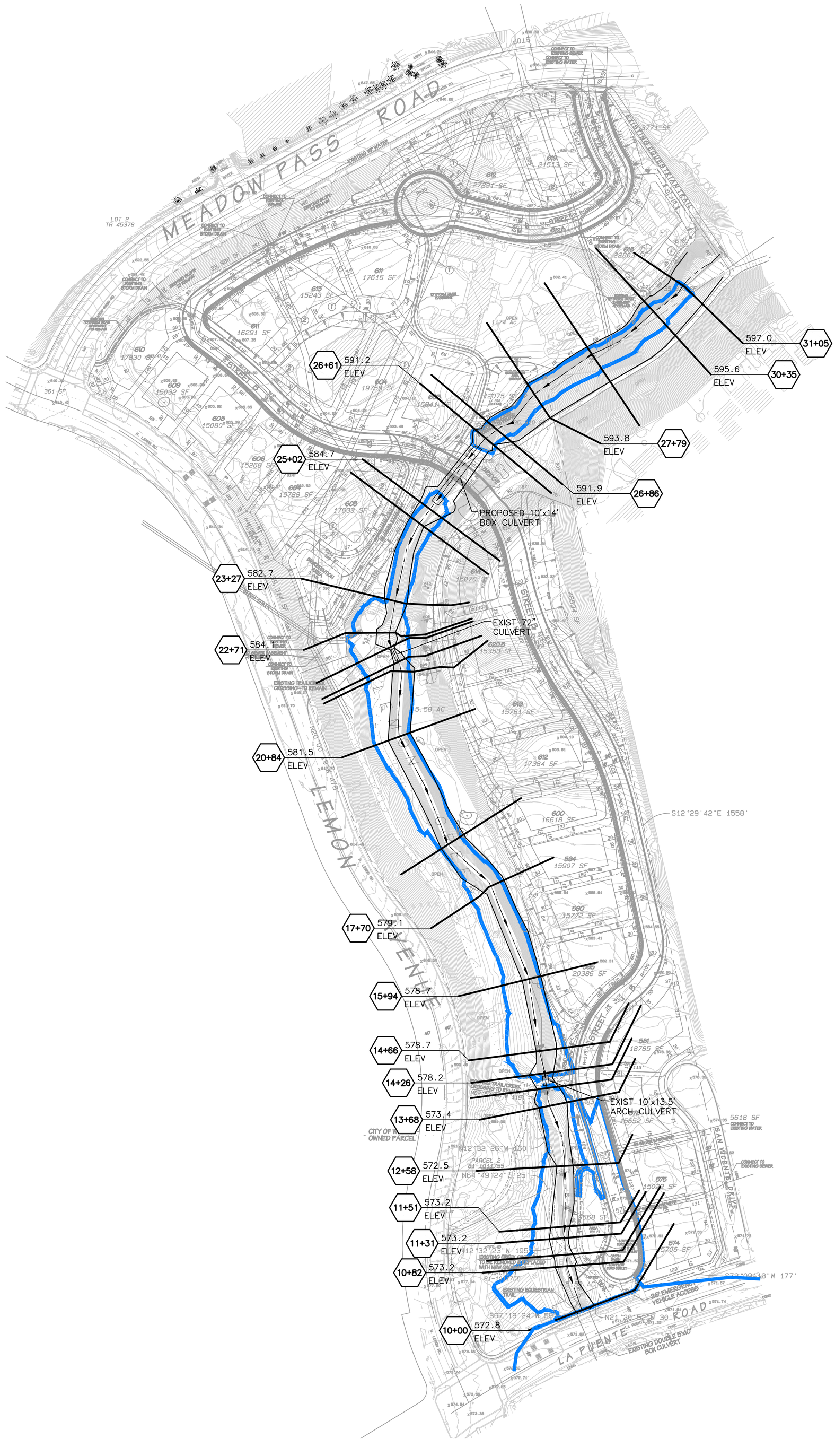
100 0 100 200 300

GRAPHIC SCALE

Michael Baker INTERNATIONAL
14725 Alton Parkway, Irvine, CA 92618
Phone: (949) 472-3505 · MBAKERINTL.COM

MAP 3
CITY OF WALNUT
EXISTING CONDITION
50-YEAR FLOODPLAIN

H:\pdata\137644\CADD\Strmwater\Work\C-7644-SD-HEC-RAS.dwg 04/21/16 - 6:50am MARKJAMES



LEGEND

- 50-YEAR FLOODPLAIN
- HEC-RAS CROSS SECTION
- FLOW PATH
- 10+00 / 572.0 ELEV — HEC-RAS STATION AND WATER SURFACE ELEV.

SCALE 1"=100'

100 0 100 200 300

GRAPHIC SCALE

Michael Baker INTERNATIONAL
14725 Alton Parkway, Irvine, CA 92618
Phone: (949) 472-3505 · MBAKERINTL.COM

MAP 4
CITY OF WALNUT
PROPOSED CONDITION
50-YEAR FLOODPLAIN