APPENDIX F

BIOLOGICAL RESOURCES DATA

APPENDIX F1:
PROJECT BIOLOGICAL RESOURCE ASSESSMENT

Biological Resource Assessment for The Terraces of Lafayette

Lafayette, California

March 17, 2011

Prepared for:

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SUMMARY

Marylee Guinon, biological consultant, along with Jeff Olberding and Chris Bronny of Olberding Environmental conducted a reconnaissance-level biological assessment for the approximate 22.26-acre site for the proposed Terraces of Lafayette project in Lafayette, Contra Costa County, California.

Biologists Marylee Guinon and Jeff Olberding conducted a site reconnaissance on March 8, 2011. This report presents our findings and is intended to assist the City of Lafayette in the review process for the proposed project. Chris Bronny conducted a site assessment and formal wetland delineation and jurisdictional determination for the subject property on March 11, 2011 in accordance with the procedures outlined in the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2006)*. The Preliminary Wetland Jurisdictional Determination map is included in a map pocket (Appendix E) and the actual wetland report is in preparation by Olberding Environmental (anticipated to be completed in April 2011). Furthermore, Chris Bronny conducted focused protocol surveys for special status plant species on March 11, 2011. This report is also in preparation by Olberding Environmental and is anticipated to be completed at the conclusion of the protocol plant surveys, which are timed with anticipated blooming periods of particular target species.

Focused wildlife surveys were not conducted as part of this reconnaissance-level site evaluation. However, based on the reconnaissance survey, the highly disturbed nature of this site, and an assessment of habitats on site, certain special-status animal species are not expected to occur or can be entirely ruled out. Findings concluded that there is potential for nesting birds in the trees and grasslands, and potential for roosting bats in a few structures and trees on the site. Potential impacts to these wildlife species can be avoided by conducting pre-construction surveys, and if wildlife is detected, appropriate avoidance measures will be taken. In the event an active nest is found, construction setbacks can avoid disturbance until birds have fledged. In the event roosting bats are found in a structure prior to construction, these can be evicted prior to demolition by qualified biologists to fully avoid impacts. Trees slated for removal can be removed prior to the nesting season to avoid conflicts with potential nesting birds and construction. No federal- or state-listed sensitive plant and wildlife species are expected to occur at this site.

Based on the site evaluation, the study area contains jurisdictional waters or wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB). Jurisdictional features include a riparian drainage at the east portion of the site, and a small seasonal wetland in a depression near the Caltrans right-of-way (Appendix E). The March 11, 2011 site visit was conducted at an optimal to detect jurisdictional wetlands and waters because the visit followed significant rains. The creek drainage feature is regulated by the USACE, California Department of Fish and Game (DFG), and the Regional Water Quality Control Board (RWQCB).

Based on the present study, five of the 52 potentially occurring special-status plant species considered in this analysis have a low probability of occurring in the study area, due to lack of suitable habitat. Two of the five potential special-status plant species would have been detectable during the site visit, and their absences were confirmed in March 2001 survey by botanist, Chris Bronny. Further protocol plant studies will be conducted to determine species presence or absence for the remaining three annual species (Appendix A).

Within the study area, the potential presence of several special-status wildlife species in this region were ruled out, including Western pond turtle, a California species of special concern, California red-legged frog, a federally listed threatened and California species of special concern, foothill yellow-legged frog, a California species of special concern, and Alameda whipsnake, federally listed threatened and California-listed threatened species. The site is highly disturbed but does support a riparian drainage feature that crosses the eastern portion of the site before entering a storm drain, which ultimately drains to Las Trampas Creek. Several special-status bird and bat species have a high potential to nest, forage, or roost on site due to the presence of shrubs, grasslands, trees, and structures. Common bird species, which receive protection under DFG Code and the Migratory Bird Treaty Act, have a potential to nest on the site (Appendix B).

Based on our findings and an assessment of regional species occurrences and on-site habitats, we recommend the following measures:

Pre-construction surveys for nesting raptors and other birds, and roosting bats should be conducted prior to any tree removal, pruning of limbs, removal of structures, grading, or initiation of any construction activities.

1.0 INTRODUCTION AND METHODS

O'Brian Land Company contracted with Marylee Guinon and Olberding Environmental to conduct a reconnaissance-level biological assessment, formal jurisdictional wetland delineation, and protocol rare plant surveys for the 22.26-acre Terraces of Lafayette project located near the intersection Pleasant Hill Road and Deer Hill Road in Lafayette, Contra Costa County, California (Figure 1). The site is bordered by Highway 24, Pleasant Hill Road and Deer Hill Road. The study area coincides with the proposed project site, *i.e.* it was not deemed necessary to expand the study area to evaluate potential biological resources. In this report the project area is synonymous with the study area. This report presents the results of our site reconnaissance and background research, and includes a discussion of the existing conditions on site. Recommendations for further studies and focused biological surveys are also provided.

Biologists Marylee Guinon, Jeff Olberding and Chris Bronny conducted a site reconnaissance on March 8 and 11, 2011. The entire study area was surveyed on foot, including the property boundary to evaluate drainage patters on adjacent parcels. Prior to conducting fieldwork, a search was made of the California Natural Diversity Data Base (CNDDB and CDFG 2007a). Also reviewed were biological studies for other properties in the vicinity of the study area. We understand there is a biological report prepared by Nomad consultants for the City of Lafayette, for a larger study area that also includes this parcel.

We were not able to attain that report, but intend to incorporate its findings in the subsequent wetland and rare plant reports that are currently in preparation.

This survey was intended to evaluate potentially on-site habitat types (including wetlands and waters or the U.S.) and an assessment of the potential for occurrence of special-status plant and wildlife species. Focused wildlife surveys were not conducted as part of this reconnaissance-level site evaluation. However, based on the reconnaissance survey, the highly disturbed nature of this site, and an assessment of habitats on site, special-status animal species are not expected to occur or can be entirely ruled out. Findings concluded that there is potential for nesting or foraging birds in the trees and grassland, and potential for roosting bats in a few structures and trees on the site. Potential impacts to these species can be avoided by conducting pre-construction surveys. In the event an active nest is found, construction setbacks can avoid disturbance until birds have fledged. In the event roosting bats are found prior to demolition and construction, these can be evicted by qualified biologists to fully avoid impacts. No other sensitive plant and wildlife species are expected to occur at this site.

Chris Bronny of Olberding Environmental conducted a formal wetland delineation and jurisdictional determination for the subject property during the March 11, 2011 site visit in accordance with the procedures outlined in the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2006).* Based on the site evaluation, the study area contains jurisdictional waters and wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB). The March 2011 site visit was conducted at an optimal time to detect jurisdictional wetlands and waters because the visit followed significant rains. The site supports a riparian drainage crossing the eastern portion of the site and a small seasonal wetland near the Caltrans right-of-way. In addition, the California Department of Fish and Game (DFG) regulates the riparian drainage.

Nomenclature used throughout this report conforms to Hickman (1993) for plants except where noted. Nomenclature for special-status plant species conforms to the California Department of Fish and Game (CDFG 2007b, c) and the California Native Plant Society (CNPS 2001, 2007); nomenclature for special-status animals conforms to the California Department of Fish and Game (CDFG 2006a, b); nomenclature for sensitive natural communities conforms to the California Department of Fish and Game (CDFG 2003, Holland 1986). Nomenclature for wildlife conforms to Sibley (2003) for birds, Stebbins (2003) for reptiles and amphibians, and Jameson Jr. and Peeters (2004) for mammals.

Figure 1. Project Vicinity Map

2.0 EXISTING CONDITIONS

2.1 Setting

The study area encompasses approximately 22.26 acres of land situated west of Pleasant Hill Road, south of Deer Hill Road, and north of Highway 24. The site is in the City of Lafayette just east of the downtown. Three major roadways border the study area, which is interspersed with buildings, asphalt paving and driveways. The site was mined historically and modified by Caltrans when constructing Highway 24. Outbuilding and storage sheds have potential to support bat species; however no sign of roosting bats was detected during the March visit. A detailed tree survey report is being prepared by Traverso, consulting arborist. This report describes and maps the larger native and ornamental trees that have the potential to support nesting birds, and that will be the target for pre-construction nesting surveys.

2.2 Plant Communities and Wildlife Habitats

The Property supports five habitat types that consist of non-native grassland, disturbed/ruderal herbaceous, seep, coast live oak woodland and riparian habitat along the drainage (which supports elements of arroyo willow thickets and poison hemlock patches). Each habitat is described in further detail below. A description of the plant and wildlife species present within each habitat type is provided below. Dominant plant species are noted.

Non-Native Grassland

This semi-natural herbaceous stand has Avena spp. as the dominant or co-dominant species in the herbaceous layer. Other cool-season non-native annuals found in association with this habitat type include bromes (Bromus spp.), hare barley (Hordeum murinum), rat-tail fescue (Festuca myuros), and perennial rye-grass (Festuca perennis). Non-native broad-leaved forbs (i.e., wildflowers) observed included wild geraniums (Geranium dissectum and G. molle), filarees (Erodium cicutarium and E. botrys), common groundsel (Senecio vulgaris), spring vetch (Vicia sativa), California bur-clover (Medicago polymorpha), rose clover (Trifolium hirtum), and Venus' needle (Scandix pecten-veneris).

While no native grasses were detected, native forbs observed included fiddleneck (Amsinckia menziesii and A. intermedia), California poppy (Eschscholzia californica), soap plant (Chlorogalum pomeridianum), Clarkia (Clarkia sp.), and miner's lettuce (Claytonia perfoliata). A few scattered seedlings of California buckwheat (Eriogonum sp.) were also observed along the east-facing hillslopes.

Seeds and vegetative cover provided by the non-native grassland habitat provide an abundance of foraging opportunities for a variety of animals. Mammal species observed in the non-native grassland habitat include California ground squirrel (Spermophilus beecheyi). Other mammals that might be expected to occur in this habitat include field mouse (Peromyscus sp.), California vole (Microtus californicus), striped skunk (Mephitis mephitis), opossum (Didelphus virginianus), raccoon (Procyon lotor), red fox (Vulpes vulpes), and black-tailed deer (Odocoileus hemionus). Reptiles such as the gopher snake (Pituophis

melanoleuces) and common garter snake (Thamnophis sirtalis) may be present. The western fence lizard (Scelsporus occidentalis) was observed on the property. Amphibians that could utilize the non-native grassland habitat include the western toad (Bufo boreas).

A variety of bird species including black phoebe (Sayornis nigricans), house finch (Carpodacus mexicanus), house sparrow (Passer domesticus), mourning dove (Zenaida macroura), and Brewer's blackbird (Spizella breweri) were observed during the survey. Insects present in non-native grassland habitat provide food for species such as western meadowlark (Sturnella neglecta), blackbirds, loggerhead shrike (Lanius ludovicianus). Aerial foragers, including red-tailed hawk (Buteo jamaicensis), turkey vulture (Cathartes aura), and American crow (Corvus brachrhynchos) were also observed.

Disturbed /Ruderal Herbaceous

Disturbed/ruderal lands are those on which the native vegetation has been completely removed by grading, cultivation, and development. Disturbed areas include paved and unpaved roadways, quarries, vacant lots, developments, parking areas, and storage yards. Such areas are not expected to support any naturally occurring vegetation, although invasive native and non-native plant species frequently colonize disturbed sites. Landscaped lands are similarly disturbed, in that all or most of the native vegetation has been removed and replaced with ornamental species. Disturbed and landscaped areas have little potential to support unique or rare botanical resources.

In this semi-natural herbaceous stand, mustards (Brassica spp.) and wild radish (Raphanus sativus) are the dominant species in the herbaceous layer. On certain hillslopes of the Property, mustards formed nearly pure stands. Depending on the amount of disturbance to the edaphic layer from past grading activities associated with the Caltrans borrow site, frequent overlap was observed between this vegetative assemblage and plant species observed in the non-native grassland stands (see above). Other commonly observed co-dominant species included Italian thistle (Carduus pycnocephalus) and yellow-star thistle (Centaurea solstitialis); gravelly soils on the graded terraces often had stands of stinkweed (Dittrichia graveolens) and telegraphweed (Heterotheca grandiflora) intergrading with this habitat type.

Wildlife species associated with disturbed/ruderal lands identified on the subject property are similar to those occurring in the non-native grasslands. Several additional species observed on the property included European starling (Sturnus vulgaris), and killdeer (Charadrius vociferous). These species are also often associated with open disturbed substrates. Wildlife that feed upon seeds within ruderal and ornamental vegetation includes such species as finches, goldfinches, sparrows, and a variety of rodents.

Seep

A single seep feature was mapped in the south-central portion of the Property. This feature is an extremely shallow concave microtopographical feature that appears to pond water for brief hydroperiods during the rainy season and supports a mix of upland and hydrophytic species including black mustard (Brassica nigra), birdsrape mustard (Brassica rapa), bitter-

cress (Cardamine oligosperma), cut-leaf geranium (Geranium dissectum), and perennial rye-grass; green algae (Zygnema sp.) formed a biotic crust in the bare soil portions of the seep.

In addition to the species associated with non-native grassland habitats, the seasonal seep may attract aquatic invertebrates such as the pacific tree frog (Pseudacris regilla). Wading birds such as snowy egret (Egretta thula) and great egret (Ardea alba) may forage in these areas during wet conditions as well.

Coast Live Oak Woodland

A remnant of coast live oak woodland occurs along the eastern boundary of the Property. The extant oaks form a nearly monotypic stand, with a shrub and herbaceous groundlayer largely absent due to the presence of heavy leaf litter and closed canopy. They vary in age and size class, with most mature trees multitrunked and fairly large in diameter at breast height (dbh). Associate shrubs included a single blue elderberry (Sambucus mexicana), coyote brush (Baccharis pilularis), California bay laurel seedlings (Umbellularia californica), and a few adventive cultivars of firethorn (Pyracantha sp.) and olive (Olea europaea).

Oak woodlands serve as habitat to a wide variety of wildlife species. Grey squirrel (Sciurus carolinensis), raccoon, and a variety of bat species may roost or nest in cavities in oak trees.

3.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

Prior to conducting fieldwork, the California Natural Diversity Data Base was reviewed for the most recent distribution information for special-status plant and animal species within the project's quadrangle and the surrounding adjacent quadrangles.

Information on special-status plant species was compiled through a review of the California Native Plant Society's *Inventory of Rare and Endangered Plants of California* (CNPS 2001, 2007), the California Department of Fish and Game's *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFG 2007c) and *Special Vascular Plants, Bryophytes, and Lichens List* (CDFG 2007b), and the U.S. Fish and Wildlife Service's *Endangered and Threatened Wildlife and Plants; Proposed Rule* (USFWS 1996, 1997, 2001, 2004) and *Federal Endangered and Threatened Species List* for the region (USFWS 2007). Also reviewed was *Unusual and Significant Plants of Alameda and Contra Costa Counties* (Lake 2001).

Information on special-status animal species was compiled through a review of the California Natural Diversity Database (CDFG 2007a), the California Department of Fish and Game's *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2006b) and *Special Animals List* (CDFG 2006a), and the U.S. Fish and Wildlife Service's *Endangered and Threatened Wildlife and Plants; Proposed Rule* (USFWS 1996, 1997, 2001, 2004) and *Federal Endangered and Threatened Species List* for the region (USFWS 2007).

3.1 Special-Status Plants

Special-status plant species include those listed as endangered, threatened, rare or those species proposed for listing by the U.S. Fish and Wildlife Service (USFWS 1996, 1997, 2001, 2004), the California Department of Fish and Game (CDFG 2007b,c) and the California Native Plant Society (CNPS 2001, 2007). The California Native Plant Society's listing is sanctioned by the California Department of Fish and Game and serves essentially as their list of "candidate" plant species. The CNPS List 1B and List 2 species are considered eligible for state listing as endangered or threatened under the California Department of Fish and Game Code. Such species should be fully considered during preparation of environmental documents subject to the California Environmental Quality Act (CEQA). The CNPS List 3 and List 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and the California Native Plant Society and California Department of Fish and Game recommend that these species be evaluated for consideration during the preparation of CEQA documents.

Based on a literature review and a familiarity with the flora within the project region, a total of 52 special-status plant species were considered to have at least some potential to occur within the region or have been recorded historically in the project vicinity (Appendix A). Of those 52, only five species were determined to have a low potential to be present on site. There are several special-status plant species known from within 5 miles of the study area. The closest known occurrence of any special-status plant species is Diablo helianthella (*Helianthella castanea*), CNPS List 1B, over 3 miles east of the study area. This species was detectable during the March 11, 2011 plant survey, therefore is presumed absent. One of two extant native populations of California black walnut (*Juglans hindsii*), CNPS List 1B, is located west of the study area in Lafayette. Walnuts on this site will be evaluated by the consulting arborists and addressed in the rare plant report. At the time of our March 2011 surveys, there were no leaves on these trees to enable identification. Western leatherwood (Dirca occidentalis) has a low potential to occur on the site, and because it would have been detectable, it is presumed absent. Three other annual species, Bent-flowered fiddleneck (*Amsinckia lunaris*), round-leaved fillaree (*California macrophylla*), and Large-flowered fiddleneck (Amsinckia grandiflora) have a low potential to occur at this site and were not detected in March survey. However, additional surveys during blooming period will be conducted according to survey protocol. The rare plant report is anticipated in June 2011.

3.2 Special-Status Wildlife

Special-status animal species include those listed by the U.S. Fish and Wildlife Service under the federal Endangered Species Act (USFWS 1996, 1997, 2001, and 2004) and by the California Department of Fish and Game under the California Endangered Species Act (CDFG 2006a, b). The U.S. Fish and Wildlife Service officially lists species as either threatened, endangered, or as candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act (*e.g.*, bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA) and state protection under CEQA §15380(d). All birds, except European starlings, English house sparrows, and rock doves (pigeons), are protected

under the Migratory Bird Treaty Act. However, non-migratory game birds are protected under California Fish and Game Code §3503. Many other species are considered by the California Department of Fish and Game to be California species of special concern, listed in Remsen (1978), Williams (1986), and CDFG (2006b). In addition, the California Department of Fish and Game's California Natural Diversity Database tracks species within California for which there is conservation concern, including many which are not formally listed, and assigns them a CNDDB Rank (CDFG 2006a). Although California species of special concern and species that are tracked by the CNDDB but not formally listed are afforded no official legal status, they may receive special consideration during the CEQA review process. Although such species are afforded no official legal status, they may receive special consideration during the CEQA review process. The California Department of Fish and Game further classifies some species under the following categories: "Fully Protected", "Protected birds" (California Department of Fish and Game Code §3511), "Protected mammals" (California Department of Fish and Game Code §4700), "Protected amphibian" California Department of Fish and Game Code §5050 and Chapter 5, §41), "Protected reptile" (California Department of Fish and Game Code §5050 and Chapter 5, §42), and "Protected fish" (California Department of Fish and Game Code §5515). The designation "Protected" indicates that a species may not be taken or possessed except under special permit from California Department of Fish and Game; "Fully Protected" indicates that a species can be taken for scientific purposes by permit only (CDFG 2006a). The Fish and Game Code §§3503, 3505, and 3800 prohibits the take, destruction or possession of any bird, nest or egg of any bird except English house sparrows and European starlings unless express authorization is obtained from California Department of Fish and Game.

Based on a literature review and a familiarity with the fauna within the project region, a total of 65 special-status animal species were considered to have at least some potential to occur within the region or have been recorded historically in the project vicinity (Appendix B). Special status wildlife species associated with habitats not present on the site are not discussed in this report. For a full listing of all species considered as part of this project, see Appendix B. Those special-status species that have potential to occur on site and/or are prominent in the present regulatory environment are discussed in detail herein.

Invertebrates

Several special-status invertebrate species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species, including longhorn fairy shrimp (*Branchinecta longiantenna*), federally listed endangered, vernal pool fairy shrimp (*Branchinecta lynchi*), federally listed threatened, San Bruno elfin butterfly (*Desmocerus californicus dimorphus*), federally listed endangered, bay checkerspot butterfly (*Eupydryas editha bayensis*), federally listed threatened, vernal pool tadpole shrimp (*Lepidurus packardi*), federally listed endangered, California linderiella or California fairy shrimp (*Linderiella occidentalis*), a CNNDDB tracked species, and callippe silverspot butterfly (*Speyeria callippe callippe*), federally listed endangered. Potential habitat within the study area is absent; therefore these species are not expected to occur. There are no vernal pools or seasonal wetlands to support the fairy shrimp or tadpole shrimp species, and the study area is beyond the range of the valley elderberry longhorn beetle. There is also a lack of open hillside habitat and potential host plants that could

support for the listed butterfly species. The Antioch efferian robberfly is not expected to occur as there are no recent occurrences in the region nor open grassland habitat comparable to that of locations where robberfly occurrences have been recorded.

Bridges' Coast Range Shoulderband Snail

The Bridges' Coast Range shoulderband snail (*Helminthoglypta nickliniana bridgesii*), a species tracked by the California Natural Diversity Database, occurs in many habitats, including tall grassland, thistles, weeds, and rock piles. They have also been found underneath woody debris under streamside oak woodland (Roth 1999). The Bridge's Coast Range shoulderband snail range includes Contra Costa County and northern Alameda Counties. It has been recorded on the west slope of the Berkeley Hills and along San Pablo Creek, San Pablo Ridge above Wildcat Creek, Point Isabel, near the Caldecott Tunnel, Moraga Canyon, Coyote Gulch in Moraga, Marsh Creek Canyon, near Marsh Creek Springs, and Tilden Park (Roth 1999).

Potential habitat does exist for Bridge's Coast Range shoulderband snail on the site. There have been occurrences reported within five miles of the study area, including Parcel number 16 on Deer Hill Road. Because this species is a former candidate for listing by USFWS, distributional information on this snail is maintained by CNDDB. Additional surveys are not warranted.

Fish

Several special-status fish species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species, including green sturgeon (*Acipenser medirostris*), federally listed threatened and California species of special concern, Sacramento perch (*Archplites interruptus*), California species of special concern, tidewater goby (*Eucyclogobius newberryi*), federally listed endangered and California species of special concern, delta smelt (*Hypomesus transpacificus*), federally listed and state-listed threatened, central California coast ESU and central valley ESU steelhead, federally listed threatened, central valley spring run ESU and winter run ESU Chinook salmon (*Onchoryhncus tshawytscha*), federally listed and state-listed threatened and federally listed and state-listed endangered, respectively, and Sacramento splittail (*Pogonichthys macrolepidotus*), a California species of special concern. Due to the lack of suitable habitat, there is no potential for occurrence to fish species within the study area.

Amphibians

Several special-status amphibian species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species, including California tiger salamander (*Ambystoma californiense*), federally listed threatened and California species of special concern. However, based on the absence of suitable habitat, this species is not expected to occur on site (see Appendix B), but is discussed due its prominence in the regulatory environment and historical occurrences in the vicinity.

California Tiger Salamander

The California tiger salamander (Central Population), federally listed threatened and a California species of special concern, is a relatively large, terrestrial salamander that inhabits grasslands and oak savanna habitats in the valleys and low hills of central and northern California (Storer 1925, Stebbins 2003, Barry and Shaffer 1994, USFWS 2004). The California tiger salamander has been recorded from all of the nine Bay Area counties at elevations ranging from approximately 10 to 3,500 feet above mean sea level (Shaffer and Fisher 1991). California tiger salamanders appear to be in the initial stages of habitat fragmentation and decline (Fisher and Shaffer 1996). They require vernal pools, ponds (natural or man-made), or semi-permanent calm waters (where ponded water is present for a minimum of three to four months) for breeding and larval maturation, and adjacent upland areas that contain small mammal burrows or other suitable refugia for aestivation.

Adult California tiger salamanders spend most of their lives underground in small mammal burrows typically those of Beechey's (=California) ground squirrels (*Spermophilus beecheyi*) (Loredo *et al.* 1996). Adults emerge from underground retreats to feed, court and breed during warm winter rains typically from November through March. Adults may migrate long distances, up to a kilometer or more, to reach pools for breeding and egg laying (Jennings and Hayes 1994). The eggs are attached singly or in small groups of 2-4 to vegetation under water or directly on the bottom of the pool if emergent vegetation is sparse or nonexistent (Storer 1925, Jennings and Hayes 1994). After hatching in about 10-14 days the larvae continue to develop in the pools for several months until they metamorphose, which takes a minimum of 10 weeks (Anderson 1968, Feaver 1971).

Following metamorphosis, juvenile salamanders seek refugia, typically mammal burrows, traveling distances of 1.6 km (about 1 mile) or more from their breeding sites (Austin and Shaffer 1992) in which they may remain until they emerge during a Trenham *et al.* 2000). California tiger salamander populations and breeding habits are vitally influenced by environmental conditions including seasonal rainfall and pond duration (Loredo and Van Vuren 1996). California tiger salamanders are dependent on the integrity of both breeding ponds and adjacent upland habitat, especially long-lasting vernal pool complexes (Jennings and Hayes 1994). The alteration of either habitat component through the introduction of exotic predators or the construction of barriers (e.g. roads, berms, and certain types of fences) that fragments habitat and reduces connectivity can be detrimental to the survival of the California tiger salamander (Jennings and Hayes 1994).

The site does not fall within federally designated California tiger salamander Central California DPS Critical Habitat. None of the proposed Critical Habitat units in Contra Costa County were included in the final designation of California tiger salamander Critical Habitat due their inclusion in the East Contra Costa Habitat Conservation Plan (Jones and Stokes 2006).

Three occurrences of California tiger salamander are known within five miles of the study site, observed in 1938, 1952, and 1954 (Figure 5). California tiger salamander is recognized as being extirpated from these recorded sites (Jennings and Hayes 1994). Thus the study site is not in the vicinity or within dispersal range of any recent known occurrences (CDFG

2007a). Given the lack of suitable habitat and recent known occurrences, California tiger salamander are not expected to occur on site.

California Red-legged Frog

The California red-legged frog (*Rana (=aurora draytonii*) *draytonii*) is federally listed threatened and a California species of special concern. Optimal habitat includes ponds, stream courses, permanent pools (Storer 1925) and intermittent streams fed by drainage areas no larger than 300 km^2 (Hayes and Jennings 1988, USFWS 2004). This species occurs between sea level and 1,500 meters (5,000 feet) in elevation (USFWS 2004). Typical habitat characteristics include water depth of at least 0.7 meters (2.5 feet), largely intact emergent or shoreline vegetation, *e.g.* cattails (*Typha* spp.), tules (*Scirpus* spp.) or willows (*Salix* spp.), and absence of competitors/predators such as bullfrogs (*Rana catesbeiana*) and largemouth bass (*Micropterus salmoides*) (Hayes and Jennings 1988). However, according to Jennings (pers. comm. 2003), California red-legged frog will use a wide variety of habitats, including temporary pools and streams, permanent watercourses, ponds, concrete-lined pools, isolated wells, stock ponds absent of shoreline vegetation, and in refuse piles near ponds. However, permanent aquatic habitat is essential to the survival of local California red-legged frog populations.

Adults are highly aquatic and are most active at night (Storer 1925). California red-legged frogs also make use of terrestrial habitat, especially after precipitation events for non-migratory forays into adjacent upland habitats and for migratory overland movements to breeding sites. In a study conducted by Bulger *et al.* (2003) at a coastal site in northern Santa Cruz County, California red-legged frog typically remained within 5 meters (16 feet) of aquatic habitat during dry periods, but moved into upland habitat as far as 130 meters (426 feet) during summer rains. Overland routes were often highly oriented toward the nearest pond and were typically traversed in direct, point-to-point movements with little to no preference or avoidance toward any particular topography or habitat type. California red-legged frogs were documented to migrate between aquatic sites at distances up to 3,200 meters (approximately two miles).

Breeding typically begins between November and mid-December and lasts through April in most years, but is dictated by winter rainfall (Stebbins 2003, Jennings and Hayes 1994, Bulger *et al.* 2003). Breeding typically occurs in permanent ponds and may occur in slower water of streams (*i.e.* pools or backwaters) (Hayes and Jennings 1988). At breeding sites males call in groups, or leks, of three to seven individuals to attract females (Jennings and Hayes 1994). During amplexus (breeding posture), eggs are fertilized by the male while the female deposits the egg mass on emergent vegetation (Storer 1925, Jennings and Hayes 1994). However, breeding has also been documented to occur in ponds that lack emergent vegetation (Bobzien *et al.* 2000). Larvae typically hatch in six to twenty-two days and metamorphosis is usually completed in four to five months (Bobzien *et al.* 2000, Jennings and Hayes 1994). There have been several documented cases of tadpoles overwintering to then metamorphose the following spring (Storer 1925, Fellers *et al.* 2001, Bobzien *et al.* 2000). Males and females usually attain sexual maturity at two and three years, respectively (Jennings and Hayes 1994).

The study area does not fall within federally designated California red-legged frog Critical Habitat, the closest of which is Critical Habitat Unit CCS-1A in Contra Costa County (USFWS 2006a), located several miles northeast of the study area. This critical habitat is displaced from the study site by multiple barriers including hillsides and ridgelines as well as multiple residential roads, many throughways, and the major California State Highways 24 and 680.

The closest recorded occurrence (1994) of the red-legged frog to the study area is in Las Trampas Creek, in the Burton Valley near to Moraga. Several more-recent (in the past 10 years) protocol-focused surveys in upper and lower Las Trampas Creek have shown negative findings, supporting a widely held belief that the California red-legged frog is eventually extirpated from densely populated urban areas. Dependable breeding sites for this frog are largely stock ponds. Breeding habitat is essential to the continuation of this species. These frogs are known to travel from a breeding pond to another permanent water source, such as a stock pond or lake. Even if red-legged frog were to occur in nearby lower reach of Las Trampas Creek, there is no such water body to attract dispersing frogs to cross the study area. Given the lack of suitable dispersal and breeding habitat on the site, the lack of breeding sites in the area, the numerous surveys showing negative findings in the general area, and the distance and barriers from the site to Las Trampas Creek, there is no potential for occurrence in the study area.

Foothill Yellow-Legged Frog

The foothill yellow-legged frog (*Rana boylii*), a California species of special concern, is a moderate-sized (37-82 mm SUL [snout-urostyle length]) frog that inhabits the Coast Range from the Oregon border to San Luis Obispo County and the western foothills of the Sierra Nevada. This species occurs from sea level to about 6,000 feet in elevation (Stebbins 2003, Jennings and Hayes 1994). Historically, the foothill yellow-legged frog occurred in most Pacific drainages west of the Sierra/Cascade Crest, and was found from Marion County, Oregon to Los Angeles County, California. It has been extirpated from most historic locations in southern California and throughout much of the foothills in the Sierra Nevada (Jennings and Hayes 1994).

Information regarding the life history of this species is limited (Jennings and Hayes 1994). The foothill yellow-legged frog occurs in rocky stream habitats, usually in woodland, chaparral or forest, with little to no pooling or bank vegetation cover (Stebbins 2003). These frogs are highly aquatic and when disturbed will dive to the bottom of the stream for cover (Stebbins 2003). Breeding occurs mid-March to early June after high flows have subsided (Stebbins 2003) in shallow, slow flowing water, usually pebble/cobble river bars along pools and riffles. Under natural flow regimes, foothill yellow-legged frog has been observed to deposit eggs earlier in the breeding season during drought conditions (Kupferberg 1996). Egg masses are usually attached to the downstream side of cobbles or pebble in backwater pools (Lind and Welsh 1996), but have also been found attached to aquatic vegetation, woody debris, and gravel. Alterations of natural flow regimes in lotic systems due to flood control and reservoir construction have caused loss of egg masses during high flows as well as desiccation during low flows (Kupferberg 1996).

Eggs typically hatch within five to thirty days or more, with metamorphosis taking three to four months (Zweifel 1955). Larvae are often difficult to observe in a flowing stream environment, and can appear similar to juvenile western toads (*Bufo boreas*). Metamorphosis occurs between July and September, so metamorphs require perennial streams or at least watercourses that flow late in the season. Tadpoles feed on algae, while adults feed on terrestrial and aquatic invertebrates. Tadpoles appear to be negatively affected by non-native species such as predatory fish and bullfrogs due to predation and competition (Kupferberg 1997, Hayes and Jennings 1988). Numerous aquatic insects, garter snakes, and birds prey upon tadpoles, while predatory fish and mammals and birds prey upon adults.

Threats to the foothill yellow-legged frog include altered flow regimes from the construction of reservoirs leading to loss of breeding habitat, high flow releases which can scour egg masses off the substrate, and low flows in the spring leading to desiccation of egg masses. Siltation of the stream course due to activities such as urban development, landslides and logging can cause smothering of the eggs, loss of larval habitat (the interstitial spaces between substrate used for refugia), and a reduction in the aquatic invertebrate abundance, which serves as the prey base for adult frogs.

One occurrence of foothill yellow-legged frog is known in the surrounding nine quadrangles, observed in 1997. This occurrence was located over five miles away to the west of the study site (CDFG 2007a). Given that the yellow-legged frog prefers a cobble or rocky substrate, there is no suitable breeding habitat present within the study area. Given the lack of suitable habitat and recent known occurrences and their distance from the site, there is no potential for occurrence of foothill yellow-legged in the study area.

Reptiles

Special-status reptile species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species, including the California horned lizard (*Phrynosoma coronatum frontale*), a California species of special concern. However, based on the absence of suitable habitat and lack of recent occurrences in the region, this species is not expected to occur on site (Appendix B).

Western Pond Turtle

The western pond turtle (*Clemmys marmorata)*, a California species of special concern, is the only fresh-water turtle native to greater California (Storer 1930). The literature describes two subspecies of western pond turtle; the northwestern pond turtle (*C. m. marmorata*) and the southwestern pond turtle (*C. m. pallida*). Overall, western pond turtles are habitat generalists, and have been observed in slow-moving rivers and streams (*e.g.* in oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and sewage treatment plants. They prefer aquatic habitat with refugia such as undercut banks and submerged vegetation (Holland 1994), and require emergent basking sites such as mud banks, rocks, logs, and root wads to thermoregulate their body temperature (Holland 1994, Bash 1999).

Western pond turtles regularly utilize upland terrestrial habitats, most often during the summer and winter, especially for oviposition (females), overwintering, aseasonal terrestrial

habitat use, and overland dispersal (Reese 1996, Holland 1994). Females have been reported ranging as far as 500 meters (1,640 feet) from a watercourse to find suitable nesting habitat (Reese and Welsh 1997). Nest sites are most often situated on south- or west-facing slopes, are sparsely vegetated with short grasses or forbs, and are scraped in sands or hard-packed, dry, silt or clay soils (Holland 1994, Rathbun *et al.* 1992, Holte 1994, Reese and Welsh 1997). Western pond turtles exhibit high site fidelity, returning in sequential years to the same terrestrial site to nest or overwinter (Reese 1996).

Females lay their clutch as early as late April in southern and Central California to late July, although they predominantly lay in June and July. In the early morning or late afternoon, gravid females leave the water and move upland to nest (Holland 1994). Natural incubation times vary, ranging from 80 – 100+ days in California. In northern California and Oregon, hatchlings remain in the nest after hatching and overwinter, emerging in the spring. In southern and central California, those that don't overwinter emerge from the nest in the early fall (Holland 1994).

Western pond turtle is known from areas around the region including San Pablo Reservoir, Mount Diablo State Park, along Bolinas Creek (a tributary of Crow Creek) and Alamo Creek. The nearest occurrence reported by CDFG (2007a) is Pine Creek Pond, over five miles east of the study area. None of the occurrences are closely connected by hydrology to Las Trampas Creek. No known occurrences are present within five miles of the site CDFG (2007a). Given the lack of recent occurrences in the area and lack of suitable habitat, there is no potential for occurrence in the study site.

Alameda Whipsnake

The Alameda whipsnake (Masticophis lateralis euryxanthus), federally and state-listed threatened, is a fast moving, diurnal snake with large eyes like all species within the genus Masticophis (Stebbins 2003). It is also known as the "Alameda striped racer" (Stebbins 2003). It typically measures three to five feet in length, with a fairly wide head and slender neck. The Alameda whipsnake is considered to be a subspecies of the California whipsnake (Masticophis lateralis), which ranges from Red Bluff in northern California to Central Baja California, inhabiting the Coast Ranges and foothills of the Sierra Nevada. The Alameda whipsnake is restricted to the hills of Alameda, Contra Costa, and northern Santa Clara counties within the San Francisco Bay region (Stebbins 2003). There are five remaining populations with little to no genetic flow between them: Sobrante Ridge, Oakland Hills, Hayward Hills, Mount Diablo vicinity, the Black Hills, and Wauhab Ridge. This regional restriction corresponds to the distribution of coastal scrub and chaparral within the area (Stebbins 2003). This habitat restriction may reflect the species' preference for friable, well-drained soils. The Alameda whipsnake is distinguished from other California whipsnakes by the thickness of the orange stripes on its sides.

Primary habitats for Alameda whipsnake typically include east, southeast, south and southwest facing slopes containing coastal scrub and chaparral, including rock outcrops that are within approximately 0.5 miles (Swaim 1994). However, current unpublished data suggests Alameda whipsnake may also utilize a wider range of habitat types. Canopy cover within these habitats is typically open (over 75 percent cover of total area) with little to no

herbaceous understory (Swaim 1994). Recent telemetry data indicate that, although home ranges of Alameda whipsnakes are centered on shrub communities, whipsnakes frequently venture into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland. Swaim (1994) recorded male Alameda whipsnake home ranges of 1.9 ha (4.7 acres) to 8.8 ha (21.7 acres).

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 (Swaim 1994). Rock outcrops can be an important feature of Alameda whipsnake habitat because they provide retreat opportunities for whipsnakes and support lizard populations. Lizards, especially the western fence lizard, appear to be the primary prey item of whipsnakes (Stebbins 2003, Swaim 1994, Ellis 1987), although other prey items are taken, including skinks, frogs, snakes, and birds (Stebbins 2003, Swaim 1994).

Alameda whipsnake retreat in November into hibernacula and have been reported emerging March-April, with the males emerging from their hibernacula first (Ellis 1987). Courtship and mating occurs from late-March to mid-June. Hatchlings emerge in the first part of August through November (Swaim, pers. comm. 1996).

The site does not fall within federally designated Alameda whipsnake Critical Habitat. The Alameda whipsnake is known to occur within two miles of the study site. The study area does not contain coastal scrub and chaparral habitat normally used by the Alameda whipsnake. In addition, the study site lacks natural rock outcroppings that are preferred by the Alameda whipsnake where its major prey source of western fence lizards is found. Due to the lack of suitable habitat at the site and the lack of biological connectivity of the site to known occurrences of Alameda whipsnake, there is no potential for occurrence of this snake species.

Birds

Several special-status bird species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species, including tricolored blackbird (Agelaius tricolor), a California species of special concern, burrowing owl, (Athene cunicularia), a California species of special concern, prairie falcon (Falco mexicanus), a California species of special concern, American peregrine falcon (Falco peregrinus anatum), state-listed endangered and California fully protected species, and Suisun and Alameda song sparrows (Melospiza melodia maxillaries and M. melodia pusillula), both California species of special concern. However, based on the absence of suitable habitat, these species are not expected to occur on site (Appendix B).

Raptors

Most raptors, such as golden eagles (*Aquila chrysaetos*), white-tailed kites (*Elanus leucurus*), red-tailed hawks, red-shouldered hawks, and Cooper's hawk (*Accipiter cooperii*), nest in mature, large coniferous or deciduous trees and use twigs or branches as nesting material. Smaller raptors such as American kestrel and western screech-owl (*Otus*

kennicottii) may nest in cavities in anthropogenic structures and trees. Short-eared owls (*Asio flammeus*) and northern harriers (*Circus cyaneus*) nest on the ground in grassland, marshes, and agricultural fields with tall vegetation. Burrowing owls typically nest in small mammal burrows in open dry lands, but have been known to utilize any ground cavity of similar size as well as anthropogenic structures. Common raptors such as American kestrels, great horned owl (*Bubo virginianus*), common barn owl (*Tyto alba*), and red-tailed hawks could nest on site and are afforded protection under the Migratory Bird Treaty Act and California Department of Fish and Game code. The nesting period for raptors generally occurs between December 15 and August 31. No active nests were detected during the March site visit.

The few larger native and ornamental trees on the site provide suitable nesting habitat for red-tailed hawk, Cooper's hawk, a California species of special concern, sharp-shined hawk (*Accipiter striatus*), a California species of special concern, white-tailed kite, a California fully protected species, and long-eared owl (*Asio otus*), a California species of special concern. The potential for rodents to exist on the site is moderate and thus provides foraging opportunities for these bird species. In addition, the surrounding native trees and ornamental landscapes in the neighborhood provide potential foraging opportunities as they provide habitat for small reptiles, mammals, and birds. Travers's tree report maps the native and ornamental trees, which potentially provide nesting habitat for raptors.

Special-Status Passerine and Non-Passerine Landbirds

Passerines (perching birds) are a taxonomic grouping that consists of several families including swallows (*Hirundinidae*), larks (*Alaudidae*), crows, ravens and jays (*Corvidae*), shrikes (*Laniidae*), vireos (*Vireonidae*), finches (*Fringillidae*) and Emberizids (*Emberizidae*; warblers, sparrows, blackbirds, *etc.*), among others. Non-passerine land birds are a non-taxonomic based grouping typically used by ornithologists to categorize a loose assemblage of birds. Families grouped into this category include kingfishers (*Alcedinidae*), woodpeckers (*Picidae*), swifts (*Apodidae*), hummingbirds (*Trochilidae*), and pigeons and doves (*Columbidae*), among others. Habitat, nesting, and foraging requirements for these species are wide ranging, therefore outlining generic habitat requirements for this grouping is difficult. These species typically use most habitat types and are known to nest on the ground, in shrubs and trees, on buildings, under bridges, and within cavities, crevices, and created structures. Many of these species migrate long distances and all species except starlings, English house sparrows, and rock doves (pigeons), are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code. The nesting period for passerines and non-passerine land birds occurs between February 1 and August 31.

Suitable nesting and foraging habitat is present within the native and ornamental trees and shrubs on site. The riparian habitat within the study area provides the potential for several special-status passerine species.

Mammals

Several special-status mammal species were considered during the preparation of this report because the study area falls within or in the vicinity of the historical range of these species,

including San Joaquin kit fox (*Vulpes macrotis mutica*), federally listed endangered and state-listed threatened, salt-marsh harvest mouse (*Reithrodontomys raviventris*), federally listed and state-listed endangered, Berkeley kangaroo rat (*Dipodomys heermanni berkeleyensis*), Alameda Island mole (*Scapanus latimanus parvus*), a California species of special concern, and Suisun shrew (*Sorex ornatus sinuosus*), a California species of special concern. However, based on the absence of suitable habitat and distance from known populations, these species are not expected to occur on site (Appendix B).

Special Status Bats

There are ten known species of bats in California classified as California species of special concern (CDFG 2007a). Seven bat species have at least some potential to occur within the project area, including the pallid bat (*Antrozous pallidus*), a California species of special concern, silver-haired bat (*Lasionycteris noctivagans*), a California species of special concern, hoary bat (*Lasiurus cinereus*), Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*), a California species of special concern, western mastiff bat (*Eumops perotis californicus*), a California species of special concern, long-eared myotis bat (*Myotis evotis*), long-legged myotis bat (*Myotis volans*), and Yuma myotis bat (*Myotis yumanensis*) . These species use mature trees, snags, crevices and created structures (such as buildings) for roosting, either for winter roosting (hibernacula) or for forming nursery colonies. Bats are generally site faithful and will not abandon an established roosting area unless disturbed.

Four occurrences of pallid bats are reported within five miles of the study site. The pallid bat, like other bats, has roosting and maternity site opportunities within the study area, mainly in trees, but also in building structures, which encounter little or no disturbance. Pre-construction surveys are recommended because bats could feasibly move into and occupy the site.

Four occurrences of hoary bat and one occurrence of the silver-haired bat are known within the surrounding quadrangles, although none of these occurrences are within five miles of the study site (CDFG 2007a). Taking into account the few previous occurrences but given the potential habitat available on site, these species and other special-status bat species discussed above have a low potential to occur in the study site.

American Badger

The American badger (*Taxidea taxus*), a California Species of Special Concern, is a carnivore in the family Mustelidae (weasels). They range throughout California except for the humid forested regions in the state's extreme northwest (Larsen 1987). The American badger is most abundant in drier areas of shrub, forest, and herbaceous habitats, but can be found anywhere with friable soils and a suitable prey base (Albhorn 1988-1990). They have decreased substantially in abundance throughout their range since historic times, particularly in the Central Valley and northern Coast Range (Larsen 1987).

American badgers spend much of their time underground, where they prey primarily upon ground squirrels (*Spermophilus* spp.) and pocket gophers (*Thomomys* spp.), although they may also take other rodents, reptiles, birds, eggs, insects, and carrion (Williams 1986). Their

front legs bear large claws adapted for digging after their prey in underground burrows, and they may dig extensively within levees, fields, and other areas with high concentrations of fossorial rodents (Jameson Jr. and Peeters 2004).

American badgers are active year-round, though they tend to have smaller home ranges in winter than in other seasons (Albhorn 1988-1990). Mating takes place in late summer, and one to four young are born in spring within a burrow complex, usually in areas of sparse overstory cover (Jameson Jr. and Peeters 2004, Albhorn 1988-1990).

There are no reported occurrences of American badger within ten miles of the study area in the CNDDB (CDFG 2007a). However, an American badger was recently killed by a vehicle on Ygnacio Valley Road approximately 6 miles from the study area (Adams, pers. comm., 2007). No suitable habitat for American badger occurs in the highly urbanized study area. In addition, there is a lack of abundant fossorial mammals for use as a prey base. Based on the presence of no suitable habitat, the American badger is considered to have no potential to occur within the study area.

3.3 Wildlife Movement Corridors and Habitat Fragmentation

Considering the impacts resulting in potential fragmentation of primary habitat types and loss of valuable wildlife dispersal corridors is important when assessing the potential biological impacts of a project. The 22.26-acre study site is located in Lafayette, just east of downtown, and is surrounded by Highway 24, Pleasant Hill Road, Deer Hill Road, and open space to the west. These roads present significant barriers to wildlife. Wildlife species generally associated with disturbed lands and non-native grasslands include, among other species, raccoon (*Procyon lotor*), opossum (*Didelphus virginianus*), European starling (*Sturnus vulgaris*), and mourning dove (*Zenaida macroura*). Killdeer (*Charadrius vociferous*) are also often associated with open disturbed substrates. Wildlife that feed upon seeds or other parts of ruderal and ornamental vegetation include such species as finches, goldfinches, sparrows, and a variety of rodents. The site does not function as a potential wildlife movement corridor. Given the study area's location surrounded by developed areas and its disturbed nature, development of the site is not expected to have a long-term affect on wildlife movements. Any disturbance associated with such construction would be expected to be temporary, and appropriate avoidance measures would be taken.

3.4 Sensitive Natural Communities

Sensitive natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection (*i.e.,* §404 of the Clean Water Act and/or the §§1600 *et seq.* of the California Fish and Game Code). In addition, the CNDDB has designated a number of communities as rare; these communities are given the highest inventory priority (Holland 1986, CDFG 2003). For communities tracked by the CNDDB, northern maritime chaparral, northern coastal salt marsh, coastal brackish marsh, and serpentine bunchgrass, do not occur in the study area. The site does support riparian vegetation. Chris Bronny conducted a formal wetland delineation and jurisdictional determination for the subject property during the March 2011 site visit in accordance with the procedures outlined in the U.S. Army Corps of Engineers *Wetlands*

Delineation Manual (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2006).* Based on the site evaluation, the study area contains jurisdictional waters or wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB). The March 2011 site visit was conducted at an optimal time to detect jurisdictional wetlands and waters because the visit followed significant rains.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Sensitive Natural Communities

The riparian drainage and associated plant community will be discussed in the forthcoming formal jurisdictional wetland determination.

4.2 Special-Status Plants

No state- or federally listed endangered, threatened, rare or candidate plant species were detected during the single, March 11, 2011 protocol-level survey. Based on the present study, all but five of the 52 potentially occurring special-status plant species considered in this analysis can be presumed absent from the study area either due to a lack of suitable habitat (Appendix A). In the March survey, two plant species with potential to occur are presumed absent because they would have been detectable. Additional focused plant surveys are anticipated to confirm presence or absence of three annual special-status species. The rare plant report is anticipated to be complete in June 2011.

4.3 Special-Status Wildlife

No state- or federally listed endangered, threatened, rare or candidate animal species were detected during this single, reconnaissance-level survey. Within the study area, several special-status bird and bat species have the potential to nest or roost in large trees or in unoccupied structures on site. Additionally, certain bird species could potentially nest in the non-native grasslands on site.

The nesting season for birds extends from December 15 through August 31. Given the high potential for occurrence of special-status bird species and the possibility of overlap of construction with the nesting season, pre-construction surveys for nesting raptors and other tree and ground nesting birds should be conducted prior to any tree removal, pruning of limb, grading, structure removal, or initiation of construction activities. If an active nest is detected, generally, a buffer zone of 50-300 feet is necessary to protect adults and nestlings from construction disturbances. If occupied nests are detected, exclusion areas should be required until young birds have fledged. Destruction of occupied nests would be in violation of the federal Migratory Bird Treaty Act and the Fish and Game Code.

Pre-construction surveys for roosting bats should be conducted concurrent with those for nesting birds. If roosting bats are detected, a qualified biologist in consultation with DFG, can exclude/evict the bats prior to removal of the occupied structure or tree. It is recommended that, if feasible within the CEQA approval process, that trees proposed for

removal be fallen before the spring construction season begins to avoid conflicts with potential nesting. This proactive tree removal would require that a qualified biologist clear the trees for potential nests, regardless of the time of year. Later, just prior to construction, another pre-construction survey would be conducted to detect presence and confirm absence of active nesting in those trees that will remain. If active nests are found, a buffer zone is established to exclude construction disturbance until birds has fledged. Pre-construction surveys for birds or roosting bats should be conducted no more than one week prior to tree removal or construction site disturbance.

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APPENDIX D

Site Photographs

APPENDIX A

Potentially Occurring Special-Status Plant Species

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Apiaceae - Parsley Family				
Lilaeopsis masonii Mason's lilaeopsis	Federal: None State: CR CNPS 1B.1	Intertidal brackish and freshwater marshes along streambanks. Recorded in the San Joaquin and Sacramento River Delta and lower Napa River channel.	April-October perennial herb	Not expected: suitable habitat present. Would have been detectable.
Sanicula maritima adobe sanicle	Federal: SC State: CR CNPS 1B:3-3-3	Chaparral, coastal prairie, coastal meadows and valley/foothill grassland on clay or ultramafic soils. Restricted to San Luis Obispo and Monterey counties; presumed extirpated in Alameda and San Francisco counties.	April-May perennial herb	Not expected: no suitable habitat present.
Sanicula saxatilis rock sanicle	Federal: SC State: CR CNPS 1B:3-2-3	Broadleaf upland forests, chaparral, valley/foothill grassland, on bedrock outcrops and talus slopes. Restricted to Contra Costa and Santa Clara counties.	April-May perennial herb	Not expected: no suitable habitat present.
Asteraceae - Sunflower Family				
Aster lentus Suisun Marsh aster	Federal: None State: CEQA CNPS 1B.2	Freshwater and brackish marshes. Known from the Napa River and San Joaquin/Sacramento River Delta.	May-November perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Balsamorhiza macrolepis var. macrolepis big-scale balsamroot	Federal: none State: CEQA CNPS 1B:2-2-3	Cismontane woodland, valley/foothill grassland, sometimes on serpentinite. Occurs from the Bay Area to the northern Sacramento Valley and Sierra foothills.	March-June perennial herb	Not expected: marginally suitable habitat present. Would have been detectable.
Blepharizonia plumosa big tarplant	Federal: None State: CEQA CNPS 1B.1	Valley/foothill grasslands, on dry sites. Extant in Alameda, Contra Costa, and San Joaquin counties. Believed extirpated in Stanislaus and Solano counties.	July-October annual herb	Not expected: no suitable habitat present. Would have been detectable.
Centromadia parryi ssp. congdonii Congdon's tarplant (formerly Hemizonia parryi ssp. congdonii)	Federal: None State: CEQA CNPS 1B.2	Valley/foothill grasslands on alkaline soils. Restricted to San Luis Obispo, Monterey, Alameda, Contra Costa, San Mateo, and Santa Clara counties; presumed extirpated in Santa Cruz and Solano counties.	June-November annual herb	Not expected: no suitable habitat present.
Cirsium andrewsii Franciscan thistle	Federal: none State: CEQA CNPS 1B:2-2-3	Bluffs, ravines and seeps in broadleafed upland forest, coastal bluff scrub, sometimes on serpentinite. Restricted to Marin, San Francisco, San Mateo and Sonoma counties.	June-July perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Helianthella castanea Diablo helianthella	Federal: None State: CEQA CNPS 1B.2	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties.	April-June perennial herb	Low -would have been detectable, not present.

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Holocarpha macradenia Santa Cruz tarplant	Federal: FT State: CE CNPS 1B.3-3-3	Coastal prairie, valley/foothill grassland, often on heavy clay soils. Known from coastal areas of Contra Costa, Monterey and Santa Cruz counties; presumed extirpated in Alameda and Marin counties. Several introduced populations present along San Pablo Ridge in western Contra Costa County.	June-October annual herb	Not expected: no suitable habitat present.
Isocoma arguta Carquinez goldenbush	Federal: None State: CEQA CNPS 1B.1	Valley/foothill grasslands, on alkaline sites. Restricted to Contra Costa and Solano counties in the vicinity of the Carquinez Straits.	August-December perennial shrub	Not expected: no suitable habitat present. Would have been detectable.
Lasthenia conjugens Contra Costa goldfields	Federal: FE State: CEQA CNPS 1B.1	Mesic sites in valley/foothill grassland, vernal pools. Known from Napa, Solano, Sonoma, Marin and Monterey counties and recently rediscovered in Alameda and Contra Costa counties. Presumed extirpated in Mendocino, Santa Barbara and Santa Clara counties.	March-June annual herb	Not expected: no suitable habitat present.
Micropus amphibolus Mount Diablo cottonweed	Federal: none State: none CNPS 3:?-2-3	Broadleaf upland forest, cismontane woodland, valley/foothill grassland. Known from Lake to Santa Cruz counties, San Francisco Bay Area.	April-May annual herb	Not expected: no suitable habitat present.
Senecio aphanactis rayless ragwort	Federal: None State: CEQA CNPS 2.2	Coastal scrub and cismontane woodland on alkaline soils. Known from the South Coast, Central Coast, Central Valley and San Francisco Bay Area. Recently documented from Corral Hollow in Alameda County.	January-April annual herb	Not expected: no suitable habitat present.
Boraginaceae - Borage Family				
Amsinckia grandiflora large-flowered fiddleneck	Federal: FE State: CE CNPS 1B.1	Cismontane woodland, valley/foothill grassland. Known from only three natural occurrences in Alameda and San Joaquin counties. Also known historically from Contra Costa County, where it has been recently re-introduced.	April-May annual herb	Low -not detected in March 2011 survey.
Amsinckia lunaris bent-flowered fiddleneck	Federal: none State: CEQA CNPS 1B.2-2-3	Open woods, valley/foothill grasslands. Reported from the vicinity of the San Francisco Bay to Lake, Shasta and Siskiyou counties.	March-June annual herb	Low - not detected in March 2011 survey.
Plagiobothrys diffusus San Francisco popcorn-flower	Federal: SC State: CE CNPS 1B.3-3-3	Coastal prairie and possibly valley/Foothill grassland, on clay soils. Known from only 6 occurrences in Santa Cruz County; presumed to be extirpated in San Francisco County.	April-June annual herb	Not expected: no suitable habitat present.

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Arctostaphylos pallida pallid manzanita	Federal: FT State: CE CNPS 1B:3-3-3	Broadleaved upland forest, cismontane woodland, chaparral and coastal scrub, on siliceous shale, sandy and gravelly soils on uplifted Marine terraces. Restricted to Alameda and Contra Costa counties.	December-March evergreen shrub	Not expected: no suitable habitat present. Would have been detectable.
Fabaceae - Pea Family				
Astragalus tener var. tener alkali milk-vetch	Federal: None State: CEQA CNPS 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools/ alkaline; elevation 1-60 meters. Once widespread from San Francisco to Monterey and San Benito counties and north to Napa and Yolo counties. Extirpated from much of its former range. Extant in Alameda, Napa, Merced, Yolo, and Solano counties.	March-June annual herb	Not expected: no suitable habitat present.
Hoita strobilina Loma Prieta hoita	Federal: none State: CEQA CNPS 1B:2-3-3	Chaparral, cismontane and riparian woodland, usually in mesic areas on serpentine soil. Recorded from Santa Clara and Santa Cruz counties. Believed extirpated in Alameda and Contra Costa counties.	May-October perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Lathyrus jepsonii var. jepsonii Delta tule pea	Federal: None State: CEQA CNPS 1B.2	Freshwater and brackish marshes. Occurs throughout the Sacramento San Joaquin River delta, San Francisco Bay and Central Valley.	May-September perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Geraniaceae - Geranium Family				
California macrophylla round-leaved filaree	Federal: None State: CEQA CNPS 1B.1	Cismontane woodland, valley and foothill grasslands, on clay soil. Widespread throughout California, Baja California, Oregon, Utah, and other states.	March-May annual herb	Low - not detected in March 2011 survey.
Hydrophyllaceae - Waterleaf Family				
Phacelia phacelioides Mount Diablo phacelia	Federal: SC State: CEQA CNPS 1B:3-2-3	Chaparral and cismontane woodland on rocky sites. Recorded from Contra Costa, San Benito, Santa Clara and Stanislaus counties.	April-May annual herb	Not expected: no suitable habitat present.
Lamiaceae - Mint Family				
Monardella antonina ssp. antonina San Antonio Hills monardella	Federal: none State: none CNPS 3:?-?-3	Chaparral and cismontane woodland. Recorded from Monterey County; possible also in Alameda, Contra Costa, San Benito and Santa Clara counties.	June-August perennial herb (rhizomatous)	Not expected: no suitable habitat present. Would have been detectable.
Monardella villosa ssp. globosa robust monardella	Federal: none State: CEQA CNPS 1B:3-2-3	Openings in chaparral, cismontane woodland. Occurs from the San Francisco Bay Area to Humboldt County.	June-July perennial herb (rhizomatous)	Not expected: no suitable habitat present. Would have been detectable.

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Linaceae - Flax Family				
Hesperolinon breweri Brewer's western flax	Federal: None State: CEQA CNPS 1B.2	Chaparral, cismontane woodlands, valley/foothill grassland, mostly on serpentinite. Found in Napa, Solano, and Contra Costa counties.	May-July annual herb	Not expected: no suitable habitat present.
Malvaceae - Mallow Family				
Malacothamnus hallii Hall's bush mallow	Federal: none State: CEQA CNPS 1B.2	Chaparral. Restricted to Contra Costa, Merced and Santa Clara counties; possibly also in Alameda County.	May-September shrub (evergreen)	Not expected: no suitable habitat present. Would have been detectable.
Onagraceae - Evening Primrose Family				
Clarkia franciscana Presidio clarkia	Federal: FE State: CE CNPS 1B:3-3-3	Coastal scrub, valley/foothill grassland, on serpentinite. Known from fewer than five occurrences in Alameda and San Francisco counties.	May-July annual herb	Not expected: no suitable habitat present.
Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	Federal: FE State: CE CNPS 1B.1	Remnant river bluffs and interior sand dunes. Known from seven occurrences among the dunes east of Antioch.	March-September perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Papaveraceae - Poppy Family				
Meconella oregana Oregon meconella	Federal: none State: CEQA CNPS 1B:3-3-2	Coastal prairie and scrub. Known in California only from five occurrences in Contra Coasta and Santa Clara counties. Also recorded in Oregon Washington, andother states.	March-April annual herb	Not expected: no suitable habitat present.
Polygonaceae - Buckwheat Family				
Chorizanthe robusta var. robusta robust spineflower	Federal: FE State: CEQA CNPS 1B:3-3-3	Openings and sandy locations in cismontane woodland, coastal dunes, and coastal scrub. Restricted to Monterey and Santa Cruz counties; believed extirpated in Alameda, Santa Clara and San Mateo counties.	May-September annual herb	Not expected: no suitable habitat present.
Eriogonum truncatum Mount Diablo buckwheat	Federal: None State: CEQA CNPS 1B.1	Chaparral, coastal scrub, valley/foothill grassland on sandy soils. Presumed extinct. Known historically from Alameda, Contra Costa and Solano counties. Last seen in 1940.	April-September annual herb	Not expected: no suitable habitat present.

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Ranunculaceae - Buttercup Family				
Delphinium californicum ssp. interius Hospital Canyon larkspur	Federal: SC State: CEQA CNPS 1B:3-2-3	Cismontane woodland, possible on mesic sites. Recorded from Alameda, Contra Costa, Santa Clara, San Joaquin, and San Luis Obispo counties.	April-June perennial herb	Not expected: no suitable habitat present.
Rosaceae - Rose Family				
Horkelia cuneata ssp. sericea Kellogg's horkelia	Federal: SC State: CEQA CNPS 1B:3-3-3	Closed-cone coniferous forest, old dunes and coastal scrub. Restricted to coastal areas from Santa Barbara to San Mateo counties; presumed extirpated in San Francisco, Alameda and Marin counties.	April-September perennial herb	Not expected: no suitable habitat present. Would have been detectable.
Scrophulariaceae - Figwort Family				
Cordylanthus maritimus ssp. palustris Pt. Reyes bird's-beak	Federal: SC State: CEQA CNPS 1B:2-2-2	Coastal saltmarsh. Believed extant in Humboldt, Marin and Sonoma counties; presumed extirpated in Alameda, Santa Clara and San Mateo counties.	May-October annual herb (hemiparasite)	Not expected: no suitable habitat present.
Cordylanthus mollis ssp. mollis soft bird's-beak	Federal: FE State: CR CNPS 1B:2	Coastal saltmarsh. Known from fewer than 10 locations in Contra Costa, Napa, and Solano counties. Extirpated in Marin and Sonoma counties.	July-September annual herb (hemiparasite)	Not expected: no suitable habitat present.
Cordylanthus nidularius Mount Diablo bird's-beak	Federal: SC State: CR CNPS 1B:3-3-3	Chaparral (serpentine). Known from only a single occurrence on Mt. Diablo, Contra Costa County.	July-August annual herb (hemiparasite)	Not expected: no suitable habitat present.
Limosella subulata Delta mudwort	Federal: none State: CEQA CNPS 2.1	Marshes and swamps, muddy or sandy intertidal flats. Limited to Sacramento and San Joaquin river deltas.	May-August perennial herb (stoloniferous)	Not expected: no suitable habitat present. Would have been detectable.
Thymelaeaceae - Mezereum Family				
Dirca occidentalis western leatherwood	Federal: none State: CEQA CNPS 1B:2-2-3	Broadleaf upland forest, closed cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland. Restricted to brushy slopes and mesic sites. Known from San Mateo to Sonoma counties.	January-April shrub (deciduous)	Low -would have been detectable, not present.

APPENDIX A

Potentially Occurring Special-Status Plant Species

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Liliaceae - Lily Family				
Calochortus pulchellus Mount Diablo fairy-lantern	Federal: None State: CEQA CNPS 1B.2	Chaparral, cismontane woodland, valley/foothill grassland. Known from Contra Costa and possibly Solano counties.	April-June perennial herb (bulbiferous)	Not expected: no suitable habitat present.
Calochortus umbellatus Oakland star-tulip	Federal: none State: none CNPS 4:1-2-3	Broadleafed and upland forest, chaparral, lower montane coniferous forest, valley/foothill grassland, often on serpentinite. Known from Alameda, Contra Costa, Marin, Santa Clara and San Mateo counties. Presumed extirpated in Santa Cruz County.	March-May perennial herb (bulbiferous)	Not expected: no suitable habitat present.
Fritillaria liliacea fragrant fritillary	Federal: None State: CEQA CNPS 1B.2	Coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpentinite. Known from the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area.	February-April perennial herb (bulbiferous)	Not expected: no suitable habitat present.
Potamogetonaceae - Pondweed Family				
Potamogeton filiformis slender-leaved pondweed	Federal: None State: CEQA CNPS 2.2	Freshwater marshes and Swamps. Shallow, clear water of lakes and drainage channels. 300-2150 meters. Rare in California. Known from central high Sierra Nevada, San Joaquin Valley, San Francisco Bay Area, and the Modoc Plateau.	May-July perennial herb (aquatic, rhizomatous)	Not expected: no suitable habitat present. Would have been detectable.
Pottiaceae - moss family				
Triquetrella californica triquetrella	Federal: None State: CEQA CNPS 1B:3-2-2	Coastal bluff scrub and coastal scrub. Known from Contra Costa, Mendocino, San Diego, and San Francisco counties and Oregon. Known in California from fewer than ten small coastal occurrences.	N/A moss	Not expected: no suitable habitat present. Would have been detectable.

[1] Explanation of sensitivity status codes provided in Appendix C.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Invertebrates			
Branchinecta longiantenna Longhorn fairy shrimp	Federal: FE State: None	Inhabits clay and grass-bottomed vernal pools in grasslands, and pools in sandstone depressions that are typically filled by winter and spring rains. Known from disjunct populations along the eastern margin of the Central Coast Range from Contra Costa County south to San Luis Obispo County.	Not expected - no suitable habitat on site.
Branchinecta lynchi Vernal pool fairy shrimp	Federal: FT State: None	Inhabits vernal pools in grasslands in the Central Valley, Coast Ranges and South Coast mountains, specifically the Slanted Rocks Area, west of Byron Hot Springs, in Contra Costa County. Occur in small depressions in sandstone outcrops surrounded by foothill grasslands. Other common habitat is a swale, earth slump, or basalt-flow depression basin with a grassy or muddy bottom; found in unplowed grasslands. Occurrences are noted in the Central Valley, Coast Ranges, and South Coast mountains. Active between December and May.	Not expected - no suitable habitat on site.
Callophrys (Incisalia) mossii bayensis San Bruno elfin butterfly	Federal: FE State: None	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. The adult flight period is late February to mid-April, with the peak flight period occurring in March and early April. Eggs are laid in small clusters or strings on the upper or lower surface of stonecrop (*Sedum spathulifolium*).	Not expected - no suitable habitat on site.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	Federal: FT State: None	Typically inhabits oak savanna and riparian forests in the Central Valley below 3,000 feet elevation. Requires elderberry (*Sambucus* spp.) as host plant for all stages of its life cycle.	Not expected - no suitable habitat on site.
Efferia antiochi Antioch efferian robberfly	Federal: None State: CNDDB	Habitat not well understood. Recorded originally at the Antioch Dunes in Contra Costa County in 1939, but since found elsewhere in Contra Costa as well as Fresno County.	Not expected - no suitable habitat
Euphydryas editha bayensis Bay checkerspot butterfly	Federal: FT State: None	Restricted to Santa Clara and San Mateo Counties in California. Habitat exists on shallow, serpentine-derived or similar soils, which support the butterfly's larval food plant, California plantain (*Plantago erecta)* and nectar plants including desert-parsely (*Lomatium* spp.) and California goldfields (*Lasthenia californica*), among others.	Not expected - no suitable habitat on site.
Helminthoglypta nickliniana bridgesii Bridges' Coast Range shoulderband snail	Federal: None State: CNDDB	Known from Contra Costa and Alameda Counties from Berkeley and San Pablo to the eastern base of Mount Diablo. Typically found in moist, often riparian areas under rocks, logs, woody debris, or accumulations of leaf mould.	Low - suitable habitat on site.
Lepidurus packardi Vernal pool tadpole shrimp	Federal: FE State: None	Inhabits vernal pools in grassland habitats in the Central Valley between Shasta County and Merced County. Eggs hatch within a month of inundation; adults present until pools dry in the spring.	Not expected - no suitable habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Linderiella occidentalis California linderiella (California fairy shrimp)	Federal: None State: CNDDB	Usually inhabits large, fairly clear vernal pools and lakes; sometimes found in small pools located in grasslands in the Central Valley, Coast Ranges, and South Coast mountains.	Not expected - no suitable habitat on site.
Speyeria callippe callippe Callippe silverspot butterfly	Federal: FE State: None	Inhabits grasslands containing larval host plant johnny-jump-up (*Viola pedunculata*). Known from three locations, including San Bruno Mountain (on the San Francisco Peninsula), Joaquin Miller Park in Alameda County, and in the vicinity of American Canyon, Solano County.	Not expected - no suitable habitat on site.
Fish			
Acipenser medirostris Green sturgeon (Southern DPS)	Federal: FT State: CSC	Anadromous. Inhabits the coastal Pacific Ocean and estuaries of large rivers. Migrates far inland to spawn. Spawns during spring in rivers in deep, cold, fast-moving water. Estuaries serve as nurseries. Adults are mostly marine, spending limited time in estuaries and rivers. The Southern DPS includes all populations south of but not including the Eel River. The only known spawning area for the Southern DPS is in the Sacramento River.	Not expected - no suitable habitat on site.
Archoplites interruptus Sacramento perch	Federal: None State: CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerant of wide ranges of physio-chemical water conditions.	Not expected - no suitable habitat on site.
Eucyclogobius newberryi Tidewater goby	Federal: FE State: CSC	Occurs in tidal streams associated with coastal wetlands. Typically occurs in loose aggregations of a few to several hundred individuals on the substrate of shallow water less than three feet deep. Occurs along the entire California coast.	Not expected - no suitable habitat on site.
Hypomesus transpacificus Delta smelt	Federal: FT State: ST	Historically found throughout the lower and middle reaches of the Sacramento - San Joaquin Delta. Spawning takes place between December - April in side channels and sloughs in the middle reaches of the Delta.	Not expected - no suitable habitat on site.
Oncorhynchus mykiss Steelhead (Central California Coast ESU)	Federal: FT State: None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin.	Not expected - no suitable habitat on site.
Oncorhynchus mykiss Steelhead (Central Valley, California ESU)	Federal: FT State: None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries. Excluded are steelhead from San Francisco and San Pablo Bays and their tributaries. Little historical data exists for the San Joaquin River Basin. McEwan and Jackson (1996) reported a small remnant run in the Stanislaus River. Steelhead reported in Tuolumne River in 1983 and in Merced River. May have historically been in many of the San Joaquin River tributaries, especially during wet years.	Not expected - no suitable habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Oncorhynchus tshawytscha Chinook salmon (Central Valley spring-run ESU)	Federal: FT State: ST	The ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California. These salmon are anadromous, inhabiting open ocean and coastal streams. Adults move upstream March-July and begin spawning in August.	Not expected - no suitable habitat on site.
Oncorhynchus tshawytscha Chinook salmon (winter-run)	Federal: FE State: SE	This salmon is anadromous, inhabiting open ocean and coastal streams. Adults move upstream January-June and begin spawning in April. Downstream migrant smolts move past Red Bluff August-October.	Not expected - no suitable habitat on site.
Pogonichthys macrolepidotus Sacramento splittail	Federal: None State: CSC	Restricted to the Sacramento River Delta, but originally endemic to lakes and rivers all over the Central Valley. Inhabit slow moving river sections and dead end sloughs. Believed to spawn over shoreline vegetation or over gravel in creek tributaries of large rivers during spring high water levels.	Not expected - no suitable habitat on site.
Amphibians			
Ambystoma californiense California tiger salamander (Central Valley DPS)	Federal: FT State: CSC	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. This DPS inhabits the Coast Ranges north of Santa Barbara County and south of Sonoma County, as well as the Central Valley from Tulare to Colusa County.	Not expected - no suitable habitat on site.
Rana (=aurora draytonii) draytonii California red-legged frog	Federal: FT State: CSC	Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	Not expected - no suitable habitat on-site.
Rana boylii Foothill yellow-legged frog	Federal: None State: CSC	Inhabits permanent, slow-moving stream courses in the Coast Ranges and Sierra Nevada foothills. These streams usually contain a cobble substrate and a mixture of open canopy riparian vegetation.	Not expected - no suitable habitat on-site.
Reptiles			
Clemmys marmorata Western pond turtle	Federal: None State: CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes, and irrigation ditches with basking sites and a vegetated shoreline. Needs upland sites for egg laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley, and south along the coastal zone to San Diego County.	Not expected - no suitable habitat on site.
Masticophis lateralis euryxanthus Alameda whipsnake (striped racer)	Federal: FT State: ST	Restricted to chaparral and coastal scrub of the Coast Ranges. Uses rock outcrops for refugia. Inhabits appropriate habitat on south, southwest- and southeast-facing slopes and ravines where the shrubs form a vegetative mosaic with grasses. Uses rodent burrows. Feeds on a number of items including fence lizards (*Sceloporus* spp.).	Not expected - no suitable habitat on-site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Phrynosoma coronatum frontale California horned lizard	Federal: None State: CSC	Occurs in scrub and grassland on sandy soils; active above ground between April and October. Preys primarily on native ant species. The species is thought to be extinct in this region based on museum specimens.	Not expected - no suitable habitat on site.
Birds			
Accipiter cooperii Cooper's hawk (nesting site only)	Federal: None State: CSC	Nests primarily in deciduous riparian forests. May also occupy dense canopied forests from gray pine-oak woodland to ponderosa pine. Forages in open woodlands. Occurs throughout the San Francisco Bay Area.	Moderate - suitable nesting habitat on site.
Accipiter striatus Sharp-shinned hawk (nesting site only)	Federal: None State: CSC	Dense to open canopy pine or mixed conifer forest, riparian habitats, and grassland with scattered trees. Permanent resident in parts of the Sierra Nevada, Cascade, Klamath, and North Coast Ranges. Usually nests in conifers. Does not nest in San Francisco Bay Area.	Moderate - suitable nesting habitat on site.
Agelaius tricolor Tricolored blackbird (nesting colony)	Federal: None State: CSC	Nests primarily in dense freshwater marshes with cattail or tules. Forages in grasslands. Largely endemic to California. Permanent resident in the Central Valley and along the coast from Marin to San Diego Counties. Also known from Lake, Sonoma, and Solano Counties. Grasslands provide suitable foraging habitat only.	Not expected - no suitable nesting habitat on site.
Aquila chrysaetos Golden eagle (nesting/wintering sites only)	Federal: None State: CSC CFP	Forages in a variety of habitats including grasslands, chaparral, and oak woodland supporting abundant mammals. Nests on cliffs and escarpments, and tall trees. Occurs throughout the San Francisco Bay Area.	Low - potential foraging habitat on site.
Asio flammeus Short-eared owl (nesting only)	Federal: None State: CSC	Found throughout California and the rest of the United States in salt and freshwater swamps, lowland meadows and grasslands, irrigated alfalfa fields. Nests in tules and tall grasslands. Needs daytime seclusion. Nests on dry ground in depressions concealed by vegetation. Primarily hunts at dawn and dusk (crepuscular).	Not expected - no suitable nesting habitat on site.
Asio otus Long-eared owl (nesting only)	Federal: None State: CSC	Breeds mainly in dense coniferous or mixed woodland, including riverine woodland belt. Nests in large, previously used nest of another bird species or squirrel. Nests up to 10-29 feet in height, more rarely on ground or among shrubby growth. Forages over open fields and marshes. Winters between southern Canada and Baja California.	Low - suitable nesting habitat on site.
Athene cunicularia hypugea Burrowing owl (burrow sites)	Federal: None State: CSC	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	Not expected - no suitable habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Cardualis lawrencei Lawrence's goldfinch	Federal: None State: CNDDB	Breeds throughout northern and central California, winters in Baja California east to Texas. Inhabits oak woodland, chaparral, riparian woodland, pinyon-juniper association, and weedy areas in arid regions but usually near water. Often nests in dense foliage in conifers, 1-12 m above ground. Highly social; forms loose flocks of 20-30 birds. Flocks may include other species of goldfinches or other passerines.	Low - suitable nesting habitat on site.
Chondestes grammacus Lark sparrow	Federal: None State: CNDDB	Frequents sparse valley foothill hardwood, valley foothill hardwood-conifer, open mixed chaparral and similar brushy habitats, and grasslands with scattered trees or shrubs. Most common around margins of Central Valley, in bordering foothills, and inner Coast Ranges.	Low - suitable nesting habitat on site.
Circus cyaneus Northern harrier (nesting)	Federal: None State: CSC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes. Occurs throughout the San Francisco Bay Area.	Low – suitable nesting habitat on site.
Dendroica petechia brewsteri California yellow warbler	Federal: None State: CSC	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders, and in mature chaparral. May also inhabit oak and coniferous woodlands and urban areas near stream courses. Occurrences noted in Marin and Alameda Counties.	Moderate - suitable nesting habitat on site.
Elanus leucurus White-tailed kite (nesting sites)	Federal: None State: CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks and river bottomlands, or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows, marshes, and agricultural fields for foraging. Occurs throughout the San Francisco Bay Area.	Moderate - suitable nesting habitat on site.
Eremophila alpestris actia California horned lark	Federal: None State: CSC	Nests and forages on ground in open grassland. Often found in agricultural areas. Will nest on bare ground or among sparse vegetation. Known from regions throughout the San Francisco Bay Area.	Low - suitable nesting habitat on-site.
Falco columbarius Merlin (wintering)	Federal: None State: CSC	Winters throughout the western United States in open grasslands and woodlands, often along coasts near concentrations of shorebirds, which it feeds on in addition to small mammals and insects. Does not breed in California.	Not expected - no suitable habitat on site.
Falco mexicanus Prairie falcon (nesting)	Federal: None State: CSC	Nests on cliff ledges and forages in open, arid and semi-arid habitats, as well as marshes. Occurs as a permanent resident in most of California. Eats primarily small birds, mammals, and insects.	Not expected - no suitable habitat on site.
Falco peregrinus anatum American peregrine falcon (nesting)	Federal: None State: CFP SE	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes. Permanent resident in the North and South Coast Ranges. Winters in the Central Valley southward through the Transverse and Peninsular Ranges. Feeds almost exclusively on birds.	Not expected - very marginal foraging habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Geothlypis trichas sinuosa Salt marsh common yellowthroat	Federal: None State: CSC	Known throughout the Bay Area from Napa to Santa Cruz Counties. Nests in freshwater marshes in the spring and summer and moves into tidal sloughs and channels during the winter. Requires contiguous freshwater and salt water marsh habitats.	Not expected - no suitable nesting habitat on site.
Haliaeetus leucocephalus Bald eagle	Federal: FT State: CFP SE	Typically forage over large bodies of water, or large free-flowing rivers. Fish are their primary prey item, but they will also feed on waterfowl. Nests are built in tall trees near water bodies that support fish and waterfowl populations.	Not expected - no suitable habitat on-site.
Icteria virens Yellow-breasted chat (nesting)	Federal: None State: CSC	Nests in dense riparian habitats dominated by willows, alders, ash, blackberry, and grape vines throughout California.	Moderate - suitable nesting habitat on site.
Lanius ludovicianus Loggerhead shrike	Federal: None State: CSC	Nests in woodland and scrub habitats at margins of open grasslands. Often uses lookout perches such as fence posts. Resident and winter visitor in lowlands and foothills throughout California.	Low - suitable nesting habitat on site.
Laterallus jamaicensis coturniculus California black rail	Federal: None State: ST CFP	Secretive marsh bird found in damp areas with dense grass. Year-round resident in the greater Bay Area and more recently have been recorded from the Sierra Foothills. Inhabits tidal marshes, grassy marshes, stubble fields and wetlands. Nesting habitat is characterized by unfluctuating water levels with a depth of less than 3 cm and dense vegetative cover.	Not expected - no suitable habitat on site.
Melospiza melodia maxillaris Suisun song sparrow	Federal: None State: CSC	Inhabits marshes of the Suisun Bay area from Martinez eastward along the south bayshore of Suisun Bay to Pittsburg, then north of Suisun Bay throughout the extensive Suisun marshlands. The only remaining wetlands supporting these birds in the Carquinez Strait apparently is at the north end of Southampton Bay (Benicia Marsh).	Not expected - no suitable habitat on site.
Melospiza melodia pusillula Alameda (South Bay) song sparrow	Federal: None State: CSC	Occurs only along the southern and eastern fringes of the San Francisco Bay. Inhabits salt marsh habitats with dense vegetation, and upland habitats for refugia.	Not expected - no suitable habitat on site.
Melospiza melodia samuelis San Pablo song sparrow	Federal: None State: CSC	Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo bayshore, and throughout the extensive marshes along the Petaluma, Sonoma and Napa Rivers. All along the southeast shoreline of San Pablo Bay, isolated populations occur in small marshes between Wilson Point and Pinole Point, and at the mouths of San Pablo Creek and Wildcat Creek.	Not expected - no suitable habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Nycticorax nycticorax Black-crowned night heron (rookery)	Federal: None State: CNDDB	Found in lowlands and foothills throughout most of California. Nests in trees with dense foliage and in wetlands with dense emergent vegetation.	Not expected - no suitable habitat on-site.
Pelecanus occidentalis californicus California brown pelican (nesting colony)	Federal: FE State: SE CFP	Found in estuarine, marine subtidal, and marine pelagic waters along the California coast. Rare occurrance inland at the Salton Sea. Breeds on Channel Islands: Anacapa, Santa Barbara, and Santa Cruz. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties.	Not expected - no suitable habitat on site.
Picoides nuttallii Nuttall's woodpecker	Federal: None State: CNDDB	Resident throughout California west of the Sierra Nevada Mountains. Inhabits oak forest and woodland, chaparral and riparian (especially willow-cottonwood) woodland. Extensively uses *Quercus douglasii* during the breeding season. Both sexes dig out a cavity in a tree, 1-18 m above ground.	Moderate - suitable nesting habitat on site.
Rallus longirostris obsoletus California clapper rail	Federal: FE State: SE CFP	Inhabits tidal salt marshes of the greater San Francisco Bay, although some individuals use brackish marshes during the spring breeding season. It formerly occurred at Humboldt Bay in Humboldt County, Elkhorn Slough in Monterey County, and Morro Bay in San Luis Obispo County.	Not expected - no suitable habitat on site.
Sterna antillarum browni California least tern	Federal: FE State: SE	Nests on sand dunes close to water. mixes freely with other terns. Nesting sites range from San Francisco Bay to Baja California.	Not expected - no suitable habitat on site.
Toxostoma redivivum California thrasher	Federal: None State: CNDDB	Ranges from Humboldt and Shasta Counties south to Baja California. Inhabits lowland and coastal chaparral, and riparian thickets. Usually seen on or near ground. Nests constructed by both adults in bushes and small trees. Often seen in association with brown towhee and wren-tit.	Moderate - suitable nesting habitat on site.
Mammals			
Antrozous pallidus Pallid bat	Federal: None State: CSC	Large range in western North America; fairly common in many areas; however, regional population trends are poorly known. Inhabits open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Bats are very sensitive to disturbance of roosting sites. Forages in open habitats.	Moderate - suitable roosting habitat on site.
Corynorhinus (=Plecotus) townsendii townsendii Townsend's western big-eared bat	Federal: None State: CSC	Roosting sites include caves, mine tunnels, abandoned buildings, and other structures. Inhabits a variety of plant communities including coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands, and deserts. Most commonly associated with mesic sites. Highly sensitive to human disturbances; a single visit by humans can cause bats to abandon roosts.	Low - suitable roosting habitat on site.

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Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	Federal: None State: CNDDB	Known from open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands in Alameda and Contra Costa Counties. Needs fine, deep, well drained soil for burrowing.	Not expected - no suitable habitat on site.
Eumops perotis californicus Western mastiff bat	Federal: None State: CSC	Roosts in cliff faces and buildings. Ranges from California to Texas.	Low - suitable roosting habitat on site.
Lasiurus cinereus Hoary bat	Federal: None State: CNDDB	Found throughout California. Habitats suitable for bearing young include all woodlands and forests with medium to large-size trees and dense foliage.	Low - suitable roosting habitat on site.
Myotis evotis Long-eared myotis bat	Federal: None State: CNDDB	Inhabits thinly forested areas around buildings or trees. Occasionally found in caves. Does not occur in large colonies. Distributed throughout the western U.S.	Low - suitable roosting habitat on site.
Myotis volans Long-legged myotis bat	Federal: None State: CNDDB	Roosts colonially in buildings, small pockets and crevices in rock ledges, and exfoliating tree bark and hollows within snags. Distributed throughout the western U.S., Mexico, and Canada.	Low - suitable roosting habitat on site.
Myotis yumanensis Yuma myotis bat	Federal: None State: CNDDB	Roosts colonially in caves, tunnels, trees and buildings. Inhabits arid regions. Distributed throughout the western U.S., Mexico, and Canada.	Low - suitable roosting habitat on site.
Nyctinomops macrotis Big free-tailed bat	Federal: None State: CSC	Rocky areas in rugged country, mainly below 1800 m. Has been observed roosting in buildings. Known chiefly from Southern California through South America, but has been seen historically in Contra Costa and Alameda counties. Individuals present in summer in temperate North America migrate to warmer regions for winter.	Low - suitable roosting habitat on site.
Perognathus inornatus inornatus San Joaquin pocket mouse	Federal: None State: CNDDB	Inhabits grassland and scrub habitats in Central and San Joaquin Valleys. Associated with friable soils.	Not expected - no suitable habitat on site.
Reithrodontomys raviventris Salt marsh harvest mouse	Federal: FE State: SE CFP	Restricted to saline emergent wetlands of San Francisco Bay and its tributaries. Habitat consists primarily of pickleweed. Does not burrow; builds loose nests. Requires high ground to escape high tides and floods.	Not expected - no suitable habitat on site.
Scapanus latimanus parvus Alameda Island mole	Federal: None State: CSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perrenial grasslands. Prefers moist, friable soils. Avoids flooded soils.	Not expected - no suitable habitat on site.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species

Scientific Name Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Sorex ornatus sinuosus Suisun shrew	Federal: None State: CSC	Suisun Shrews occur in the tidal marshes of the northern shores of San Pablo and Suisun bays, as far east as Grizzly Island and as far west as Sonoma Creek and Tubbs Island. They inhabit tidal and brackish marshes where dense, low-lying cover and invertebrates are abundant, and where driftwood and other litter occurs above the mean high-tide line for nesting and foraging sites. Upland habitats continuous with the marshlands, offering sufficient cover and sources of food to sustain shrews during prolonged flooding of marshes and dikes, are also probably essential.	Not expected - no suitable habitat on site.
Taxidea taxus American badger	Federal: None State: CSC	Inhabits open grasslands, savannas, and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils. Distributed throughout California except in the humid forests of the extreme northwest.	Not expected - no suitable habitat on-site.
Vulpes macrotis mutica San Joaquin kit fox	Federal: FE State: ST	Range includes dry annual grassland or grassy open stages with scattered shrubby vegetation. Requires loose-textured sandy soils for denning, and suitable prey base.	Not expected - no suitable habitat on site.

[1] Explanation of sensitivity status codes provided in Appendix C.

APPENDIX C

Explanation of Sensitivity Status Codes

APPENDIX C

Explanation of Sensitivity Status Codes

CALIFORNIA NATIVE PLANT SOCIETY DESIGNATIONS (CNPS)

List 1: Plants of highest priority
List 1A: Plants presumed extinct in California
List 1B: Plants rare and endangered in California and elsewhere
List 2: Plants rare and endangered in California but more common elsewhere
List 3: Plants about which additional data are needed
List 4: Plants of limited distribution

CNPS R-E-D Codes

R (Rarity)
- 1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
- 2 = Occurrence confined to several populations or to one extended population.
- 3 = Occurrence limited to one or a few highly restricted populations, or present in such low numbers that it is seldom reported.
- ? = More data are needed

E (Endangerment)
- 1 = Not endangered
- 2 = Endangered in a portion of its range
- 3 = Endangered throughout its range
- ? = More data are needed

D (Distribution)
- 1 = More or less widespread outside California
- 2 = Rare outside California
- 3 = Endemic to California
- ? = More data are needed

note: currently, all CNPS list 1B and 2 taxa are considered "Special Plants" by the CDFG.

U.S. FISH AND WILDLIFE DESIGNATIONS (USFWS)

U.S. FISH AND WILDLIFE DESIGNATIONS (USFWS)

FE = Listed as endangered by the Federal Government
FT = Listed as threatened by the Federal Government
FPE = Proposed as endangered by the Federal Government
FPT = Proposed as threatened by the Federal Government
FSS = Federal sensitive species, as listed by Bureau of Land Management and USFWS
C[1] = Candidate; taxa for which USFWS has sufficient biological information to support a proposal to list as endangered or threatened.
MB = Migratory non-game birds of management concern to the USFWS; protected under the Migratory Bird Treaty Act.

[1]As of Feb. 28, 1996, all Category 1 candidate taxa are now regarded merely as Candidates.

CALIFORNIA DEPT. OF FISH AND GAME DESIGNATIONS (CDFG)

CE = Listed as endangered by the State of California
CR = Listed as rare by the State of California
CT = Listed as threatened by the State of California
CPE = Proposed for listing as endangered
CSC = California Species of Special Concern
* = Taxa that are restricted in distribution, declining throughout their range, or associated with habitats that are declining in California.
CFP = Fully protected under the Cal. Fish and Game Code.
CP = Protected Species under Cal. Code of Regulations.
CEQA = Taxa which are considered to meet the criteria for listing as endangered, threatened or rare by the CDFG; impacts to such taxa must be addressed in CEQA documents.
CEQA?= Taxa that might be locally significant; should be evaluated for consideration during preparation of CEQA documents, as recommended by the CDFG.
CNDDB = Tracked by the California Natural Diversity Database

APPENDIX F2:
PROJECT SPECIAL-STATUS PLANT SURVEY REPORT

SPECIAL-STATUS PLANT SURVEY REPORT

FOR THE

TERRACES AT LAFAYETTE PROPERTY

CONTRA COSTA COUNTY, CALIFORNIA

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OCTOBER 2011

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LIST OF ATTACHMENTS

1.0 SUMMARY

Olberding Environmental, Inc. has performed focused botanical surveys for special-status (those species identified as rare, threatened, or endangered) plants on the Terraces at Lafayette Property (Property), located in the city limit of Lafayette, Contra Costa County, California. Eight special-status plant species were identified by the California Natural Diversity Data Base (CNDDB) and California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Plants* as having the potential to occur on the Property based on appropriate habitat types present. Three additional species were included in the surveys based on historic occurrences in the vicinity of the Property. These plants include: bent-flowered fiddleneck (*Amsinckia lunaris*), California black walnut (*Juglans hindsii*), round-leaved filaree (*California macrophylla*), Mount Diablo fairy lantern (*Calochortus pulchellus*), fragrant fritillary (*Fritillaria liliacea*), Diablo helianthella (*Helianthella castanea*), Mt. Diablo cottonweed (*Micropus amphibolus*), San Antonio Hills monardella (*Monardella antonina* ssp. *antonina*), Large-flowered fiddleneck (Amsinckia grandiflora), Western leatherwood (Dirca occidentalis) and robust monardella (*Monardella villosa* ssp. *globosa*).

Five separate botanical surveys were performed during the 2011 spring/summer blooming period within the survey boundary of the Property. These surveys resulted in a negative finding for all eleven listed species identified above. However, our surveys did verify the presence of blue wildrye (*Elymus glaucus*) at several locations throughout the Property. Blue wildrye in not a listed special-status plant but is considered a rare vegetative community in Contra Costa County.

The following discussion provides a description of the Property's plant communities, our survey methods and the results of surveys performed during the identified blooming period of those species recognized as having the potential to occur on the Property.

2.0 LOCATION

The Terrace at Lafayette Property (Property) is located north of Highway 24, south/southeast of Deer Hill Road and west of Pleasant Hill Road in Contra Costa County, California (USGS Walnut Creek 7.5 minute quadrangle. Attachment 1, Figure 1 depicts the regional location of the Property in Contra Costa County and Attachment 1, Figure 2 identifies the vicinity location. Attachment 1, Figure 3 is a topographic map on the USGS 7.5 Quadrangle Map for Walnut Creek. An aerial photograph of the Property is provided in Attachment 1, Figure 4.

From the Bay Area, access to the Property is attained by taking Highway 24 east towards the city of Lafayette. Take the Pleasant Hill Road exit north to the intersection of Pleasant Hill and Deer Hill Road/Stanley Boulevard. At the light, u-turn back onto Pleasant Hill Road south; day parking is available along the west side of Pleasant Hill Road. There is also an open parking area on a seasonal Christmas tree lot; this is also the northeastern corner of the Property.

3.0 DESCRIPTION OF PROPOSED PROJECT AND PROJECT SITE

The Terraces of Lafayette site encompasses approximately 22 acres between Pleasant Hill Road and Deer Hill Road within the City of Lafayette just east of downtown. The southern property boundary is adjacent to Highway 24. Much of the site was graded and terraced during a quarry operation from 1967 – 1970, with cuts as much as 60 -80 feet. Subsequently, Caltrans placed poorly-compacted fill on the site during the construction of Highway 24. The project site reaches a maximum elevation of 462 feet along Deer Hill Road. The slopes on site generally range between 10-15 percent and eventually reach their lowest elevation of approximately 332 feet along Pleasant Hill Road. The project site includes a combination of land uses, including: office buildings, equipment storage and staging area for a seasonal Christmas tree retail operation. There are approximately 5,000 square feet in structures and 27,000 square feet in paved surfaces.

The project is currently designated on the City's General Plan as Administrative / Professional / Multi-family Residential. It is zoned Administrative / Professional. Land uses would change to Multi-family Residential on the 22-acre parcel. Surrounding land uses include residential development and Acalanes High School to the east across Pleasant Hill Road, and Highway 24 to the south. Residential parcels are present to the north/ northwest across Deer Hill Road, and beyond those parcels is Briones Park. A deeply incised drainage occurs in the northwest corner and remnant coast live oak woodland occurs along the eastern boundary of the Property.

While some native herbaceous species were detected on the fallow rangeland, the majority of vegetative assemblages are associated with disturbance habitats. A remnant of coast live oak (*Quercus agrifolia*) woodland occurs along the extreme eastern boundary of the Property, and vegetation associated with riparian habitats occurs along the incised channel of the drainage feature in the northeastern corner. Plant species observed during the spring/summer 2011 field surveys can be viewed in Attachment 2, Table 2.

4.0 PLANT REGULATIONS

4.1 Federal Regulatory Setting

The Federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register (U.S. Fish and Wildlife Service [USFWS], 2006a and 2006b). If a proposed project may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS, 2006c) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. The USFWS defines federal Candidate species as "those taxa for which we have on

file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other higher priority listing actions." (USFWS, 2007c). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in environmental planning.

4.2 State Regulatory Setting

Project permitting and approval requires compliance with California Environmental Quality Act (CEQA), the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of these species (§§2050-2098, Fish & Game Code). The California Code of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the California Department of Fish and Game (CDFG) administers the state rare species program. The CDFG maintains lists of designated Endangered, Threatened, and Rare plant and animal species (CDFG, 2008a and 2008b). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFG can afford interim protection to candidate species while they are being reviewed by the Fish and Game Commission.

Under provisions of §15380(d) of the CEQA Guidelines, the project lead agency and CDFG, in making a determination of significance, must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFG considers plant species on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994) as qualifying for legal protection under §15380(d). Species on CNPS List 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFG Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the CNDDB working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland 1986).

5.0 FLORISTIC INVENTORY AND HABITAT CHARACTERIZATION

The Property is located in the *San Francisco Bay Area* Subregion of the greater *Central Western California* Subdivision of the California Floristic Province (Hickman 1993). In classifying the habitat types found in the Property, generalized plant community classification schema were used (Sawyer, Keeler-Wolf, and Evens 2009). The final classification and characterization of the habitat types of the Property were based on field observations.

The Property supports five habitat types that consist of non-native grassland, disturbed/ruderal herbaceous, seep, coast live oak woodland and riparian habitat along the drainage (which supports elements of arroyo willow thickets and poison hemlock patches). Attachment 1, Figure 5 includes a map showing the location of these habitat types on the subject Property. Each habitat is described in further detail below. A description of the plant and wildlife species present within each habitat type is provided below. Dominant plant species are noted.

5.1 Non-Native Grassland

This semi-natural herbaceous stand has Avena spp. as the dominant or co-dominant species in the herbaceous layer. Other cool-season non-native annuals found in association with this habitat type include bromes (*Bromus* spp.), hare barley (*Hordeum murinum* spp. *leporinum*), rat-tail fescue (*Festuca myuros*), and perennial rye-grass (*Festuca perennis*). Non-native broad-leaved forbs (i.e., wildflowers) observed included wild geraniums (*Geranium dissectum* and *G. molle*), filarees (*Erodium cicutarium* and *E. botrys*), common groundsel (*Senecio vulgaris*), spring vetch (*Vicia sativa* spp. *sativa*), California bur-clover (*Medicago polymorpha*), rose clover (Trifolium *hirtum*), and Venus' needle (*Scandix pecten-veneris*).

Native graminoids (i.e., grasses and grass-like plants) were uncommon and included blue wild-rye (*Elymus glaucus*), Hall's bent grass (*Agrostis hallii*), and congested toad rush (*Juncus bufonius* var. *congestus*). Blue wild-rye occurs along hillslopes and appears to have been planted as part of a revegetation mix after soil excavation activities were completed. Native forbs observed included fiddleneck (*Amsinckia menziesii* and *A. intermedia*), California poppy (*Eschscholzia californica*), soap plant (*Chlorogalum pomeridianum*), Clarkia (*Clarkia* sp.), and miner's lettuce (*Claytonia perfoliata*). A few scattered seedlings of an annual species of buckwheat (*Eriogonum* sp.) were also observed along the east-facing hillslopes.

5.2 Disturbed /Ruderal Herbaceous

Disturbed/ruderal lands are those on which the native vegetation has been completely removed by grading, cultivation, and development. Disturbed areas include paved and unpaved roadways, quarries, vacant lots, developments, parking areas, and storage yards. Such areas are not expected to support any naturally occurring vegetation, although invasive native and non-native plant species frequently colonize disturbed sites. Landscaped lands are similarly disturbed, in that all or most of the native vegetation has been removed and replaced with ornamental species. Disturbed and landscaped areas have little potential to support unique or rare botanical resources. In this semi-natural herbaceous stand, mustards (*Brassica* spp.) and wild radish (*Raphanus sativus*) are the dominant species in the herbaceous layer. On certain hillslopes of the Property, mustards formed nearly pure stands. Depending on the amount of disturbance to the edaphic layer from past grading activities associated with the quarry borrow site, frequent overlap was observed between this vegetative assemblage and plant species observed in the non-native grassland stands (see above). Other commonly observed co-dominant species included Italian thistle (*Carduus pycnocephalus*) and yellow-star thistle (*Centaurea solstitialis*); gravelly soils on the graded terraces often had stands of stinkweed (*Dittrichia graveolens*) and telegraphweed (*Heterotheca grandiflora*) intergrading with this habitat type.

5.3 Native Grassland

The vegetation observed in the native annual grassland habitat consists of species typical to regional grassland communities. The dominant native grasses observed on the open hillslopes of the Property consist of blue wildrye intermixed with non-native species including soft chess (*Bromus hordeaceous*), rip-gut brome (*Bromus diandrus*), hare barley (*Hordeum murinum* ssp. *leporinum*), wild oat (*Avena fatua*), and Italian rye grass (*Lolium multiflorum*). Forb (i.e., wildflower) species found intermixed with the grasses consist of non-native annual and biennial weeds such as prickly lettuce (*Lactuca serriola*), dove geranium (*Geranium molle*), red-stem filaree (*Erodium cicutarium*), Italian thistle (*Carduus pycnocephalus*), yellow-star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*).

5.4 Coast Live Oak Woodland

A remnant of coast live oak woodland occurs along the eastern boundary of the Property. The extant oaks form a nearly monotypic stand, with a shrub and herbaceous groundlayer largely absent due to the presence of heavy leaf litter and closed canopy. They vary in age and size class, with most mature trees multitrunked and fairly large in diameter at breast height (dbh). Associate shrubs included a single blue elderberry (*Sambucus mexicana*), coyote brush (*Baccharis pilularis*), California bay laurel seedlings (*Umbellularia californica*), and a few adventive cultivars of firethorn (*Pyracantha* sp.) and olive (*Olea europaea*).

5.5 Riparian

The drainage feature traversing the northeast corner of the Property supports elements of both poison hemlock (*Conium maculatum*) patches and arroyo willow (*Salix lasiolepis*) thickets. Co-dominant trees included walnut (*Juglans* sp.) and adventive individuals of almond (*Prunus dulcis*) and cherry plum (*Prunus cerasifera*). Herbaceous forb species observed along the slopes and channel of the drainage included cut-leaf geranium, curly dock (*Rumex crispus*), California mugwort (*Artemisia douglasiana*), and common bedstraw (*Galium aparine*); graminoids included creeping wild-rye (*Elymus triticoides*), iris-leaved rush (*Juncus xiphioides*), and Baltic rush (*Juncus balticus*).

6.0 SURVEY METHODOLOGY

Olberding Environmental queried a literature review and special-status species databases in order to identify special-status plant species and sensitive habitat types with potential to occur in the study area. Sources reviewed include: California Natural Diversity Data Base (CNDDB) occurrence records (CNDDB 2011) and the California Native Plant Society (CNPS) *Inventory* (Skinner and Pavlik 1994) for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East USGS 7.5 quadrangles; and standard flora (Hickman 1993). From the above sources, a list of special-status plant species with potential to occur in the project vicinity was developed (Attachment 2, Table 1).

Special-status plant surveys were conducted by Olberding Environmental botanist, Christopher Bronny on March 11, April 10, May 15, June 7, and July 7, 2011. Additional surveys were

performed on September 28 for the purpose of mapping blue wildrye. The surveys followed the CDFG(2000) and CNPS (2001) published survey guidelines. These guidelines state that special-status 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 the species, subspecies, or variety as necessary to determine their rarity status. 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 time period when special-status plant species from the region were known to be evident and flowering. Surveys were intuitively-controlled and consisted of walking meandering transects through upland and wetland areas of the Property were potentially suitable habitat for special-status species could occur; emphasis was placed on assessing the coast live oak woodland remnant, shallow soils around exposed bedrock, and least disturbed areas supporting the highest percentage of native taxa in terms of their overall frequency, density, and distribution throughout the Property.
A list of all vascular plant taxa encountered within the Property was recorded in the field (Attachment 2, Table 2). Nearly all species observed within the Property were identified to species; all were identified to the level needed to determine whether they qualify as special-status plants. Final determinations for collected plant material were made by keying using *The Jepson Manual* and other sources.

7.0 SURVEY RESULTS

Attachment 2, Table 1 includes a list of special-status plants with the potential to occur within or in the immediate vicinity of the Property based on a review of the USGS 7.5 minute quadrangles for Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East. The special-status plant species identified by the CNDDB as potentially occurring in the Property are known to grow from general habitat types similar to those encountered on the subject Property. Many of the specific habitats, soil substrates, or "micro-climate" necessary for the plant species to occur were absent within the boundaries of the subject Property. The habitats necessary for the CNDDB reported plant species consist of valley and foothill grassland (with friable clay soil substrates) and cismontane woodland. While several of the special-status plants identified in Table 1 have the potential to occur on the Property as a result of the specific habitats identified within the Property boundaries, the historic anthropogenic (i.e., human-caused) disturbances have disturbed original soil profiles and eliminated the pre-settlement habitats needed to support the majority of special-status species generated by the CNDDB and CNPS queries. The special-status plants require various types of habitats including chaparral, riparian woodland, coastal scrub, dunes, deltaic wetlands, and/or habitats containing specific types of soil substrates, all of which are absent on the Property. Based on existing habitats, the following is a list of special-status plant species having the greatest potential to occur on the Property.

Bent-Flowered Fiddleneck (*Amsinckia lunaris*). CNPS List 1B.2

Bent-flowered fiddleneck is an annual of the family *Boraginaceae*. The inflorescence is spike-like and coiled at the tip with multiple small orange flowers. It is distributed throughout the

inner north coast ranges of California, in the west Central Valley, and the San Francisco Bay Area. Habitat consists of coastal bluff scrub, cisomontane woodlands, and valley and foothill grasslands. The blooming period is between March and June.

While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. This species was not observed during the spring 2011 surveys and is presumed absent from the Property.

Round-Leaved Filaree (*California macrophylla*). CNPS List 1B.1

Round-leaved filaree is an annual herb that blooms between March and May. This species is found within cismontane woodland and valley and foothill grassland, mostly on clay soils. Most collections and records of this plant are historical and field work is needed to clarify taxonomy. As the name implies, this species exhibits a very round leaf that lacks divisions such as observed in the other species within the genera.

While the flocculated clay soil substrates provide highly suitable habitat to support this species, it was not observed during the spring 2011 surveys and is presumed absent from the Property.

Mount Diablo Fairy-Lantern (*Calochortus pulchellus*). CNPS List 1B.2

Mount Diablo fairy-lantern is a spring blooming bulb that is in flower between April and June. This species exhibits light yellow globe-shaped flowers that turn down as if nodding. The plant grows to approximately one and a half feet tall and has between one to several flowers on the stem. This bulb specifically grows on wooded slopes in chaparral and in valley and foothill grassland habitat.

While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. This species was not observed during the spring 2011 surveys and is presumed absent from the Property.

Fragrant fritillary (*Fritillaria liliacea*). CNPS List 1B.2

Recurved Larkspur is a perennial herb of the *Ranunculaceae* family, the buttercups. It is native to California and is typically found in alkaline soils in chenopod scrub, cismontane woodlands, and valley and foothill grasslands. It is found in Alameda, Contra Costa, Fresno, Kings, Kern, Madera, Merced, Montery, San Luis Obispo, Solano, and Tulare Counties, but is considered potentially extirpated in Butte and Colusa Counties. It blooms between March and May.

While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. This species was not observed during the spring 2011 surveys and is presumed absent from the Property.

Diablo helianthella (*Helianthella castanea*). CNPS List 1B.2

Diablo helianthella is a California endemic found in a variety of habitat types including broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. This perennial member of the sunflower family has large yellow ray and disk flowers that blooms from March through June. It is known from a total of 97 occurrences in Contra Costa, Marin, Alameda, San Francisco, and San Mateo counties. It is threatened by urbanization, grazing, and fire suppression, and possibly threatened by roadside maintenance.

While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. This species was not observed during the spring 2011 surveys and is presumed absent from the Property.

Mt. Diablo cottonweed (*Micropis amphibolus*). CNPS List 3.2

Mt. Diablo cottonweed is a California endemic and an annual member of the sunflower family. It blooms from March through May and occurs in a variety of habitats including broadleafed upland forest, chaparral, cismontane woodland, and valley and foothill grassland.

It occurs in a number of counties including Alameda, Contra Costa, Colusa, Lake, Monterey, Marin, Napa, Santa Barbara, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, Solano, and Sonoma; threats include vineyard development projects. While the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. This species was not observed during the spring 2011 surveys and is presumed absent from the Property.

San Antonio Hills monardella (*Monardella antonina* spp. *antonina*). CNPS List 3.

San Antonio Hills monardella is a California endemic and a perennial member of the mint family. It occurs in chaparral and cismontane woodland habitats. The blooming period is between June and August.

Possible threats include road maintenance, pipeline construction, and feral pigs. While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. No species of *Monardella* were detected during the spring 2011 surveys and is presumed absent from the Property.

Robust monardella (*Monardella villosa* spp. *globosa*). CNPS List 1B.2

Robust monardella is a California endemic and a perennial member of the mint family. Habitats of occurrence include broadleafed upland forest (openings), chaparral (openings), cismontane woodland, coastal scrub, and valley and foothill grassland. The blooming period is between June and August.

While the degraded annual grasslands on the Property represents marginally suitable habitat to support this species, it is unlikely that this plant will occur on the site. No species of *Monardella* were detected during the spring 2011 surveys and is presumed absent from the Property.

8.0 CONCLUSIONS

During the Spring/Summer 2011 special-status plant surveys, a total of 81 vascular plants were detected and identified within the boundaries of the Property. The relative percent cover of native species within the Property is extremely low. Of these 81 species, less than half – 32 species - are native to California; the remaining 49 species are naturalized, and introduced to California from other countries.

Eight special-status plant species were identified by the CNDDB as having the potential to occur on the Property based on general habitat descriptions (valley and foothill grassland and cismontane woodland). Three additional plant species were identified as having the potential to occur based on historic records. However, due to past disturbances associated with the quarry operations and Caltrans placement of fill, existing habitat quality was very low, and no special-status species were detected during the surveys performed during the appropriate blooming periods for each special-status species. Special-status plant species were not observed on the subject Property during the 2011 survey period.

Our surveys verified the presence of blue wildrye at several locations throughout the Property. Our mapping efforts identified approximately 2 acres of this grassland habitat within the Property. Blue wildrye is not listed by the federal or state government and is not listed by CNPS. It is considered a rare vegetative community in Contra Costa County.

9.0 REFERENCES

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ATTACHMENTS

ATTACHMENT 1
FIGURES

Figure 1
Regional Map

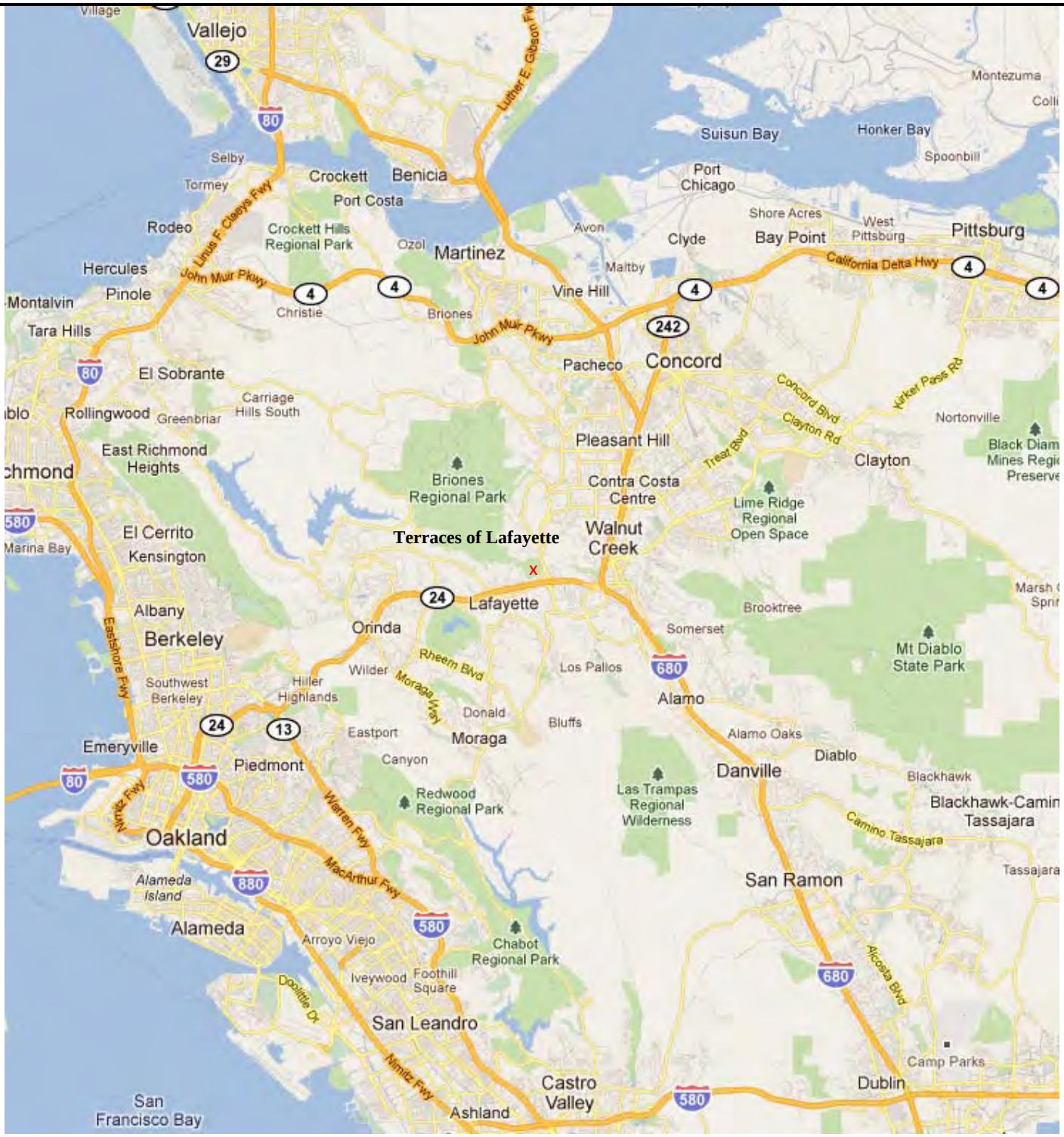

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Figure 1
Regional Map of the Terraces of Lafayette Property
Contra Costa County, California

Figure 2
Vicinity Map

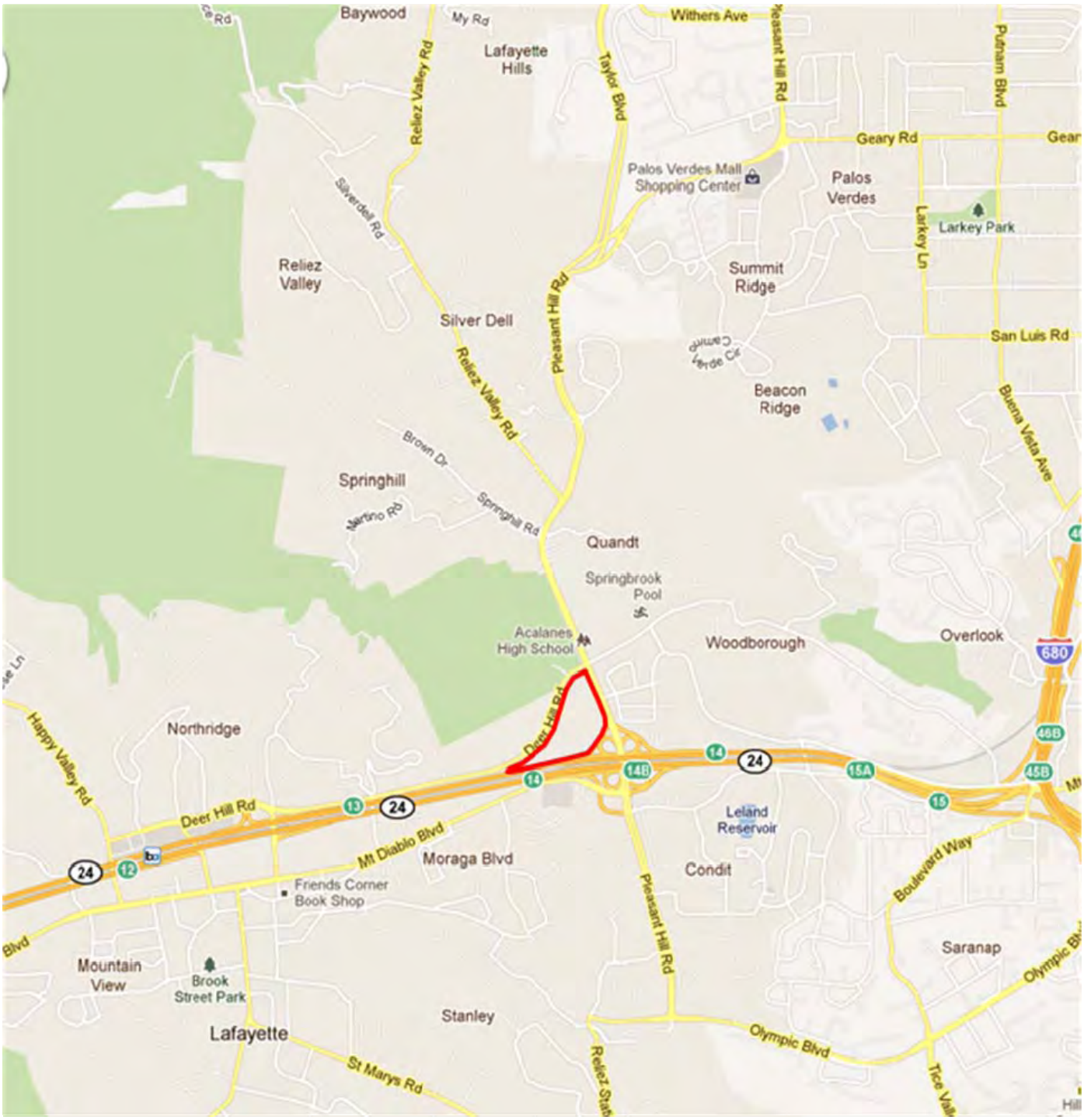

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Figure 2
Vicinity Map of the Terraces of Lafayette Property
Contra Costa County, California

Figure 3
USGS Quadrangle Map for
Walnut Creek

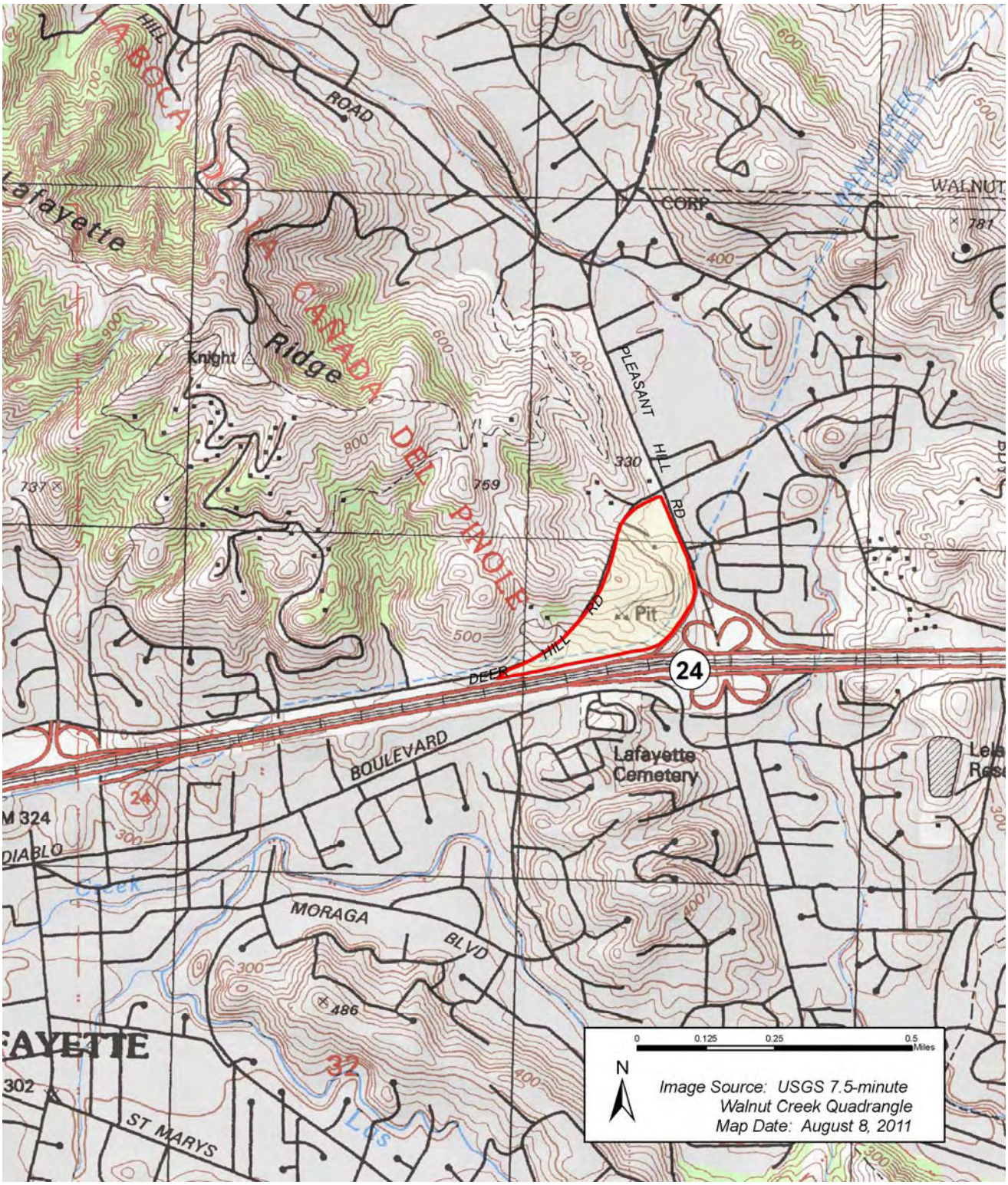

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Figure 3
USGS Quadrangle Map of the Terraces of Lafayette Property
Walnut Creek Quadrangle
Contra Costa County, California

Figure 4
Aerial Photograph

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Figure 4
Aerial Photo of the Terraces of Lafayette Property
Contra Costa County, California

Figure 5
Vegetative Communities Exhibit

Terraces of Lafayette

Vegetation Communities Map

Contra Costa County
California

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Survey Boundary

Vegetation Communities

- Riparian - 0.22 acre
- Coast Live Oak Woodland - 1.56 acres
- Disturbed/Ruderal Herbaceous - 14.56 acres
- Non-native Grassland - 4.23 acres
- *Elymus glaucus* (blue wildrye) - 2 acres

1 inch = 200 feet

0 75 150 300 Feet

N

Image Source: Contra Costa County
Image Date: 2009
Field Delineation conducted on March 11, 2011 and October 1, 2011 by Mr. Christopher Bronny.
Map Date: October 2011

Figure 6
CNDDB Locations of Special-Status Plants

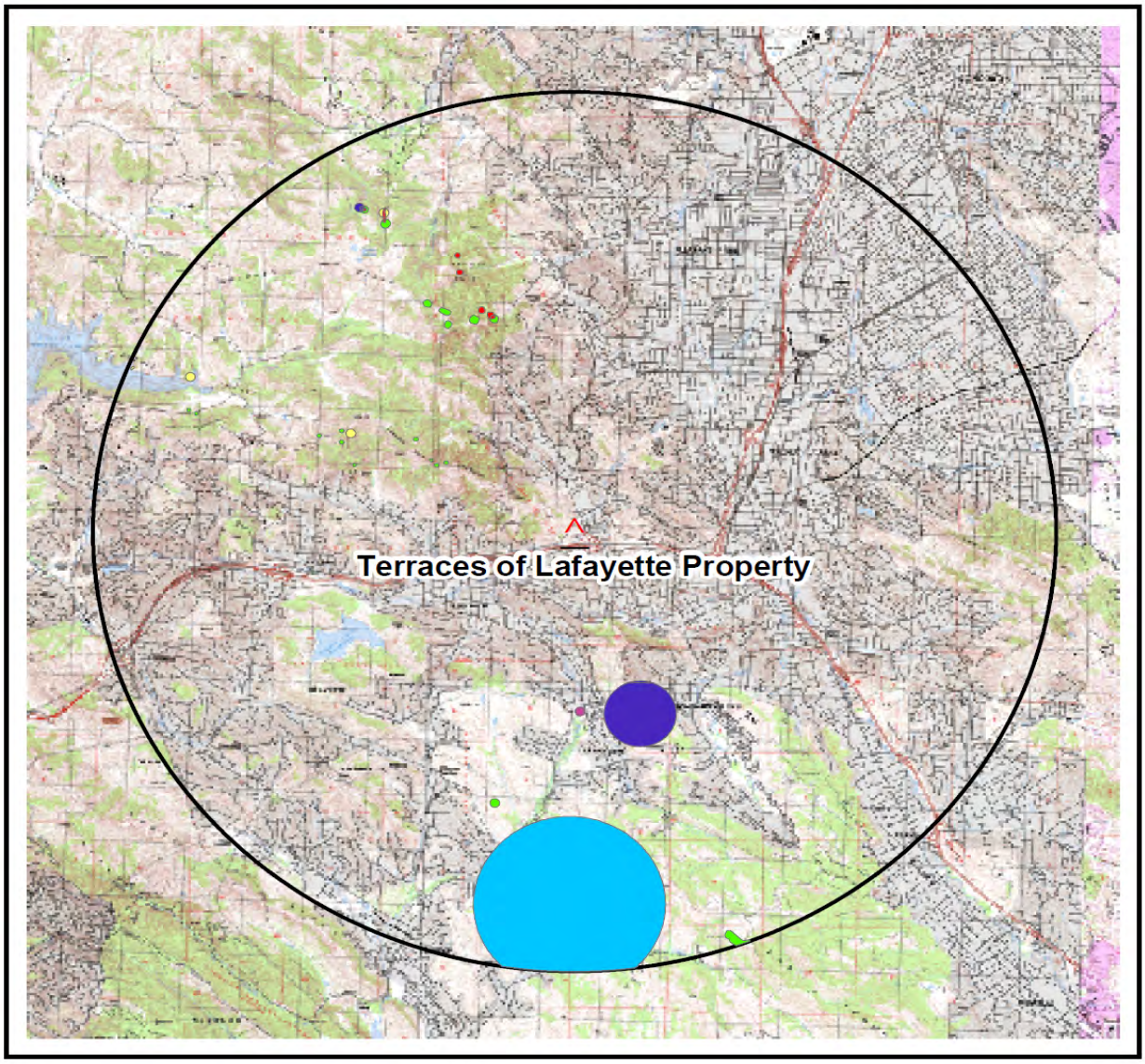

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Figure 6
CNDDB Map of Special-Status Plants Near the Terraces of Lafayette Property Within a 5-Mile Radius and Within the Last 10 Years
Contra Costa County, California

Figure 7
Soil Survey Map

Contra Costa County, California		
Map Unit Symbol	**Percentage within Property**	**Map Unit Name**
AaE	14.0 %	Alo clay, 15 to 30 percent slopes
Cc	7.1 %	Clear Lake clay
CmE	71.3 %	Cut and fill land – Diablo complex, 9 to 30 percent slopes
LcF	7.5 %	Lodo clay loam, 30 to 50 percent slopes

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Figure 7
Soils Map of the Terraces of Lafayette Property
Contra Costa County, California

ATTACHMENT 2
TABLES

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East Quadrangle Maps

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
PLANTS					
Bent-Flowered Fiddleneck (*Amsinckia lunaris*)	-/-/1B.2	March – June	Cismontane woodland, valley and foothill grassland, and coastal bluff scrub.	Low	Presumed Absent
California Androsace (*Androsace elongata* ssp. *acuta*)	-/-/4.2	March – June	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. 305-1,200 meters. Lower montane coniferous forest, North Coast coniferous forest/damp rock and soil on outcrops, usually on roadcuts	No	Presumed Absent
Slender Silver-Moss (*Anomobryum julaceum*)	-/-/2.2	N/A	Broadleafed upland forest; lower montane coniferous forest; North Coast coniferous forest/damp rock and soil on outcrops, usually on roadcuts.	No	Presumed Absent
Coast Rock Cress (*Arabis blepharophylla*)	-/-/4.3	March – April	A spring blooming perennial, native to rocky habitats of coastal scrub from Santa Cruz to Sonoma counties.	No	Presumed Absent
Mount Diablo Manzanita (*Arctostaphylos auriculata*)	-/-/1B.3	January – March	Chaparral, in canyons and on slopes, on sandstone.	No	Presumed Absent
Contra Costa Manzanita (*Arctostaphylos manzanita* ssp. *laevigata*)	-/-/1B.2	January – February	Chaparral, rocky slopes.	No	Presumed Absent
Pallid Manzanita (*Arctostaphylos pallida*)	-/-/1B.1	December – March	Occurs in a variety of habitats including broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub having siliceous shale, sandy or gravelly soil substrates.	No	Presumed Absent
Alkali Milk-Vetch (*Astragalus tener* var. *tener*)	-/-/1B.2	March – June	Playas, valley and foothill grasslands in adobe clay soils, and vernal pools in alkaline soils.	No	Presumed Absent
Heartscale (*Atriplex cordulata*)	-/-/1B.2	April – October	Chenopod scrub, valley and foothill grassland on alkaline flats and scalds, sandy soils.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
San Joaquin Spearscale (*Atriplex joaquiniana*)	-/-/1B.2	April – October	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils.	No	Presumed Absent
Big-Scale Balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)	-/-/1B.2	March – June	Chaparral, cismontane woodland, and valley and foothills grasslands, sometimes in serpentinite outcrops.	No	Presumed Absent
Big Tarplant (*Blepharizonia plumosa*)	-/-/1B.1	July – October	Valley and foothill grassland, dry hills and plains in annual grassland, clay to clay-loam soils; usually on slopes and often in burned areas.	No	Presumed Absent
Brewer's Calandrinia (*Calandrinia breweri*)	-/-/4.2	March – June	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns. 10-1,220 meters.	No	Presumed Absent
Round-Leaved Filaree (*California macrophylla*)	-/-/1B.1	March – May	Cismontane woodland and valley and foothill grassland in clay soils.	Moderate	Presumed Absent
Mount Diablo Fairy-Lantern (*Calochortus pulchellus*)	-/-/1B.2	April – June	Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland; on wooded and brushy slopes.	Low	Presumed Absent
Oakland Star Tulip (*Calochortus umbellatus*)	-/-/4.2	March – May	Occurs in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland often on serpentinite soil substrates.	No	Presumed Absent
Chaparral Harebell (*Campanula exigua*)	-/-/1B.2	May – June	Chaparral, in rocky, usually serpentine soils.	No	Presumed Absent
Pink Creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)	-/-/1B.2	April – June	Occurs in chaparral (openings), cismontane woodland, meadows and seeps, and valley and foothill grassland often on serpentinite soil substrates.	No	Presumed Absent
Congdon's Tarplant (*Centromadia parryi* ssp. *congdonii*)	-/-/1B.2	June – November	Valley and foothill grasslands in alkaline soils.	No	Presumed Absent
Soft Bird's-Beak (*Chloropyron molle* ssp. *molle*)	-/-/1B.2	July – November	Occurs in coastal salt marshes and swamps.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Robust Spineflower *(Chorizanthe robusta var. robusta)*	E/-/1B.1	April – September	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly.	No	Presumed Absent
Bolander's Water-Hemlock (*Cicuta maculata* var. *bolanderi*)	-/-/2.1	July – November	Occurs in coastal marshes and swamps, fresh or brackish water.	No	Presumed Absent
Franciscan Thistle (*Cirsium andrewsii)*	-/-/1B.2	March – July	Mesic, often serpentinite soil substrates in broadleafed upland forest, coastal bluff scrub, coastal prairie and coastal scrub habitats.	No	Presumed Absent
Santa Clara Red Ribbons (*Clarkia concinna* ssp. *automixa*)	-/-/4.3	April – July	Chaparral and cismontane woodland.	No	Presumed Absent
Presidio Clarkia (*Clarkia franciscana*)	-/-/1B.1	May – July	Coastal scrub and valley and foothill grassland habitats, often in serpentinite soil substrates.	No	Presumed Absent
Mount Diablo Bird's-Beak (*Cordylanthus nidularius*)	-/-/1B.1	July – August	Chaparral (serpentinite)	No	Presumed Absent
Hospital Canyon Larkspur (*Delphinium californicum* ssp. *interius*)	-/-/1B.2	April – June	Cismontane woodland, chaparral; in wet, boggy meadows, openings in chaparral and in canyons, mesic.	No	Presumed Absent
Norris' Beard Moss (*Didymodon norrisii*)	-/-/2.2	N/A	Occurs on intermittently mesic rock outcroppings in cismontane woodland and lower montane coniferous forest.	No	Presumed Absent
Western Leatherwood (*Dirca occidentalis*)	-/-/1B.2	January – April	Occurs in mesic broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland.	No	Presumed Absent
Brandegee's Eriastrum (*Eriastrum brandegeeae)*	-/-/1B.2	April – August	Occurs in chaparral and cismontane woodland with volcanic, sandy soil substrates.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Tiburon Buckwheat (*Eriogonum luteolum* var. *caninum*)	-/-/1B.2	April –September	Chaparral, coastal scrub, Valley and foothill grassland/sandy	No	Presumed Absent
Mount Diablo Buckwheat (*Eriogonum truncatum*)	-/-/1B.1	April – September (November), (December) (Months in parentheses are uncommon)	Chaparral, coastal scrub, valley and foothill grassland (sandy soil substrates)	No	Presumed Absent
Fragrant fritillary (*Fritilleria liliacea*)	-/-/1B.2	February - April	Occurs in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland often on serpentinite soil substrates.	Low	Presumed Absent
Diablo Helianthella (*Helianthella castanea*)	-/-/1B.2	March – June	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils, often in partial shade.	Low	Presumed Absent
Brewer's Western Flax (*Hesperolinon breweri*)	-/-/1B.2	May – July	Chaparral, cismontane woodland, valley and foothill grassland. Often in rocky serpentine soils.	No	Presumed Absent
Napa Western Flax (*Hesperolinon serpentinum*)	-/-/1B.1	May – July	Chaparral in serpentine soils.	No	Presumed Absent
Woolly Rose-Mallow (*Hibiscus lasiocarpus*)	-/-/2.2	June – September	Freshwater marshes and swamps; moist, freshwater-soaked river banks and low peat islands in sloughs; in California, known from the Delta watershed.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Loma Prieta Hoita *(Hoita strobilina)*	-/-/1B.1	May – July (August), (October) (Months in parentheses are uncommon)	Chaparral, cismontane woodland, riparian woodland, usually serpentinite, mesic	No	Presumed Absent
Santa Cruz Tarplant *(Holocarpha macradenia)*	-/-/1B.1	June – October	Valley and foothill grassland/often clay, sandy	No	Presumed Absent
Kellogg's Horkelia *(Horkelia cuneata* ssp. *sericea)*	-/-/1B.1	April – September	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub	No	Presumed Absent
Northern Califonia Black Walnut *(Juglans hindsii)*	-/-/1B.1	April – May	Riparian forest, riparian woodland	No	Presumed Absent
Contra Costa Goldfields (*Lasthenia conjugens*)	E/-/1B.1	March – June	Valley and foothill grassland, cismontane woodland, and vernal pools, swales, and low depressions in open grassy areas.	No	Presumed Absent
Delta Tule Pea *(Lathyrus jepsonii* var. *jepsonii*	-/-/1B.2	May – July (September) (Months in parentheses are uncommon)	Marshes and swamps(freshwater and brackish)	No	Presumed Absent
Legenere (*Legenere limosa*)	-/-/1B.1	April – June	Vernal pools.	No	Presumed Absent
Mason's Lilaeopsis (*Lilaeopsis masonii*)	-/R/1B.1	April – November	Brackish or freshwater marshes and swamps.	No	Presumed Absent
Delta Mudwort (*Limosella subulata*)	-/-/2.1	May – August	Riparian scrub, freshwater marsh, brackish marsh, swamps; usually on mud banks of the Delta in marshy or scrubby riparian associations, often with *Lilaeopsis masonii.* Probably the rarest of the suite of Delta rare plants.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Showy Golden Madia (*Madia radiata*)	-/-/1B.1	March – May	Valley and foothill grassland, cismontane woodland, chenopod scrub, mostly on adobe clay in grassland or among shrubs.	No	Presumed Absent
Hall's Bush-Mallow *(Malacothamnus hallii)*	-/-/1B.2	May –September (October) (Months in parentheses are uncommon)	Chaparral, coastal scrub	No	Presumed Absent
Oregon Meconella *(Meconella organa)*	-/-/1B.1	March – April	Coastal Prairie, coastal scrub	No	Presumed Absent
Mount Diablo Cottonweed (*Micropus amphibolus*)	-/-/3.2	March – May	Broadleafed upland forest, chaparral, cismontane woodland, and valley and foothill grasslands in rocky soils.	Low	Presumed Absent
San Antonio Hills Monardella (*Monardella antonina* ssp. *antonina*)	-/-/3	June – August	Chaparral and cismontane woodland.	Low	Presumed Absent
Robust Monardella *(Monardella cillosa* ssp. *globosa)*	-/-/1B.2	June – July (August) (Months in parentheses are uncommon)	Broadleafed upland forest, chaparral (openings), cismontane woodland. Coastal scrub, valley and foothill grassland.	Low	Presumed Absent
Woodland Woolythreads *(Monolopia gracilens)*	-/-/1B.2	(February), March – July (Months in parentheses are uncommon)	Broadleafed upland forest, chaparral, cismontane woodland, North Coast coniferous forest (opening), valley and foothill grassland/serpentinite.	No	Presumed Absent
Little Mousetail (*Myosurus minimus* ssp. *apus*)	-/-/3.1	March – June	Valley and foothill grassland, vernal pools, alkaline.	No	Presumed Absent
Sessile Mousetail (*Myosurus sessilis*)	-/-/A2.1	March – May	Valley and foothill grasslands and vernal pool habitats and in alkaline flats.	No	Presumed Absent
Lime Ridge Navarretia *(Navarretia gowenii)*	-/-/1B.1	May – June	Chaparral	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Antioch Dunes Evening-Primrose *(Oenothera deltoids* ssp. *howellii)*	-/-/1B.1	March – September	Inland dunes	No	Presumed Absent
Mount Diablo Phacelia *(Phacelia phacelioides)*	-/-/1B.2	April – May	Chaparral, cismontane woodland/rocky.	No	Presumed Absent
San Francisco Popcorn-Flower *(Plagiobothrys diffusus)*	-/-/1B.1	March – June	Coastal prairie, valley and foothill grassland.	No	Presumed Absent
Hairless Popcorn-Flower (*Plagiobothrys glaber*)	-/-/1A.1	March – May	Meadows and seeps, marshes and swamps, coastal salt marshes and alkaline meadows.	No	Presumed Extinct
Adobe Sanicle *(Sanicula maritima)*	-/-/1B.1	February – May	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland/clay, serpentinite.	No	Presumed Absent
Rock Sanicle *(Sanicula saxatilis)*	-/-/1B.2	April – May	Broadleafed upland forest, chaparral, valley and foothill grassland	No	Presumed Absent
Rayless or Chaparral Ragwort (*Senecio aphanactis*)	-/-/2.2	January – April	Cismontane woodland, coastal scrub, drying alkaline flats, chaparral.	No	Presumed Absent
Most Beautiful Jewel-Flower (*Streptanthus albidus* ssp. *peramoenus*)	-/-/1B.2	April – June	Chaparral, cismontane woodland, and valley and foothill grasslands in serpentine soils on ridges and slopes.	No	Presumed Absent
Mount Diablo Jewel-Flower *(Streptanthus hispidus)*	-/-/1B.3	March – June	Chaparral, valley and foothill grassland/rocky.	No	Presumed Absent
Slender-Leaved Pondweed *(Stuckenia filiformis)*	-/-/2.2	May – July	Marshes and swamps (assorted shallow freshwater).	No	Presumed Absent
Suisun Marsh Aster *(Symphyotrichum lentum)*	-/-/1B.2	May – November	Marshes and swamps (brackish and freshwater).	No	Presumed Absent
Saline Clover (*Trifolium hydrophilum*)	-/-/1B	April – June	Marshes and swamps, valley and foothill grasslands with mesic, alkaline soils, and vernal pools.	No	Presumed Absent
Coastal Triquetrella *(Triquetrella californica)*	-/-/1B.2	N/A	Coastal bluff scrub, coastal scrub.	No	Presumed Absent

Table 1
Special-Status Species for the Walnut Creek, Briones Valley, Benicia, Vine Hill, Honker Bay, Clayton, Diablo, Las Trampas Ridge, and Oakland East 7.5 Minute Quadrangle Maps[1]

Common Name/ Scientific Name	Status (Fed/State/ CNPS)[2]	Blooming or Survey Period	Habitats of Occurrence	Potential on Site	Status on Site**
Caper-Fruited Tropidocarpum (*Tropidocarpum capparideum*)	-/-/1B.1	March – April	Valley and foothill grasslands on alkaline hills.	No	Presumed Absent
Oval-Leaved Viburnum (*Viburnum ellipticum*)	-/-/2.3	May – June	Chaparral, cismontane woodlands, and lower montane coniferous forest.	No	Presumed Absent

1. Special-status plants and animals as reported by the California Natural Diversity Data Base, California Native Plant Society, and other background research June 2011.
2. Order of Codes for Plants - Fed/State/CNPS

Codes:
E - Federally/State Listed as an Endangered Species
T - Federally/State Listed as a Threatened Species
R – Rare
A2 - currently known from three to five regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.
1B - California Native Plant Society considers the plant Rare, Threatened, or Endangered in California and elsewhere.
1A - CNPS Plants presumed extinct in California.
2 - CNPS Plants Rare, Threatened or Endangered in California, but more common elsewhere.
3 - CNPS Plants on a review list to find more information about a particular species.
4 - CNPS Plants of limited distribution - a watch list.

CNPS Threat Code Extensions:
1. Species seriously endangered in California
2. Species fairly endangered in California
3. Species not very endangered in California

Table 2
Plant Species Observed

TABLE 2: PLANT SPECIES OBSERVED

Project: Terraces at Lafayette Property, Contra Costa County, California
Dates: 03/11/2011; 04/10/2011; 05/15/2011; 06/07/2011; 07/07/2011
Botanist: Christopher Bronny
*denotes naturalized species
[ ] denotes recent taxonomic name changes (TJM2)

Family	Scientific Name	Common Name	
Section - Gymnosperms			
Cupressaceae	*Calocedrus decurrens*	Incense cedar	
Pinaceae	*Pinus* sp.*	Pine (seedlings)	
Section - Magnoliids			
Lauraceae	*Umbellularia californica*	California bay laurel	
Section - Eudicots			
Adoxaceae	*Sambucus mexicana*	Blue elderberry	
Apiaceae	*Conium maculatum**	Poison hemlock	
	*Scandix pecten-verenis**	Venus' needle	
	*Torilis arvensis**	Field hedge parsley	
Asteraceae	*Artemisia douglasiana*	California mugwort	
	Baccharis pilularis	Coyote brush	
	*Carduus pycnocephalus**	Italian thistle	
	*Centaurea solstitialis**	Yellow star-thistle	
	*Cirsium vulgare**	Bull thistle	
	*Cynara cardunculus**	Cardoon	
	*Dittrichia graveolens**	Stinkweed	
	Epilobium brachycarpum	Annual fireweed	
	*Fillago gallica**	Narrowleaf cottonrose	
	Heterotheca grandiflora	Telegraphweed	
	*Hypochaeris glabra**	Smooth cat's-ear	
	*Hypochaeris radicata**	Rough cat's-ear	
	*Lactuca serriola**	Prickly lettuce	
	Madia gracilis	Slender tarweed	
	*Picris echioides**	Bristly ox-tongue	
	*Senecio vulgaris**	Common groundsel	
	*Silybum marianum**	Milk thistle	
	*Sonchus oleraceus**	Common sow-thistle	
	*Tragopogon porrifolius**	Salsify	

Boraginaceae	*Amsinckia menziesii*	Small-flowered fiddleneck
	Amsinckia intermedia	Common fiddleneck
Brassicaceae	*Brassica nigra**	Black mustard
	*Brassica rapa**	Birdsrape mustard
	Cardamine oligosperma	Bitter-cress
	*Raphanus sativus**	Wild radish
Caryophyllaceae	*Polycarpon tetraphyllum**	Four-leaved allseed
Convolvulaceae	*Calystegia subacaulis*	Stemless morning-glory
	*Convolvulus arvensis**	Field bindweed
Fabaceae	*Acacia dealbata**	Silver wattle
	Lotus wrangelianus	Calf lotus
	*Medicago polymorpha**	California bur-clover
	*Trifolium hirtum**	Rose clover
	Vicia sativa spp. *sativa**	Spring vetch
Fagaceae	*Quercus agrifolia*	Coast live oak
	Quercus lobata	Valley oak
Geraniaceae	*Erodium botrys**	Filaree
	*Erodium brachycarpum**	Shortfruit stork'sbill
	*Erodium cicutarium**	Red-stem filaree
	*Geranium dissectum**	Cut-leaf geranium
	*Geranium molle**	Dove geranium
Juglandaceae	*Juglans* sp.*	Walnut
Montiaceae	*Claytonia perfoliata*	Miner's lettuce
Oleaceae	*Olea europaea**	Olive
Onagraceae	*Clarkia purpurea* ssp. *quadrivulnera*	Clarkia
	Epilobium brachycarpum	Annual fireweed
Orobanchaceae	*Bellardia trixago**	Mediterranean lineseed
Oxalidaceae	*Oxalis pes-capre**	Bermuda buttercup
Papaveraceae	*Eschscholzia californica*	California poppy
Polygonaceae	*Eriogonum* sp. (likely *E. nudum var. (?)*)	Buckwheat
	*Rumex crispus**	Curly dock
Rosaceae	*Prunus cerasifera**	Cherry plum
	*Prunus dulcis**	Almond
	*Pyracantha sp.**	Firethorn
Rubiaceae	*Galium aparine*	Common bedstraw
Salicaceae	*Salix laevigata*	Red willow
	Salix lasiolepis	Arroyo willow
Section - Monocots		
Agavaceae	*Chlorogalum pomeridianum*	Soap plant
Juncaceae	*Juncus balticus*	Baltic rush
	Juncus bufonius var. *congestus*	Toad rush

	Juncus xiphioides	Iris-leaved rush
Poaceae	*Agrostis hallii*	Hall's bent grass
	*Avena barbata**	Slender wild oat
	*Avena fatua**	Wild oat
	*Bromus diandrus**	Rip-gut brome
	*Bromus hordeaceus**	Soft chess
	*Bromus tectorum**	Downy brome
	Elymus glaucus	Blue wild-rye
	Festuca [*Lolium*] *perennis**	Perennial rye grass
	Festuca **[***Vulpia***]** *myuros**	Rat-tail fescue
	*Hordeum marinum ssp. gussoneanum**	Mediterranean barley
	Hordeum murinum ssp. *leporinum**	Hare barley
Themidaceae	*Dichlostemma capitatum*	Blue dicks
	Triteleia laxa	Common triteleia

ATTACHMENT 3
SITE PHOTOGRAPHS

Photo 1. Hillslope along the southern boundary of the Property containing vegetative assemblages dominated by invasive non-native grasses and forbs including mustards and wild oat. Photo taken during March 2011 survey.

Photo 2. Level pad of former Caltrans soil borrow area in central portion of Property, facing south. Photo taken during March 2011 survey.

Photo 3. Remnant coast live oak woodland along eastern boundary of property. Photo taken during June 2011 survey.

Photo 4. Non-native grassland along old borrow area access road, facing north. Remnant oak woodland can be seen in the background. Photo taken during June 2011 survey.

APPENDIX F3:
U.S. ARMY CORPS OF ENGINEERS JURISDICTIONAL DELINEATION

U.S. ARMY CORPS OF ENGINEERS JURISDICTIONAL DELINEATION

FOR THE

TERRACES OF LAFAYETTE PROPERTY (APN: 232-150-027)

CONTRA COSTA COUNTY, CALIFORNIA

Prepared for:

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MARCH 2011

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TABLES

ATTACHMENTS

This report should be cited as: Olberding Environmental, Inc. March 2011. *U.S. Army Corps of Engineers Jurisdictional Delineation for the Terraces of Lafayette Property, Contra Costa County, California.* Prepared for O'Brien Land Company, LLC, Lincoln, California.

1.0 INTRODUCTION

1.1 Scope

Olberding Environmental, Inc. (Olberding Environmental) conducted an investigation of the geographic extent of areas potentially subject to US Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act (wetlands and other waters) within the identified boundaries of the Terraces of Lafayette Property. The placement of fill material in areas identified as jurisdictional waters is subject to the permit requirements of the Corps, under Section 404 of the Clean Water Act (1972).

On March 11, 2011 a field survey was conducted for the purpose of identifying the extent of Corps jurisdiction on the 22.26 acre parcel. Visual observations as to the presence or absence of indicators of wetland soil, vegetation and hydrological conditions were made during the investigation. The boundaries of all potential wetland/water features observed were further defined in accordance with the Corps regulations and the required methodology described in the 1987 Corps Wetlands Delineation Manual (1987 Manual) and Arid West Supplement to the 1987 Manual (Arid West Supplement).

1.2 Location

The Terraces of Lafayette Property (Property) is located north of Highway 24 and west of Pleasant Hill Road in Contra Costa County, California. Attachment 1, Figure 1 depicts the regional location of the Property in Contra Costa County and Figure 2 identifies the vicinity location. Figure 3 is a topographic map on the USGS 7.5 Quadrangle Map for Walnut Creek. An aerial photograph of the Property is provided in Figure 4.

From the Bay Area, access to the Property is attained by taking Highway 24 east towards the town of Lafayette. Take the Pleasant Hill Road exit north to the intersection of Pleasant Hill and Deer Hill Road/Stanley Boulevard. At the light, u-turn back onto Pleasant Hill Road south; day parking is available along the west side of Pleasant Hill Road. There is also an open parking area on a seasonal Christmas Tree lot; this is also the northeastern corner of the Property.

1.3 Property Description

The majority of the 22.26 acre parcel (APN:232-150-027) is open space consisting of fallow rangeland and disturbance habitats associated with a former Caltrans soils borrow site associated with past highway construction projects. A deeply incised drainage and a former residence (now an active day-care center) occurs in the northeastern corner. The majority of the Property is surrounded by open space to the west, with Highway 24 forming the southern boundary, Pleasant Hill Road the eastern boundary, and Deer Hill Road forming the northern and western boundaries. Commercial and residential developments occur to the north and east of the Property. The topography is generally steep to moderately steep throughout the open portions, with a series of inclined access roads and level terraces marking the old Caltrans borrow site. Besides the day-care center, the only other structures present on the Property are trailers associated with the old Caltrans staging area. The highest elevation occurs on the terrace above

the old Caltrans staging area in the center of the Property at approximately 462 feet above sea level; the lowest elevation occurs in the northeast corner at approximately 332 feet above sea level.

While some native herbaceous species were detected on the fallow rangeland, the majority of vegetative assemblages are associated with disturbance habitats. A remnant of coast live oak (*Quercus agrifolia*) woodland occurs along the extreme eastern boundary of the Property, and vegetation associated with riparian habitats occurs along the incised channel of the drainage feature in the northeastern corner. Plant species observed during the March 2011 field delineation (including reference to recent taxonomic name changes in *The Jepson Manual 2*), can be viewed in Attachment 2.

2.0 METHODOLOGY

2.1 Overview

Olberding Environmental completed a field delineation of the Property on March 11, 2011. The existing landforms as well as associated vegetation, hydrology, and soil conditions were studied to identify areas that would likely contain wetland/waters and or aquatic habitats at the site. Potential jurisdictional areas were identified on field maps and compared to available aerial photography and topographical maps.

Prior to completing site surveys for this report, the previously prepared site surveys, site maps, topographic maps and aerial photographs of the Property were obtained from several sources and reviewed. This information was used in association with detailed delineation surveys to determine the extent and boundaries of wetland features. Resource materials used for the site analysis were as follows:

- U. S. Geological Survey Quadrangle Map for Walnut Creek, California;
- Soil map information contained in the Soil Survey of Contra Costa County, California (SCS 1977)
- Aerial Photograph (2009) provided by Contra Costa County

The extent or boundary of wetland habitats was further defined using the 1987 "Corps Wetlands Delineation Manual" (1987 Manual)[1], the "Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region" (Arid West Supplement)[2], routine on-site wetland determination protocol currently in use by the Corps, published Corps of Engineers regulatory guidance letters, and San Francisco District regulatory policy.

[1] Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual." U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendices.

[2] Environmental Laboratory. 2006. "Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region." U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi. 123 pp.

2.2 Corps Definition of Wetlands/Waters

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

(a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and

(b) a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The assessment of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and is required per the1987 Corps Manual.

Aquatic habitats, other than wetlands, that are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.4(a)(b) and (c)]:

(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.

(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 (c) below.

(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 wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the OHW mark on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the

Clean Water Act (1972) has jurisdiction over "Waters of the U.S." These waters may include all waters used or potentially used for interstate commerce. This includes all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions with no outlet for drainage (33 CFR, Part 328).

The Property was also reviewed to assess the potential for qualifying for Section 10 jurisdiction as a navigable water of the United States. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329, Section 329.4). Section 10 jurisdiction extends to the lateral extent of the ordinary high water marks on opposing channel banks. Ultimately, the determination of navigability is made by the division engineer (33 CFR, Part 329, Section 329.14).

2.3 Data Collection for Potential Jurisdictional Wetlands/Waters

Data was collected for the determination of wetlands/waters on March 11, 2011 as outlined in the methods section. Specific data point information on vegetation, soils and hydrology was gathered by wetland scientist Mr. Christopher Bronny. The purpose of this investigation was to identify and delineate potential jurisdictional waters, including wetlands. Surveys were conducted within and adjacent to the specified survey boundaries. The Property was examined for topographic features, drainages, alterations to site hydrology and areas of recent disturbance in the refined survey area. All vascular plant species that were identifiable at the time of the survey were recorded and identified using keys and descriptions in Hickman (1993) (see Attachment 2).

The habitat types occurring in the Property were characterized according to pre-established categories. In classifying the habitat types on the site, the generalized plant community classification schemes of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf and Evens 2009) were consulted. The final classification and characterization of the habitat types of the Property were based on field observations.

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 Manual. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland; single data points were taken in swales that intercepted and conveyed sheetflow runoff from surrounding hillslopes (i.e., exhibited drainage patterns), but did not meet all three criteria (i.e., lack of dominance exhibited by hydrophytic vegetation and/or absence of hydric soil indicators) to be considered jurisdictional by the Corps. On paired transects, a sample point was sited in an area exhibiting wetland characteristics, while

a second sample point was sited up slope of the first point in an upland position that defined the transitional break between wetland and upland. Transect measurements were taken to establish the ordinary high water mark (OHWM) and top-of-bank along drainage features. No soil test pits were taken within potential aquatic features that were confined to channels, thus conforming to the definition of "other waters" of the U.S. (i.e., exhibits a distinct bed and bank, with an OHWM. GPS coordinates of each sample location were recorded in the field using a Trimble GEO XT.

A total of two single and eight transect sample points were established on four transect lines within the boundaries of the Property. With the exception of Transects 1, 2 and 3 that established the OHWM and top-of-bank for the drainage feature, all upland positions are distinguished by "A" and the wetland positions "B."

The approximate location and extent of jurisdictional wetlands/waters as well as other relevant data, were transferred on to a 1"= 100' scale geo referenced aerial map of the surveyed area in the field. Information obtained at the sample point locations was recorded on modified Corps data sheets included in this report (Attachment 3). Photographs were also taken for selected sample points that represented the Property (Attachment 4).

3.0 TECHNICAL FINDINGS

The following discussion reports the vegetation, hydrology, and soil conditions observed at the Property during the course of the investigation.

3.1 Vegetation Conditions

The 1987 Manual states that the diagnostic environmental characteristics indicating wetland vegetation conditions are met when the prevalent vegetation (more than 50%) consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described above. In addition, hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Indicators of vegetation associated with wetlands include:

1. more than 50% of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW") or Facultative ("FAC") on lists of plant species that occur in wetlands;[3]

2. visual observations of plant species growing in areas of prolonged inundation or soil saturation; and

[3] Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). Biological Report 88(26.10) May 1988. National Ecology Research Center, National Wetlands Inventory, U.S. Fish and Wildlife Service, St. Petersburg, FL.

3. reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils" (1987 Manual).

In addition, hydrophytic indicators are applied to plant communities using the Arid West Supplement (December, 2006) in the following sequence:

1. Apply the dominance test – more than 50% of the dominant species are rated as OBL, FACW, or FAC on lists of plant species that occur in wetlands.
    a. If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required.
    b. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, proceed to step 2.

2. Apply the prevalence index – a weighted average wetland indicator status of all plant species (OBL=1, FACW=2, FAC=3, FACU=4, UPL=5). Weighting is by abundance (percent cover). A hydrophytic plant community will result in a prevalence index of 3.0 or less.
    a. If the plant community satisfies the prevalence index, then the vegetation is hydrophytic. No further vegetation analysis is required.
    b. If plant community fails prevalence index, proceed to step 3.

3. Apply morphological adaptations – morphological features which help plants survive prolonged inundation or saturation in the root zone, must occur on more than 50% of the FACU species living in an area where indicators of hydric soil and wetland hydrology are present.

Table 1 contains the wetland plant indicator status categories used to determine if a particular plant species qualifies as a macrophyte which has adapted to areas having hydrologic and soil conditions.

It is important to note that, although there is a high probability that one would expect to find obligate, facultative wet and facultative plants growing in wetlands, there is also a significant possibility that the obligate, facultative wet, and facultative species will occur in areas that do not exhibit wetland soil and/or wetland hydrology conditions.

Table 1 Wetland Plant Indicator Status Categories		
Indicator Category	**Symbol**	**Frequency of Occurrence**
OBLIGATE	OBL	greater than 99%
FACULTATIVE WETLAND	FACW	67 - 99%
FACULTATIVE	FAC	34 - 66%
FACULTATIVE UPLAND	FACU	1 - 33%
UPLAND	UPL	less than 1%
***** Based upon information contained in Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).		

The Property is located in the *San Francisco Bay Area Subregion* of the greater *Central Western California Subdivision* of the California Floristic Province (Hickman 1993). In classifying the habitat types found in the Property, generalized plant community classification schema were used (Sawyer, Keeler-Wolf, and Evens 2009). The final classification and characterization of the habitat types of the Property were based on field observations.

The Property supports five habitat types that consist of non-native grassland, disturbed/ruderal herbaceous, seep, coast live oak woodland and riparian habitat along the drainage (which supports elements of arroyo willow thickets and poison hemlock patches). Each habitat is described in further detail below. A description of the plant and wildlife species present within each habitat type is provided below. Dominant plant species are noted.

3.1.1 Non-Native Grassland

This semi-natural herbaceous stand has *Avena* spp. as the dominant or co-dominant species in the herbaceous layer. Other cool-season non-native annuals found in association with this habitat type include bromes (*Bromus* spp.), hare barley (*Hordeum murinum*), rat-tail fescue (*Festuca myuros*), and perennial rye-grass (*Festuca perennis*). Non-native broad-leaved forbs (i.e., wildflowers) observed included wild geraniums (*Geranium dissectum* and *G. molle*), filarees (*Erodium cicutarium* and *E. botrys*), common groundsel (*Senecio vulgaris*), spring vetch (*Vicia sativa*), California bur-clover (*Medicago polymorpha*), rose clover (*Trifolium hirtum*), and Venus' needle (*Scandix pecten-veneris*).

While no native grasses were detected, native forbs observed included fiddleneck (*Amsinckia menziesii* and *A. intermedia*), California poppy (*Eschscholzia californica*), soap plant (*Chlorogalum pomeridianum*), Clarkia (*Clarkia* sp.), and miner's lettuce (*Claytonia perfoliata*). A few scattered seedlings of California buckwheat (*Eriogonum* sp.) were also observed along the east-facing hillslopes.

3.1.2 Disturbed /Ruderal Herbaceous

In this semi-natural herbaceous stand, mustards (*Brassica* spp.) and wild radish (*Raphanus sativus*) are the dominant species in the herbaceous layer. On certain hillslopes of the Property, mustards formed nearly pure stands. Depending on the amount of disturbance to the edaphic layer from past grading activities associated with the Caltrans borrow site, frequent overlap was observed between this vegetative assemblage and plant species observed in the wild oat stands (see above). Other commonly observed co-dominant species included Italian thistle (*Carduus pycnocephalus*) and yellow-star thistle (*Centaurea solstitialis*); gravelly soils on the graded terraces often had stands of stinkweed (*Dittrichia graveolens*) and telegraphweed (*Heterotheca grandiflora*) intergrading with this habitat type.

3.1.3 Seep

A single seep feature was mapped in the south-central portion of the Property. This feature is an extremely shallow concave microtopographical feature that appears to pond water for brief hydroperiods during the rainy season and supports a mix of upland and hydrophytic species including black mustard (*Brassica nigra*), birdsrape mustard (*Brassica rapa*), bitter-cress (*Cardamine oligosperma*), cut-leaf geranium (*Geranium dissectum*), and perennial rye-grass; green algae (*Zygnema* sp.) formed a biotic crust in the bare soil portions of the seep.

3.1.4 Coast Live Oak Woodland

A remnant of coast live oak woodland occurs along the eastern boundary of the Property. The extant oaks form a nearly monotypic stand, with a shrub and herbaceous groundlayer largely absent due to the presence of heavy leaf litter and closed canopy. They vary in age and size class, with most mature trees multitrunked and fairly large in diameter at breast height (dbh). Associate shrubs included a single blue elderberry (*Sambucus mexicana*), coyote brush (*Baccharis pilularis*), California bay laurel seedlings (*Umbellularia californica*), and a few adventive cultivars of firethorn (*Pyracantha* sp.) and olive (*Olea europaea*).

3.1.5 Riparian

The drainage feature traversing the northeast corner of the Property supports elements of both poison hemlock (*Conium maculatum*) patches and arroyo willow (*Salix lasiolepis*) thickets. Co-dominant trees included walnut (*Juglan*s sp.) and adventive individuals of almond (*Prunus dulcis*) and cherry plum (*Prunus cerasifera*). Herbaceous forb species observed along the slopes and channel of the drainage included cut-leaf geranium, curly dock (*Rumex crispus*), California mugwort (*Artemisia douglasiana*), and common bedstraw (*Galium aparine*); graminoids (i.e., grasses and grass-like plants) included creeping wild-rye (*Elymus triticoides*), iris-leaved rush (*Juncus xiphioides*), and Baltic rush (*Juncus balticus*).

3.2 Hydrology Conditions

The 1987 Manual states that the diagnostic environmental characteristics indicative of wetland hydrology conditions are: "the area is inundated either permanently or periodically at mean

water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation" (1987 Manual, p. 14). According to the Manual, indicators of hydrologic conditions that occur in wetlands may include features in Table 2.

Table 2
Hydrology Indicators

Primary Indicators	**Secondary Indicators**
Inundation, Saturation	Oxidized Rhizospheres Associated with Living Roots
Watermarks	Water-Stained Leaves
Drift Lines	FAC-Neutral Test
Water-Borne Sediment Deposits	Local Soil Survey Data
Drainage Patterns Within Wetlands (With Caution)	

Department of the Army, U.S. Army Corps of Engineers, Washington, D.C., *Memorandum - Subject: Clarification and Interpretation of the 1987 Manual*, dated June 8, 1992 provides further clarification that:

> "Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years (see Table 5, page 36 of the 1987 Manual) may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. Wetland hydrology exists if field indicators are present as described herein and in the enclosed data sheet."

The presence of wetland hydrology using the Arid West Supplement (December, 2006) is dependent on the presence of any one primary indicator or two or more secondary indicators included in Table 3.

Table 3 Arid West Region - Hydrology Indicators	
Primary Indicators	**Secondary Indicators**
Surface Water	Water Marks (riverine)
High Water Table	Sediment Deposits (riverine)
Saturation	Drift Deposits (riverine)
Water Marks (nonriverine)	Drainage Patterns
Sediment Deposits (nonriverine)	Dry-Season Water Table
Drift Deposits (nonriverine)	Thin Muck Surface
Surface Soil Cracks	Crayfish Burrows
Inundation Visible on Aerial Imagery	Saturation Visible on Aerial Imagery
Water-Stained Leaves	Shallow Aquitard
Salt Crust	FAC-Neutral Test
Biotic Crust	
Aquatic Invertebrates	
Hydrogen Sulfide Odor	
Oxidized Rhizospheres along Living Roots	
Presence of Reduced Iron	
Recent Iron Reduction in Plowed Soils	

The wetland locations investigated on the Property exhibited hydrologic indicators such as biotic crusts, saturated soils, surface water and drainage patterns. Hydrologic inputs included direct precipitation, sheetflow runoff from surrounding uplands (on-site and off-site), and inputs from upstream sources.

Weather conditions observed during the March 11, 2011 field delineation were mostly sunny with temperatures in 60’s. Precipitation totals thus far for the 2010-2011 rainy season have been above-average.

3.3 Soils Conditions

The Corps' 1987 Manual states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions" (1987 Manual, p. 14). According to the Manual, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions.

According to the most recent version of the National Technical Committee for Hydric Soils, the criteria to be used by the Corps for what constitutes current hydric soil/wetland soil conditions for the soils found at the site are:

1. Minimum Saturation at 12" to the surface: 14 consecutive days during the growing season.

2. Minimum Inundation (Flooded or Ponded): Soils that are frequently "ponded" for long duration (~ 15 to 30 consecutive days) or very long duration (> 30 consecutive days) during the growing season, or soils that are frequently "flooded" for long duration or very long duration during the growing season.

According to the Arid West Supplement (December, 2006), indicators for hydric soils are presented in three groups. Indicators for “all soils” (A) are used in any soil regardless of texture. Indicators for “sandy soils” (S) are used in soil layers with USDA textures of loamy fine sand or coarser. Indicators for “loamy or clayey soils” (F) are used with soil layers of loamy very fine sand and finer (2006 Arid West Supplement, p.32). Hydric soils can be identified by the following indicators:

1. Histosol (A)
2. Histic Epipedon (A)
3. Black Histic (A)
4. Hydrogen Sulfide (A)
5. Stratified Layers (A)
6. 1 cm Muck (A)
7. Depleted Below Dark Surface (A)
8. Thick Dark Surface (A)
9. Sandy Mucky Mineral (S)
10. Sandy Gleyed Matrix (S)
11. Sandy Redox (S)
12. Stripped Matrix (S)
13. Loamy Mucky Mineral (F)
14. Loamy Gleyed Matrix (F)
15. Depleted Matrix (F)
16. Redox Dark Surface (F)
17. Depleted Dark Surface (F)
18. Redox Depressions (F)
19. Vernal Pools (F)

Where possible, the top 12 inches of the soil profile is examined for hydric characteristics. Such characteristics include the presence of organic soils (Histisols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of color within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. A Munsell soil color charts (Kollmorgen Instr. Corp. 1990) were reviewed to obtain the soil color matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers

beginning with zero (0) for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or of two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter.

3.3.1 Soil Analysis at Property

The USDA Natural Resources Conservation Service (formerly the Soil Conservation Service) mapped four soil types within the Property: Alo clay, 15 to 30 percent slopes, Clear Lake clay, Cut and fill land-Diablo complex, 9 to 30 percent slopes, and Lodo clay loam, 30 to 50 percent slopes (NRCS 2011). While Alo clay soils occur in the north-central portion of the Property, Lodo clay loam occurs along the northwest corner, and Clear Lake clay soils occur along the northeast corner, the majority of the Property is underlain with Cut and fill land – Diablo complex soils. Soils were generally friable clay loams throughout the undisturbed portions of the Property; in areas where grading had occurred in association with the past Caltrans borrow areas, the original soil layers were largely eliminated, resulting in cut-and-fill profiles.

Alo clay soils with Clear Lake inclusions occurring in drainageways and Clear Lake clay soils with Clear Lake, Pescadero, and unnamed inclusions occurring on basin floors, depressions, and on strand plains, respectively, are listed as hydric soils in Contra Costa County, California (NRCS). Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anoxic conditions in the upper part.

A detailed map of these soils for the Property can be found in Attachment 5. The numbers in parentheses next to the soil types represent the percentage amount on the Property. The soils mapped included the following types:

- **AaE: Alo clay, 15 to 30 percent slopes –** The Alo series consists of well-drained soils underlain by soft sandstone and shale in uplands. In a representative profile the surface layer is dark gray, slightly acid clay underlain at a depth of approximately 24 inches by soft, fine-grained sandstone.

  Permeability is slow, runoff is medium, and the hazard of erosion is moderate where the soil is tilled or exposed.

- **Cc: Clear Lake clay –** The Clear Lake series consists of poorly drained soils in basins in the coastal valleys that formed in fine-textured alluvium.

  In a representative profile the surface layer is very dark gray, neutral, and moderately alkaline clay about 46 inches thick. The substratum is mottled, very dark grayish-brown and grayish-brown, calcareous clay that extends to a depth of more than 60 inches.

Permeability is slow; Clear Lake soils have a high shrink-swell potential that causes them to crack. Runoff is slow and there is no hazard of erosion where the soil is tilled and exposed.

- **CmE: Cut and fill land – Diablo complex, 9 to 30 percent slopes –** Cut and fill land is the result of mechanical manipulation of upland areas for urban use. In Contra Costa County, Cut and fill land is mapped in complexes with Diablo, Los Osos, and Millsholm soils.

  The **CmE** complex consists of 75 percent Cut and fill land, 15 percent Diablo clay, and 10 percent Altamont clay. Cut and fill land is the result of mechanical manipulation of strongly sloping to moderately steep soils on uplands. The earthy material is heavy clay loam, silty clay, and clay. As much as 20 percent, by volume, is angular fragments of shale and sandstone. Colors are variable and have a hue of 10YR or 2.5Y. The material is mildly alkaline to moderately alkaline and is calcareous throughout. Exposed cuts consist of interbedded shale and fine-grained sandstone that contain varying amounts of lime. The bedrock can tilt as much as 50 to 80 degrees.

  This complex is well-drained or somewhat excessively drained. Runoff is rapid and the hazard of erosion is high. Permeability is slow to very slow, depending upon compaction during construction.

  LcF: Lodo clay loam, 30 to 50 percent slopes – The Lodo series consists of somewhat excessively drained soils underlain by soft sandstone and shale that occur on uplands.

  In a representative profile the surface layer is dark-gray, slightly acid clay loam approximately 18 inches thick and underlain by fine-grained sandstone. Permeability is moderately slow.

  The **LcF** soil unit occurs on steep uplands. Included with it are areas of Millsholm soils that make up about 10 percent of the mapping unit and areas of Gaviota sandy loam that make up 2 percent. Also included are rock outcrops that make up 3 percent.

  Runoff is medium to rapid, and the hazard of erosion is moderate to high where the soil is exposed.

A total of four soil pits were dug by shovel to a maximum depth of 14 inches at locations representative of various hydrogeomorphic surface conditions within the Property (Attachment 1, Figure 5). Because of past disturbance associated with the Caltrans borrow area, original soil profiles are likely disturbed throughout the western and southern portion of the Property. Soils found along the one transect line was classified as having or not having indicators of wetland soil conditions using the methodology in the Corps' 1987 Manual.

Soils found in the upland positions exhibited the following moist soil matrix colors: 10YR2/2 and 10YR3/2, generally with silty clay and clayey loam textures; in some soil pits, redoximorphic (redox) conditions (e.g., mottles) were present.

Soils found in the mapped wetland position exhibited the following moist soil matrix colors: 10YR3/3, generally with high clay content and loam textures. Mottling was observed in some soil pits and included the following moist colors: 7.5YR5/6 and 10YR4/6.

4.0 AREAS POTENTIALLY SUBJECT TO REGULATION BY THE CORPS OF ENGINEERS

The EPA and Corps regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (40 C.F.R. §230.3(t); 33 C.F.R. §328.3(b)).

The term "waters of the United States" are defined in 40 C.F.R. §328.3(a) as:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;
(5) Tributaries of waters identified in paragraphs [1-4] of this section;
(6) The territorial sea; and
(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs [1-6] of this section (40 CFR §230.3(s); 33 CFR §328.3(a)).

Based on information obtained during the field delineation, it was determined that a total of 0.005-acre of jurisdictional wetlands and 0.081-acre of “other waters” exist within the boundaries of the Property (see Attachment 1, Figure 5).

4.1 Potential Wetlands

The single mapped hillslope seep would be considered a potentially jurisdictional wetland. While some upland species were present within the sample area, the absolute percent cover favored dominance by hydrophytes. This feature appears to be an artifact from final grading activities associated with the former Caltrans borrow area. It is sited on a fairly level terrace below an earthern berm. There is a concrete drain flush at grade approximately 20 feet from the mapped feature that intercepts runoff from surrounding hillslopes and conveys them downslope via an engineered underground drainage system.

Despite the presence of a disturbed soil profile (essentially cut-and-fill soils), evidence of hydric soil indicators (i.e., reducing conditions) were present in the soil sample. Hydrologic indicators included the presence of saturated soils to the surface, standing water in the test pit six (6) inches below the surface, and biotic crust.

Table 4
Potentially Jurisdictional Wetlands

Type of Feature	Acreage
Seep	0.005
TOTAL	**0.005**

4.2 Potential Other Waters

The unnamed drainage is a tributary of Reliez Creek, located approximately 0.25-mile to the east. Reliez Creek is part of the greater Las Trampas Creek watershed (HUC #18050001). This medium-gradient drainageway traverses the northeastern corner of the Property and is a deeply incised and somewhat confined stream feature with a strong "V" in cross-section. Waters conveyed by this feature are intercepted along the eastern boundary of the Property by a concrete culvert that runs underneath Pleasant Hill Road.

The OHWM varies throughout the reach, with the average width approximately three (3) feet along the lower half, and approximately 15 feet along the upper half; the average top-of-bank throughout the entire reach is approximately 20 feet. The bed of the feature was uniformly incised, with only one shallow pool at the upper end of the reach. The wider portions are the result of channel blow-outs during high flow events from the placement of two culverts at the upper end. One metal culvert spans the channel and was used to provide an old access route across the stream, but is now defunct, and water has scoured out the bed underneath, bypassing the culvert. The other culvert is concrete and runs underneath Deer Hill Road, intercepting runoff from the upper drainageways.

A smaller drainage was also mapped. This feature has been created by scour from a small metal culvert underneath the entrance to the day-care center, which intercepts and conveys runoff from surrounding uplands to the west.

Table 5 Potentially Jurisdictional "Other Waters of the U.S."	
Type of Feature	**Acreage**
Drainage	0.081
TOTAL	**0.081**

4.3 Section 10 Navigable Waters

The unnamed drainage to Reliez Creek was determined not to meet the parameters to be delineated as a navigable water.

5.0 AREAS POTENTIALLY EXCLUDED FROM REGULATION UNDER SECTION 404

5.1 Discretionary Exemptions

A number of exemptions from Section 404 Clean Water Act regulations exist for waters of the United States. These exemptions fall into two basic categories: (1) discretionary and (2) non-discretionary.

According to the preamble discussion of the Corps regulations in the November 19, 1986 *Federal Register*, certain areas which may meet the technical definition of a wetland are generally not regulated. Such areas include:

(a) Non-tidal drainage and irrigation ditches excavated on dryland.

(b) Artificially irrigated areas which would revert to upland if the irrigation ceased.

(c) Artificial lakes or ponds created by excavating and/or diking dryland to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

(d) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dryland to retain water for primarily aesthetic reasons.

(e) Water filled depressions created in dryland incidental to construction activity and pits excavated in dryland for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

5.2 Application of Discretionary Exemptions

No portions of the Property were determined to meet the parameters of discretionary exemptions.

5.3 Isolated Waters

The U.S. Supreme Court has ruled that isolated, non-navigable wetlands and other waters are not subject to federal regulation even if they provide habitat for migratory birds and endangered species. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (hereinafter SWANCC) (No. 99-1178). The Corps has attempted to define isolated as "not having hydrological connectivity to other jurisdictional features." Based on this determination, the Court has eliminated the need to secure fill permits from the Corps under Section 404 of the Clean Water Act when isolated wetlands are encountered. Nevertheless, the decision is by no means a blanket repeal of Section 404. Every landowner's on-the-ground situation is unique, and must be analyzed individually. In the aftermath of this decision, each landowner must still carefully assess its situation to determine whether its survey area contains features which qualify as "waters of the U.S." It is therefore recommended that a jurisdictional delineation be verified by the Corps rather than making an assumption regarding the potential regulation of a specific wetland/water feature.

The RWQCB has indicated that they intend to continue regulation of isolated wetlands under the Porter-Cologne Act (Water Code Section 13260). Their interpretation of the Court ruling indicates that the SWANCC decision has no bearing on the RWQCB's regulation of "waters of the state" and as such they will continue to issue waste discharge requirements (WDRs) in lieu of a Section 401 Certification which is required when the Corps issues a Section 404 permit.

5.4 Application of Isolated Waters Exemptions

The seep feature may qualify as an isolated wetland on the Property.

5.5 Significant Nexus

The geographic extent of jurisdiction under the Clean Water Act was further refined based on the U.S. Supreme Court's interpretation of the Act in Rapanos v. United States, 126 S. Ct. 2208 (2006) (Rapanos Case). In the EPA and Corps joint guidance of the Rapanos Case, issued in December of 2008, it was determined that the Corps generally will not assert jurisdiction over (1) swales or erosional features (e.g. gullies, small washes characterized by low volume, infrequent, or short duration flow) and (2) ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water. Non-navigable tributaries that are not relatively permanent and wetlands adjacent to such tributaries will be assessed on a case-by-case basis to determine whether they have a "significant nexus" to a traditional navigable water. A "significant-nexus" will be determined through assessment of 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.

According to the guidance, the Corps will continue to assert jurisdiction over traditional navigable waters; 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 (e.g., typically three months); and wetlands that directly abut such tributaries.

5.6 Application of Significant Nexus

Sheetflow runoff and upstream hydrologic inputs are intercepted and conveyed by the unnamed drainage, which is an intermittent blue line feature on the Walnut Creek USGS topo quad and is a tributary of Reliez Creek, which part of the greater Las Trampas Creek watershed. A significant nexus would apply.

6.0 CONCLUSIONS

Results of the field delineation conducted by Olberding Environmental on March 11, 2011 identified the presence of regulated waters of the U.S. within the Property. An unnamed tributary of Reliez Creek traverses the Property along a northwest-to-southeast direction and is an intermittent "blue line" water feature on the USGS topographic map for Walnut Creek. A single hillslope seep occurs as a wetland feature in the south-central portion of the Property. However, it's position in the landscape may make it an isolated feature, as there appears to be no direct hydrologic connectivity to any surrounding wetlands or "other waters." The total Corps jurisdictional acreage on the Property is 0.086-acre.

7.0 REFERENCES

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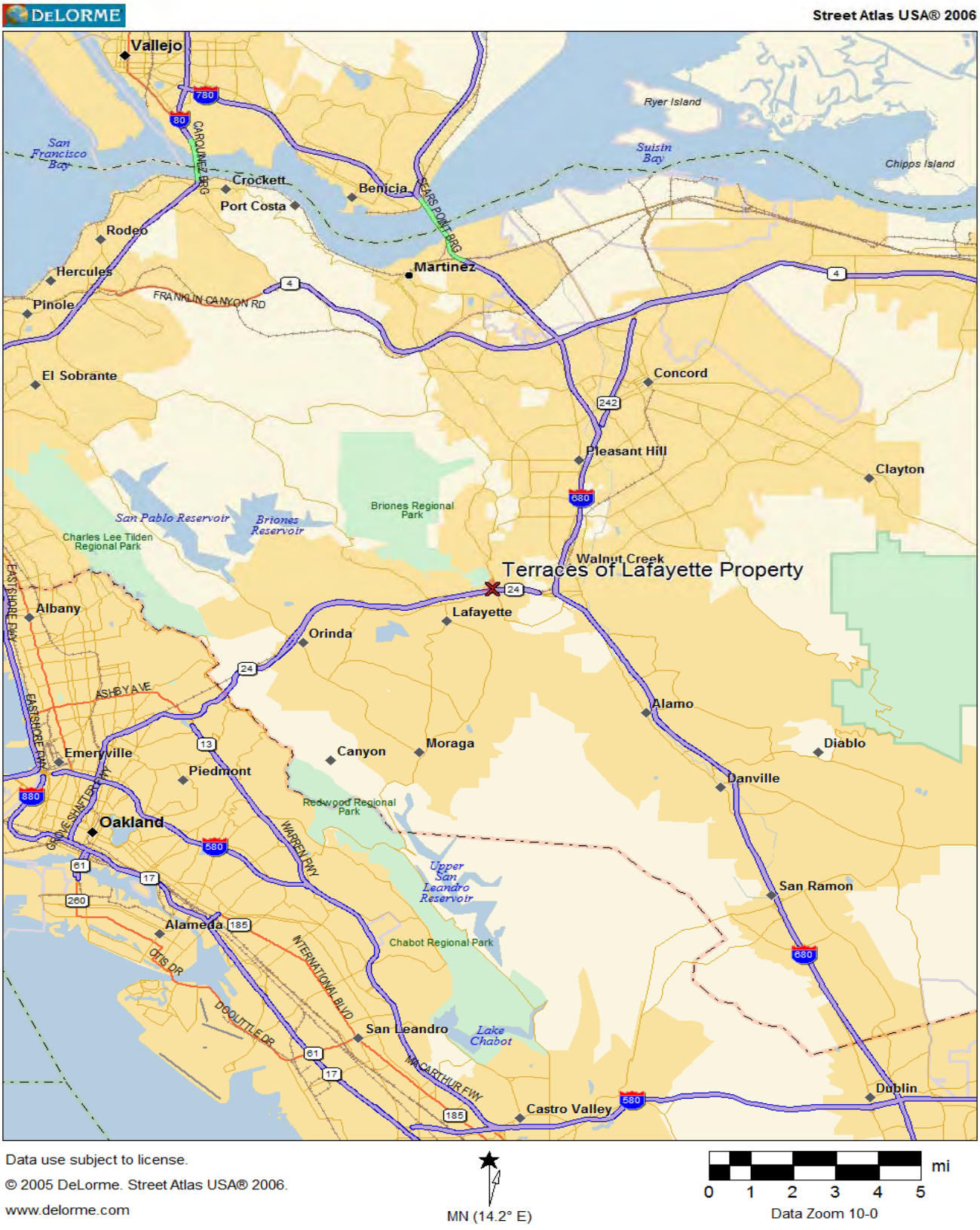
ATTACHMENTS

ATTACHMENT 1
FIGURES

Figure 1
Regional Map



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This document is not intended for detail design work.

Figure 1
Regional Map of the Terraces of Lafayette Property
Contra Costa County, California

Figure 2
Vicinity Map

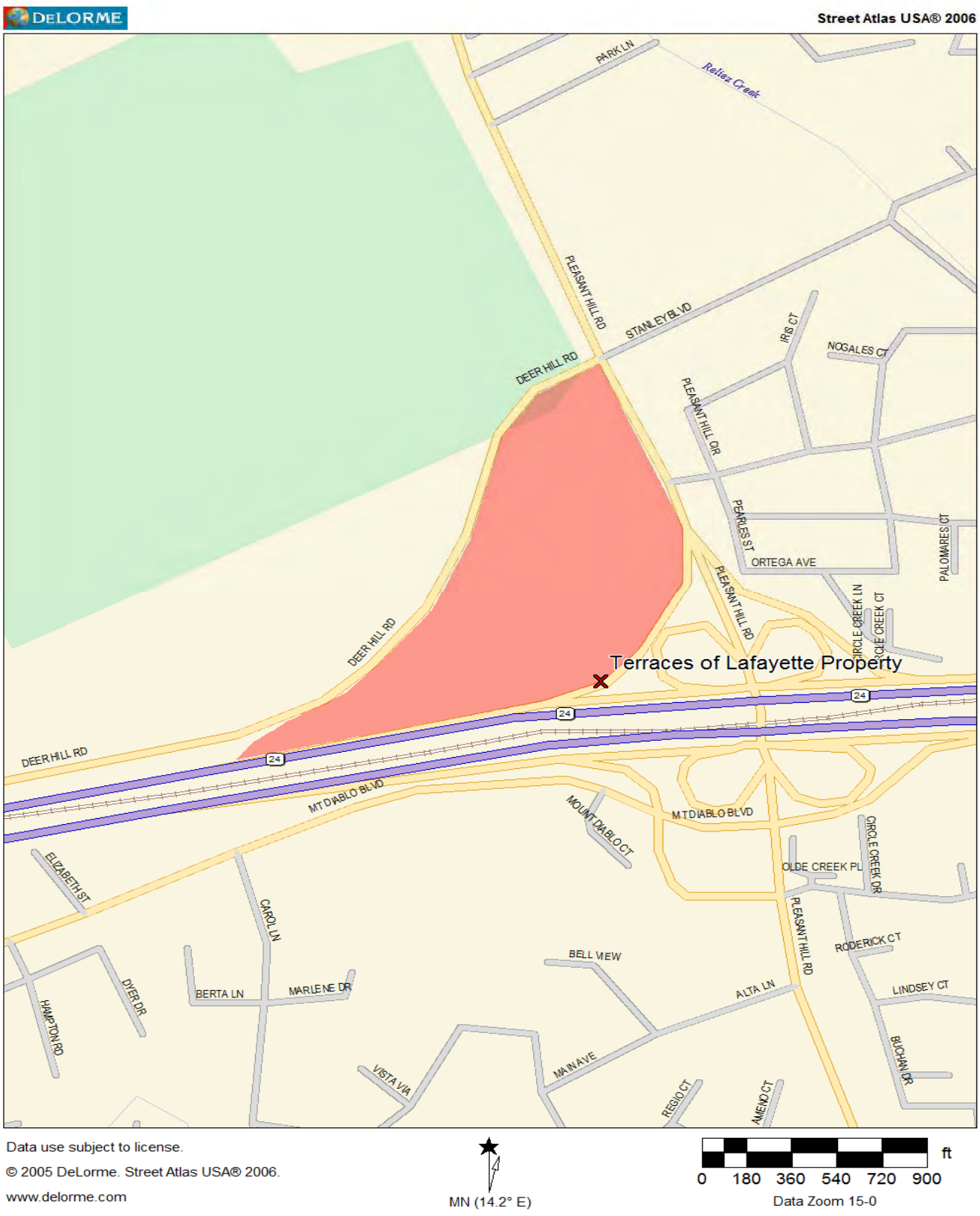

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Figure 2
Vicinity Map of the Terraces of Lafayette Property
Contra Costa County, California

Figure 3
USGS Quadrangle Map for
Walnut Creek

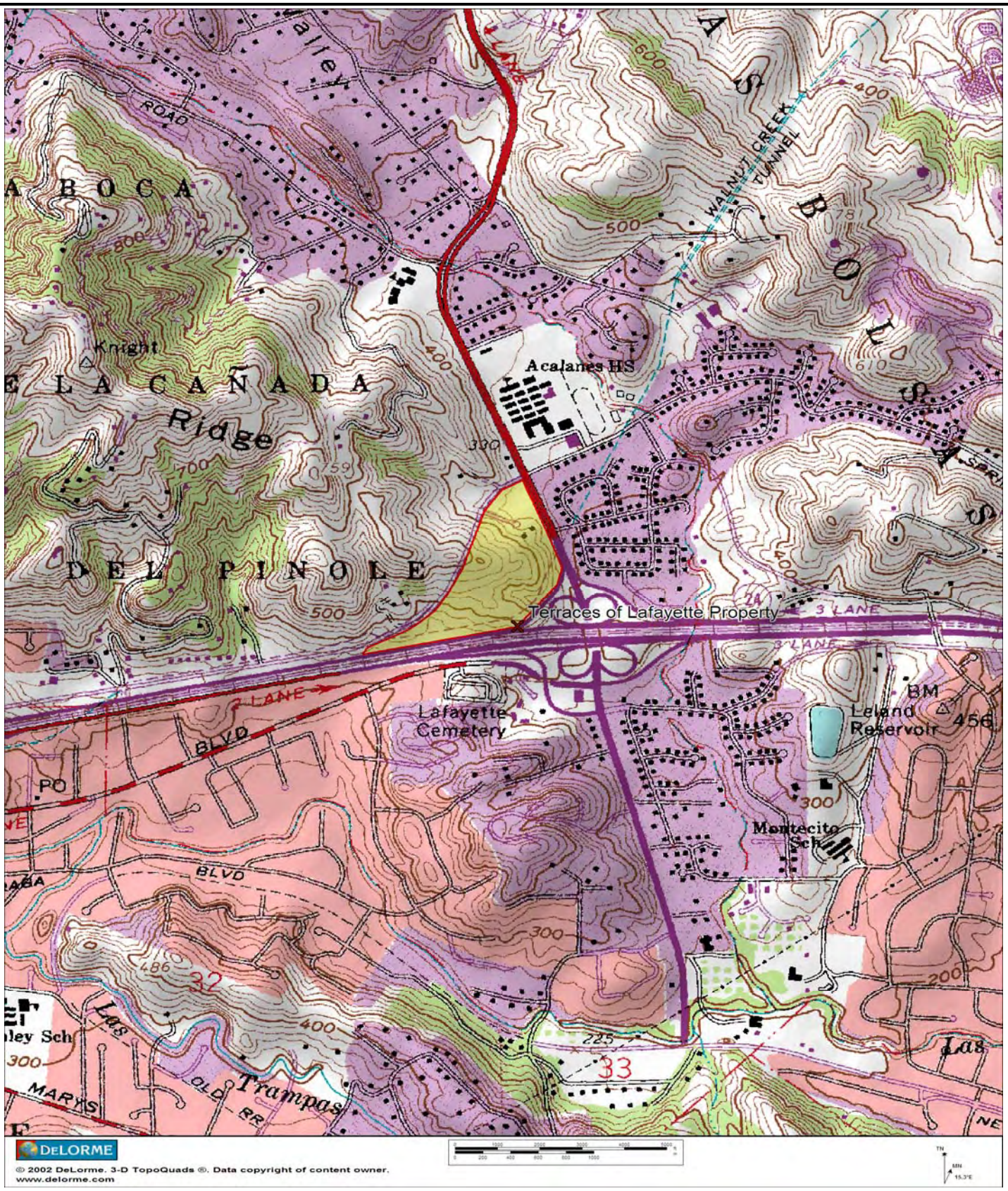

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Figure 3
USGS Quadrangle Map of the Terraces of Lafayette Property
Walnut Creek Quadrangle
Contra Costa County, California

Figure 4
Aerial Photograph

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Figure 4
Aerial Photo of the Terraces of Lafayette Property
Contra Costa County, California

Figure 5
Jurisdictional Waters Map

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Figure 5
Jurisdictional Waters Map of the Terraces of Lafayette Property
Contra Costa County, California

Figure 6
Soils Map

Contra Costa County, California		
Map Unit Symbol	**Percentage within Property**	**Map Unit Name**
AaE	14.0 %	Alo clay, 15 to 30 percent slopes
Cc	7.1 %	Clear Lake clay
CmE	71.3 %	Cut and fill land – Diablo complex, 9 to 30 percent slopes
LcF	7.5 %	Lodo clay loam, 30 to 50 percent slopes

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Figure 6
Soils Map of the Terraces of Lafayette Property
Contra Costa County, California

ATTACHMENT 2
PLANT LIST

Table 1
Plant Species Observed Within the Deer Hill Road Property

*denotes non-native species
+denotes recent taxonomic name change in The Jepson Manual 2

Scientific Name	Common Name
Plant Species Observed	
*Acacia dealbata**	Silver wattle
Amsinckia intermedia+	Common fiddleneck
Amsinckia menziesii+	Small-flowered fiddleneck
Artemisia douglasiana	California mugwort
*Avena barbata**	Slender oat
*Avena fatua**	Wild oat
Baccharis pilularis	Coyote brush
*Bellardia trixago**	Mediterranean lineseed
*Brassica nigra**	Black mustard
*Brassica rapa**	Birdsrape mustard
*Bromus diandrus**	Ripgut brome
*Bromus hordeaceous**	Soft chess
Calocedrus decurrens	Incense cedar
Cardamine oligosperma	Bitter-cress
*Carduus pychnocephalus**	Italian thistle
*Centaurea solstitialis**	Yellow star-thistle
Chlorogalum sp. (likely *C. pomeridianum*)	Soap plant
*Cirsium vulgare**	Bull thistle
Clarkia sp.	Clarkia
Claytonia perfoliata	Miner's lettuce
*Conium maculatum**	Poison hemlock
*Cynara cardunculus**	Cardoon
*Dittrichia graveolens**	Stinkweed
Elymus triticoides+	Creeping wild-rye
Epilobium brachycarpum	Annual fireweed
Eriogonum sp. (likely *E. fasciculatum*)	California buckwheat
*Erodium botrys**	Filaree
*Erodium cicutarium**	Red-stemmed filaree
Eschscholzia californica	California poppy
Festuca perennis+*	Perennial rye-grass
Festuca myuros+*	Rat-tail fescue
Galium aparine	Common bedstraw
*Geranium dissectum**	Cut-leaf geranium
*Geranium molle**	Dove geranium
Heterotheca grandiflora	Telegraphweed
Hordeum murinum ssp. *leporinum**	Hare barley
*Hypochaeris glabra**	Smooth cat's-ear
Juglans sp.*	Walnut
Juncus balticus	Baltic rush
Juncus xiphioides	Iris-leaved rush
*Lactuca serriola**	Prickly lettuce

Table 1
Plant Species Observed Within the Deer Hill Road Property

*denotes non-native species
+denotes recent taxonomic name change in The Jepson Manual 2

Scientific Name	Common Name
Lotus sp. (likely *L. humistratus*)	Lotus
*Medicago polymorpha**	California bur-clover
*Olea europaea**	Olive
*Picris echioides**	Bristly ox-tongue
Pinus sp.*	Pine
*Prunus cerasifera**	Cherry plum
*Prunus dulcis**	Almond
Pyracantha sp.*	Firethorn
Quercus agrifolia	Coast live oak
*Raphanus sativus**	Wild radish
*Rumex crispus**	Curly dock
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Sambucus mexicana	Blue elderberry
*Scandix pectens-veneris**	Venus' needle
*Senecio vulgaris**	Common groundsel
*Silybum marianum**	Milk thistle
*Torilis arvensis**	Field hedge parsley
*Trifolium hirtum**	Rose clover
Umbellularia californica	California bay laurel
Vicia sativa ssp. *sativa**	Spring vetch

Olberding Environmental, Inc. 2011

ATTACHMENT 3
WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Deer Hill Road Property | City/County: /Contra Costa | Sampling Date: 03/11/2011

Applicant/Owner: _____ | State: CA | Sampling Point: DP-5

Investigator(s): Christopher Bronny | Section, Township, Range: _____

Landform (hillslope, terrace, etc.): swale | Local relief (concave, convex, none): ____ | Slope (%): 15

Subregion (LRR): LRR C | Lat: 37 53' 53.99"N | Long: 122 05' 59.37"W | Datum: _____

Soil Map Unit Name: Cut and fill land-Diablo complex, 9-30% slopes | NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Precipitation totals thus far in the 2010-2011 rainy season above-average; minimal disturbance to original soil profile in this portion of Property. Sample point taken in swale that intercepts runoff from surrounding uplands.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Amsinckia menziesii*	10	no	UPL
2. *Carduus pycnocephalus (seedlings)*	40	yes	UPL
3. *Festuca myuros*	10	no	FACU
4. *Brassica rapa*	30	yes	UPL
5. *Geranium dissectum*	10	no	UPL
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Dominance exhibited by upland species.

Project Site: Deer Hill Road Property

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR2/2	100					Silty clayey loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (Inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks: Low chroma color without evidence of reducing conditions in the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Deer Hill Road Property City/County: /Contra Costa Sampling Date: 03/11/2011

Applicant/Owner: _____ State: CA Sampling Point: DP-6

Investigator(s): Christopher Bronny Section, Township, Range: _____

Landform (hillslope, terrace, etc.): upland Local relief (concave, convex, none): ____ Slope (%): 0

Subregion (LRR): LRR C Lat: 37 53' 52.34"N Long: 122 06' 03.32"W Datum: _____

Soil Map Unit Name: Cut and fill land-Diablo complex, 9-30% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐**	**No ☒**
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: **Precipitation totals thus far in the 2010-2011 rainy season above-average; original soil profile likely disturbed by past grading activities. Sample point taken in microtopographically shallow linear feature along fenceline that intercepts runoff from surrounding uplands and likely ponds for short hydroperiods during the rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Bromus diandrus*	10	no	UPL
2. *Geranium dissectum*	15	no	UPL
3. *Rumex crispus*	2	no	FACW
4. *Carduus pycnocephalus (seedlings)*	1	no	UPL
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
50% = _____, 20% = _____	27	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust 15		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	15	x1 =	15
FACW species	2	x2 =	4
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	26	x5 =	130
Column Totals:	43 (A)		149 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐** **No ☒**

Remarks: Residual Dry Matter = 30%. Some algal matting (likely Zygnema sp.). Prevalence Index > 3.0; dominance exhibited by upland species.

Project Site: Deer Hill Road Property

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10YR3/2	99	10YR4/6	1	C	M	Silty clay loam	
5-7"	10YR5/4	70	10YR4/6	30	C	M	Silty clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Indeterminate

Depth (Inches): 7"

Hydric Soils Present? Yes ☒ No ☐

Remarks: Compacted soils @ 7"; presence of faint mottles in two distinct horizons; disturbed soil profile from past grading acitivities.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils saturated to surface. Presence of hydrologic indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Deer Hill Road Property | City/County: /Contra Costa | Sampling Date: 03/11/2011
Applicant/Owner: _____ | State: CA | Sampling Point: T-4a
Investigator(s): Christopher Bronny | Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Upland | Local relief (concave, convex, none): ____ | Slope (%): 0
Subregion (LRR): LRR C | Lat: 37 53' 55.80"N | Long: 122 05' 55.07"W | Datum: _____
Soil Map Unit Name: Cut and fill land-Diablo complex, 9-30% slopes | NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Precipitation totals thus far in the 2010-2011 rainy season above-average; original soil profile disturbed by past grading activities associated with Caltrans borrow site. Sample area on graded level terrace that intercepts runoff from surrounding uplands.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Dittrichia graveolens*	10	no	UPL
2. *Festuca myuros*	15	yes	FACU
3. *Festuca perennis*	10	no	FAC
4. *Brassica rapa*	15	no	UPL
5. *Geranium dissectum*	15	no	UPL
6. *Cardamine oligosperma*	10	no	FACW
7. _____	_____	____	____
8. _____	_____	____	____
50% = _____, 20% = _____	75	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**0**	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	_____	x1 =	_____
FACW species	10	x2 =	20
FAC species	10	x3 =	30
FACU species	15	x4 =	60
UPL species	40	x5 =	200
Column Totals:	75 (A)		310 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Dominance exhibited by upland species; PI > 3.0

Project Site: Deer Hill Road Property

SOIL

Sampling Point: T-4a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR3/2	100					Silty clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: indeterminate

Depth (Inches): 8"

Hydric Soils Present? Yes ☐ No ☒

Remarks: Restrictive layer @ 8" - likely highly compacted soils from final grading. Disturbed soil profile. Absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Compacted hardpan @ 8" below surface; soils saturated to surface; water likely ponds for short hydroperiods during the rainy season. Presence of primary hydrologic indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Deer Hill Road Property | City/County: /Contra Costa | Sampling Date: 03/11/2011

Applicant/Owner: _____ | State: CA | Sampling Point: T-4b

Investigator(s): Christopher Bronny | Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Seep | Local relief (concave, convex, none): ____ | Slope (%): 0

Subregion (LRR): LRR C | Lat: 37 53' 55.80"N | Long: 122 05' 55.07"W | Datum: _____

Soil Map Unit Name: Cut and fill land-Diablo complex, 9-30% slopes | NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐			
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒**	**No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: **Precipitation totals thus far in the 2010-2011 rainy season above-average; original soil profile disturbed by past grading activities associated with Caltrans borrow site. Sample area on graded level terrace that intercepts runoff from surrounding uplands.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Dittrichia graveolens*	1	no	UPL
2. *Rumex crispus*	1	no	FACW
3. *Festuca perennis*	50	yes	FAC
4. *Brassica nigra*	15	no	UPL
5. *Geranium dissectum*	1	no	UPL
6. *Cardamine oligosperma*	2	no	FACW
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50% = _____, 20% = _____	70	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust 50		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒** **No ☐**

Remarks: Biotic crust of green algae (Zygnema sp.) within sample area. Dominance Test = 100%

Project Site: Deer Hill Road Property

SOIL

Sampling Point: T-4b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10YR3/3	99	7.5YR5/6	1	C	M	Silty clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (Inches): ____

Hydric Soils Present? Yes ☒ No ☐

Remarks: Disturbed soil profile. Mottle few/distinct. Presence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☒ No ☐ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): Surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water in soil pit @ 6" below surface; soils saturated to surface; water likely ponds for short hydroperiods during the rainy season. Presence of strong primary hydrologic indicators

ATTACHMENT 4
SITE PHOTOGRAPHS

Photograph 1. Concrete culvert underneath Pleasant Hill Road along the eastern boundary of the Property, facing south-east. This feature is a tributary of Reliez Creek, located approximately 0.25-mile east.

Photograph 2. Location of Transect-1a and 1b, facing west (upstream). The OHWM at this location was approximately three feet wide, and the top-of-bank width was approximately 10 feet.

Photograph 3. Location of Transect-2a and 2b, facing west (upstream). The OHWM at this location was approximately two feet wide, and the top-of-bank width was approximately 7 feet.

Photograph 4. Drainage created by scour conveyed by metal culvert (in top of frame) underneath blacktop driveway that intercepts runoff from the western portion of the Property.

Photograph 5. Old defunct metal culvert spanning channel of drainage, facing northwest. High-flows have blown-out the downstream portion of the drainage in this reach, and waters have undercut the channel bed beneath, bypassing the culvert.

Photograph 6. Location of Transect-3a and 3b, facing northwest (upstream) towards Deer Hill Road (at top of frame above double concrete culvert). The OHWM at this location was approximately 7 feet wide, and the top-of-bank width was approximately 15 feet.

Photograph 7. Graded terrace of borrow site near old Caltrans staging area in central portion of Property, facing southwest.

Photograph 8. Shovel marks the location of soil pit T4b (in) of the small hillslope seep in the south-central portion of the Property, facing east.

Photograph 9. Shovel marks the location of single soil pit DP05 in the swale located in the western portion of the Property, facing northeast.

Photograph 10. Shovel marks the location of single soil pit DP06 in shallow linear microtopographical depression in the far western portion of the Property, facing east.

ATTACHMENT 5
SOILS DATA

ALO SERIES

The Alo series consists of moderately deep, well drained soils. They formed in material weathered from shale or sandstone on mountains. Alo soils have slopes of 2 to 75 percent. The mean annual precipitation is about 17 inches and the mean annual temperature is about 61 degrees F.

TAXONOMIC CLASS: Fine, smectitic, thermic Aridic Haploxererts

TYPICAL PEDON: Alo silty clay - annual range (Colors are for dry soil unless otherwise stated.)

A--0 to 14 inches; dark grayish (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; strong coarse and medium subangular blocky structure; very hard, firm, sticky and very plastic; many very fine interstitial and tubular pores; mildly alkaline (pH 7.6); gradual way boundary. (8 to 16 inches thick)

Bss--14 to 30 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure; very hard, very firm, very sticky and very plastic; common very fine roots mostly along faces of peds; many very fine tubular pores; many slickensides; very slightly effervescent with disseminated lime; mildly alkaline (pH 7.8); gradual wavy boundary. (8 to 18 inches thick)

Bk--30 to 36 inches; light olive brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; massive; very hard, firm, sticky and very plastic; few very fine roots; common very fine interstitial and tubular pores; strongly effervescent with lime disseminated and few irregular soft bodies; moderately alkaline (pH. 8.0); gradual wavy boundary. (6 to 16 inches thick)

Cr--36 to 50 inches; light yellowish brown (2.5Y 6/4) soft shale.

TYPE LOCATION: Monterey County, California; Mee Ranch, 2 1/4 miles north of Highway 25, 1 1/2 miles SSE of Cleveland Rock; NW 1/4 NW 1/4 sec. 36, T. 19 S., R. 10 E., projected.

RANGE IN CHARACTERISTICS: Depth to a paralithic contact of shale is 24 to 40 inches. The mean annual soil temperature is about 60 to 66 F. at 20 inch depth. From about late April or May until November the soils are continuously dry and cracks 1/2 to 2 inches wide extend from the surface to a depth of 20 inches or more. The rest of the year the soils are moist in some or all parts below 5 inches and the cracks are closed. Few to many slickensides are present in some part from near the surface to near the contact with soft shale.

The A horizon is 10YR 4/2, 4/3, 5/2 or 5/3; 2.5Y 4/2 or 5/2 with moist values of 3 or more. It is clay loam, silty clay, or clay and has 35 to 55 percent clay. Coarse fragments of shale and other rock fragments are less than 5 percent. This horizon is slightly acid to moderately alkaline, but is not calcareous in the upper 12 to 20 inches or none of the A horizon is calcareous. In the less alkaline soils, alkalinity increases with depth.

The Bk horizon is 10YR 4/4, 5/2, 5/3, 5/4, 6/2, 6/3, 6/4; 2.5Y 5/2, 5/4, 6/4 and value is one or two units higher than in the A horizon. It is clay loam, silty clay or clay. Coarse fragments of shale and other rock fragments are 0 to 10 percent.

COMPETING SERIES: These are the Aido (CA), Altamont (CA), Auld (CA), Ayar (CA), Bosanka (CA), Centerville (CA), Cibo (CA), Climara (CA), Cropley (CA), Myers (CA), Porterville (CA), and Vaquero (CA) series. Altamont, Auld, Ayar, Centerville, Cropley, Myers, and Porterville soils have a paralithic contact at depths of more than 40 inches. Aido soils have cracks that are closed for 90 days or less. Cibo and Climara soils have a lithic contact. Vaquero soils are calcareous throughout with a moist color value of more than 3 throughout.

GEOGRAPHIC SETTING: The Alo soils are on mountains at elevations of 200 to 3,250 feet. They formed in material weathered from shale and sandstone. The climate is dry subhumid mesothermal with warm dry summers and cool moist winters. Mean annual precipitation is 9 to 25 inches. Mean annual temperature is 59 to 63 degrees F.; average January temperature is 48 to 58 degrees F.; average July temperature is 67 to 70 degrees F. Frost-free period is 200 to 310 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the competing Altamont, Ayar, Diablo, and Vaquero soils and, Gazos, Los Osos, Nacimiento, San Benito. Gazos, Nacimiento and San Benito soils have less than 35 percent clay. Los Osos soils have an argillic horizon.

DRAINAGE AND PERMEABILITY: Well-drained; low to very high runoff; slow permeability after soil cracks are swollen shut.

USE AND VEGETATION: Used mainly for livestock grazing with small areas used for the production of small grains, hay and specialty crops. Vegetation in uncultivated areas is annual grasses and forbs.

MLRA OFFICE RESPONSIBLE: Davis, California
DISTRIBUTION AND EXTENT: Coast Range in central and southern California. The soils are of moderate extent in MLRA-15.

SERIES ESTABLISHED: Monterey County, California, 1972.

REMARKS: The Altamont series has been split into two series. Soils deeper than 40 inches to a paralithic contact are retained in the Altamont series. Soils less than 40 inches deep to a paralithic contact are placed in the Alo series. On July 17, 1984, a decision was made about the lowest possible limit of the mean annual precipitation. This lowest limit appears to be 9 inches because it seems to keep the climate and the moisture necessary for a Xeric moisture regime.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - the zone from the surface to a depth of 30 inches (A1,A2)
Paralithic contact - the boundary at 36 inches (Cr)

Series reclassified on June 1996
Runoff terminology adjusted 6/96 to the adjective criteria of the Soil Survey Manual, 10/93.

ADDITIONAL DATA: Twp pedons sampled in Orange Co. as Solano. They occur in MLRA outside what is typical for the series: NSSL pedons S71CA-059-008 and -009.

CLEAR LAKE SERIES

The Clear Lake series consists of very deep, poorly drained soils that formed in fine textured alluvium derived from sandstone and shale. Clear Lake soils are in basins and in swales of drainageways. Slopes are 0 to 2 percent. The mean annual precipitation is about 20 inches and the mean annual air temperature is about 60 degrees F.

TAXONOMIC CLASS: Fine, smectitic, thermic Xeric Endoaquerts

TYPICAL PEDON: Clear Lake clay, annual pasture. (Colors are for dry soil unless otherwise stated when described there was a water table at 48 inches).

A--0 to 13 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist, few fine faint redoximorphic concentrations; strong medium granular structure at the surface and strong very coarse prismatic structure below when dry, massive when wet; very hard, firm, very sticky and very plastic; many fine roots; common very fine and fine pores; grass seeds, grass and burned plant remains in cracks and along cleavage planes; neutral (pH 7.0); gradual wavy boundary. (4 to 15 inches thick)

Bss1--13 to 19 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist; strong coarse prismatic structure when dry, massive when wet; extremely hard, very firm, very sticky and very plastic; many fine roots; many very fine and fine pores; many slickensides; grass remains in cracks and along cleavage planes; moderately alkaline (pH 8.0); clear wavy boundary. (5 to 10 inches thick)

Bss2--19 to 45 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist; strong coarse prismatic structure; extremely hard, very firm, very sticky and very plastic; few roots; few pores; many slickensides; few fine concretions; smooth pressure faces on peds; slightly calcareous; moderately alkaline (pH 8.0); diffuse irregular boundary. (10 to 35 inches thick)

Bssk--45 to 60 inches; grayish brown (2.5Y 5/2) clay, light olive brown (2.5Y 5/4) moist; tongues of very dark grayish brown (2.5Y 3/2) moist in the upper part; light yellowish brown (10YR 6/4) masses of iron accumulations; massive; very hard, very firm, very sticky and very plastic; few fine roots; few very fine pores; few slickensides; few fine concretions; few soft lime masses; slightly calcareous; moderately alkaline (pH 8.0).

TYPE LOCATION: Solano County, California; 300 feet south, 300 feet east of northwest corner of sec. 25, T. 6 N., R. 2 E.

RANGE IN CHARACTERISTICS: The combined thickness of the A, Bss, and Bssk horizons is more than 60 inches. The mean annual soil temperature is 59 degrees to 65 degrees F. On drying, large cracks extend as deep as 48 inches and form large prisms. The cracks open and close at least once each year and are open by June or July and are closed by October or November. Various amounts of undecomposed plant material and surface soil are in these cracks. Common to many slickensides are in the zone from 12 to 48 inches. In some pedons moderate amounts of plant remains are in the lower part of the A horizon and the upper part of the Bss horizon as well as in tongues of the A horizon extending in to the Bss horizon. These soils have a calcium to magnesium ratio of more than 2.

The A and Bss horizons have 10YR, 2.5Y or 5Y hue or is of neutral hue; value ranges from 2 through 5. Chromas are 1 or 0 moist and dry. Moist values are 1 or 2 units darker. In some pedons, colors are mottled with hues of 7.5YR or 10YR, values of 3 to 5 and chromas of 2 to 6. In other pedons concretions of Fe and Mn are present. These horizons range from moderately acid to moderately alkaline (pH 5.6 to 8.4) in the upper part and from slightly alkaline to moderately alkaline and calcareous in the lower part. The more acid surfaces are probably the result of cultural practices, especially extensive use of fertilizers and other agricultural chemicals. In areas adjacent to streams or sloughs, there is an overwash of stratified fine sandy loam or silty clay loam. Texture is clay loam, silty clay or clay.

The Bssk horizon has 10YR, 2.5Y or 5Y hue or is neutral; value ranges from 3 through 6 and chroma from 1 through 6; colors are mottled with hues of 10YR, 7.5YR, 2.5Y and 5Y. This horizon ranges from slightly alkaline to strongly alkaline and is usually calcareous with segregations of accumulated lime in soft masses or seams. In some pedons the lower part is stratified and noncalcareous. Texture is silty clay or clay.

COMPETING SERIES: These are the Carhart, Copus , Dodgeland, and Hildreth series. Carhart soils are 20 to 40 inches to paralithic material. Hildreth soils overlie unrelated material and are somewhat poorly drained. Copus soils have neutral pH. Dodgeland soils have hue of 10YR and less than 40 percent clay in some horizons.

GEOGRAPHIC SETTING: Clear Lake soils are in basins and in swales of level drainageways. Slopes are 0 to 2 percent. Elevations are 25 to 2,000 feet. The soils formed in fine textured alluvium derived from sandstone and shale or other mixed rock sources. The soils are in a dry subhumid climate of relatively hot dry summers and cool moist winters. Mean annual precipitation ranges from 10 to 35 inches. Mean January temperature varies from 42 degrees to 47 degrees F., mean July temperature varies from 69 degrees to 72 degrees F., and mean annual temperature varies from 58 degrees to 62 degrees F. The frost-free season is 160 to 300 days. Cooler temperatures and a shorter frost-free season occurs in Lake County.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Cropley, Antioch, Capay, Pacheco, Salinas and San Ysidro soils. Antioch soils have natric horizons. Capay soils have a chroma of 2 or more throughout. Cropley soils have chromas of 1.5 or more within 40 inches. Pacheco and Salinas soils have a mollic epipedon and have less than 35 percent clay. San Ysidro soils have an ochric epipedon and lack cracks and slickensides.

DRAINAGE AND PERMEABILITY: Poorly drained; negligible to high runoff (if assumed concave runoff is always negigible); slow to very slow permeability. A water table is at depths of 4 to 10 feet in the late summer and in some areas is very near the surface during wet months of winter. Some areas are artificially drained.

USE AND VEGETATION: Used for growing many row crops such as tomatoes, beans and sugar beets, dry farmed to grain, or irrigated and dry farmed pasture. Also used for rangeland. Native vegetation is grasses and forbs.

DISTRIBUTION AND EXTENT: In small valleys of the Coast Range and along the San Joaquin and Sacramento Valleys. The soils are moderately extensive in MLRA-17 and 14.
MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Lake County (Clear Lake Area), California, 1927.

REMARKS: Hildreth soils are currently listed in the same family. As currently described, Hildreth soils would not classify as Vertisols. A part of the Hildreth soils may belong to another series or different subgroup. More study of the Hildreth soils is needed to accurately classify these soils. In future MLRA updates Clear Lake mapped in MLRA 17 should be separated from acreage mapped in MLRA 14 (Coast Range Valleys). Differentia in this family is weak and has overlapping colors, plus marginal separations based on reaction classes, salinity and other factors.

Diagnostic horizons and features recognized in this pedon are:
Ochric epipedon - the zone from the surface to a depth of 13 inches (A horizon).
Series classification updated May 1996. Competing series not reviewed at that time.

ADDITIONAL DATA: Two pedons in Sonoma County, CA: S61CA-097-009 (40A-3087), at 38 degrees north latitude, 14 minutes, 54 seconds, 122 degrees West longitude, 36 minutes, 31 seconds; and S61CA-097-010 (40A-3088), at 38 degrees North latitude, 16 minutes, 14 seconds, 122 West longitude, 38 minutes, 38 seconds. Two pedons in Solano County: NSSL pedon S79CA-095-000-000 (type location) and S91CA-099-005 (partial pedon). One pedon in Colusa County: S89CA-011-005.

Runoff terminology adjusted 5/96 to the adjective criteria of the Soil Survey Manual, 10/93.

LODO SERIES

The Lodo series consists of shallow, somewhat excessively drained soils that formed in material weathered from hard shale and fine grained sandstone. Lodo soils are on uplands and have slopes of 5 to 75 percent. The mean annual precipitation is about 20 inches and the mean annual air temperature is about 62 degrees F.

TAXONOMIC CLASS: Loamy, mixed, superactive, thermic Lithic Haploxerolls

TYPICAL PEDON: Lodo shaly clay loam - rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 7 inches; grayish brown (2.5Y 5/2) shaly clay loam, very dark grayish brown (2.5Y 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial and tubular pores; about 15 percent by volume of distinct angular shale fragments; slightly acid; abrupt wavy boundary. (4 to 20 inches thick)

R--7 inches; shattered warped and folded dark grayish brown hard shale.

TYPE LOCATION: Glenn County, California; 2 1/4 miles south-southwest of Chrome; north of Hull Road, southwest 1/4 of section 5, T. 21 N., R. 6 W.

RANGE IN CHARACTERISTICS: Depth to a lithic contact is 4 to 20 inches. Mean annual soil temperature just above the bedrock is 59 degrees to 67 degrees F. and the soil temperature is below 47 degrees F. for only a few days in January. Soils below a depth of about 4 inches and above bedrock are usually moist in some or all parts all of the time from about November until April or May and are dry all the rest of the year. Texture throughout is sandy loam, loam, silt loam, sandy clay loam or clay loam with about 18 to 35 percent clay. Rock fragments, mostly angular or subangular pebbles, make up 5 to 35 percent of the soil.

The A horizon is dark brown, grayish brown, dark grayish brown, very dark grayish brown or brown in 2.5Y or 10YR hue. The moist chroma and moist value are 2 or 3. It has weak to strong granular or subangular blocky or angular blocky structure. In a few pedons some or all of the A horizon is massive, but the soil is only slightly hard when dry. Organic matter is 1 to 6 percent. This horizon is neutral or slightly acid in most pedons and some pedons are moderately acid in some or all parts. Base saturation is 75 to 100 percent.

In most pedons the A horizon rests abruptly on bedrock but in others a B horizon or a C horizon is present. These horizons have hue of 2.5Y, 10YR or 7.5YR, dry value of 6, moist chroma of 2 through 4 inclusive and less than 1 percent organic matter. All other properties are similar to the A horizon. This horizon is up to 5 inches thick.

COMPETING SERIES: There are the Friant and Zumaridge series. Friant soils are high in mica (less than 40 percent by weight) and have less than 18 percent clay., Zumaridge soils have less than 18 percent clay.

GEOGRAPHIC SETTING: Lodo soils are on mountainous uplands. Slopes are 5 to 75 percent. Elevations are 300 to 3,400 feet. The soils formed in material weathered from hard shale and hard fine grained sandstone. The climate is subhumid mesothermal with warm, dry summers and cool, moist winters. The mean annual temperature is about 59 degrees to 65 degrees F., average January temperature is about 42 degrees to 54 degrees F., and average July temperature is about 72 degrees to 77 degrees F. Frost-free season is about 200 to 280 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Escondido, Maymen, Millsap, Tehama, and Vallecitos soils. All of these soils have ochric epipedons. Also, Maymen soils have a mean annual soil temperature of 48 degrees to 58 degrees F. Millsap, Tehama, and Vallecitos soils have argillic horizons.

DRAINAGE AND PERMEABILITY: Somewhat excessively drained; medium to rapid runoff; moderate permeability.

USE AND VEGETATION: These soils are used principally for grazing, wildlife, and watershed. Native vegetation is buckwheat, scattered oak trees, Foothill pine, and chaparral. Naturalized vegetation is annual grasses and forbs.

DISTRIBUTION AND EXTENT: In the subhumid mountain ranges at lower elevations and foothills throughout California. The soils are extensive.

MLRA OFFICE RESPONSIBLE: Davis, California MLRA's 15, 20

SERIES ESTABLISHED: Glenn County, California, 1957.

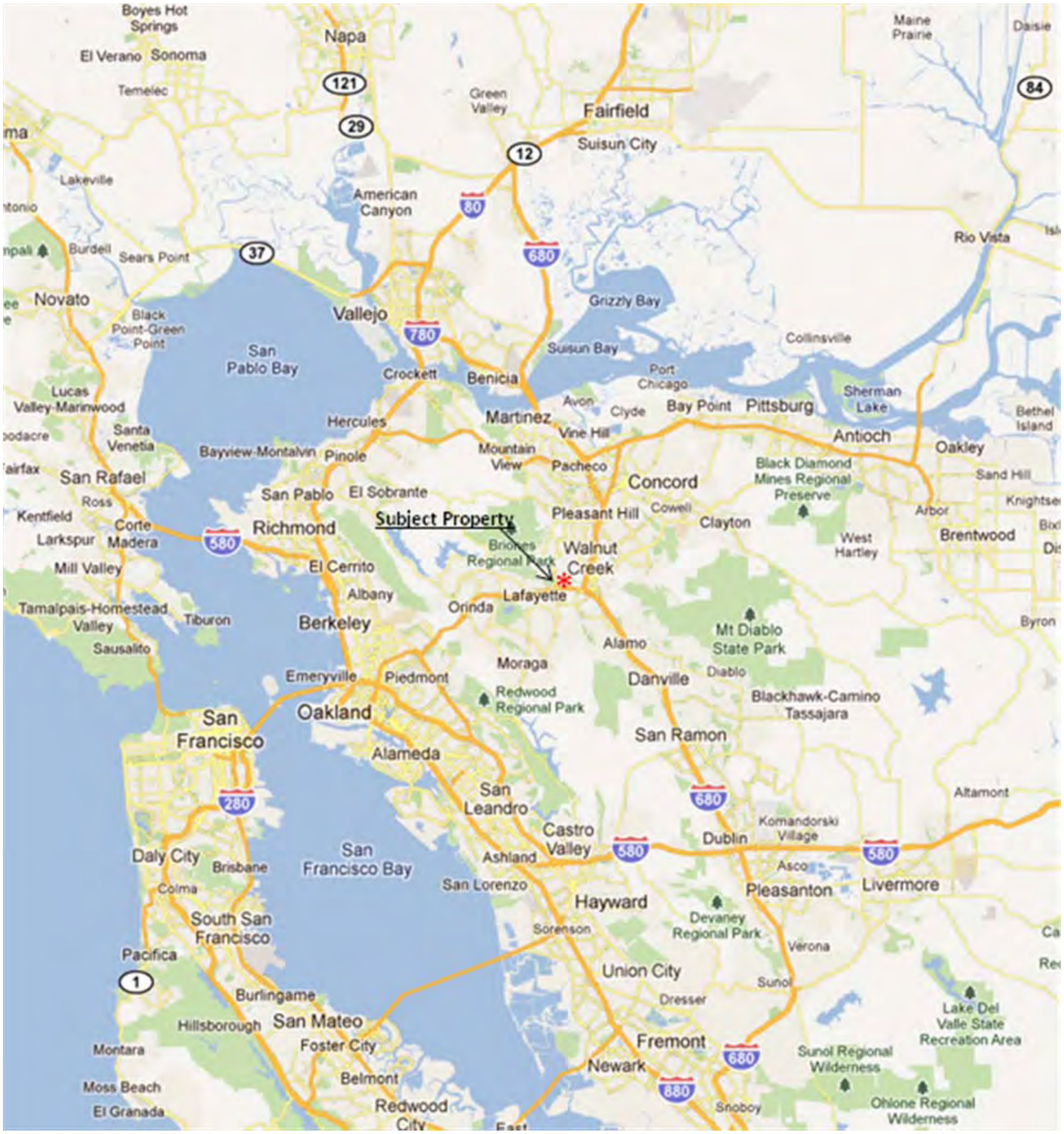
REMARKS: The activity class was added to the classification in February of 2003. Competing series were not checked at that time. - ET

Competing series checked 11/2009. Lodo soils are mapped from Riverside County to Shasta County, this should be reviewed during MLRA updating.

ATTACHMENTS

ATTACHMENT 1
FIGURES

Figure 1
Regional Map



Olberding Environmental, Inc.
3170 Crow Canyon Place, Suite 260
San Ramon, California 94583
Phone: (925) 866-2111

This document is not intended for detail design work.

Figure 1
Regional Map of the AMD Property
Contra Costa County, California

Figure 2
Vicinity Map

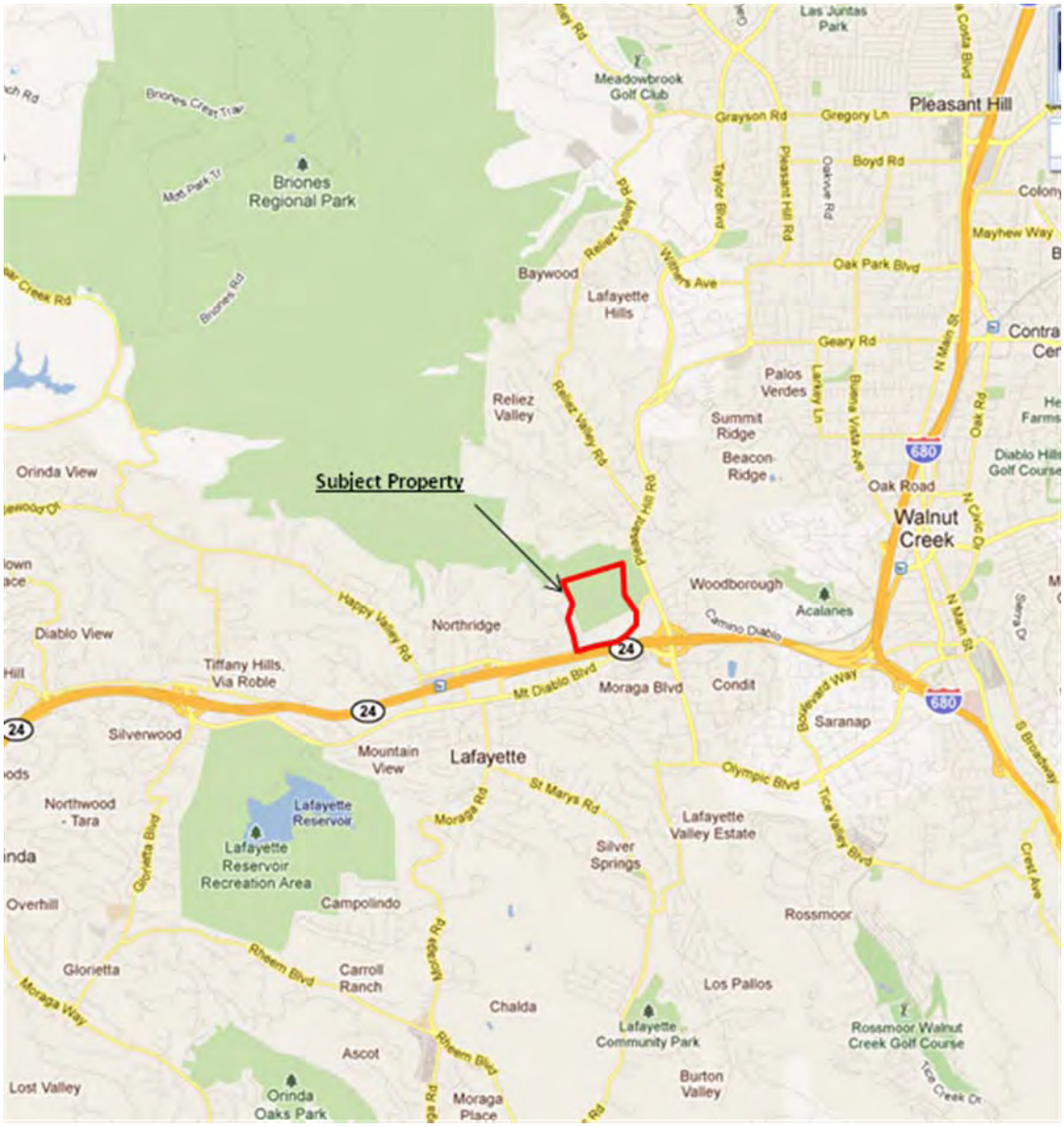


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Figure 2
Vicinity Map of the AMD Property
Contra Costa County, California

Figure 3
USGS Quadrangle Map for
Walnut Creek

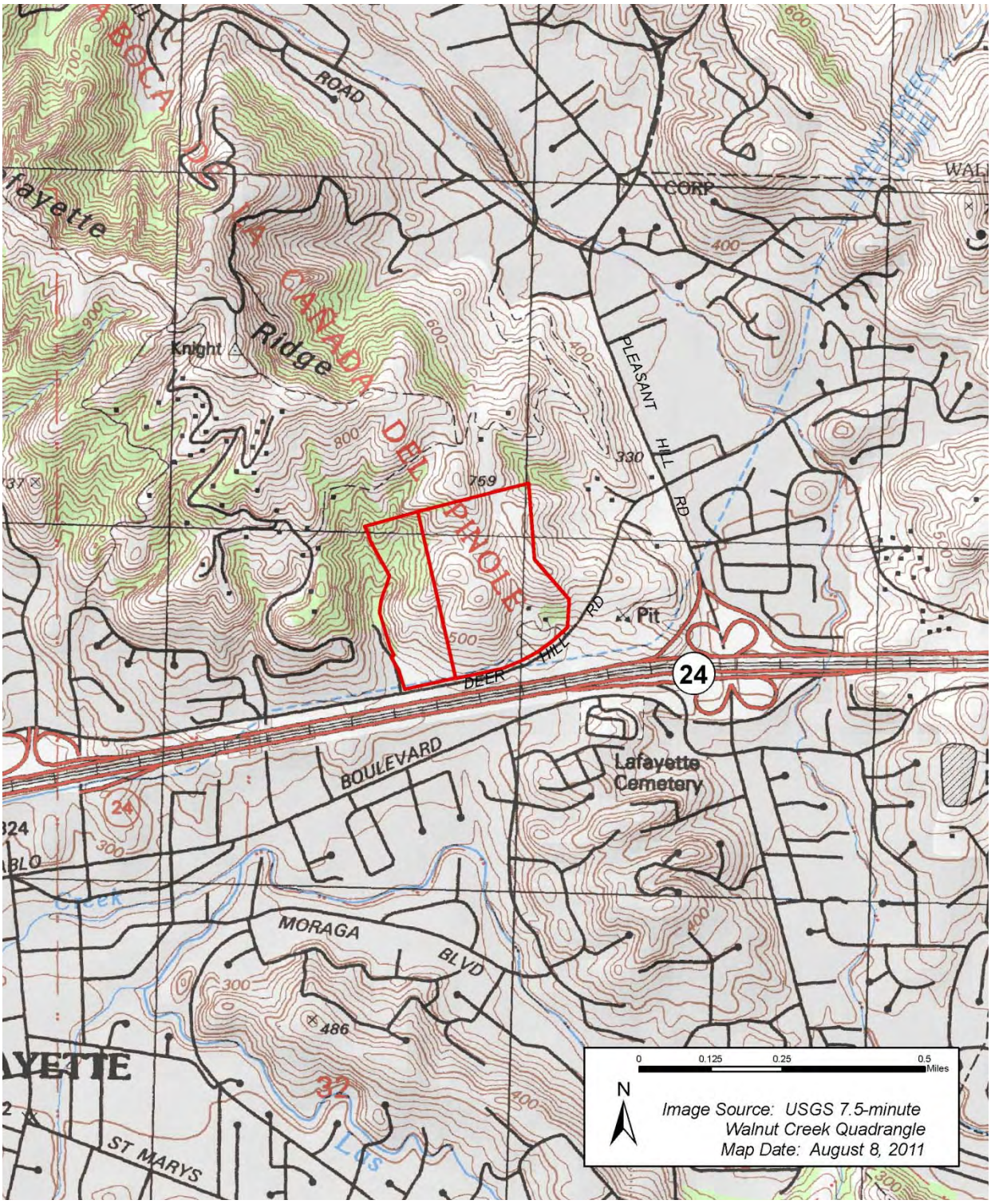

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Figure 3
USGS Quadrangle Map of the AMD Property
Walnut Creek Quadrangle
Contra Costa County, California

Figure 4
Aerial Photograph

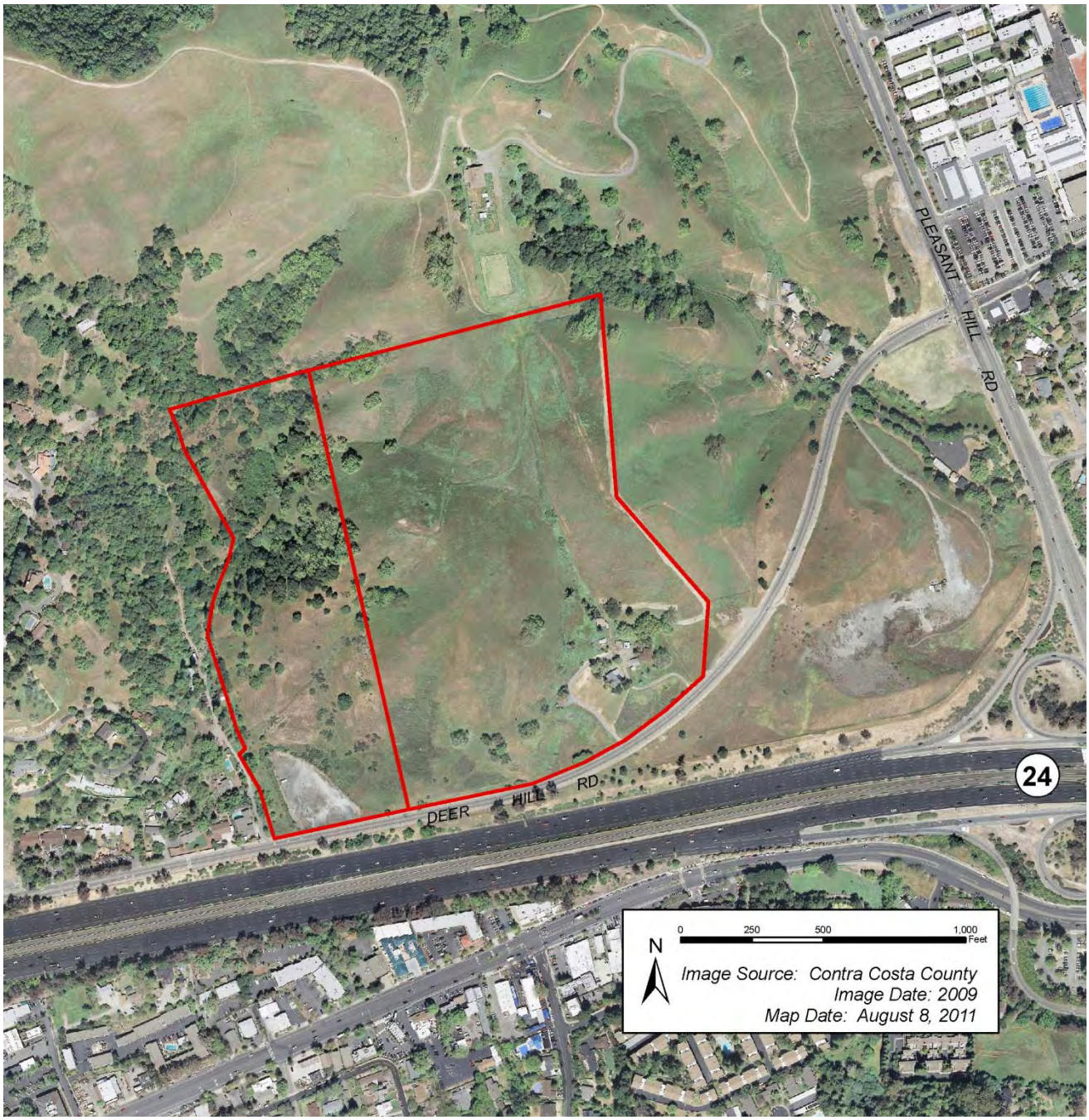
PLEASANT HILL RD
DEER HILL RD
24
0 250 500 1,000 Feet
N
Image Source: Contra Costa County
Image Date: 2009
Map Date: August 8, 2011

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Figure 4
Aerial Photograph of the AMD Property
Contra Costa County, California

Figure 5
Jurisdictional Waters Map

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Figure 5
Jurisdictional Waters Map of the AMD Property
Contra Costa County, California

Figure 6
Soils Map

Map Unit Symbol	Percentage within Property	Map Unit Name
CkB	0.7 %	Cropley clay, 2 to 5 percent slopes
CmE	10.0 %	Cut and fill land – Diablo complex, 9 to 30 percent slopes
LcF	58.6 %	Lodo clay loam, 30 to 50 percent slopes
LcG	30.7 %	Lodo clay loam, 50 to 75 percent slopes

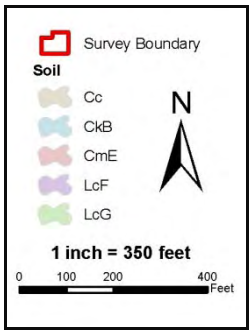

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Figure 6
Soils Map of the AMD Property
Contra Costa County, California

Terraces of Lafayette

Vegetation Communities Map

Contra Costa County
California

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Survey Boundary

Vegetation Communities

- Riparian - 0.22 acre
- Coast Live Oak Woodland - 1.56 acres
- Disturbed/Ruderal Herbaceous - 14.56 acres
- Non-native Grassland - 4.23 acres
- *Elymus glaucus* (blue wildrye) - 2 acres

1 inch = 200 feet

0 75 150 300 Feet

N

Image Source: Contra Costa County
Image Date: 2009
Field Delineation conducted on March 11, 2011 and October 1, 2011 by Mr. Christopher Bronny.
Map Date: October 2011

Appendix F4:
Tree Inventory and Assessment

TRAVERSO TREE SERVICE
WHEN IT HAS TO BE DONE RIGHT

March 15, 2011

Norm Dyer
c/o LCA Architects
245 Ygnatio Valley Road
Walnut Creek, CA 94596

RE: Tree Inventory & Assessment for the Deer Hill & Pleasant Hill Rd. Project

Dear Norm,

The following arborist report addresses the Deer Hill tree inventory and assessment as follows:

- All trees with trunk diameters of 6" or greater were numerically tagged.
- Tagged numbers were applied to an overhead google site map, showing the general location and dripline of each tree. ***Note:*** Canopies in google photo that are not numbered are mostly greasewood shrubbery.
- Each tree trunk diameter was measured at 4.5' above grade. If multiple trunks were originating at 4.5' and distorting the measurement, the diameter was taking below the crotch at the venturi point (per tree appraisal guidelines).
- Tree health & structure were given a good, fair, or poor assessment.
- Because the stand of trees were crowded, each tree was depicted as either a dominant, co-dominant, sub-dominant, or suppressed tree.

Introduction
The site contains 117 trees consisting of 75 coast live oaks, 11 black walnuts, 7 valley oaks, 7 willows, 6 incense cedar, 5 stone pine, and 1 each of acacia, plum, carob, Coulter pine, Monterey pine, and iron bark eucalyptus, the last two of which hang over the property line from the Cal trans property along HWY 24. The tagging #'s run from 1 to 118 with #26 missing.

There is one dominant over mature valley oak located against the existing residence. This tree could easily be in excess of 200 years of age, and obviously pre-dates the original property owners. Most of the coast live oaks and non natives, that are lining the currently used driveway from Deer Hill, and the previously used driveway from P.H. Rd. were planted around the time Dear Hill Road was developed in the early 1970's. Most of the live oaks could be considered fairly young or only 1/3 of their potential life-span.

3354 Freeman Rd, ·Walnut Creek, CA 94595, Telephone (925) 930-7901 · Fax (925) 930-0205

TREE INVENTORY & ASSESSMENT

Tree Assessment Table

DBH = Trunk diameter based on circumference measured at 4.5' above grade.

Poor Condition: Stunted or declining canopy, poor foliar color, possible disease or insect issues. Severe structural defects that may or may not be correctable. Usually not a reliable specimen for preservation.

Fair Condition: Fair to moderate vigor. Minor structural defects that can be correctable. More susceptible to construction impacts than a tree in good condition.

Good Condition: Good vigor, and color, with no obvious problems or defects. Generally more resilient to impacts.

Stand Structure:

"D" = Dominant tree (open grown, or overpowering adjacent trees)
"CD" = Co-dominant tree (equally competing with adjacent tree(s)).
"SD" = Sub-dominant tree (overshadowed by a dominant tree).
"S" = Suppressed tree (completely under the cover of adjacent dominant trees, stunted growth).

Note: Latin names are listed the first time a new species appears in the table, otherwise common names are used.

Tag #	Species	DBH	Health	Structure	Canopy Radius N	S	E	W	Stand Structure	Comments
1	Coast Live Oak *Quercus agrifolia*	20 ½", 15	Good	Fair	NW 25'				CD	
2	Coast Live Oak	15", 16", 9", 13"	Good	Fair	25'	25'	25'	25'	CD	Co-dominant stems at base
3	Coast Live Oak	15", 15½ ", 11½", 20	Good	Fair			SE 30'		CD	Co-dominant stems at base

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
4	Coast Live Oak	14½", 22", 14.	Good	Fair	25‘	30"	25‘	30‘	D	Co-dominant stems at base, trunk buried, possibly 2 trees
5	Coast Live Oak	9“, 5"	Fair	Fair	15‘	15‘	15‘	15‘	SD	Co-dominant stems at base, trunk buried.
6	Coast Live Oak	17“, 14½”	Good	Fair	20‘	20‘	20‘	20‘	D	Co-dominant stems at base
7	Coast Live Oak	10“, 9½”, 6", 6"	Good	Fair	15‘	15‘	15‘	15‘	CD	Co-dominant stems at base
8	Coast Live Oak	8“	Good	Fair		12‘			S	Stunted understory tree
9	Coast Live Oak	6½“	Good	Fair		8‘			S	Stunted understory tree
10	Coast Live Oak	6½“, 8", 4"	Good	Fair	8‘	8‘	8‘	8‘	CD	Co-dominant stems at base
11	Coast Live Oak	5“, 6", 7"	Good	Fair	10‘	10‘	10‘	10‘	CD	Co- dominant stems at base
12	Coast Live Oak	7½“	Good	Good	8‘	8‘	8‘	8‘	CD	
13	Coast Live Oak	12“, 6", 8", 5", 7"	Good	Fair	NW 15‘				CD	
14	Coast Live Oak	12½”, 9	Good	Fair		SE 15‘		SW 15‘	CD	

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
15	Coast Live Oak	11“, 7½”, 11, 13½ “, 10	Good	Fair	20‘	20‘	20‘	20‘	D	Multiple co-dominant stems.
16	Coast Live Oak	8“, 11½", 6	Good	Fair	NE 15‘		SE 15‘		SD	
17	Coast Live Oak	7", 5"	Good	Fair			SE 12‘		S	Stunted understory tree
18	Coast Live Oak	6½“, 4, 3½”	Good	Fair	10‘	10‘	10‘	10‘	SD	
19	Coast Live Oak	7“	Good	Fair	8‘				S	Stunted understory tree
20	Coast Live Oak	19“	Fair	Fair	18‘	18‘	18‘	18‘	D	
21	Coast Live Oak	11“, 13", 11", 14", 7"	Good	Fair	20‘	20‘	20‘	20‘	D	
22	Coast Live Oak	9“, 5", 5", 8"	Good	Fair			SE 15‘	SW 15‘	SD	
23	Coast Live Oak	9“	Good	Fair			SW 18‘		CD	
24	Coast Live Oak	8“, 4", 5", 10½”, 6"	Good	Fair			SE 18‘	SW 15‘	CD	Buried, multi trunked out of the ground

Tag #	Species	DBH	Health	Structure	Canopy Radius N	S	E	W	Stand Structure	Comments
25	Coast Live Oak	8“, 6", 7"	Good	Fair			SE 15‘		CD	
27	Coast Live Oak	7 ½“	Good	Fair	NW 12‘				S	Tree leans 30 degrees to the northwest
28	Valley Oak *Quercus lobata*	17“	Good	Good	22‘	22‘	22‘	22‘	D	
29	Coast Live Oak	7“, 8"	Good	Poor			SE 12 ‘		CD	Included crotch at base. 5" valley oak growing up through the middle of the tree
30	Coast Live Oak	7“, 8", 4", 3", 3"	Good	Fair	12‘	12‘	12‘	12‘	CD	
31	Coast Live Oak	10“, 9", 9"	Fair	Fair	NW 18‘				SD	
32	Valley Oak	17"	Good	Good	NE 20'		15	15	D	
33	Coast Live Oak	7", 6½”, 9"	Good	Fair			SW 15"’		SD	Tree leans 30% to the southwest
34	Coast Live Oak	6", 12", 11"	Good	Fair		20‘	15‘	15‘	CD	
35	Coast Live Oak	11“, 8½”	Good	Fair		20‘	10‘	15‘	CD	

Tag #	Species	DBH	Health	Structure	Canopy Radius N	S	E	W	Stand Structure	Comments
36	Coast Live Oak	8 ½“, 6½	Good	Fair	15‘	SW 15r‘			CD	
37	Coast Live Oak	7", 7", 6", 6"	Good	Fair	NE 18‘		SW 15‘		CD	
38	Coast Live Oak	8", 7 ½", 13"	Good	Fair	NE 18‘		SE 18‘		CD	
39	Coast Live Oak	12", 10"	Good	Poor	NE 18‘		SE 15‘	15'	CD	Co-dominant stems, Included main crotch
40	Coast Live Oak	11 ½“	Good	Fair			SW 15‘	‘		
41	Black Walnut *Juglans californica*	7“, 4", 4", 6", 5"	Good	Good	15‘	15‘	SW 10‘		D	
42	Coast Live Oak	8 ½“	Good	Fair	SE 12‘			8‘	SD	
43	Coast Live Oak	15“	Good	Good	18‘	12‘	8‘	20‘	CD	
44	Coast Live Oak	13“, 12"	Good	Poor	12‘	12‘		SW 20‘	CD	Co-dominant stems, included crotch.
45	Coast Live Oak	8“	Fair	Fair	NE 12‘			‘	SD	
46	Coast Live Oak	10“, 11	Good	Fair			18‘		CD	

Tag #	Species	DBH	Health	Structure	Canopy Radius N	S	E	W	Stand Structure	Comments
47	Coast Live Oak	11“	Good	Fair	NE 15‘				CD	
48	Incense Cedar *Calocedrus decurrens*	10“	Good	Fair	NE 12‘				S	Leans out from under coast live oak
49	Coast Live Oak	13 ½“	Good	Fair			22‘		CD	
50	Coast Live Oak	11“, 13", 9", 9"	Good	Fair	NE 22‘				CD	
51	Coast Live Oak	9“	Fair	Fair	NE 12‘				SD	
52	Coast Live Oak	16“, 14", 13"	Good	Fair	NW 20‘	15‘	SW 23‘		D	
53	Coast Live Oak	9“	Good	Fair	15‘				SD	
54	Incense Cedar	9“	Good	Fair	NE 8‘				SD	
55	Coast Live Oak	32“	Good	Fair	23‘	23‘	23‘	23‘	D	Very nice tree
56	Incense Cedar	13“	Good	Good	15‘	15‘	15‘	6‘	SD	
57	Incense Cedar	11“, 5"	Good	Good	8‘	8‘	8‘	8‘	D	
58	Incense Cedar	15“	Good	Good	9‘	9‘	9‘	9‘	D	
59	Incense Cedar	13“	Good	Good	8‘	8‘	8‘	8‘	D	

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
60	Coast Live Oak	6“, 19", 18", 9:	Fair	Fair	20‘	20‘	20‘	20‘	D	
61	Coast Live Oak	10“, 10"	Good	Poor		12‘	12‘		SD	Co-dominant stems, Included main crotch
62	Coast Live Oak	9“, 7", 8"	Good	Good	15‘	15‘	15‘	15‘	CD	
63	Valley Oak	10“	Good	Fair	12‘	12‘	12‘	12‘	D	
64	Coast Live Oak	13“, 11"	Good	Good	15‘	15‘	15‘	15‘	D	
65	Coast Live Oak	4“, 7", 8", 4"	Fair	Fair	12‘	12‘	12‘	12‘	SD	
66	Italian Stone Pine *Pinus pinea*	16“	Good	Fair		15‘			D	Topped by PG&E
67	Coast Live Oak	5 ½“, 5", 4"	Fair	Fair	12‘	12‘	12‘	12‘	S	Stunted understory tree.
68	Coast Live Oak	6“, 12", 9"	Good	Fair			12‘	12‘	CD	
69	Coast Live Oak	9“, 10", 10"	Fair	Fair		15‘	15‘		SD	
70	Coast Live Oak	9“, 6", 5"	Good	Good	15‘	15‘	8‘	8‘	CD	
71	Coast Live Oak	7“	Good	Fair			8‘	8‘	SD	

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
72	Coast Live Oak	6“, 5½”, 5", 5"	Fair	Poor		15‘	8‘	8‘	SD	Included crotch
73	Valley Oak	22 ½“	Good	Fair	22‘	22‘	22‘	22‘	D	Located 6' outside of property line- neighbors tree
74	Coast Live Oak	9“	Good	Poor	8‘	8‘	8‘	8‘	CD	Co-dominant stems
76	Coast Live Oak	8“	Fair	Fair	10‘	10‘			S	
77	Coast Live Oak	21“	Good	Good	12‘	12‘	20‘	20‘	D	
78	Coast Live Oak	12", 10", 14"	Good	Fair	10‘	20‘	15‘	15‘	SD	Co-dominant trunks
79	Coast Live Oak	8“, 6", 11", 12", 8", 5"“	Good	Fair	22‘	22‘	15‘		SD	Multiple inclusions at base
80	Coast Live Oak	7", 5"	Good	Fair	15‘				S	
81	Coast Live Oak	19“, 19", 17"	Good	Fair	25‘	25‘	25‘	25‘	D	Co-dominant stems
82	Coast Live Oak	8“	Fair	Poor			18‘	18‘	S	Tree leans at 40 degree angle, potential roof failure
83	Coast Live Oak	8", 8", 7"	Good	Fair		15‘	15‘		SD	
84	Coast Live Oak	13“, 14"	Good	Fair	15‘	15‘	15‘	15‘	D	

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
85	Coast Live Oak	14“, 13", 11", 7"	Good	Poor	15‘	25‘	25‘	25‘	D	Partially uprooted, large fractured limbs, metal stake in trunk
86	Coast Live Oak	9“	Good	Fair		15‘	15‘		SD	
87	Coast Live Oak	12 ½“, 14, 8½”, 13", 12", 6", 10½“	Good	Fair	25‘	25‘	25‘	25‘	D	
88	Coast Live Oak	21“	Good	Fair	25‘	25‘	25‘	25‘	D	
89	Coast Live Oak	16“, 17"	Good	Poor	15‘	20‘	20‘	20‘	SD	
90	Valley Oak	20“	Good	Good	20‘	20‘	20‘	20‘	D	
91	Valley Oak	58“	Fair	Fair- Poor	30‘	35‘	50‘	35‘	D	Over-mature (past 2/3's of expected life span. Estimate >200 yrs) Extensive branch elongation and decay, although still showing good vigor for age. Growing through existing house. Cool tree, however, recommend keeping structures outside of fall zone. Maybe 50 +- years left.

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
92	Carob *Ceratonia siliqua*	10“, 7", 11", 9", 9", 10", 7", 9", 8", 8"	Fair	Fair	18‘	18‘	18‘	18‘	D	Stunted growth, a bit out of place on this site.
93	Stone Pine	25“	Good	Poor		25‘	25‘	20‘	D	Partially uprooting, old rotational soil failure. Saturated soils lost grip on roots.
94	Stone Pine	20“, 20"	Good	Poor		25	25'	20'	CD	Co-dominant, included trunks with a 20 degree lean
95	Stone Pine	20“	Good	Fair	20‘	20‘	20‘	20‘	CD	15 degree lean.
96	Stone Pine	20“, 11"	Good	Good	15‘	20‘	20‘	15‘	D	Only upright stone pine on site. Species typically develop leans, and eventually uproot.
97	Acacia Baileniana	7“, 6½”	Good	Poor	8‘	8‘	8‘	8‘	D	Included stems. Isolated on top of property by old storage containers.
98	Black Walnut	5", 4", 3", 4"	Good	Fair	10'	10'	10'	10'	CD	Trees #98 - #115 are all located along what appears to be a seasonal stream, and are riparian type species.

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
99	Arroyo Willow *Salix lasiolepis*	9“	Good	Fair	15‘				D	
100	Black Walnut	6“	Good	Good	8‘	8‘	8‘	8‘	D	
101	Purple Leaf Plum	6“, 5", 5", 4"	Fair	Fair	8‘	8‘	8‘	8‘	D	
102	Black Walnut	8 ½“	Good	Good	10‘	10‘	10‘	10‘		Falling apart in creek
103	Arroyo Willow	8“, 3", 3", 3", 4"	Fair	o	10‘	10‘	10‘	15‘	CD	In creek
104	Arroyo Willow	13"	Fair	Fair		15‘			CD	In Creek
105	Arroyo Willow	15", 10"	Fair	Fair	15‘	15‘			DC	In creek
106	Black Walnut	5“, 5", 4", 3"	Fair	Fair	15‘				SD	
107	Black Walnut	7“, 10", 5", 4", 3", 6", 7", 6"	Good	Fair	18‘	18‘	18‘	18‘	D	
108	Black Walnut	7“, 4", 6", 6"	Good	Fair	15‘				SD	
109	Black Walnut	9“	Good	Fair		15‘	15‘		CD	
110	Coast Live Oak	7““	Good	Fair	6‘	6‘	6‘	6‘	CD	

Tag #	Species	DBH	Health	Structure	Canopy Radius				Stand Structure	Comments
					N	S	E	W		
111	Black Walnut	6“, 5", 3", 5", 6", 6", 5", 5"	Good	Fair	18‘	18‘	18‘	18‘	CD	
112	Black Walnut	4“,4“,4“, 5", 5", 5", 4“, 4“, 7", 6"	Good	Poor	15‘	15‘	20‘	20‘	D	Multiple poor attachments. Included crotches.
113	Willow	12“	Good	Fair			20‘	20‘	CD	
114	Black Walnut	5“	Good	Fair			10‘	10‘	S	
115	Willow	10“, 18"	Fair	Fair	35‘			35‘		
116	Coulter Pine *Pinus coulteri*	30"	Good	Fair	14'	14'	14'	14'	D	Co-dominant leaders
117	Monterey Pine *Pinus radiata*	20"	Good	Fair	20'	20'	20'	20'		On neighboring property - hangs 10' over the property
118	Iron Bark Eucalyptus *Eucalyptus sideroxylon*	17"	Good	Fair	25'	25'	25'	25'		On neighboring property- 15' from the property line


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Deer Hill Rd
Pleasant Hill Rd
Sienne Ranch
Hill Rd
1148
1132
Far southwest corner of the property
116
117
118
Portion of property farther south)
97

Dear Hill / Pleasant Hill Rd. Tree Inventory

Thank you for the opportunity to provide you with this inventory, and please feel free to call if you have any questions or concerns.

Sincerely,

John C Traverso
ISA Board Certified Master Arborist #0206
PNW Certified Tree Risk Assessor #994