

**BIOLOGICAL RESOURCE ANALYSIS  
3198 GLORIA TERRACE  
LAFAYETTE, CONTRA COSTA COUNTY, CALIFORNIA**

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**ATTACHMENTS**  
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Attachment A. Vesting Tentative Map, prepared by Humann Company Inc., April 16, 2016.

Attachment B. Tree Survey Report, prepared by Timothy C. Ghirardelli Consulting Arborist, dated February 4, 2016.

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## **1. INTRODUCTION**

Monk & Associates, Inc. (M&A) has prepared this biological resource analysis for a proposed subdivision on the Gloria Terrace Project Site (the project site) located in Lafayette, Contra Costa County, California. The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts as defined by the California Environmental Quality Act (CEQA) that could occur to sensitive biological resources from the subdivision of two parcels into nine single-family home lots and the subsequent development of those lots. This biological resources analysis also provides mitigation measures for “potentially significant” and “significant” impacts that could occur to biological resources. When implemented, the mitigation measures would reduce impacts to levels considered less than significant pursuant to the CEQA. Accordingly, this report is suitable for inclusion in any review being conducted by Contra Costa County Department of Conservation and Development for the proposed project pursuant to the CEQA.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (the CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society (CNPS). Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and the CDFW. It is important to note that our analysis includes an assessment of the potential for impacts to regulated waters but does not provide the level of detail required for a formal delineation of waters suitable for submittal to the Corps.

## **2. PROJECT SITE SETTING**

The project site is located at 3198 Gloria Terrace in an unincorporated area of Lafayette, Contra Costa County, California (Figures 1 and 2). The site is situated on a hillside west of Taylor Boulevard and downtown Pleasant Hill. The site is essentially surrounded by dense urban development and residential communities, as illustrated in Figures 2 and 3. The site is bordered to the southwest by Gloria Terrace and to the east by Surmont Drive.

The central portion of the project site is characterized by a hill sloping north from 328 feet in the southern corner of the project site up to 460 feet in elevation in the center of the site, with equally steep surrounding topography on all sides. The vegetation on the project site is dominated by non-native annual grassland with scattered trees and shrubs. Much of the site appears to be in a relatively natural condition, except for some limited disturbance at the top of the hill and an existing dirt road that was graded to provide an access road off Gloria Terrace. This dirt access road traverses the lower portion of the site’s southern slope and terminates at the site’s northwestern edge.

## **3. PROPOSED PROJECT DESCRIPTION**

The applicant is proposing to combine two parcels (APN 166-200-032 and 166-210-008) totaling 7.5 acres and subdividing the property into nine lots. The site is located in unincorporated Lafayette and the subdivision will be processed through Contra Costa County.

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The current zoning is R-20 which allows one single family lot per 20,000 feet. This would allow 16 lots per the current zoning; however, the applicant is proposing fewer lots than the zoning would allow in order to preserve trees on the site, work with the existing topographic constraints, and create larger lots with more open area between the proposed lots and the adjacent neighbors (see Attachment A, Vesting Tentative Map). The proposed infrastructure will include one main access road, and six detention basins distributed throughout the subdivision to treat stormwater runoff. The treated stormwater will be discharged into the existing stormdrain system in Gloria Terrace. Once the road and infrastructure are constructed, the lots will be sold individually as custom home sites.

Prior to any lot grading or site development the applicant will install a wildlife exclusion fencing around the north and northwestern ends of the project site to keep all terrestrial wildlife out of the project area during earth work and construction. This fence will be maintained in good condition throughout the project.

#### **4. ANALYSIS METHODS**

##### **4.1 4.1 Background Research**

Prior to preparing this biological resource analysis report, M&A researched the most recent version of the CDFW's Natural Diversity Database, RareFind 3.2 application (CNDDDB 2015) for historic and recent records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site. M&A also searched the 2015 electronic version of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site. All special-status species records were compiled in tables. M&A examined all known record locations for special-status species to determine if special-status species could occur on the project site or within an area of affect.

##### **4.2 Field Reconnaissance**

A field reconnaissance site visit was conducted by M&A biologists Ms. Hope Kingma and Ms. Christy Owens on August 24, 2015 to record biological resources and assess the likelihood of resource agency regulated areas on the project site. The survey involved searching all habitats on the site and recording all plant and wildlife species observed. M&A cross-referenced the habitats found on the project site against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species.

##### **4.3 Special-Status Plant Surveys**

Special-status plant surveys were conducted on August 24, 2015 by M&A biologist Ms. Owens and in March and May of 2016 by M&A biologist Ms. Sarah Lynch. The surveys followed the USFWS' (1996, 2000), CDFW's (2009) and the CNPS' (CNPS 2001) published survey guidelines. These guidelines state that special-status plant surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. These guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status.

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Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering.

It should also be noted that according to the CDFW's 2009 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations*, protocol surveys may require yearly surveys for annual and short-lived perennial plants in herbaceous plant communities to accurately document baseline conditions for the purposes of impact assessment.

During surveys, all areas of the project site were examined by walking systematic transects through potential habitat and by closely examining any existing microhabitats that could support special-status plants. Nearly all plant species found on the project site were identified to species. All plants were identified to the level required to determine their rarity status. A list of all vascular plant taxa encountered within the project site was recorded in the field. Plants that needed further evaluation were collected and keyed in the lab. Final determinations for collected plants were made by keying specimens using standard references such as *The Jepson Manual, Second Edition* (Baldwin 2012). Table 1, attached, lists all plant taxa observed on the project site. The results of our literature research and field survey are provided in the sections below.

## **5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES**

### **5.1 Project Site Topography and Hydrology**

The site is situated in the lower foothills of the Briones Hills, west of Pleasant Hill. The project site is characterized by a hill in the center of the site, with most slopes greater than 10%. The slopes extend steeply to the west, north, and east. The elevation of the project site ranges from approximately 325 to 457 feet above sea level. There are no drainages on this project site and all precipitation falling on the site sheet flows down slope and off of the property towards Gloria Terrace.

### **5.2 Plant Communities and Associated Wildlife Habitats**

A complete list of plant species observed on the project site is presented in Table 1. Nomenclature used for plant names follows *The Jepson Manual Second Edition* (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (<http://ucjeps.berkeley.edu/interchange/index.html>). Table 2 is a list of wildlife species observed on the project site. Nomenclature for wildlife follows the CDFW's *Complete list of amphibian, reptile, bird, and mammal species in California* (2014) and any changes made to species nomenclature as published in scientific journals since the publication of the CDFW's list.

The project site is characterized by non-native annual grassland with scattered trees and shrubs, including small monotypic stands of coyote brush (*Baccharis pilularis*). The trees onsite do not comprise a woodland community due to their sparse and scattered occurrence on the site. The non-native annual grassland community is the only plant community onsite; it is discussed below.

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### 5.2.1 NON-NATIVE ANNUAL GRASSLAND

Prior to the settlement of Europeans in California, the California landscape was dominated by native, perennial bunchgrasses. When the Europeans settled in California, a variety of Mediterranean grass and forb (broad-leaved plant) species were brought to California for use as crops or ornamentals, or inadvertently in the fur and digestive systems of livestock. Land use changes, such as domestic animal grazing, has resulted in highly palatable native plants being reduced or eliminated. Introduced species tolerant of grazing pressure, particularly annual grasses of Eurasian ancestry, have displaced the native grasses and created a shift in plant species composition toward non-native annual grassland.

Non-native annual grassland covers the entirety of the project site. This plant community is dominated by non-native grasses such as slender wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), silver hairgrass (*Aira caryophyllea*), dogtail grass (*Cynosurus echinatus*) and little quaking grass (*Briza minor*), and non-native forbs such as yellow-star thistle (*Centaurea solstitialis*), tocalote (*Centaurea melitensis*), redstem filaree (*Erodium cicutarium*), Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*) and rose clover (*Trifolium hirtum*). At the time of our late-season, August 24, 2015 site visit, the native taxa that were evident and identifiable included creeping wildrye (*Elymus triticoides* ssp. *triticoides*), Heermann's tarplant (*Holocarpha heermanii*), California poppy (*Eschscholzia californica*), naked buckwheat (*Eriogonum nudum* var. *nudum*), soap plant (*Chlorogalum pomeridianum* ssp. *pomeridianum*) and doveweed (*Croton setiger*). During the spring 2016 surveys other native annual species were evident such as clarkia (*Clarkia purpurea quadrivulnera*) and purple owl's clover (*Castilleja exserta*)

Both naturalized horticultural tree species and native tree species including Aleppo pine (*Pinus halepensis*), Monterey pine (*Pinus radiata*), Cypress (*Cupressus* sp.), incense cedar (*Calocedrus decurrens*), valley oak (*Quercus douglasii*) and coast live oak (*Quercus agrifolia*) sporadically dot the grassland community (Figure 3). Isolated clumps of native shrubs that include poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis* ssp. *consanguinea*), and toyon (*Heteromeles arbutifolia*), occur throughout the project site as well.

The project site's grassland community provides habitat for granivorous (seed-eating) birds such as lesser goldfinch (*Spinus psaltria*), California towhee (*Pipilo crissalis*), house finch (*Haemorhous mexicanus*), and mourning dove (*Zenaidura macroura*). Insectivorous birds (insect-eating) such as western bluebird (*Sialia mexicana*), California quail (*Callipepla californica*), Say's phoebe (*Sayornis saya*), and western meadowlark (*Sturnella neglecta*) will also forage in the grassland habitat. Botta's pocket gopher (*Thomomys bottae*) mounds were observed in the grassland community. Small mammals such as this provide hunting opportunities for raptors (birds of prey) common to the area such as red-tailed hawk (*Buteo jamaicensis*). Signs of common, urban-adapted wildlife were also observed onsite during the surveys, including Columbian black-tailed deer (*Odocoileus hemionus columbianus*), wild turkey (*Meleagris gallopavo*), and coyote (*Canis latrans*).

The oaks on the project site provide suitable foraging and nesting habitat for common birds observed in the area, such as acorn woodpecker (*Melanerpes formicivorus*), western scrub jay



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(*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), chestnut-backed chickadee (*Poecile rufescens*), and brown creeper (*Certhia americana*), among others.

### 5.3 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project would not interfere with the movement of native wildlife. The project site is essentially surrounded by development, effectively isolating the project site from long distance wildlife movements. While there are a few wildlife trails bisecting the site, these trails were likely created by urban-adapted mammals (neighborhood cats, raccoons, skunks, coyotes) moving through the project site from one urban setting to another. The project site has limited connectivity to surrounding undisturbed or regional wildlife corridors, as illustrated in Figure 2. This project is truly an urban infill development and therefore, development of this project site would not impact wildlife movement. No mitigation for wildlife corridors should be required.

## 6. SPECIAL-STATUS SPECIES ISSUES

### 6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);
- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;

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- Plants occurring on Ranks 1A, 1B, 2, 3, and 4 of CNPS' *Electronic Inventory* (CNPS 2001). The California Department of Fish and Wildlife (the CDFW) recognizes that Ranks 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and the CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information;
- migratory nongame birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);
- animals that are designated as "species of special concern" by the CDFW (2015);
- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

In the paragraphs below we provide further definitions of legal status as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as Endangered or Threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federal listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species. A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a state listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the CDFW prior to initiating the "take."

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered "rare." Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a "significant effect on the environment" (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The California Native Plant Society (CNPS) maintains an inventory of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal

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protection (unless they are also state or federal listed species), the California Department of Fish and Wildlife requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. Rank 1 species have the highest priority: Rank 1A species are thought to be extinct, and Rank 1B species are known to still exist but are considered “rare, threatened, and endangered in California and elsewhere.” All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the Department Code, and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are review and watch lists, respectively. Additionally, in 2006 CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows: .1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”; .2 is “fairly endangered in California (20-80% of occurrences threatened)”; .3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA’s definition of “rare” or “endangered.” Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time.

## 6.2 Special-Status Plants Known from the Project Site Vicinity

Figure 4 provides a graphical illustration of the closest known records for special-status species within 5 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status plants have been mapped on or adjacent the project site. However, according to the CNPS *Inventory* and the CDFW’s CNDDDB, a total of 18 special-status plant species are known to occur in the region of the project site (Table 3). Most of these plants occur in specialized habitats such as alkaline soils, vernal pools, or serpentine grassland, which are not present onsite. Accordingly, species occurring in these specialized habitats were summarily dismissed from consideration in Table 3

Special-status plant surveys were conducted by M&A biologists/botanists in August of 2015, and March and May of 2016 according to published survey guidelines. No special-status plants were identified on the project site during these three appropriately timed surveys. **Pursuant to CEQA, no significant impacts to special-status plants are expected from implementation of the proposed project.**

## 6.3 Special-Status Animals Known from the Project Site Vicinity

Figure 4 provides a graphical illustration of the closest known records for special-status species within 5 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status animals have ever been

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mapped on or adjacent to the project site. However, a total of 9 special-status animal species are known to occur in the region of the project site (Table 4). Many of these species require specialized habitat such as vernal pools, marshes, coastal scrub, or other habitats that are not found on the project site. Accordingly, species occurring in these specialized habitats were summarily dismissed from consideration in Table 4. Due to the sensitivity of some of the special-status wildlife species known to occur in the area, we discuss five (5) of these species further below.

### 6.3.1 CALIFORNIA TIGER SALAMANDER

The California tiger salamander (*Ambystoma californiense*)(CTS), Central California Distinct Population Segment, was federally listed as threatened on August 4, 2004. On August 19, 2010, the CTS was also state listed as a threatened species under the CESA. The USFWS designated critical habitat for the Central California DPS in 2005. *The project site is located outside of the closest mapped critical habitat for the Central California DPS.*

CTS occur in grasslands and open oak woodlands that provide suitable over summering and/or breeding habitats. CTS spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult California tiger salamanders have been observed up to 2,092 meters (1.3 miles) from breeding ponds (USFWS 2004). As such, unobstructed migration corridors are an important component of CTS habitat.

CTS emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of CTS do not occur unless it has been raining hard and continuously for several hours. Typically, for larger movements of CTS to occur nighttime temperatures also must be above 48° F. CTS are able to move over, through or around almost all obstacles. Significant obstructions that block CTS movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical or near vertical sided, concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of the CTS predominately use California ground squirrel burrows as over-summering habitat (Jennings and Hayes 1994; G. Monk personal observation). Other secondary subterranean refugia, or primary refugia where California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g. downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by CTS. In such locations, CTS attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about ¾ the diameter of a dime to the full diameter of a dime. Occasionally CTS are found breeding in slow-moving, streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain CTS egg attachment through hatching, and thus, are not usually used successfully by CTS for breeding (G. Monk and S. Lynch, pers. observations). Similarly, streams and/or ditches that support predators of CTS or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

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Typically seasonal wetlands that are used for breeding must hold water into the month of May to allow enough time for larvae to fully metamorphose. In dry years, seasonal wetlands may dry too early to allow enough time for CTS larvae to successfully metamorphose. Under such circumstances, desiccated CTS larvae can be found in dried pools. In addition, as pools dry down to very small areas of inundation, CTS larvae become concentrated and are very susceptible to predation. However, in years exhibiting wet springs, these same pools can remain inundated long enough through continual rewetting to allow CTS larvae ample time to successfully metamorphose.

The closest record for CTS occurs 1.4 miles south of the project site (CNDDDB Occurrence No. 582). This 1938 record location is considered extirpated. There is no breeding habitat on or adjacent to the project site, and the surrounding development would prevent any migration of CTS from extant record locations to the project site. Therefore, it is M&A's professional opinion that the California tiger salamander would not be found on this project site. **Pursuant to CEQA, no significant impacts to California tiger salamanders are expected from implementation of the proposed project.**

#### 6.3.2 CALIFORNIA RED-LEGGED FROG

The California red-legged frog (*Rana draytonii*) was federally listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the Federal Endangered Species Act. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The 2010 Critical Habitat maps (Federal Register dated March 17, 2010 (Volume 75, Number 51:12815-12864) show that the project site is located approximately 1.6 miles east of, outside of, Critical Habitat (Figure 5). The California red-legged frog is also a state "species of special concern." California "species of special concern" are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This title affords no legally mandated protection for this species; however, pursuant to CEQA (14 CCR §15380), any project-related impacts to this species would be regarded as significant.

California red-legged frogs are typically found in slow-flowing portions of perennial streams, and in intermittent streams, and hillside seeps that maintain pool environments or saturated soils throughout the summer months. Larval California red-legged frogs require 11-20 weeks of permanent water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. This frog is also found in human-made ponds. Populations of the California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrogs (*Rana catesbeiana*), Centrarchid fish species (such as sunfish, blue gill, or largemouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all known California red-legged frog predators.

The closest known record for the California red-legged frog is in two freshwater ponds located 2.2 miles west of the project site (CNDDDB Occurrence No. 158). This 1995 record location is separated from the project site by continuous dense, urban development and Reliez Valley Road,

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both of which are major impediments to terrestrial wildlife movements to the project site from the west. Therefore, it is M&A's professional opinion that the California red-legged frog would not be found on this project site. **Pursuant to CEQA, no significant impacts to California red-legged frog are expected from implementation of the proposed project.**

### 6.3.3 ALAMEDA WHIPSNAKE

The Alameda whipsnake (*Masticophis lateralis euryxanthus*) is a state and federally listed threatened species. The USFWS designated critical habitat for this species on October 2, 2006 (Federal Register 71:58176-58231). *The project site is located 0.38-mile east and outside of the USFWS' Critical Habitat Unit 1 designated for Alameda and Contra Costa Counties, which is located west of the project site in Briones Regional Park (Figure 5).*

The Alameda whipsnake is a slender snake with adults reaching a length of 3 to 5 feet. The dorsal surface is colored sooty black or dark brown with a distinct yellow-orange stripe down each side. This extremely fast-moving snake holds its head high off the ground to peer over grass or rocks for potential prey. It is an active daytime predator. Rock outcrops are an important feature of Alameda whipsnake habitat because they provide retreat opportunities for whipsnakes and promote lizard populations. Lizards, especially the western fence lizard (*Sceloporus occidentalis*), appear to be the most important prey item of whipsnakes, although other prey items are taken, including skinks, frogs, snakes, and birds.

Adult whipsnakes appear to have a bimodal seasonal activity pattern with a large peak during the spring mating season and a smaller peak during late summer and early fall. Although short above-ground movements may occur during the winter, Alameda whipsnakes generally retreat in November into a hibernacula (shelter used during the snake's dormancy period) and emerge in March. Courtship and mating occur from late-March through mid-June. During this time, males move around throughout their home ranges, while females appear to remain at or near their hibernaculum, where mating occurs.

Alameda whipsnakes are typically found in chaparral and coastal sage scrub communities (i.e., communities dominated by chamise or coastal sage plants). Recent telemetry data indicate that, although home ranges of Alameda whipsnakes are centered on shrub communities, they venture up to 150 meters (500 ft.) into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland (USFWS 2000). In fact, recent analysis of habitat types used by Alameda whipsnakes indicates that Alameda whipsnakes are found outside "typical" habitat (that is, chaparral or coastal scrub habitat) about 29 percent of the time, and are found in annual grassland, oak woodland, and riparian habitats, and other open habitats that are associated with chaparral/scrub communities (Alvarez, *et al.* 2005). Telemetry data indicate that whipsnakes remain in grasslands for periods ranging from a few hours to several weeks at a time. Grassland habitats are used by male whipsnakes most extensively during the mating season in spring. Female whipsnakes use grassland areas most extensively after mating, possibly in their search for suitable egg-laying sites.

Core areas (areas of concentrated use) of the Alameda whipsnake most commonly occur on east, south, southeast, and southwest facing slopes. However, recent information indicates that whipsnakes do make use of west, north, and northwest facing slopes in more open stands of

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scrub habitat (Alvarez 2006.). Alameda whipsnakes inhabit the inner coast range in western and central Contra Costa and Alameda counties. There are five remaining populations (Sobrante Ridge, Oakland Hills, Hayward Hills, Mount Diablo vicinity and the Black Hills, Wauhab Ridge) with little or no genetic flow between them.

The closest known occurrence for Alameda whipsnake to the project site is approximately 0.74-mile to the southwest of the project site (CNDDDB Occurrence No. 91) in Briones Regional Park. There is extensive urban development between this extant Alameda whipsnake record location and the project site. The project site is located outside of core whipsnake habitat and does not support any core habitat (that is, coastal scrub and chaparral, the habitats typically inhabited by Alameda whipsnakes). There is a sparse amount of coyote brush just northeast of the project site, and small stands of this shrub onsite. However, there is not enough shrub cover onsite or near the site to provide protective cover for the Alameda whipsnake. Thus, it is highly unlikely that this snake would migrate to the project site from its record location almost a mile away. In addition, this normally skittish snake would never tolerate the extent and amount of human disturbance that surrounds this site. However, if this snake were to migrate onto the site, which is not logical or likely, there would be no impacts to the Alameda whipsnake from the proposed project because all construction-related disturbance on the project site will be isolated from the adjacent areas by wildlife exclusion fencing installed along the north-northwestern property boundary. **Hence, M&A concludes that the proposed project would not affect the Alameda whipsnake or its habitat. Pursuant to CEQA, no significant impacts to this snake are expected from implementation of the proposed project.**

#### 6.3.4 PALLID BAT

Pallid bat (*Antrozous pallidus*) is a California “species of special concern.” It has no federal status. This bat is a locally common species of low elevations in California. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern Counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County. It occurs in a wide variety of habitats. It is most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in large hollow trees and mostly abandoned buildings. Roost must protect bats from high temperatures. Night roosts may be in more open sites such as porches and open buildings.

The closest known record for this species is located 1.5 miles south of the project site (CNDDDB Occurrence No. 146). This record dates from 1907 in the Walnut Creek vicinity. The trees on the project site provide marginal roosting habitat, hibernacula, or maternity sites. **Although unlikely, construction associated with the proposed project could result in impacts to this bat species. Mitigation would be required to reduce this impact to a less than significant level** (see Impacts and Mitigation Measures below).

#### 6.3.5 BIG FREE-TAILED BAT

The big free-tailed bat (*Nyctinomops macrotis*) is a bat species found in South, North and Central America. They have a wingspan of 435 mm and an average length of 140 mm. This bat frequents rocky or canyon country where it roosts in crevices. This migratory species is a swift, powerful flier, and occasional individuals wander as far north as Canada. Little is known of mortality and longevity. Breeding probably occurs in midwinter while the species is in warmer latitudes. A

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single young is born in mid-June to early July. Females form small nursery colonies, and the young do not leave the nursery until they are almost full grown. Moths seem to be the mainstay of their diet, although few data have been collected. This bat emerges late in the evening and forages at high altitudes.

Maternity roosts have been documented in rock crevices, with evidence of long term use. It appears that the return to the roost site by this bat involves ritualized behavior, including a general reconnaissance of the site and several landing trials before entry. Owls are the only documented predators of this species. *N. macrotis* has an audible echolocation call, which is characterized as loud and with a frequency range of 17-30 kHz.

Little is known about the species population dynamics and ecology. Big free-tailed bats in other areas prefer rugged, rocky terrain. Found to 2500 m (8000 ft) in New Mexico, southern Arizona, and Texas. Probably a yearlong resident. Big free-tailed bats roost mainly in crevices and rocks in cliff situations, although there is some documentation of roosts in buildings, caves, and tree cavities.

The big free-tailed bat is rare in California, and probably does not breed in California. Records of the species are from urban areas of San Diego County, and vagrants found in fall and winter. The closest known record for this species is located 4.8 miles northwest of the project site (CNDDDB Occurrence No. 1). This record dates from 1979 in the Martinez vicinity, and was likely a vagrant. **It is unlikely that construction associated with the proposed project would result in impacts to this bat species.**

## **7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS**

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

### **7.1 Federal Endangered Species Act**

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.



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In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is actually present.

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal "nexus").

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the "federal nexus agency," for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation *at the discretion of the federal agencies conducting the Section 7 consultation*. The Section 7

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consultation process is triggered by a determination of the “action agency” – that is, the federal agency that is carrying out, funding, or approving a project - that the project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federal listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows applicants to “take” federally listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities, for example private parties, cities, counties that are considering a discretionary permit, Section 10 provides the mechanism for obtaining take authorization. Under Section 10 of FESA, the applicant for an "incidental take permit" is required to submit a "conservation plan" to USFWS or NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

#### 7.1.1 RESPONSIBLE AGENCY

FESA gives regulatory authority over terrestrial species and non-anadromous fish to the USFWS. The NMFS has authority over marine mammals and anadromous fish.

#### 7.1.2 APPLICABILITY TO THE PROPOSED PROJECT

There are no drainages on this project site; therefore, it does not provide fisheries habitat. Thus, consultation with NMFS is not required for this project.

While the project site does not provide habitat for any federally listed animal species, Alameda whipsnake, a federally listed species known from the region must be addressed due to the proximity of critical habitat. The project site does not provide core habitat for the federally listed Alameda whipsnake and M&A believes it is unlikely that Alameda whipsnake would migrate onto the project site due to an absence of suitable habitat components onsite, including protective cover. In addition, this normally skittish snake would never tolerate the extent and amount of human disturbance that surrounds this site. However, if this snake were to migrate onto the site, which is not logical or likely, there would be no impacts to the Alameda whipsnake from the proposed project because all construction-related disturbance would take place behind protective

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fencing installed on the north-northwestern boundary as part of the proposed project. This fencing would exclude small terrestrial wildlife, including snakes, from entering the project site. Hence, M&A concludes that the proposed project would not affect the Alameda whipsnake or its habitat.

M&A conducted rare plant surveys and no listed plants (or special-status plants) were found on the project site, therefore, M&A can conclude that the proposed project will not affect any federally listed plants. Therefore, no impacts to federally listed plant or wildlife species would occur from the proposed project. Accordingly, consultation with the USFWS should not be required for this project.

## **7.2 Federal Migratory Bird Treaty Act**

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

### **7.2.1 APPLICABILITY TO PROPOSED PROJECT**

All migratory birds, including raptors and many common passerine birds (perching birds), that likely nest onsite would be protected pursuant to the Migratory Bird Treaty Act. As long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to development of the site. To comply with the Migratory Bird Treaty Act, all active nest sites would have to be avoided while such birds were nesting. Upon completion of nesting, the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites for potentially occurring species in the Impacts and Mitigations section below.

## **7.3 California Endangered Species Act**

### **7.3.1 SECTION 2081 OF THE CALIFORNIA ENDANGERED SPECIES ACT**

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a provision for "harm" (see discussion of FESA, above), the CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If the CDFW determines that a proposed project could impact a State listed threatened or endangered species, the CDFW will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of

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resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from the CDFW and/or USFWS (if it is a Federal listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a State listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for Federal listed species). The CDFW will issue an incidental take permit only if:

- 1) The authorized take is incidental to an otherwise lawful activity;
- 2) the impacts of the authorized take are minimized and fully mitigated;
- 3) measures required to minimize and fully mitigate the impacts of the authorized take:
  - a) are roughly proportional in extent to the impact of the taking on the species;
  - b) maintain the project applicant's objectives to the greatest extent possible; and,
  - c) capable of successful implementation; and,
- 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing a habitat conservation plan (HCP) as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve the CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the federal Endangered Species Act, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in several statutes that identify "fully protected" species and "specified birds." *See* Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the project to avoid all take.

In September 1997, Assembly Bill 21 (Fish and Game Code §2080.1) was passed. This bill allows an applicant who has obtained a "non-jeopardy" federal Biological Opinion pursuant to Section 7, or who has received a federal 10(a) permit (federal incidental take permit), to submit the federal opinion or permit to the CDFW for a determination as to whether the federal document is "consistent" with CESA. If after 30 days the CDFW determines that the federal incidental take permit is consistent with state law, and that all state listed species under consideration have been considered in the federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if the CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are state listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state permit under Section 2081(b). The process provided in Fish and Game Code §2080.1 (Assembly Bill 21) may be of use when the incidental take would occur to species that are listed under both

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the federal and state endangered species acts. Assembly Bill 21 is of no use if an affected species is state-listed, but not federally listed.

State and federal incidental take permits are issued on a discretionary basis, and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

#### 7.3.2 APPLICABILITY TO PROPOSED PROJECT

The project site does not provide habitat for any state listed animals or plants. While the project site does not provide habitat for any federally listed animal species, Alameda whipsnake, a federally listed species known from the region must be addressed due to the proximity of critical habitat. The project site does not provide core habitat for the federally listed Alameda whipsnake and M&A believes it is unlikely that Alameda whipsnake would migrate onto the project site due to an absence of suitable habitat components onsite, including protective cover. In addition, this normally skittish snake would never tolerate the extent and amount of human disturbance that surrounds this site. However, if this snake were to migrate onto the site, which is not logical or likely, there would be no impacts to the Alameda whipsnake from the proposed project because all construction-related disturbance would take place behind protective fencing installed on the north-northwestern boundary as part of the proposed project. This fencing would exclude small terrestrial wildlife, including snakes, from entering the project site. Hence, M&A concludes that the proposed project would not affect the Alameda whipsnake or its habitat. Therefore, under the current development proposal there would be no impacts to state listed plant or animal species. Consequently, an “incidental take permit” issued by the CDFW pursuant to Section 2081 of the Fish and Game Code should not be required for the proposed project.

#### 7.4 Applicable CEQA Regulations

Section 15380 of CEQA defines “endangered” species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. “Rare” species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species of animal or plant or the habitat of the species.” The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat to that species despite its legal status or lack thereof.

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#### 7.4.1 APPLICABILITY TO PROPOSED PROJECT

This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA. This document is suitable for use by the CEQA lead agency (in this case Contra Costa County) for incorporation into an initial study or any other CEQA review document prepared for the proposed project.

### 7.5 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered “take.” Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, “fully protected” birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). “Fully protected” birds may not be taken or possessed (that is, kept in captivity) at any time.

#### 7.5.1 APPLICABILITY TO THE PROPOSED PROJECT

Preconstruction surveys for nesting raptors or other birds (passerines, for example) would have to be conducted to ensure that there is no direct take of nesting birds including their eggs or young. Any active nests that were found during preconstruction surveys would have to be avoided by the project. Suitable non-disturbance buffers would have to be established around nest sites until the nesting cycle is complete. More specifics on the size of buffers are provided below in the Impacts and Mitigations section.

### 7.6 Contra Costa County Tree Ordinances

#### 7.6.1 TREE PROTECTION AND PRESERVATION ORDINANCE

Implementation of the proposed project would require the removal of several valley oaks, redwoods, and coast live oaks, among other species, many of which are greater than 6.5 inches in diameter at breast height (dbh) (4.5 feet above grade). Since the project site is located on “undeveloped property” (as defined by Contra Costa County Code<sup>1</sup>) all trees on the project site measuring greater than 6.5 inches dbh, even non-native species, are protected pursuant to the Contra Costa County tree protection and preservation ordinance. Article 816-6.6, “Protected Trees,” as presented in the County Code is as follows:

A “protected tree” is any one of the following:

(1) On all properties within the unincorporated area of the county:

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<sup>1</sup> According to Article 816-6.4024 of Contra Costa County Code, “undeveloped property” is (1) a parcel of private land which is vacant or a developed parcel which has remaining development potential; (2) a parcel of land which can be further divided in accordance with zoning regulations of the county; (3) a parcel of land on which the structures are proposed to be demolished or relocated (Ords. 94-59, 94-22).

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(A) Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the following list of indigenous trees: *Acer macrophyllum* (Big-leaf Maple), *Acer negundo* (Box Elder), *Aesculus californica* (California Buckeye), *Alnus Rhombifolia* (White Alder), *Arbutus menziesii* (Madrone), *Heteromeles arbutifolia* (Toyon), *Juglans Hindsii* (California Black Walnut), *Juniperus californica* (California Juniper), *Lithocarpus densiflora* (Tanoak or Tanbark Oak), *Pinus attenuata* (Knobcone Pine), *Pinus sabiniana* (Digger Pine), *Platanus Racemosa* (California Sycamore), *Populus fremontii* (Fremont Cottonwood), *Populus trichocarpa* (Black Cottonwood), *Quercus agrifolia* (California or Coast Live Oak), *Quercus chrysolepis* (Canyon Live Oak), *Quercus douglasii* (Blue Oak), *Quercus kelloggii* (California Black Oak), *Quercus lobata* (Valley Oak), *Quercus wislizenii* (Interior Live Oak), *Salix lasiandra* (Yellow Willow), *Salix laevigata* (Red Willow), *Salix lasiolepis* (Arroyo Willow), *Sambucus callicarpa* (Coast Red Elderberry), *Sequoia sempervirens* (Coast Redwood), *Umbellularia californica* (California Bay or Laurel);

(B) Any tree shown to be preserved on an approved tentative map, development or site plan or required to be retained as a condition of approval;

(C) Any tree required to be planted as a replacement for an unlawfully removed tree.

(2) On any of the properties specified in subsection (3) of this section:

(A) Any tree measuring twenty inches or larger in circumference (approximately six and one-half inches diameter), measured four and one-half feet from ground level including the oak trees listed above;

(B) Any multi-stemmed tree with the sum of the circumferences measuring forty inches or larger, measured four and one-half feet from ground level;

(C) And any significant grouping of trees, including groves of four or more trees.

(3) Specified properties referred to in subsection (2) of this section includes:

(A) Any developed property within any commercial, professional office or industrial district;

(B) Any undeveloped property within any district;

(C) Any area designated on the general plan for recreational purposes or open space;

(D) Any area designated in the county general plan open space element as visually significant riparian or ridge line vegetation and where the tree is adjacent to or part of a riparian, foothill woodland or oak savanna area. (Ords. 94-59, 94-22).

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Any person proposing to trench, grade or fill within the dripline of any protected tree or cut down, destroy, trim by topping or remove any protected tree shall apply to Contra Costa County for a tree permit, not less than ten days prior to the proposed tree removal or tree alterations. If the reasons for alteration or removal relate to the health of the tree or if grading, trenching or filling is proposed under the dripline of an existing tree, or the review is of a collective tree permit and the director determines that more technical expertise is necessary to make the decision, a report prepared by an arborist may be required, to be paid for by the applicant.

#### 7.6.2 HERITAGE TREE ORDINANCE

The Contra Costa County Heritage Tree Ordinance (Chapter 816-4, Ordinance 88-83, Contra Costa County Code) protects trees that have been designated as a heritage tree by the planning commission or board. A tree permit must be filed to remove a heritage tree, including application for a building, grading or demolition permit.

#### 7.6.3 APPLICABILITY TO THE PROPOSED PROJECT

According to the Arborist's Tree Survey (Attachment B), prepared by Timothy C. Ghirardelli Consulting Arborist, dated February 4, 2016, 13 protected native oak trees will be removed under the current project plans (proposed site plan in Attachment A). Many others are proposed for protection and will need adequate fencing around the dripline in order to ensure their preservation. As there is a tree ordinance and the County will enforce this ordinance, impacts to trees are not considered further herein.

## **8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE**

This section presents an overview of the criteria used by the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, the State Water Resources Control Board, and the CDFW to determine those areas within a project area that would be subject to their regulation.

### **8.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting**

#### 8.1.1 SECTION 404 OF THE CLEAN WATER ACT

Congress enacted the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Limits of Corps' jurisdiction:



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(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

- (1) Extends to the high tide line, or
- (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

- (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
- (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
- (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

#### 8.1.1.1 Significant Nexus of Tributaries

On December 2, 2008, the Corps and the Environmental Protection Agency (EPA) issued joint guidance on implementing the U.S. Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as "Rapanos") (Corps 2008b) which address the jurisdiction over waters of the United States under the Clean Water Act. In this joint guidance these agencies provide guidance on where they will assert jurisdiction over waters of the U.S.

The EPA and Corps will assert jurisdiction over the following waters:

- Traditional navigable waters

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- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (for example, typically three months).
- Wetlands that directly abut such tributaries.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and
- Significant nexus includes consideration of hydrologic and ecologic factors.

#### 8.1.1.2 Isolated Areas Excluded from Section 404 Jurisdiction

In addition to areas that may be exempt from Section 404 jurisdiction, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* (531 U.S. 159 [2001]). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable "Waters of the U.S.," and do not otherwise exhibit an interstate commerce connection.

#### 8.1.1.3 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the United States. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of "waters of the United States" found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)).

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NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.*, must receive “verification” from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the United States) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (*i.e.*, impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (*i.e.*, if a stream channel would be filled, mitigation would include replacing it with a new stream channel), and at a minimum of a 1:1 replacement ratio (*i.e.*, one acre or fraction thereof of recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required. Usually the 2:1 ratio is met by recreation or enhancement of an equivalent amount of wetland as is impacted, in addition to a requirement to preserve an equivalent amount of wetland as is impacted by the project. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site. For example, if project designs call for filling an intermittent drainage, mitigation should include recreating the same approximate jurisdictional area (same drainage widths) at an offsite location or on a set-aside portion of the project area. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

#### 8.1.2 APPLICABILITY TO THE PROPOSED PROJECT

There are no areas on the project site that would be subject to the Corps jurisdiction. There are no seasonal wetlands or drainage features on the project site. The proposed development project includes installation of six detention basins to collect and treat stormwater on the project site, and treated stormwater will be discharged into the existing stormdrain system in Gloria Terrace. Thus, the proposed project would not result in impacts to offsite waters of the United States.

## 8.2 State Water Resources Control Board (SWRCB) / California Regional Water Quality Control Board (RWQCB)

### 8.2.1 SECTION 401 OF THE CLEAN WATER ACT

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the United States, including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has

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been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWP requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

Additionally, if a proposed project would impact waters of the State, including wetlands, the project applicant must demonstrate that the project is unable to avoid these adverse impacts, or water quality certification will most likely be denied. Section 401 Certification may also be denied based on significant adverse impacts to waters of the United States/State, including wetlands. The RWQCB has also adopted the Corps' policy that there shall be "no net loss" of wetlands. Thus, prior to certifying water quality, the RWQCB will impose avoidance mitigation requirements on project proponents that impact waters of the State.

#### 8.2.2 APPLICABILITY TO THE PROPOSED PROJECT

There are no areas on the project site that would be subject to the RWQCB's Clean Water Act jurisdiction. Thus, there would be no need to apply to the RWQCB for a Section 401 certification of water quality. In summary, there would be no impacts to Clean Water Act defined waters of the State under the proposed project.

#### 8.2.3 PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1)). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the Corps' jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Stormwater Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In

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addition, a post construction BMPs plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

#### 8.2.4 APPLICABILITY TO PROPOSED PROJECT

Since any “threat” to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will required be when constructing the proposed project to be sure that adequate pre and post construction BMPs are incorporated into the project implementation plans. Regarding post construction BMPs, the proposed development project includes installation of six detention basins to collect and treat stormwater on the project site, and treated stormwater will be discharged from these basins into the existing storm drain system in Gloria Terrace. Thus, the proposed project would not result in impacts to offsite waters of the States.

#### 8.2.5 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

In 1972 the Clean Water Act was amended to state that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act added Section 402(p) which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program.

While federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans). The General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
3. Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine California Regional Water Quality Control Boards (RWQCBs).

#### Types of Construction Activity Covered by the General Permit

Construction activity subject to this General Permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area. Construction activity that results in soil disturbances to a smaller

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area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity. Construction activity does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility, nor does it include emergency construction activities required to protect public health and safety. Project proponents (landowners) should confirm with the local RWQCB whether or not a particular routine maintenance activity is subject to this General Permit.

#### 8.2.6 2009 CHANGES TO THE NPDES PROGRAM AND USE OF THE GENERAL PERMIT

[This section excerpted in part from Morrison Foerster Legal Updates and News September 2009, by Robert L. Falk and Corinne Fratini]. The California State Water Resources Control Board (“State Water Board”) has adopted a new National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (“Construction General Permit”). The new Construction General Permit which was issued pursuant to the federal Clean Water Act and is enforceable through citizens’ suits, represents a dramatic shift in the State Water Board’s approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers. Changes to use of the General Permit became effective on July 1, 2010.

The new Construction General Permit does not completely carry forward the former qualitative and self-selected compliance approach based on preparation of a SWPPP. Instead, developers and construction contractors must implement specific BMPs, achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project’s projected risk level.

The State Water Board’s new quantitative standards take a two-tiered approach, depending on the risk level associated with the site in question. Exceedance of a benchmark Numeric Action Level (“NAL”) measured in terms of pH and turbidity (a measure related to both the amount of sediment in and the velocity of site runoff) triggers an additional obligation to implement additional BMPs and corrective action to improve SWPPP performance. For medium- and high-risk sites, failure to meet more stringent numeric standards for pH and turbidity, known as Numeric Effluent Limitations (“NELs”), will also automatically result in a permit violation and be directly enforceable in administrative or, in the case of a citizens’ group taking up the cause, judicial forums. New minimum BMPs include Active Treatment Systems, which may be necessary where traditional erosion and sediment controls do not effectively control accelerated erosion; where site constraints inhibit the ability to construct a correctly-sized sediment basin; where clay and/or highly erosive soils are present; or where the site has very steep or long slope lengths.

In addition, the new Construction General Permit includes several “post-construction” requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells,

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rain gardens, and rain cisterns). This “runoff reduction” approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development (“LID”) design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the Regional Water Board.

Finally, the new Construction General Permit requires electronic filing of all Permit Registration Documents, NOIs, SWPPPs, annual reports, Notices of Termination, and NAL/NEL Exceedance Reports. This information will be readily available to the Water Boards and citizen enforcers who can then determine whether to initiate enforcement actions—actions which can result in significant penalties and legal fees.

#### 8.2.7 APPLICABILITY TO THE PROPOSED PROJECT

On September 2, 2009, the State Water Resources Control Board adopted Order No. 2009-0009-DWQ, which reissued the Construction General Permit (CGP) for projects disturbing one or more acres of land surface, or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface. Effective July 1, 2010, the requirements of this order replaced and superseded State Water Board Orders No. 99-08-DWQ.

It is the responsibility of the applicant to obtain coverage under the General Permit prior to commencement of construction activities that disturb greater than one acre of area. As the process of receiving coverage under the General Permit became considerably more involved in July 2010, the project engineer should start this permitting loop with the RWQCB at least 6 months in advance of the commencement of the proposed project.

### 8.3 RWQCB Municipal Storm Water Permitting Program

The Municipal Storm Water Permitting Program regulates storm water discharges from municipal separate storm sewer systems (MS4s). MS4 permits were issued in two phases. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES storm water permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. These permits are reissued as the permits expire.

As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

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### 8.3.1 RWQCB PHASE I PROGRAM REQUIREMENTS

The C.3 NPDES requirements went into effect for any project (public or private) that is “deemed complete” by the City or County (Lead Agency) on or after February 15, 2005, and which will result in the creation or replacement (other than normal maintenance) of at least 10,000 square feet of impervious surface area (roofs, streets, patios, parking lots, etc.). Intended to reduce the introduction of urban pollutants into San Francisco Bay, creeks, streams, lakes, and other water bodies in the region, Provision C.3 requires the onsite treatment of stormwater prior to its discharge into downstream receiving waters. Note that these requirements are in addition to the existing NPDES requirements for erosion and sedimentation controls during project construction.

Projects subject to Provision C3 must include the capture and onsite treatment of all stormwater from the site prior to its discharge, including rainwater falling on building rooftops. Project applicants are required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures in order to reduce the discharge of stormwater pollutants to the *maximum extent practicable*. While the Clean Water Act does not define “maximum extent practicable,” the Stormwater Quality Management Plans required as a condition of the municipal NPDES permits identify control measures (known as Best Management Plans, or BMPs) and, where applicable, performance standards, to establish the level of effort required to satisfy the maximum extent practicable criterion. It is ultimately up to the professional judgment of the reviewing municipal staff in the individual jurisdictions to determine whether a project’s proposed stormwater controls will satisfy the maximum extent practicable criterion. However, there are numeric criteria used to ensure that treatment BMPs have been adequately sized to accommodate and treat a site’s stormwater. The C3 requirements are quite extensive, and their complete explanation is not provided here. However, the following are minimums that should be understood and adhered to:

- The applicant must provide a detailed and realistic site design *and impervious surface area calculations*. This site design *and calculations* will be used by the Lead Agency (County or City) to determine/*verify* the amount of impervious surface area that is being created or replaced. It should include all proposed buildings, roads, walkways, parking lots, landscape areas, etc., that are being created or redeveloped. If large (greater than 10,000 square feet) lots are being created an effort will need to be made to determine the total impervious surface area that could be created on that parcel. For example if only a portion of the lot is shown as a “building envelope” then the lead agency will need to consider that a driveway will have to be constructed to access the envelope and that the envelope will then be developed as shown. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a Stormwater Control Plan (SWCP) (if required by the Lead Agency, or whatever steps for compliance with Provision C3 are required locally) must accompany the application.
- If a SWCP is required by the Lead Agency for the project it must be stamped by a Licensed Civil Engineer, Architect, or Landscape Architect.

Incorporating the C3 requirements into the early phases of new project planning will speed the



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approval process (by reducing or eliminating the need for redesign of the site plan once it gets to the municipal review process), improve the integration of treatment into site landscaping, enhance the project's aesthetics, reduce the water quality impacts of the project, improve the natural absorption of urban pollutants into the environment, and reduce the amount of stormwater discharged from the site. If these requirements are not incorporated into the early stages of site design, a subsequent redesign of the site plan may be required in order to provide all of the required onsite water treatment, adding unnecessarily to project development costs.

### 8.3.2 APPLICABILITY TO THE PROPOSED PROJECT

The Contra Costa County Flood Control and Water Conservation District, Contra Costa County and 16 incorporated cities in the County which include the City of Clayton, City of Concord, Town of Danville, City of El Cerrito, City of Hercules, City of Lafayette, City of Martinez, Town of Moraga, City of Orinda, City of Pinole, City of Pittsburg, City of Pleasant Hill, City of Richmond, City of San Pablo, City of San Ramon, and the City of Walnut Creek (hereinafter Dischargers) have joined to form the Contra Costa Clean Water Program (hereinafter the Program), and have submitted an NPDES permit application package dated June 30, 1998, for re-issuance of waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES) to implement "A Stormwater Management Plan for the Contra Costa Clean Water Program" dated June 30, 1998 (hereinafter the Plan) to discharge stormwater runoff from storm drains and watercourses that its members own and/or operate.

Each of the Dischargers is individually responsible for adopting and enforcing ordinances, implementing assigned BMPs to prevent or reduce pollutants in stormwater, and providing funds for capital, operation, and maintenance expenditures necessary to implement such BMPs for the storm drain system that it owns and/or operates. Assigned BMPs to be implemented by each Discharger are listed as Performance Standards in the Plan. Enforcement actions concerning this Order will, whenever necessary, be pursued only against the individual Discharger(s) responsible for specific violations of this Order. It is the Regional Board's intent that this Order shall ensure attainment of applicable water quality objectives and protection of beneficial uses of receiving waters. This Order, therefore, includes requirements to the effect that discharges shall not cause or contribute to violations of water quality objectives nor shall they cause certain conditions to occur which create a condition of nuisance or water quality impairment in receiving waters. Accordingly, the Regional Board is requiring that these requirements be addressed through the implementation of BMPs to reduce pollutants in stormwater as provided in Provisions C.1 through C.14 of this Order.

As of December 1, 2012, projects (including single-family homes) creating and/or replacing 2,500 square feet or more of impervious surface, but less than 10,000 square feet of impervious surface, must implement site design measures to reduce stormwater runoff. Possible measures include directing runoff from roofs or pavements to vegetated areas, incorporating permeable pavement, using cisterns or rain barrels, using planter boxes, or developing a landscaped bioretention facility. The proposed development project includes installation of six detention basins to collect and treat stormwater on the project site, and treated stormwater will be discharged from these basins into the existing stormdrain system in Gloria Terrace.

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## **8.4 California Department of Fish and Wildlife Protections**

### 8.4.1 SECTION 1602 OF CALIFORNIA FISH AND GAME CODE

Pursuant to Section 1602 of the California Fish and Game Code, California Department of Fish and Wildlife (the CDFW) regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the CDFW typically considers to include its riparian vegetation. Any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, would require entering into a Streambed Alteration Agreement (SBAA) with the CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, the CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

### 8.4.2 APPLICABILITY TO PROPOSED PROJECT

There are no areas on the project site that would be subject to CDFW's jurisdiction pursuant to Section 1602 of the Fish and Game Code.

## **9. IMPACTS ANALYSIS**

In this section we discuss potential impacts to sensitive biological resources. We follow each impact with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible. This impact analysis is based on a Vesting Tentative Map prepared by Humann Company on April 16, 2016.

### **9.1 Significance Criteria**

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies' considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as "significant," "potentially significant," or "less than significant." Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated "waters of the United States" and/or stream channels.

#### 9.1.1 THRESHOLDS OF SIGNIFICANCE

##### 9.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

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- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected “wetlands” as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

#### 9.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands, as discussed in the bulleted item above, and also includes “other waters” (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the Clean Water Act, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

#### 9.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, the CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which the CDFW typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

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## **10. IMPACT ASSESSMENT AND PROPOSED MITIGATION**

### **10.1 Impact BIO-1: Development of the Project Would Have a Potentially Significant Impact on Special-Status Bats (Potentially Significant)**

The trees on the project site provide marginal roosting habitat, hibernacula, or maternity sites for the pallid bat. This bat species is designated by the State as “species of special concern.” In accordance with the CEQA Guidelines (Section 15380) which protects “rare” and “endangered” species as defined by CEQA (species of special concern meet this CEQA definition), impacts to these bat species would be considered potentially significant.

Implementation of Mitigation Measure BIO-1 described below would reduce this impact to a less than significant level.

### **10.2 Mitigation Measure BIO-1: Special-Status Bats**

In order to avoid impacts to special-status bats, a biologist shall survey all trees onsite (not just ones slated for removal) at least 15 days prior to commencing with any tree removal or earth-work that might disturb roosting bats in nearby trees. All bat surveys shall be conducted by a biologist with known experience surveying for bats. If no special-status bats are found during the surveys, then there would be no further regard for special-status bat species.

If special-status bat species are found on the project site, a determination will be made if there are young bats present. If young are found roosting in any tree, impacts to the tree shall be avoided until the young have reached independence. A non-disturbance buffer fenced with orange construction fencing shall also be established around the roost or maternity site. The size of the buffer zone shall be determined by a qualified bat biologist at the time of the surveys. If adults are found roosting in a tree on the project site but no maternal sites are found, then the adult bats can be flushed or a one-way eviction door can be placed over the tree cavity prior to the time the tree in question would be removed or disturbed. No other mitigation compensation would be required.

This mitigation measure would reduce the project’s impact to special-status bats to a level considered less than significant.

***Significance after Mitigation:*** Less than significant.

### **10.3 Impact BIO-2: Development of the Project Would Have a Potentially Significant Impact on Nesting Raptors. (Potentially Significant)**

Nesting raptors are protected by the federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-711 and 50 CFR 10.13). All nesting raptors, their eggs and young are protected pursuant to California Fish and Game Code §3503.5. Specific surveys for nesting raptors have not been conducted. In the absence of survey results indicating otherwise, it is conservatively assumed that implementation of the proposed project may impact nesting raptors which could result in nest abandonment and death of eggs or young. Therefore, impacts to nesting raptors are regarded as potentially significant.

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Implementation of Mitigation Measure BIO-2 described below would reduce this impact to a less than significant level.

#### **10.4 Mitigation Measure BIO-2: Nesting Raptors.**

To ensure that impacts to nesting raptors are avoided or offset, the following mitigation measures will be implemented:

- a. In order to avoid impacts to nesting raptors, nesting surveys shall be conducted by a qualified raptor biologist prior to commencing with earth-moving or construction work, if this work would commence between February 1st and August 31st. The raptor nesting surveys shall include examination of all trees within 200 feet of the project site not just trees slated for removal.
- b. If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with orange construction fencing. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1st. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers shall be maintained in place through the month of August and work within the buffer can commence on September 1st.
- c. Two surveys may be required to address both early and later nesting raptor species. Great horned owls (*Bubo virginianus*) and American kestrels (*Falco sparverius*) begin nesting in February while red-tailed hawks and red-shouldered hawks (*Buteo lineatus*) begin nesting in early April. Thus, an early survey should be conducted in February if earth-moving work or construction is proposed to commence between February 1st and April 1st. If construction has not commenced by the end of March, a second nesting survey shall be conducted in April/May, whichever month is within 30 days of the commencement of construction. If construction would commence after May but before September 1st, then the second survey shall be conducted within the 30-day period prior to site disturbance.
- d. If the early nesting survey identifies a large stick nest or other type of raptor nest that appears inactive at the time of the survey, but there are territorial raptors evident in the nest site vicinity, a protection buffer (as described above) shall be established around the potential nesting tree until the qualified raptor biologist determines that the nest is not being used. In the absence of conclusive observations indicating the nest site is not being used, the buffer shall remain in place until a second follow-up nesting survey can be conducted to determine the status of the nest and eliminate the possibility that the nest is utilized by a late-spring nesting raptor (for

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example, red-tailed hawk). This second survey shall be conducted even if construction has commenced. If during the follow-up late season nesting survey a nesting raptor is identified utilizing the nest, the protection buffer shall remain until it is determined by a qualified raptor biologist that the young have fledged and have attained sufficient flight skills to avoid project construction zones. If the nest remains inactive, the protection buffer can be removed and construction and earth-moving activities can proceed unrestrained.

***Significance after Mitigation:*** Less than significant.

### **10.5 Impact BIO-3: Development of the Project Would Have a Significant Impact on Common Nesting Birds. (Potentially Significant)**

Nesting passerine birds (i.e., perching birds) are protected by the federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-711 and 50 CFR 10.13) and by California Fish and Game Code §3503 and §3503.5 which protects nesting birds, their eggs and young. These birds frequently change nesting locations from year to year and thus, past nesting histories are not necessarily indicative of future nesting activities. Accordingly, impacts to nesting passerine birds, their eggs, and/or young resulting from the proposed project are considered potentially significant. Impacts to unoccupied nesting habitats for these species would not be considered significant as there are other local and regional nesting habitats available for use by these species that could be used in subsequent nesting seasons. Consequently no mitigation is warranted for impacts to unoccupied nesting habitats. Impacts to nesting passerine birds are regarded as potentially significant.

Implementation of Mitigation Measure BIO-3 described below would reduce this impact to a less than significant level.

### **10.6 Mitigation Measure BIO-3: Nesting Birds.**

A nesting survey shall be conducted 15 days prior to commencing construction/ grading or tree removal activities, if this work would commence between March 1 and September 1. If common passerine birds (that is, perching birds such as Anna's hummingbird (*Calypte anna*) and mourning dove) are identified nesting on the project site, grading or tree removal activities in the vicinity of the nest shall be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area. The size of the nest protective buffer required to ensure that the project does not result in take of nesting birds, their eggs or young shall be determined by a qualified ornithologist. Typically, most passerine birds can be expected to complete nesting by June 15th, with young attaining sufficient flight skills by early July.

***Significance after Mitigation:*** Less than significant

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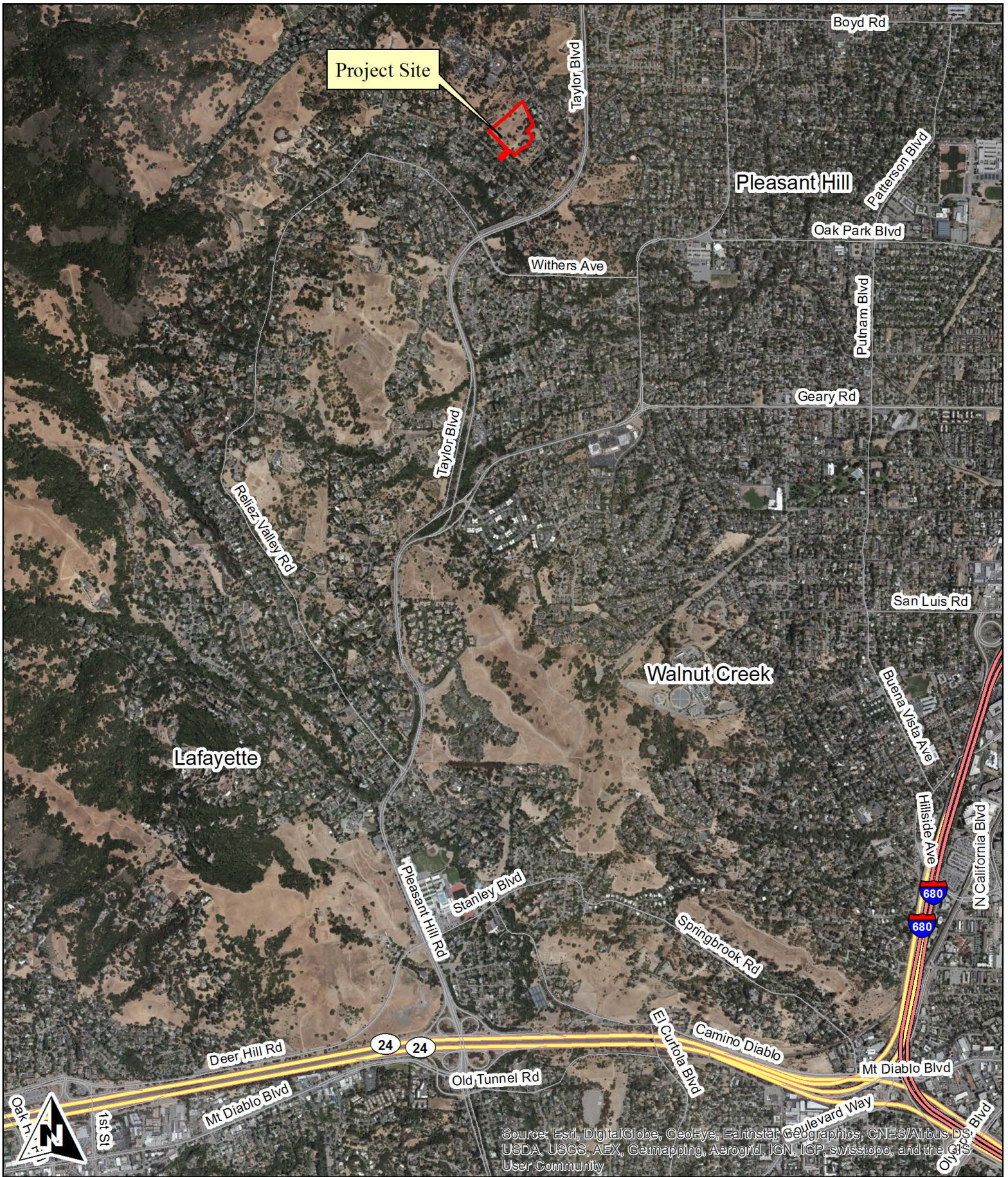




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Figure 1. 3197 Gloria Terrace Project Site  
Regional Map  
Lafayette, California

County: Contra Costa  
Map Preparation Date: August 19, 2015



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

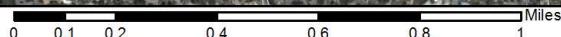


Figure 2. 3197 Gloria Terrace Project Site  
 Location Map  
 Lafayette, California

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Land Grant  
 37°56'17.82"N 122°5'37.97"W  
 7.5-Minute Walnut Creek quadrangle  
 Aerial Photograph Source: ESRI  
 Map Preparation Date: August 19, 2015



Project Site

Gloria Terrace

Summit Drive



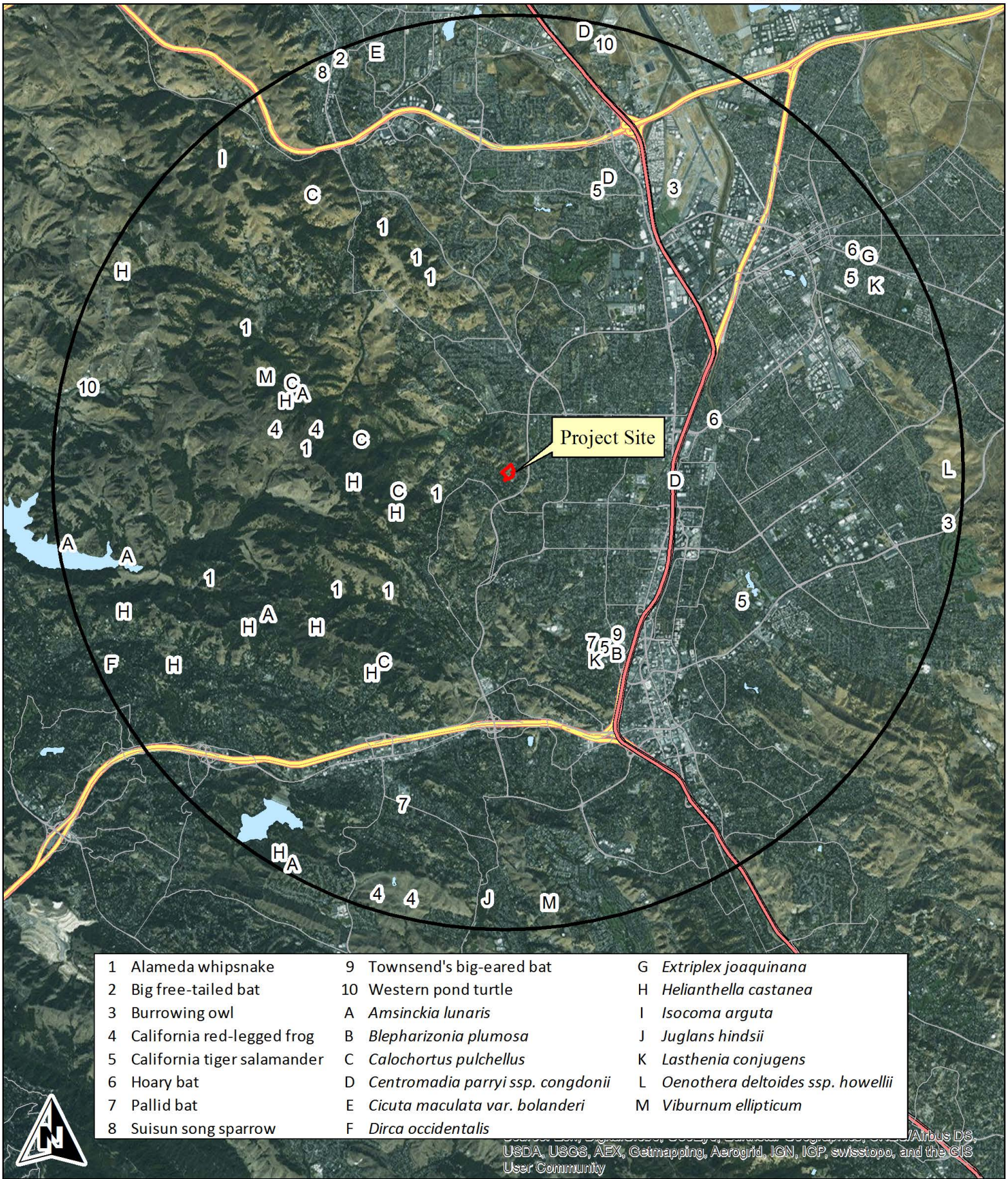
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0 50 100 200 300 400 500 Feet

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Figure 3. Aerial Photograph of the  
3197 Gloria Terrace Project Site  
Lafayette, California

Aerial Photograph Source: ESRI  
Map Preparation Date: August 19, 2015



1 Alameda whipsnake	9 Townsend's big-eared bat	G <i>Extriplex joaquinana</i>
2 Big free-tailed bat	10 Western pond turtle	H <i>Helianthella castanea</i>
3 Burrowing owl	A <i>Amsinckia lunaris</i>	I <i>Isocoma arguta</i>
4 California red-legged frog	B <i>Blepharizonia plumosa</i>	J <i>Juglans hindsii</i>
5 California tiger salamander	C <i>Calochortus pulchellus</i>	K <i>Lasthenia conjugens</i>
6 Hoary bat	D <i>Centromadia parryi</i> ssp. <i>congdonii</i>	L <i>Oenothera deltooides</i> ssp. <i>howellii</i>
7 Pallid bat	E <i>Cicuta maculata</i> var. <i>bolanderi</i>	M <i>Viburnum ellipticum</i>
8 Suisun song sparrow	F <i>Dirca occidentalis</i>	

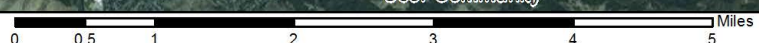


Figure 4. Known Special-Status CNDDDB Species within 5 Miles of the Gloria Terrace Project Site

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Map Preparation Date:  
 January 12, 2016  
 — 5-Mile Radius  
 Source: CDFW,  
 California Natural Diversity Data Base, 2016

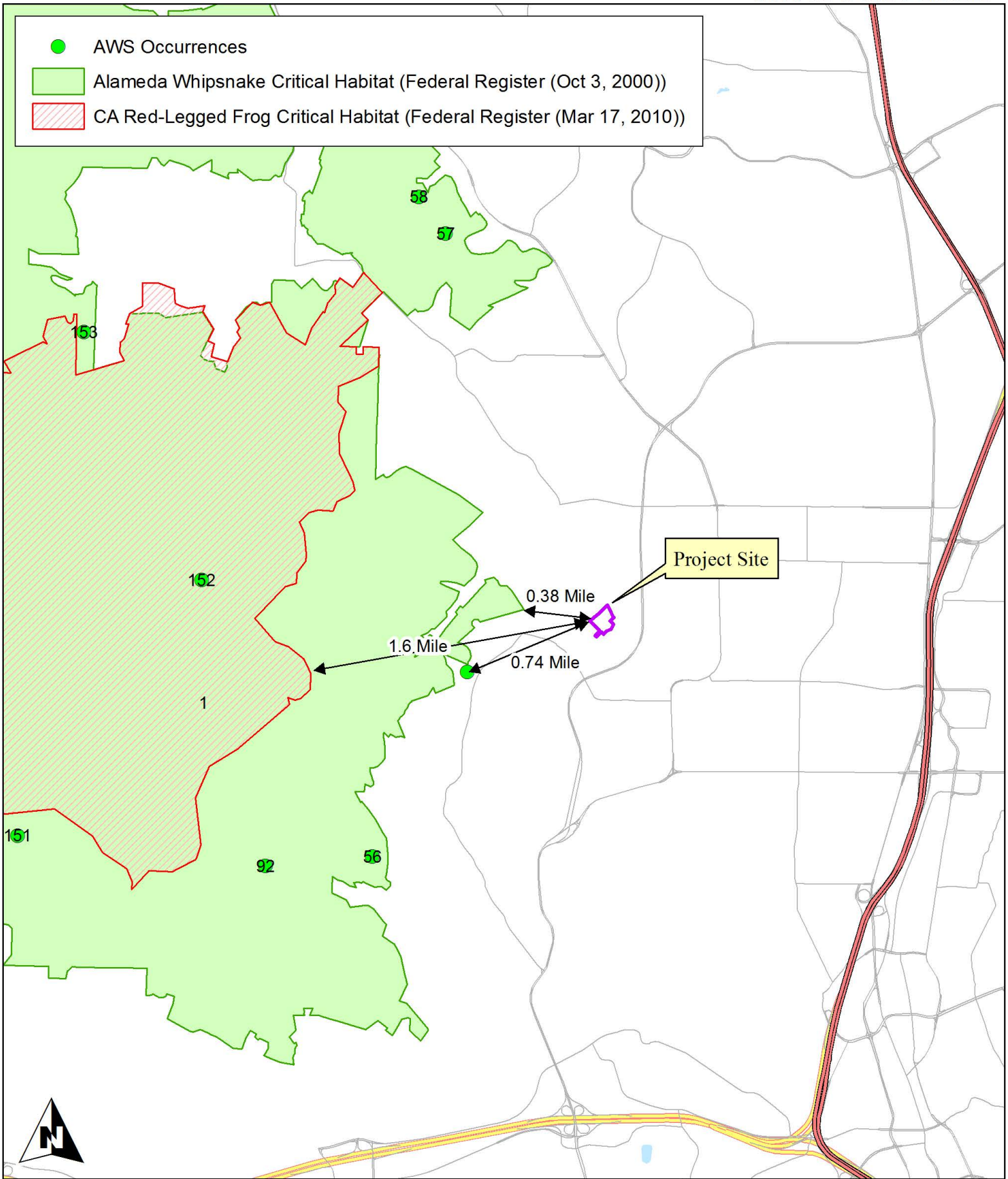


Figure 5. Critical Habitat in the Vicinity of the  
Gloria Terrace Project Site  
Lafayette, California

**Table 1****Plants Observed at the Gloria Terrace Site in Aug. 2015, March and May 2016****Ferns and Allies****Pteridaceae**

<i>Pentagramma triangularis</i>	Goldenback Fern
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**Gymnosperms****Cupressaceae**

<i>Calocedrus decurrens</i>	Incense cedar
* <i>Cupressus sp.</i>	Cypress

**Pinaceae**

* <i>Pinus halepensis</i>	Aleppo pine
<i>Pinus radiata</i>	Monterey pine

**Angiosperms - Dicots****Anacardiaceae**

<i>Toxicodendron diversilobum</i>	Western poison-oak
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**Apiaceae**

* <i>Anthriscus caucalis</i>	Bur-chervil
<i>Daucus pusillus</i>	Rattlesnake weed
<i>Sanicula bipinnatifida</i>	Purple sanicle
* <i>Scandix pecten-veneris</i>	Venus' needle
* <i>Torilis arvensis</i>	Tall sock destroyer

**Apocynaceae**

<i>Asclepias fascicularis</i>	Narrow-leaf milkweed
* <i>Vinca major</i>	Periwinkle

**Aristolochiaceae**

<i>Aristolochia californica</i>	California pipevine
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**Asteraceae**

<i>Baccharis pilularis subsp. consanguinea</i>	Coyote brush
* <i>Carduus pycnocephalus subsp. pycnocephalus</i>	Italian thistle
* <i>Centaurea melitensis</i>	Tocalote
* <i>Centaurea solstitialis</i>	Yellow starthistle
* <i>Helminthotheca echioides</i>	Bristly ox-tongue
<i>Holocarpha heermannii</i>	Heermann tarweed
* <i>Hypochaeris glabra</i>	Smooth cat's-ear
* <i>Logfia gallica</i>	Narrowleaf cottonrose
* <i>Pseudognaphalium luteoalbum</i>	Everlasting cudweed
* <i>Silybum marianum</i>	Milk thistle
* <i>Sonchus asper subsp. asper</i>	Prickly sow-thistle
* <i>Sonchus oleraceus</i>	Common sow-thistle
* <i>Taraxacum officinale</i>	Common dandelion

**Brassicaceae**

* <i>Hirschfeldia incana</i>	Short-podded mustard
------------------------------	----------------------

\* Indicates a non-native species

**Table 1****Plants Observed at the Gloria Terrace Site in Aug. 2015, March and May 2016**

* <i>Sinapis arvensis</i>	Wild mustard
<b>Caryophyllaceae</b>	
<i>Cerastium arvense subsp. strictum</i>	Meadow chickweed
* <i>Stellaria media</i>	Common chickweed
<b>Convolvulaceae</b>	
* <i>Convolvulus arvensis</i>	Bindweed
<b>Cucurbitaceae</b>	
<i>Marah fabaceus</i>	Wild Cucumber
<b>Euphorbiaceae</b>	
<i>Croton setiger</i>	Turkey mullein
<b>Fabaceae</b>	
* <i>Acacia melanoxyton</i>	Blackwood acacia
* <i>Genista monspessulana</i>	French broom
<i>Lupinus bicolor</i>	Bicolored lupine
* <i>Medicago polymorpha</i>	California burclover
* <i>Trifolium dubium</i>	Little hop clover
* <i>Trifolium hirtum</i>	Rose clover
* <i>Vicia sativa</i>	Common vetch
* <i>Vicia villosa subsp. villosa</i>	Hairy vetch
<b>Fagaceae</b>	
<i>Quercus agrifolia var. agrifolia</i>	Coast live oak
<i>Quercus lobata</i>	Valley oak
<b>Geraniaceae</b>	
* <i>Erodium botrys</i>	Broad-leaf filaree
* <i>Erodium cicutarium</i>	Red-stem filaree
* <i>Erodium moschatum</i>	White-stem filaree
* <i>Geranium dissectum</i>	Cut-leaf geranium
* <i>Geranium molle</i>	Dove's-foot geranium
<b>Juglandaceae</b>	
<i>Juglans hindsii</i>	Northern California black walnut
<b>Lamiaceae</b>	
* <i>Rosmarinus officinalis</i>	Rosemary
<b>Montiaceae</b>	
<i>Claytonia parviflora</i>	Miner's lettuce
<i>Claytonia perfoliata</i>	Miner's lettuce
<i>Claytonia perfoliata subsp. perfoliata</i>	Miner's lettuce
<b>Myrsinaceae</b>	
* <i>Lysimachia arvensis</i>	Scarlet pimpernel
<b>Oleaceae</b>	
* <i>Ligustrum japonicum</i>	Japanese privet
<b>Onagraceae</b>	
<i>Clarkia purpurea subsp. quadrivulnera</i>	Four spot

\* Indicates a non-native species

**Table 1****Plants Observed at the Gloria Terrace Site in Aug. 2015, March and May 2016**

<i>Epilobium brachycarpum</i>	Summer cottonweed
<b>Orobanchaceae</b>	
* <i>Bellardia trixago</i>	Mediterranean linseed
<i>Castilleja attenuata</i>	Valley tassels
<i>Castilleja exserta</i>	Purple Owl's Clover
<b>Oxalidaceae</b>	
* <i>Oxalis pes-caprae</i>	Bermuda buttercup
<b>Papaveraceae</b>	
<i>Eschscholzia californica</i>	California poppy
<b>Plantaginaceae</b>	
* <i>Kickxia elatine</i>	Sharppoint fluellin
<b>Polygonaceae</b>	
<i>Eriogonum nudum</i> var. <i>nudum</i>	Naked wild buckwheat
* <i>Rumex acetosella</i>	Sheep sorrel
* <i>Rumex crispus</i>	Curly dock
<b>Rosaceae</b>	
* <i>Cotoneaster franchetii</i>	Franchet's cotoneaster
<i>Heteromeles arbutifolia</i>	Toyon
* <i>Prunus dulcis</i>	Almond tree
<b>Rubiaceae</b>	
<i>Galium aparine</i>	Goose grass
<i>Galium porrigens</i> var. <i>porrigens</i>	Climbing bedstraw
<b>Angiosperms -Monocots</b>	
<b>Agavaceae</b>	
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Soap plant
<b>Juncaceae</b>	
<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad rush
<i>Juncus tenuis</i>	Slender rush
<b>Poaceae</b>	
* <i>Aira caryophyllea</i>	Silver European hairgrass
* <i>Avena barbata</i>	Slender wild oat
* <i>Avena fatua</i>	Wild oat
* <i>Briza maxima</i>	Rattlesnake grass
* <i>Briza minor</i>	Small quaking grass
* <i>Bromus diandrus</i>	Ripgut grass
* <i>Cynosurus echinatus</i>	Dogtail Grass
<i>Elymus triticoides</i> subsp. <i>triticoides</i>	Creeping wildrye
* <i>Festuca bromoides</i>	Brome fescue
* <i>Festuca perennis</i>	Italian ryegrass
* <i>Gastridium phleoides</i>	Nit grass
* <i>Hordeum murinum</i> subsp. <i>leporinum</i>	Hare barley
* <i>Poa annua</i>	Annual bluegrass

\* Indicates a non-native species



**Table 1**

**Plants Observed at the Gloria Terrace Site in Aug. 2015, March and May 2016**

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<i>Stipa pulchra</i>	Purple needlegrass
* <i>Triticum aestivum</i>	Wheat
<b>Themidaceae</b>	
<i>Dichelostemma capitatum subsp. capitatum</i>	Blue dicks
<i>Triteleia laxa</i>	Ithuriel's spear

---

\* Indicates a non-native species

**Table 2**  
**Wildlife Species Observed on the Gloria Terrace Project Site**

---

**Birds**

Red-tailed hawk	<i>Buteo jamaicensis</i>
California quail	<i>Callipepla californica</i>
Mourning dove	<i>Zenaida macroura</i>
Anna's hummingbird	<i>Calypte anna</i>
Acorn woodpecker	<i>Melanerpes formicivorus</i>
Western scrub jay	<i>Aphelocoma californica</i>
Chestnut-backed chickadee	<i>Poecile rufescens</i>
Bushtit	<i>Psaltriparus minimus</i>
Brown creeper	<i>Certhia americana</i>
Northern mockingbird	<i>Mimus polyglottos</i>
California towhee	<i>Pipilo crissalis</i>
House finch	<i>Carpodacus mexicanus</i>
Lesser goldfinch	<i>Spinus psaltria</i>

---

**Mammals**

Botta's pocket gopher	<i>Thomomys bottae</i>
Columbian black-tailed deer	<i>Odocoileus hemionus ssp. Columbianus</i>

Table 3

## Special-Status Plant Species Known to Occur in the Vicinity of the Gloria Terrace Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<b>Adoxaceae</b>					
<i>Viburnum ellipticum</i> Western viburnum	Fed: - State: - CNPS: Rank 2B.3	May-July	Chaparral; cismontane woodland; lower montane coniferous forest.	Closest record for this species located 2.8 miles Northwest of the project site (CNDDDB Occurrence No. 21).	None. No suitable habitats onsite.
<b>Apiaceae</b>					
<i>Cicuta maculata bolanderi</i> Bolander's waterhemlock	Fed: - State: - CNPS: Rank 2B.1	July-September	Marshes and swamps (coastal, fresh, or brackish). 0 to 200 meters.	Closest record for this species located 4.8 miles Northwest of the project site (CNDDDB Occurrence No. 4).	None. No marsh or swamp habitats onsite.
<b>Asteraceae</b>					
<i>Blepharizonia plumosa</i> Big tarplant	Fed: - State: - CNPS: Rank 1B.1	July-October	Valley and foothill grassland.	Closest record for this species located 1.8 miles South of the project site (CNDDDB Occurrence No. 12).	None. Rare plants surveys were conducted in August 2015 and none were observed during appropriately-timed surveys.
<i>Centromadia parryi congonii</i> Congdon's tarplant	Fed: - State: - CNPS: Rank 1B.2	May-November	Valley and foothill grassland (alkaline).	Closest record for this species located 1.6 miles East of the project site (CNDDDB Occurrence No. 2).	None. Rare plants surveys were conducted in August 2015 and none were observed during appropriately-timed surveys.
<i>Helianthella castanaea</i> Diablo helianthella	Fed: - State: - CNPS: Rank 1B.2	March-June	Broadleafed upland forest; chaparral; cismontane woodland; coastal scrub; riparian woodland; valley and foothill grassland.	Closest record for this species located 1.3 miles West of the project site (CNDDDB Occurrence No. 46).	None. Rare plants surveys were conducted in 2016 and none were observed during appropriately-timed surveys.
<i>Isocoma arguta</i> Carquinez goldenbush	Fed: - State: - CNPS: Rank 1B.1	August-December	Valley and foothill grassland (alkaline).	Closest record for this species located 4.8 miles North of the project site (CNDDDB Occurrence No. 43).	None. No alkaline soils onsite. No species of <i>Isocoma</i> observed.

Table 3

## Special-Status Plant Species Known to Occur in the Vicinity of the Gloria Terrace Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Lasthenia conjugens</i> Contra Costa goldfields	Fed: FE State: - CNPS: Rank 1B.1	March-June	Valley and foothill grassland (mesic); vernal pools.	Closest record for this species located 1.5 miles South of the project site (CNDDDB Occurrence No. 43).	None. No wetlands or mesic grassland onsite.
<b>Boraginaceae</b>					
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	Fed: - State: - CNPS: Rank 1B.2	March-June	Cismontane woodland, valley and foothill grassland, coastal bluff scrub.	Closest record for this species located 2.6 miles Northwest of the project site (CNDDDB Occurrence No. 41).	None. Rare plants surveys were conducted in 2016 and none were observed during appropriately-timed surveys.
<b>Chenopodiaceae</b>					
<i>Extriplex joaquinana</i> San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	Closest record for this species located 3.8 miles north of the project site (CNDDDB Occurrence No. 87).	None. No alkaline habitat onsite. None observed during appropriately-timed surveys.
<b>Fabaceae</b>					
<i>Lathyrus jepsonii jepsonii</i> Delta tule pea	Fed: - State: - CNPS: Rank 1B.2	May-September	Marshes and swamps (freshwater and brackish).	On CNPS 1-quad list.	None. No marsh habitats onsite.
<b>Juglandaceae</b>					
<i>Juglans hindsii</i> Northern California black walnut	Fed: - State: - CNPS: Rank 1B.1	April-May	Riparian forest; riparian woodland.	Closest record for this species located 4.7 miles South of the project site (CNDDDB Occurrence No. 2).	None. Walnut trees onsite are not one of the protected populations.

Table 3

## Special-Status Plant Species Known to Occur in the Vicinity of the Gloria Terrace Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<b>Liliaceae</b>					
<i>Calochortus pulchellus</i> Mt. Diablo fairy lantern	Fed: - State: - CNPS: Rank 1B.2	April-June	Chaparral; cismontane woodland; valley and foothill grassland.	Closest record for this species located 1.3 miles West of the project site (CNDDDB Occurrence No. 43).	None. Rare plants surveys were conducted in 2016 and none were observed during appropriately-timed surveys.
<i>Fritillaria liliacea</i> Fragrant fritillary	Fed: - State: - CNPS: Rank 1B.2	February-April	Coastal prairie; coastal scrub; valley and foothill grassland; [often serpentinite].	On CNPS 1-quad list.	None. Rare plants surveys were conducted in 2016 and none were observed during appropriately-timed surveys.
<b>Onagraceae</b>					
<i>Oenothera deltoides howellii</i> Antioch dunes evening-primrose	Fed: FE State: CE CNPS: Rank 1B.1	March-September	Interior dunes.	Closest record for this species located 4.5 miles East of the project site (CNDDDB Occurrence No. 11).	None. No interior dunes onsite.
<b>Polemoniaceae</b>					
<i>Navarretia gowenii</i> Lime Ridge navarretia	Fed: - State: - CNPS: Rank 1B.1	May-June	Chaparral.	On CNPS 1-quad list.	None. No chaparral habitats onsite
<b>Thymelaeaceae</b>					
<i>Dirca occidentalis</i> Western leatherwood	Fed: - State: - CNPS: Rank 1B.2	January-April	Chaparral; riparian, broadleaf, and coniferous woodlands and forests; [mesic locations].	Closest record for this species located 5.0 miles Southwest of the project site (CNDDDB Occurrence No. 55).	None. No woodland or forest habitat onsite.

**Table 3**

**Special-Status Plant Species Known to Occur in the Vicinity of the Gloria Terrace Project Site**

Family	Taxon	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Common Name						

**\*Status**

Federal:

- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate

State:

- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CC - California Candidate
- CSC - California Species of Special Concern

CNPS Continued:

CNPS:

- Rank 1A - Presumed extinct in California
- Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
- Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
- Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
- Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

- Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
- Rank 2A - Extirpated in California, common elsewhere
- Rank 2B.1 - Seriously endangered in California, but more common elsewhere
- Rank 2B.2 - Fairly endangered in California, but more common elsewhere
- Rank 2B.3 - Not very endangered in California, but more common elsewhere
- Rank 3 - Plants about which we need more information (Review List)
- Rank 3.1 - Plants about which we need more information (Review List)  
Seriously endangered in California
- Rank 3.2 - Plants about which we need more information (Review List)  
Fairly endangered in California
- Rank 4 - Plants of limited distribution - a watch list

**Table 4**  
**Special-Status Wildlife Species Known to Occur Within 5 Miles of the Gloria Terrace Project Site**

Species	*Status	Habitat	Closest Locations	Probability on Project Site
<b>Amphibians</b>				
California tiger salamander <i>Ambystoma californiense</i>	Fed: FT State: CT Other:	Central and Santa Barbara Co. DPS are Fed. Threatened. Sonoma Co. DPS is Endangered. Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.	Closest record for this species located 1.4 miles south of the project site (Occurrence No. 582).	None. No breeding habitat on or adjacent to the project site and the surrounding development prevents migration from extant populations.
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Closest record for this species located 2.2 miles west of the project site (Occurrence No. 158).	None. No breeding habitat on or adjacent to the project site and the surrounding development prevents migration from extant populations.
<b>Reptiles</b>				
Western pond turtle <i>Actinemys marmorata marmorata</i>	Fed: FPT State: CSC Other:	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.	Closest record for this species located 4.8 miles West of the project site (Occurrence No. 364).	None. No creek or aquatic habitat on or adjacent to the project site.
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	Fed: FT State: CT Other:	Coastal scrub and chaparral habitats of Contra Costa and Alameda Counties. Prefers south-facing slopes with a mosaic of shrubs, trees, and grassland.	Closest record for this species located 0.74 mile southwest of the project site (Occurrence No. 62).	Unlikely to occur onsite due to lack of core habitat. Regardless, wildlife exclusion fencing will prevent impacts to this species.
<b>Birds</b>				
Western burrowing owl <i>Athene cucularia hypugaea</i>	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Closest record for this species located 3.6 miles northeast of the project site (Occurrence No. 1164).	None. No burrows or suitable habitat onsite.

**Table 4**  
**Special-Status Wildlife Species Known to Occur Within 5 Miles of the Gloria Terrace Project Site**

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	Fed: -- State: CSC Other:	Resident of brackish marshes surrounding Suisun Bay. Prefers cattails, tules, sedges, and pickleweed. Also found in tangles bordering sloughs.	Closest record for this species located 4.9 miles north of the project site (Occurrence No. 34).	None. No suitable marsh habitat onsite.
<b>Mammals</b>				
Townsend's big-eared bat <i>Corynorhinus townsendii townsendii</i>	Fed: -- State: CSC Other: CC	Occurs in humid coastal regions of northern and central California. Roosts in limestone caves, lava tubes, mines, and buildings. Extremely sensitive to disturbance.	Closest record for this species located 1.5 miles south of the project site (Occurrence No. 432).	None. No suitable roost habitat onsite.
Pallid bat <i>Antrozous pallidus</i>	Fed: - State: CSC Other:	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, and occasionally hollow trees. Night roosts in open areas such as porches and open buildings.	Closest record for this species located 1.5 miles south of the project site (Occurrence No. 146).	Low potential to occur in the tree cavities onsite. Preconstruction surveys will be conducted.
Big free-tailed bat <i>Nyctinomops macrotis</i>	Fed: - State: CSC Other:	Roost mainly in crevices and rocks in cliff situations, although there is some documentation of roosts in buildings, caves, and tree cavities.	Closest record for this species located 4.8 miles northwest of the project site (Occurrence No. 1).	Low potential to occur in the tree cavities onsite. Preconstruction surveys will be conducted.



**Table 4**

**Special-Status Wildlife Species Known to Occur Within 5 Miles of the Gloria Terrace Project Site**

Species	*Status	Habitat	Closest Locations	Probability on Project Site
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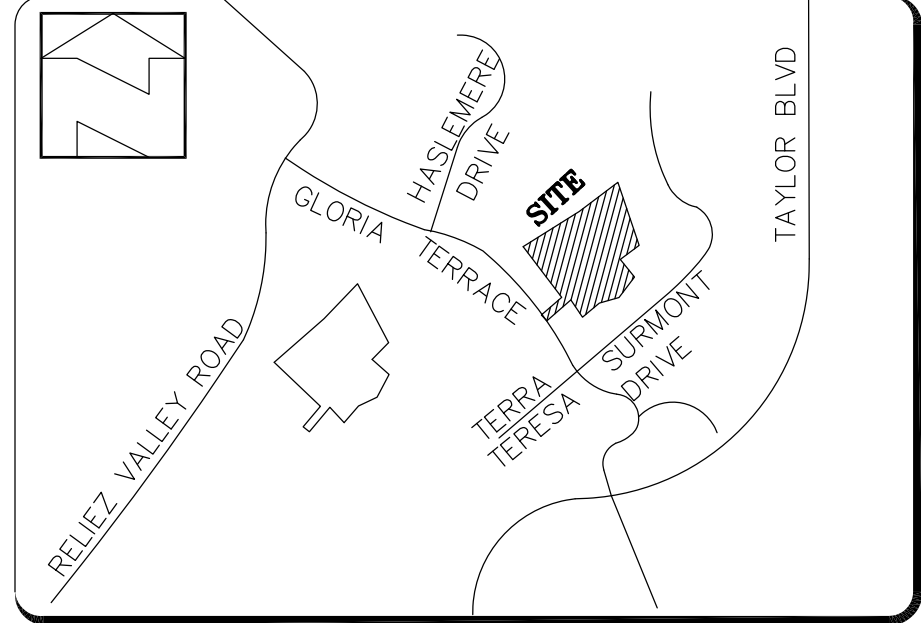
**\*Status**

Federal:

- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate
- FPD - Federally Proposed for delisting

State:

- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CC - California Candidate
- CSC - California Species of Special Concern
- FP - Fully Protected
- WL - Watch List. Not protected pursuant to CEQA



**OWNERS**  
 APN: 166-200-032  
 GLORIA TERRACE LLC  
 3189 DANVILLE BLVD #245  
 ALAMO, CA 94507  
 PH: (925) 984-2289  
 FAX: (925) 829-0428

**DEVELOPER**  
 CIVIL ENGINEER  
 HUMANN COMPANY, INC.  
 1021 BROWN AVENUE  
 LAFAYETTE, CA 94549  
 PH: (925) 283-5000  
 FAX: (925) 283-3578

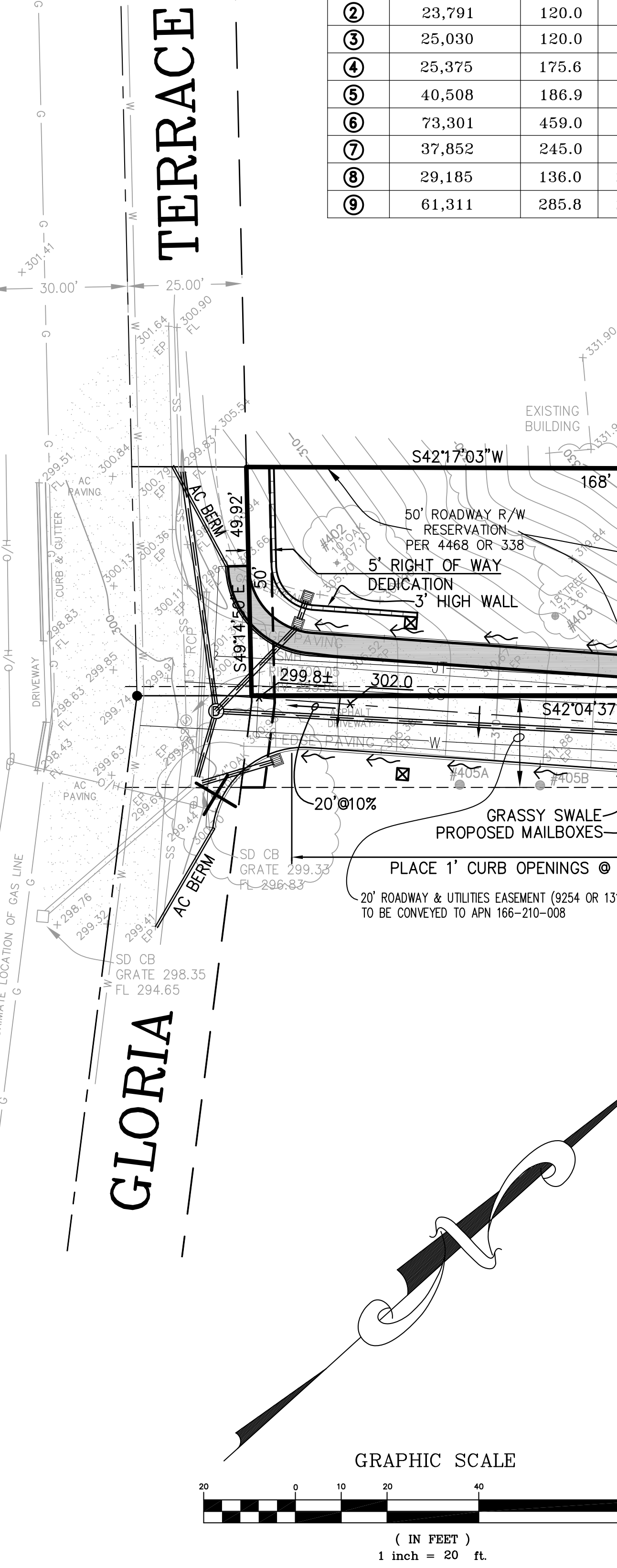
**GEOTECHNICAL ENGINEER**  
 GFK & ASSOCIATES  
 11828 DUBLIN BOULEVARD, SUITE D  
 DUBLIN, CA 94568  
 PH: (925) 829-0428  
 FAX: (925) 829-0428

**EARTH QUANTITIES**  
 EARTH QUANTITIES TO BE VERIFIED BY CONTRACTOR  
**SITE GRADING:**  
 MASS GRADING: CUT: 15,000± CU. YARDS  
 REMEDIAL GRADING: SLIDE AREA # 2 CUT: 750± CU. YARDS  
 TOTAL GRADING: CUT: 18,000± CU. YARDS  
 FILL: 15,000± CU. YARDS  
 FILL: 750± CU. YARDS  
 FILL: 18,000± CU. YARDS  
**KEYWAY AND OVER-EXCAVATION:**  
 CUT: 2,200± CU. YARDS  
 FILL: 2,200± CU. YARDS

- NOTES**
- ASSESSOR'S PARCEL NUMBERS: 166-200-032 & 166-210-008
  - TOTAL AREA: 334,645± SQUARE FEET
  - TOTAL LOTS: 9
  - SERVICES:  
 WATER: EAST BAY MUNICIPAL UTILITIES DISTRICT  
 SEWER: CONTRA COSTA CENTRAL SANITARY DISTRICT  
 STORM DRAIN: CONTRA COSTA COUNTY
  - ZONING: R20  
 EXISTING: SINGLE FAMILY (RS)  
 PROPOSED: SINGLE FAMILY (RS)

**LOT DATA**

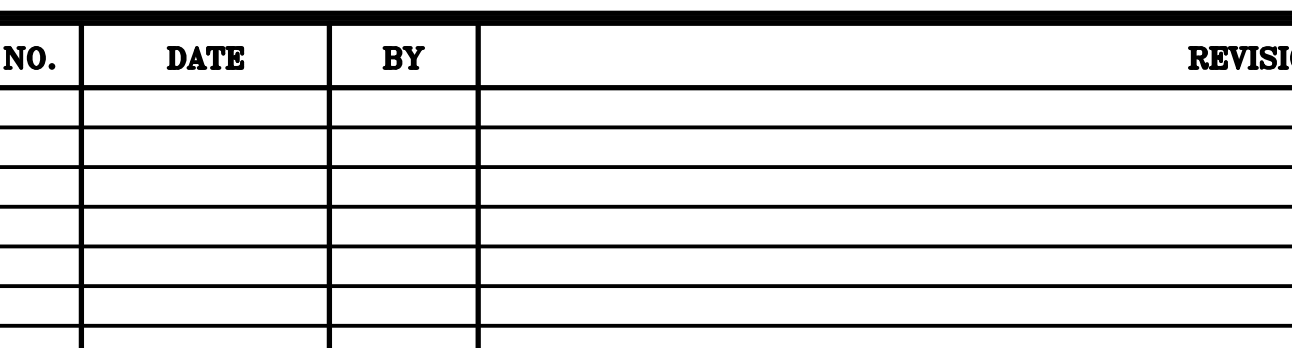
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②	23,791	120.0	198.2
③	25,030	120.0	208.5
④	25,375	175.6	144.5
⑤	40,508	186.9	216.7
⑥	73,301	459.0	159.7
⑦	37,852	245.0	154.5
⑧	29,185	136.0	214.6
⑨	61,311	285.8	214.5



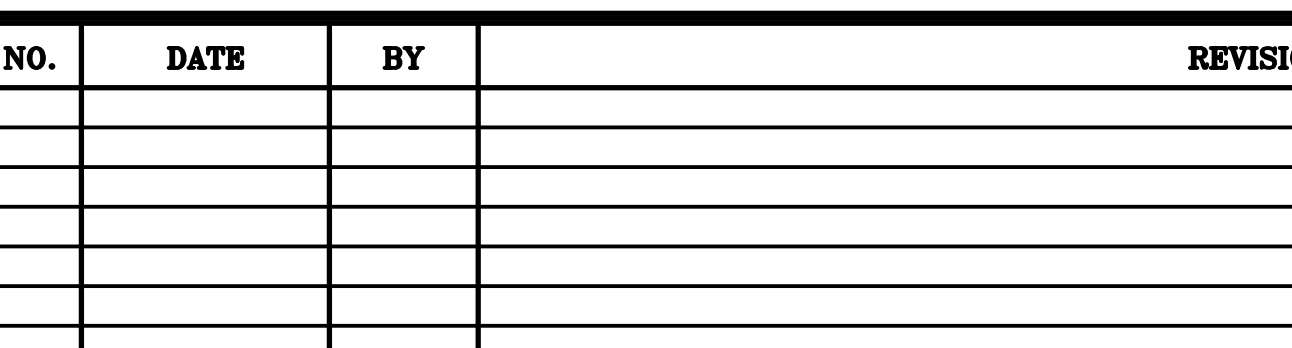
**REVISIONS**

NO.	DATE	BY	REVISIONS

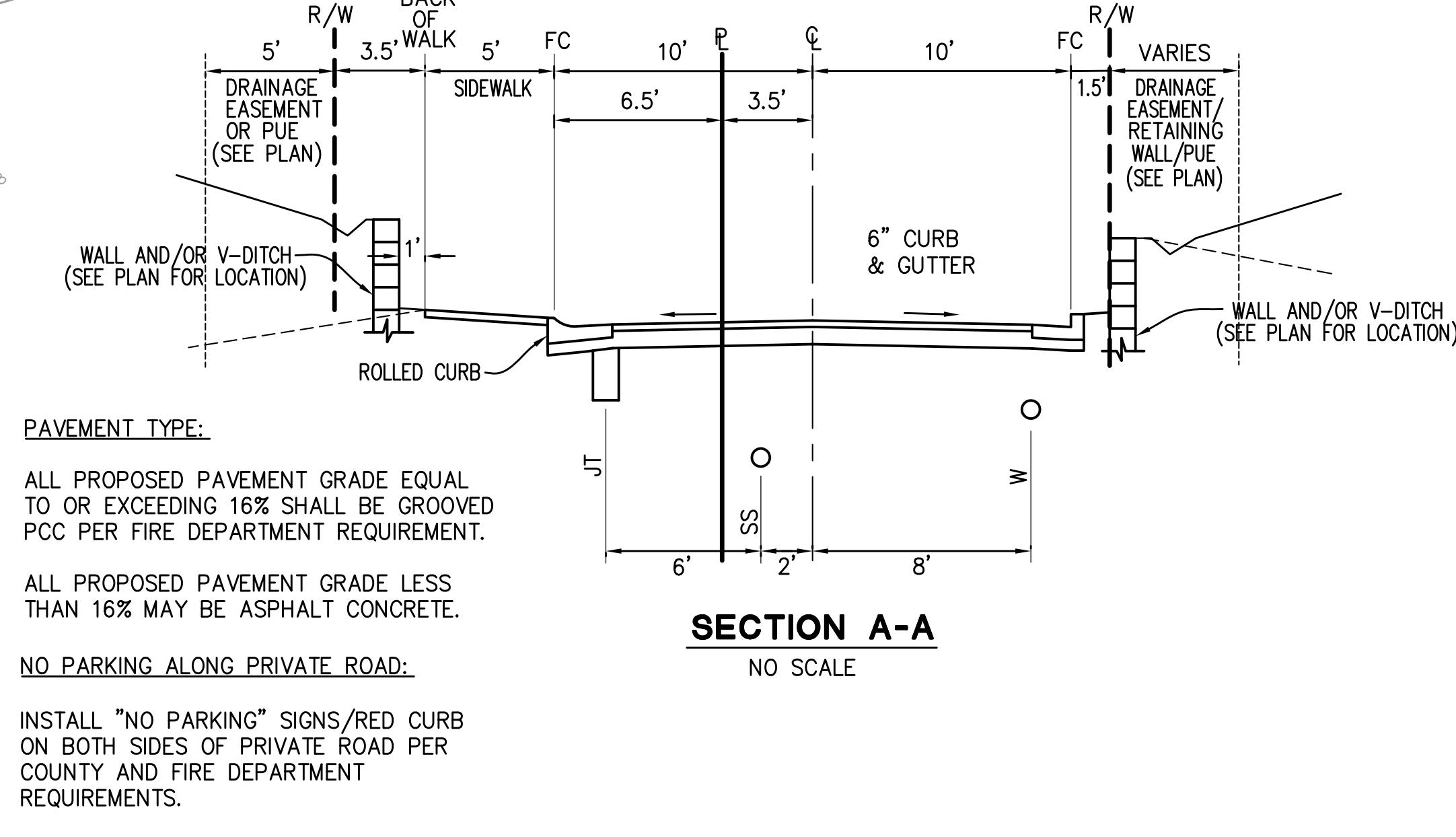
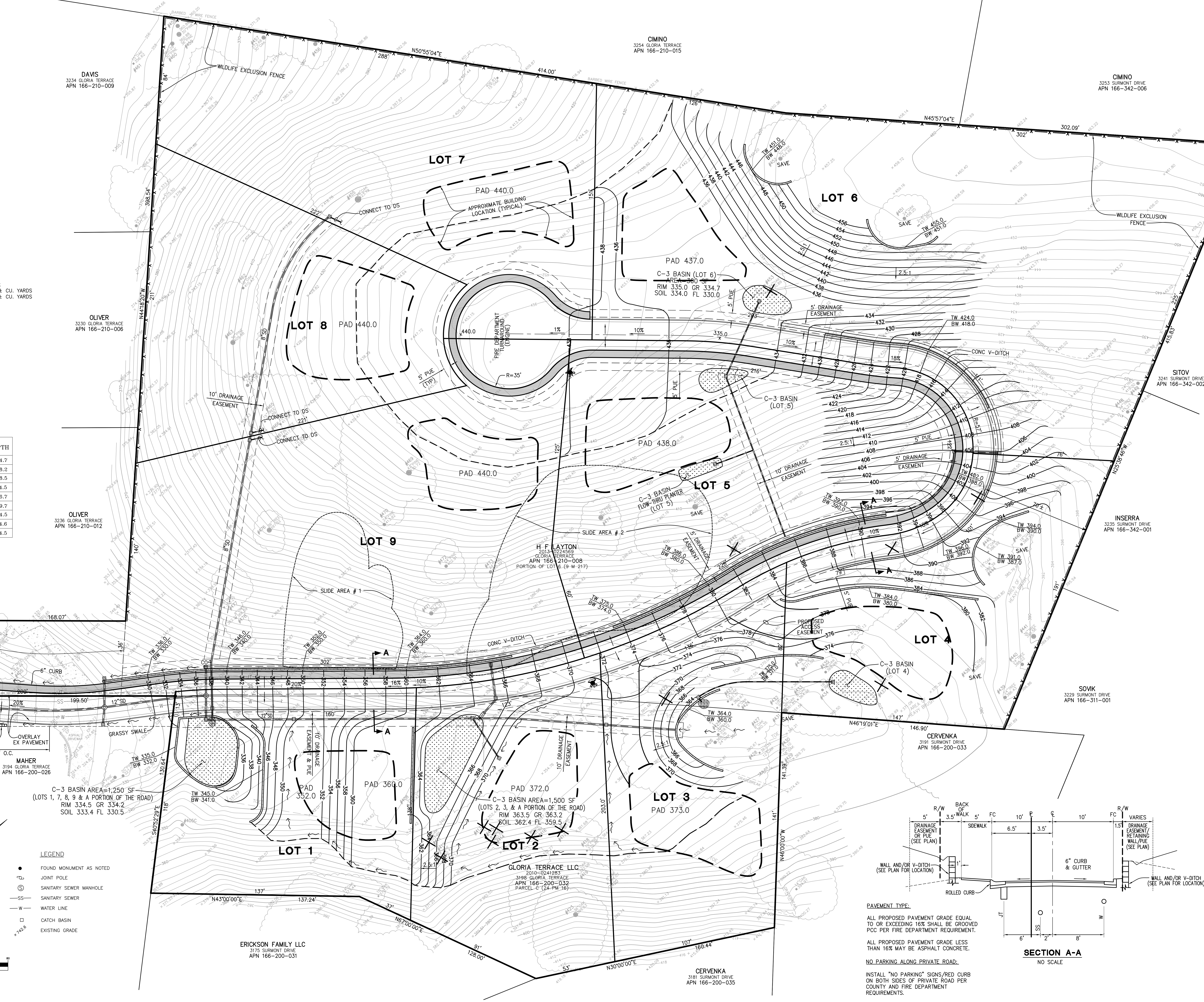
**SCALE** 1" = 20'  
**DATE** 04/21/16  
**DRAWN** JEC/PE  
**CHECKED** IN  
**JOB NO.** 15012



**VESTING TENTATIVE MAP SD 16-9429**  
**GLORIA TERRACE ESTATES**  
 A RESUBDIVISION OF APN 166-200-032 AND 166-210-008  
 PARCEL C OF 24 PM 16 AND A PORTION OF LOT 6 OF 9 M 217  
 LAFAYETTE CONTRA COSTA COUNTY CALIFORNIA



**SHEET 1**  
 OF 1 SHEET  
**JOB NO. 15012**



**PAVEMENT TYPE:**  
 ALL PROPOSED PAVEMENT GRADE EQUAL TO OR EXCEEDING 16% SHALL BE GROOVED PCC PER FIRE DEPARTMENT REQUIREMENT.  
 ALL PROPOSED PAVEMENT GRADE LESS THAN 16% MAY BE ASPHALT CONCRETE.  
 NO PARKING ALONG PRIVATE ROAD.  
 INSTALL "NO PARKING" SIGNS/RED CURB ON BOTH SIDES OF PRIVATE ROAD PER COUNTY AND FIRE DEPARTMENT REQUIREMENTS.



Timothy C. Ghirardelli  
Consulting Arborist Services  
1200 Mt. Diablo Blvd., Suite 204  
Walnut Creek, CA 94596  
Phone 925.899.8090

**Timothy C. Ghirardelli**  
CONSULTING ARBORIST SERVICES

# Tree Survey

Gloria Terrace 9-Lot Subdivision  
Lafayette, CA

APN 166-200-032 and 166-210-008

**February 4, 2016**



*Sustainable Solutions in the Urban  
Interface Since 1980*

*Certified Arborist #WE 0704 A*



## Introduction

I have been retained by David Langon Construction, Inc., to provide this preliminary tree survey for the proposed 9-lot subdivision pursuant to the Contra Costa County Tree Protection and Preservation Ordinance, Municipal Code, Title 8, Chapter 816-6, Ords. 94-59, 94-22 that mandates protection for any construction project that affects existing trees. Existing trees are reviewed to evaluate their health, contribution to the site and the individual affects of proposed construction.

My review of the site occurred on January 15, 2016. I have reviewed the Tentative Vesting Map by Humann Company, Inc. dated 11.16.15. Trees are individually tagged, numbered and correspond to those found in this Tree Survey and the Tentative Vesting Map provided. A reduced-size Tree Location Map is also provided at the end of this report. Tree diameters are measured at 54-inches above grade. General Tree and Root Zone Protection Guidelines are provided.

---

## Summary

The site proposal is a moderately steep west facing parcel at the end of the road located within an existing residential environment on north, east and south sides. Surveyed trees consist predominantly of native oaks and a minority of planted non-natives in varying degrees of health, maturity and suitability to the new environment.

Eighty three (83) trees are surveyed on the site and consist of the following:

Common	Botanical	Native	Trees Inventoried
Valley oak	Quercus lobata	Yes	37
Coast Live oak	Quercus agrifolia	Yes	12
Monterey Pine	Pinus radiata	No	16
Arizona cypress	Cupressus arizonica	No	13
Miscellaneous non- natives	Defined in the Tree Survey	No	5

Initial efforts are made to locate the road and configure lots to minimize existing tree loss while considering the natural and aesthetic benefits the existing natives provide. I was also able to work with the team to identify native oaks suitable for retention that are well suited to enhancing and developing the screen between properties.

A total of sixteen (16) trees require removal to facilitate construction. Of those, thirteen (13) are native oak trees protected under the Ordinance, while those selected to remain will undergo sustainable impacts using the Tree & Root Zone Protection Guidelines enclosed.

The following pages contain my evaluation.



Timothy C. Ghirardelli  
CONSULTING ARBORIST  
WC ISA CERTIFIED ARBORIST WE #0704 A

## Construction Impact Evaluation

Most nutrient and water absorbing roots that sustain the trees can be found in the top 6 to 12 inches of soil. Raising or lowering grades just 4 to 6 inches, or trenching and compacting soils with equipment within natural tree canopies will all affect tree health and longevity.

Construction impact ratings are intended to serve as a guideline for evaluating the long term sustainability of trees as a result of impacts. Trees are evaluated to determine the potential impact of construction relative to their location on the site plan. Tree impact ratings are estimated and limited to the plan set provided. The rating system measures to canopy edges to establish the critical root zone. Viewing canopy edges as one hundred percent of the critical root zone, proposed impacts are rated in percentages of root loss to the critical area. The more root loss that occurs to a tree, the less it will be able to survive. Tree species, age, health and vigor influence impact ratings.

---

### **High Impact**

Trees in the High Impact category are considered to be at, or beyond the maximum range of root loss for that specimen. Trees in this category are unlikely to sustain the proposed impacts for the long term. A significant change in the proposed plan is required in order to retain the tree. Specific recommendations are required from the Arborist to reduce proposed impacts.

- Grade cuts, fills and/or alterations that result in root loss to 30% and greater of the critical root zone.

### **Moderate Impact**

Trees in the Moderate Impact category are considered to be within the range of sustainable root loss for that specimen. Trees in this category undergo alterations that require specific recommendations from the Arborist to reduce proposed impacts.

- Grade cuts, fills and/or alterations that result in root loss to less than 30% of the root zone.

### **Low Impact**

Trees in the Low Impact category are considered to be well within the acceptable range of root loss for that specimen. Trees in this category may require specific recommendations from the Arborist to reduce proposed impacts.

- Grade cuts, fills at canopy edges or beyond and/or supervised alterations within the canopy.

# Tree Survey

Tree No.	Species	Size @ 54"	<sup>1</sup> Health Vigor	L O T	<sup>3</sup> Const. Impacts	Remove	<sup>2</sup> Retention Rating	Comments
401	Valley oak ( <i>Quercus lobata</i> )	18	Good	A	Low Moderate		Good	Adjacent to existing drain & overhead utilities and proposed road.
402	Valley oak ( <i>Quercus lobata</i> )	12	Good	A	Moderate		Good	Topped selectively/utility clearance. Adjacent to proposed road.
403	Almond ( <i>Prunus dulcis</i> )	9/11	Poor	A	Low		Poor	In decline, over mature. Adjacent to proposed road.
404	Almond ( <i>Prunus dulcis</i> )	6	Poor	A	None		Poor	In decline, over mature. Located beyond immediate are of proposed construction.
405	Almond ( <i>Prunus dulcis</i> )	10	Poor	A	Low		Poor	In decline, over mature. Adjacent to proposed road.
405a	Siberian Elm ( <i>Ulmus pumila</i> )	20	Fair	A	Low		Fair Poor	Adjacent to existing/proposed entry road. Over mature, canopy dieback observed.
405b	Siberian Elm ( <i>Ulmus pumila</i> )	24	Fair	A	Low		Fair Poor	Adjacent to existing/proposed entry road. Over mature, canopy dieback observed.
405c	Live oak ( <i>Quercus agrifolia</i> )	10	Good	1	Low None		Good	Located up steep slope above proposed bioswale construction.
406	Monterey pine ( <i>Pinus radiata</i> )	28	Fair	A	Low Moderate		Poor	Over mature, leans west, codominant with #407. Adjacent to potential construction staging area.
407	Monterey pine ( <i>Pinus radiata</i> )	27	Good	A	Low Moderate		Poor	Over mature, leans west, codominant with #406. Adjacent to potential construction staging area.
408	Valley oak ( <i>Quercus lobata</i> )	10/18/1 2	Good	1	High	✓	Good	Requires removal to facilitate construction.
409	Valley oak ( <i>Quercus lobata</i> )	18	Good	1	None		Good	Located up slope at south property boundary beyond the immediate area of proposed construction.
410	Valley oak ( <i>Quercus lobata</i> )	8/10/7/ 13	Good	1	None		Good	Located up slope at south property boundary beyond the immediate area of proposed construction.
411	Live oak ( <i>Quercus agrifolia</i> )	12/10/8/ 8	Good	2	High	✓	Good	Requires removal to facilitate grading.
412	Valley oak ( <i>Quercus lobata</i> )	6	Good	2	High	✓	Good	Requires removal to facilitate grading. Suppressed structure below #411.
413	Valley oak ( <i>Quercus lobata</i> )	7	Good	2	High	✓	Good	Requires removal to facilitate construction of pad. Suppressed structure from #414
414	Monterey pine ( <i>Pinus radiata</i> )	13	Good	2	High	✓	Poor	Requires removal to facilitate construction of pad. Over mature.
415	Valley oak ( <i>Quercus lobata</i> )	10	Good	2	High	✓	Good	Requires removal to facilitate construction of pad. Suppressed structure from #414, prostrate structure.
416	Monterey pine ( <i>Pinus radiata</i> )	17	Fair	2	High	✓	Poor	Requires removal to facilitate construction of pad. Over mature.

<sup>1,2,3</sup> See Tree Health Evaluation    <sup>A</sup> Adjoining Property-metal tags/tree numbers located on fence adjacent to trees

# Tree Survey

Tree No.	Species	Size @ 54"	<sup>1</sup> Health Vigor	L O T	<sup>3</sup> Const. Impacts	Remove	<sup>2</sup> Retention Rating	Comments
417	Valley oak ( <i>Quercus lobata</i> )	7	Good	2	High	✓	Good	Requires removal to facilitate construction of pad. Transplant candidate.
418	Monterey pine ( <i>Pinus radiata</i> )	18	Fair	2	Low		Poor	Over mature. Beyond the immediate area of proposed construction.
419	Valley oak ( <i>Quercus lobata</i> )	10/8	Good	2	Low		Good	Located on higher elevations beyond the immediate area of proposed construction.
420	Valley oak ( <i>Quercus lobata</i> )	12/8	Fair	3	Low		Good	Located on higher elevations beyond the immediate area of proposed construction.
420a	Live oak ( <i>Quercus agrifolia</i> )	8/10/7/6	Good	3	High	✓	Good	Requires removal to facilitate construction of pad.
420b	Live oak ( <i>Quercus agrifolia</i> )	14	Good	A	Low None		Good	Located on adjoining property. Canopy extends approximately 16 ft. into subject property adjacent to construction of Lot 3 pad.
421	Valley oak ( <i>Quercus lobata</i> )	36	Fair	2	None		Good	Located on higher elevations beyond the immediate area of proposed construction. Leans moderately to north.
422	Valley oak ( <i>Quercus lobata</i> )	23	Fair	3	High	✓	Good Fair	Requires removal to facilitate proposed grading. Wall configuration allows the retention of native grove trees #423-#436.
423	Valley oak ( <i>Quercus lobata</i> )	13	Good	3	Moderate Low		Good	Adjacent to wall construction. In grove, suppressed structure below #425 & #426.
424	Valley oak ( <i>Quercus lobata</i> )	8	Fair	3	Low		Good	In grove, suppressed structure below #423. Any alterations within the grove require review.
425	Valley oak ( <i>Quercus lobata</i> )	9/16	Fair	3	None		Good	In grove, co dominant with #425. Any alterations within the grove require review.
426	Valley oak ( <i>Quercus lobata</i> )	14/14/1 6	Fair	3	None		Good	In grove, dominant canopy of grove. Any alterations within the grove require review.
427	Valley oak ( <i>Quercus lobata</i> )	8	Poor	3	None		Poor	Suppressed, in decline. Any alterations within the grove require review.
428	Valley oak ( <i>Quercus lobata</i> )	16	Fair	3	None		Fair	Suppressed, in decline. Any alterations within the grove require review.
429	Valley oak ( <i>Quercus lobata</i> )	20	Excellent	3	None		Good	Dominant canopy leans South. Any alterations within the grove require review.
430	Valley oak ( <i>Quercus lobata</i> )	18	Fair	3	None		Fair/Poor	Suppressed structure from #429 & #428. Any alterations within the grove require review.
431	Valley oak ( <i>Quercus lobata</i> )	30	Good	3	None		Good	Dominant canopy. Any alterations within the grove require review.
432	Valley oak ( <i>Quercus lobata</i> )	10	Fair	3	None		Poor	Suppressed below #431. Any alterations within the grove require review.

<sup>1,2,3</sup> See Tree Health Evaluation    <sup>A</sup> Adjoining Property-metal tags/tree numbers located on fence adjacent to trees



# Tree Survey

Tree No.	Species	Size @ 54"	<sup>1</sup> Health Vigor	L O T	<sup>3</sup> Const. Impacts	Remove	<sup>2</sup> Retention Rating	Comments
433	Valley oak ( <i>Quercus lobata</i> )	8	Fair/Poor	4	Low		Poor	Adjacent to proposed drainage discharge field from bioswale. In grove, suppressed structure below #431.
434	Valley oak ( <i>Quercus lobata</i> )	19	Good	4	Moderate		Good	Adjacent to proposed bioswale and drainage discharge field from bioswale. In grove, dominant canopy, leans East.
435	Valley oak ( <i>Quercus lobata</i> )	20	Good	4	Moderate		Good	Adjacent to proposed bioswale and wall construction. In grove suppressed, interesting, leans North.
436	Valley oak ( <i>Quercus lobata</i> )	11/15/9	Good	4	Moderate		Good	Adjacent to proposed wall construction. In grove, co dominant within grove, nice.
437	Live oak ( <i>Quercus agrifolia</i> )	24	Good	4	High	✓	Good	Requires removal to facilitate proposed pad. Dominant canopy.
438	Valley oak ( <i>Quercus lobata</i> )	21	Good	4	Moderate		Good	Grading shown within the canopy to facilitate construction of the pad. Dominant canopy.
439	Arizona cypress ( <i>Cupressus arizonica</i> )	23	Fair/Poor	4	None		Poor	Over mature. Poor suitability to future environment. Provides short-term screen between properties.
440	Arizona cypress ( <i>Cupressus arizonica</i> )	24	Fair/Poor	4	None		Poor	Over mature. Poor suitability to future environment. Provides short-term screen between properties.
441	Arizona cypress ( <i>Cupressus arizonica</i> )	23/15/17	Fair/Poor	4	None		Poor	Over mature. Poor suitability to future environment. Provides short-term screen between properties.
442	Monterey pine ( <i>Pinus radiata</i> )	48	Poor	5	High		Poor	Adjacent to proposed road and drainage element. In decline, evidence of pitch canker, a disease that will affect other pines nearby. Poor suitability to future environment.
443	Live oak ( <i>Quercus agrifolia</i> )	18	Excellent	4	High	✓	Excellent	Requires removal to facilitate road construction.
444	Live oak ( <i>Quercus agrifolia</i> )	10/12	Good	4	Moderate		Good	Adjacent to proposed grading and wall construction. In grove, dominant canopy. Provides screen between properties.
445	Live oak ( <i>Quercus agrifolia</i> )	8	Good	4	Moderate		Fair/Poor	Adjacent to proposed grading and wall construction. Provides screen between properties. In grove, suppressed structure below #444.
446	Live oak ( <i>Quercus agrifolia</i> )	18	Good	4	Low None		Good	Adjacent to proposed grading and wall construction. Provides screen between properties. In grove, dominant canopy.
447	Live oak ( <i>Quercus agrifolia</i> )	8/9/10	Good	4	High	✓	Fair	Requires removal to facilitate road construction. Dominant canopy. Included bark structure.

<sup>1,2,3</sup> See Tree Health Evaluation    <sup>A</sup> Adjoining Property-metal tags/tree numbers located on fence adjacent to trees

# Tree Survey

Tree No.	Species	Size @ 54"	<sup>1</sup> Health Vigor	L O T	<sup>3</sup> Const. Impacts	Remove	<sup>2</sup> Retention Rating	Comments
448	Arizona cypress ( <i>Cupressus arizonica</i> )	10/10/9	Fair	6	None		Poor	Structure at risk of failure. Provides short-term screen between properties.
449	Arizona cypress ( <i>Cupressus arizonica</i> )	7/12/9/8	Fair	6	None		Poor	Structure at risk of failure. Provides short-term screen between properties.
450	Valley oak ( <i>Quercus lobata</i> )	9	Good	6	Low		Good	Grading is proposed to lower pad elevations to maintain neighbor views while also retaining the tree. Suppressed structure below #451.
451	Valley oak ( <i>Quercus lobata</i> )	20	Good	6	Moderate Low		Good	Grading is proposed to lower pad elevations to maintain neighbor views while also retaining the tree. Dominant canopy.
452	Valley oak ( <i>Quercus lobata</i> )	16/20	Good/ Excellent	6	Moderate Low		Excellent	Grading is proposed to lower pad elevations to maintain neighbor views while also retaining the tree. Dominant canopy.
453	Valley oak ( <i>Quercus lobata</i> )	24	Good/ Excellent	6	High	✓	Excellent	Requires removal to facilitate bioswale construction. Relocating or reconfiguring the bioswale may allow retention of this specimen quality tree. Dominant canopy.
454	Valley oak ( <i>Quercus lobata</i> )	16	Good	7	None		Excellent	Located on lower elevations beyond proposed construction. Dominant canopy.
455	Valley oak ( <i>Quercus lobata</i> )	49	Good	7	Low		Good	Proposed DS connection at canopy edges to south. Dominant canopy, cavity in primary structure.
456	Live oak ( <i>Quercus agrifolia</i> )	7/10/12	Good	7	None		Good	Located on lower elevations beyond proposed construction. Dominant canopy.
457	Valley oak ( <i>Quercus lobata</i> )	10/25	Good	7	None		Good	Located on lower elevations beyond proposed construction. Dominant canopy.
458	Monterey pine ( <i>Pinus radiata</i> )	28	Fair/Poor	7	None		Poor	Located on lower elevations beyond proposed construction. Over mature, interdependent structure with #459 & #460.
459	Monterey pine ( <i>Pinus radiata</i> )	34	Fair/Poor	7	None		Poor	Located on lower elevations beyond proposed construction. Over mature, interdependent structure with #459 & #460.
460	Monterey pine ( <i>Pinus radiata</i> )	32	Fair/Poor	7	None		Poor	Located on lower elevations beyond proposed construction. Over mature, interdependent structure with #459 & #460.
461	Valley oak ( <i>Quercus lobata</i> )	17	Good	A	None		Good	Located on adjoining property. Canopy affected by competition from #460.
462	Live oak ( <i>Quercus agrifolia</i> )	18	Good/ Excellent	8	Low		Excellent	Drainage proposed on higher elevations beyond the canopy alters natural drainage away from tree. Dominant canopy.
463	Monterey pine ( <i>Pinus radiata</i> )	36	Dead	8	None		Dead	Evidence of pine pitch canker, borers. Removal eliminates risks of pest and disease proliferation.

<sup>1,2,3</sup> See Tree Health Evaluation    <sup>A</sup>Adjoining Property

# Tree Survey

Tree No.	Species	Size @ 54"	<sup>1</sup> Health Vigor	L O T	<sup>3</sup> Const. Impacts	Remove	<sup>2</sup> Retention Rating	Comments
464	Arizona cypress ( <i>Cupressus arizonica</i> )	24/10/9/ 11	Fair	8	Low		Poor	Adjacent to proposed drainage and 10'ft easement. Mature, stressed and not suited to future environment.
465	Arizona cypress ( <i>Cupressus arizonica</i> )	13	Fair	8	Low		Poor	Adjacent to proposed drainage and 10'ft easement. In grove, structural failures in main stem. Mature, stressed and not suited to future environment.
466	Arizona cypress ( <i>Cupressus arizonica</i> )	13	Fair	9	Low none		Poor	Adjacent to proposed drainage and 10'ft easement. In grove, leans North severely, prone to failure. Mature, stressed and not suited to future environment.
467	Arizona cypress ( <i>Cupressus arizonica</i> )	24	Fair	9	Low		Poor	Adjacent to proposed drainage and 10'ft easement. Dominant tree within grove. Not suited to future environment.
468	Arizona cypress ( <i>Cupressus arizonica</i> )	12	Poor	9	Low None		Poor	Adjacent to proposed drainage and 10'ft easement. In grove, in decline. Not suited to future environment.
469	Monterey pine ( <i>Pinus radiata</i> )	42	Good	9	Moderate Low		Fair/Poor	Adjacent to proposed grading for the pad. Mature, stressed and not suited to future environment.
470	Monterey pine ( <i>Pinus radiata</i> )	18	Fair	9	None		Poor	Mature, stressed and not suited to future environment.
471	Monterey pine ( <i>Pinus radiata</i> )	20	Fair	9	None		Poor	Located on higher elevations above proposed road. Leans East. Mature, stressed and not suited to future environment.
472	Monterey pine ( <i>Pinus radiata</i> )	20	Dead	9	None		Dead	Dead. Located on higher elevations above proposed road.
473	Monterey pine ( <i>Pinus radiata</i> )	20	Poor	9	None		Poor	In decline, evidence of pine pitch canker. Removal eliminates risks of pest and disease proliferation.
474	Monterey pine ( <i>Pinus radiata</i> )	32	Poor	9	Moderate		Poor	Adjacent to proposed grading for the pad. Leans severely to South, past branch failures observed. Risks of structural failure are moderately high.
475	Valley oak ( <i>Quercus lobata</i> )	15	Excellent	9	High	✓	Excellent	Requires removal to facilitate construction of the proposed road.
476	Arizona cypress ( <i>Cupressus arizonica</i> )	18/18/1 0	Poor	9	None		Poor	Mature, not suited to future environment.
477	Arizona cypress ( <i>Cupressus arizonica</i> )	10	Good	9	High	✓	Poor	Requires removal to facilitate construction of drainage. Mature, not suited to future environment.
478	Arizona cypress ( <i>Cupressus arizonica</i> )	12	Good	9	Moderate Low		Poor	Adjacent to proposed drainage and 10'ft easement. Mature, not suited to future environment.

<sup>1,2,3</sup> See Tree Health Evaluation    <sup>A</sup> Adjoining Property-metal tags/tree numbers located on fence adjacent to trees

# Tree & Root Zone Protection Guidelines

## A. Tree Evaluation & the Affects of Construction

General Tree & Root Zone Protection Guidelines are provided as a guideline to mitigate the impacts to trees that will occur as a result of development. Most nutrient and water absorbing roots that sustain the trees can be found in the top 6 to 12 inches of soil. Raising or lowering grades just 4 to 6 inches, or trenching and compacting soils with equipment within natural tree canopies will all affect tree health and longevity.

B. Any tree to be retained within the construction envelope will require special considerations during planning and throughout the construction process. A good working relationship between the Arborist and contractor and a clear understanding of contractor issues relative to arboricultural issues is essential to avoid any debilitating tree damage. The Arborist shall be on site for each phase where alterations occur within the canopy of trees selected to remain.

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## Summary of six key construction phases to navigate with the Project Arborist:

- 1) **Pre-construction:** Review the site with the Arborist prior to alterations to identify specific site limitations such as vehicle access and material handling and equipment storage. Review methods needed to retain valuable trees. Discuss protective tree fencing.
  - 2) **Protective tree fencing:** Prior to any alterations, proper fence placement is key to limiting damages to trees selected to remain. Identify protective tree fencing locations with marking paint on ground. Review site limitations and discuss non-invasive alternatives.
  - 3) **Grading:** Raising or lowering grades is the single most destructive process to trees. There is no substitute for understanding sustainable limits and employing effective solutions.
  - 4) **Trenching:** Severing roots can destabilize tree structure and result in rapid decline. Review proper techniques and guidelines prior to any trenching.
  - 5) **Construction:** Requirements for space, access and storage places high demands near trees. Soil becomes compacted under material or equipment weight below unprotected tree canopies resulting in root suffocation and long-term tree decline. Periodic review of the site is needed to assess tree health and review protective measures.
  - 6) **Landscaping:** Any requirement for landscape plantings proposed within the canopy of existing trees shall require review. Trenching for irrigation, hardscape construction and the installation of incompatible plants can be just as traumatic to tree health as any of the above can be.
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## **1. Root Zone Protection Prior to, and During Construction**

- 1.1 Prior to any approved activity, assign a confined, dedicated area for material and equipment storage away from the established tree canopies and the immediate project area.
- 1.2 Prior to any grading or construction install chain-link fencing or approved equal at canopy edges to establish the critical root zone for all trees to be retained on the subject and adjoining properties.
- 1.3 Fencing shall be a minimum of 6-feet high with steel posts on 8-10-foot centers driven directly into the ground.
- 1.4 Any approved construction inside protected tree canopies shall route fencing accordingly and return to canopy edges (see Section 5-Access Guidelines).
- 1.5 Apply a 4 to 6 inch layer of mulch to the root zone of trees directly affected by construction.
- 1.6 All protective fencing shall remain in place throughout the construction process.
- 1.7 Trees may require supplemental irrigation as determined by the Project Arborist prior to, during and after construction. Water connections must be made available exclusively for impacted trees.
- 1.8 Any necessary grading or trenching shall avoid routes inside, through or between protected tree canopies. Unavoidable paths inside tree canopies shall adhere to Hand Trenching Guidelines, section 4.
- 1.9 Grading, trenching or any approved alterations within protected tree canopies shall be monitored by the Project Arborist.

## **2. Pruning Prior to Construction**

- 2.1 Any pruning and clearance work directly related to construction will occur under Project Arborist direction prior to construction.
- 2.3 All pruning shall be completed by approved Certified Arborists familiar with the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A-300) and Best Management Practices for Pruning published the International Society of Arboriculture.
- 2.4 Additional pruning to manage tree structure, shape, and balance and remove deadwood throughout the trees will reduce insect and disease problems and serve as an indicator to monitor ongoing tree health.

## **3. Landscape Construction**

- 3.1 Planting shall remain no closer than 4-feet from the tree trunk of non-native trees. Planting adjacent to native trees shall maintain a distance of 10-feet from the trunk and no more than one-third of the tree canopy. Plants shall be 1 to 5 gallon in size, drought tolerant, and suited to the conditions in which native plants thrive.
- 3.2 Rototilling, soil disturbance or import soil shall not be introduced within the canopy of existing trees.
- 3.3 All irrigation supply lines, drainage and electrical conduits for lighting shall observe Hand Trenching Guidelines.

## **4. Hand Trenching Guidelines—Utilities, Drainage, Conduits.**

- 4.1 The process of hand trenching shall be used to minimize trauma to protected trees inside the tree canopy. Excavation is performed by hand and careful equipment operation under the direction of the Project Arborist.
- 4.2 Hand trenching leaves roots 2-inches and larger undisturbed. Soil is removed from under and around tree roots to form the necessary trench.
- 4.3 Roots larger than 2-inches may only be removed with the approval of the Project Arborist.
- 4.4 Roots less than 2 inches must be pruned with loppers or hand saw.

## **5. Access Guidelines—Equipment, Pedestrian & Material Handling**

- 5.1 All alternative routes shall be explored to avoid access inside the natural tree canopy or Critical Root Zone. Access inside the Critical Root Zone shall adhere to the following procedures under the direction of the Project Arborist:
- 5.2 To create an access corridor, apply a 6-inch layer of wood chips or mulch by hand without equipment access on the soil surface over the selected access route.
- 5.3 Distribute  $\frac{3}{4}$  thick or greater Plywood over wood chips to laterally disperse heavy equipment weights and reduce soil compaction.
- 5.4 Maintain the access corridor with protective fencing on each side of the path as long as it is required to access this area of the project.
- 5.5 Preferred/approved alternative root zone protection applications include Geoweb products. A cellular confinement system that laterally disperses vertical weights throughout the applied area.
- 5.6 Trees in close proximity to construction activity inside the tree canopy shall apply straw wattles directly to the trunk. Wattles shall be attached around the tree from ground level to 5-feet above grade for protection of direct contact from equipment or materials. All applications shall be non-invasive and deconstructed by hand following project completion.

## **6. Arborist's Supplemental Reports**

- 6.1 Post grading and construction to include a summary of existing tree health and supplemental recommendations as necessary.
- 6.2 12-24 months following construction provide a summary of existing tree health and supplemental recommendations as necessary.

# Tree Health Evaluation

Several factors are involved in the evaluation process. Healthy, vigorous trees are better able to tolerate impacts such as root injury, soil compaction and changes in soil moisture than are trees that are in poor condition prior to impact. The tree Health & Vigor ratings below provide an initial guideline for evaluating tree health. Trees with a Health & Vigor Rating of *excellent* or *good* will be more likely to survive development trauma than those with *fair* or *poor*.

## <sup>1</sup>Health & Vigor Rating:

<b>Excellent</b>	A healthy, vigorous tree relatively free of signs and symptoms of disease.
<b>Good</b>	Tree with normal shoot elongation, interior dead wood, manageable twig dieback, and/or pest problems. Tree structure may influence considerations.
<b>Fair</b>	Tree with moderate amounts of twig and branch dieback, thinning canopy, reduced vigor, wounds that are slow to recover, with 65 to 80% of the canopy alive. May have poor branch structure and/or suppressed canopy. May have conditions that are manageable to improve tree health.
<b>Poor</b>	Tree with dieback of large limbs, large wounds with little callus growth, visible decay, and 30 to 60% of the canopy alive. Tree may also have dieback and decay in primary in scaffold limbs and/or trunk structure. May have large cavities and be structurally unsound beyond any reasonable management.

## Retention Rating---Factors Considered in the Evaluation of Trees Suitable for Retention

### 1. Tree Location, Structure and Competition

The location of the tree is considered with respect to the future environment. Site development increases the frequency of use thereby increasing the concern for structural deficiencies or trees in decline that might become a liability. Trunks and limbs are visually examined to evaluate structural defects and decay that could lead to breakage, or failure.

### 2. Species Tolerance

Trees respond to environmental changes according to individual genetic ability. For example, Coast live oaks are more capable of withstanding development trauma than Valley oaks similar in size condition and relative construction impacts. Considerations also include age and longevity

### 3. Contribution

Contribution refers to the evaluation of individual, and/or grove characteristics to the site, neighborhood and benefits to the public. Factors also weigh the above Health/Vigor assessments and both function and aesthetic:

Functional considerations may include species, age and longevity, structure, stability and risks, benefits that include shade, screening and/or sun protection, wildlife habitat or ecological considerations, and the effects of competition.

Aesthetic considerations may include species importance, rarity or uniqueness, natural or exotic, visual interest including seasonal and structural features, appearance and placement in the environment.

## <sup>2</sup>Retention Rating

<b>Excellent</b>	Ideal specimen both functionally and aesthetically with good health and longevity.
<b>Good</b>	Tree suited to retention for the long term. Individual characteristics are weighed. Any health or structural concerns are manageable with reasonable care.
<b>Fair</b>	Tree may have age, health, and/or structural concerns that may, or may not be manageable. Aesthetics are likely to be affected or affect other more valuable trees. Removal may benefit others.
<b>Poor</b>	Tree is likely to be in decline and/or have non-manageable structural concerns. Removal is likely to benefit others.

## <sup>3</sup>Proposed Construction Impacts

<b>High Impact:</b>	Impacts that are at, or beyond the maximum range of root loss. Significant changes in the proposed plan are required in order to retain the tree. Specific recommendations are required from the Arborist to reduce proposed impacts.
<b>Moderate Impact:</b>	Impacts considered to be within the range of sustainable root loss. Specific recommendations are required from the Arborist to reduce proposed impacts.
<b>Low Impact:</b>	Minor impacts well within the sustainable range of root loss. Arborist supervised alterations within the tree canopy are required.

