LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

OASIS GROW FACILITY PROPERTY
BIOLOGICAL EVALUATION
ALAMEDA COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

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October 24, 2018 PN 2305-01

EXECUTIVE SUMMARY

Live Oak Associates, Inc., conducted an investigation of the biological resources of the approximately 92.53-acre property located at site located at 7033 Morgan Territory Road in Livermore, Alameda County, California (APN 903-0007-001-01).

The proposed project includes a cannabis grow house (32,000 square-foot greenhouse building with 22,000 square-feet of canopy) and one processing building with associated security fencing and parking lot. A leach field and well(s) are also planned. The existing barn is not proposed to be part of the cannabis cultivation facility, and is not planned for removal as a part of this project. Although current plans are not impacting the existing creek crossing, this report takes into consideration the potential for plans to change to replace the culvert bridge, should replacement become necessary.

The site consists of California annual grassland with a Cayetano Creek supporting riparian vegetation running through it as well as small developed areas including a barn, pumphouse, shipping container, well, and dumpster area.

The Foothill yellow-legged frog, California red-legged frog, western pond turtle, Alameda whipsnake, white-tailed kite, Swainson's hawk, northern harrier, American peregrine falcon, golden eagle, burrowing owl, loggerhead shrike, grasshopper sparrow, Townsend's big-eared bat, western red bat, pallid bat, San Francisco dusky-footed woodrat, American badger, ringtail, and San Joaquin kit fox have the potential to occur onsite. Rare plant surveys for large-flowered fiddleneck and bent-flowered fiddleneck should be conducted as well.

Jurisdictional waters are present on the site in the form of Cayetano Canyon Creek. This feature is regulated by the U.S. Army Corps of Engineers and the Regional Water Quality Control Board and by the California Department of Fish and Wildlife. Impacts or fill of this feature, including culvert bridge replacement would require permits from all three agencies. Cayetano Creek will not be impacted by the project unless the County requires updates to the culvert bridge. Suitable avoidance, minimization and compensation measures would be required to accommodate any impacts to these jurisdictional features. Acceptable mitigation measures include the creation of replacement habitat, habitat enhancement and/or the preservation of existing habitat via a conservation easement at a replacement-to-disturbance ratio that replaces lost functions and values.

The removal of trees should be mitigated for according to the formula provided in the City's tree ordinance. Trees to be retained onsite should be protected pursuant to tree preservation guidelines.

Impacts to habitat for special status plants, native wildlife, and wildlife movements would be less-than-significant once mitigation measures are in place. as the conservation of approximately 103 acres of high quality habitat offsets any potential loss of habitat for these species or ecological processes including both EBRPD and onsite open space lands. The project would implement standard BMPs during construction and design the project so as not to result in any significant degradation of water quality in seasonal creeks, reservoirs, and downstream waters would be considered less-than-significant.

Impacts to the special status species would be offset by avoidance and minimization measures aimed at reducing or eliminating harm, injury, or death of individuals during construction. The

U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife may require endangered species consultation for authorizing any "take" of federal and/or state listed species.

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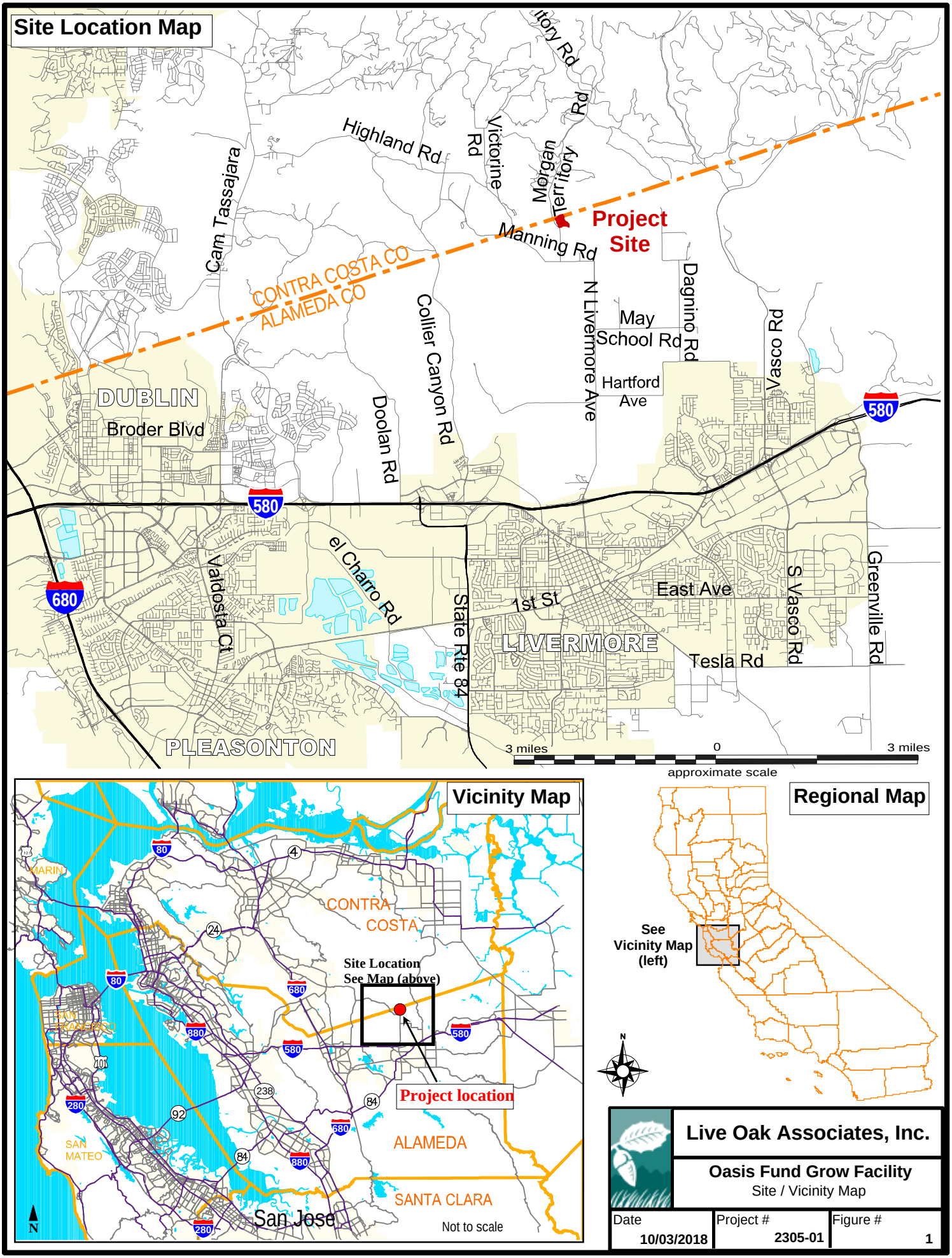
1 INTRODUCTION

Live Oak Associates, Inc. (LOA), has prepared the following report, which describes the biotic resources of the approximately 92.53-acre property located at 7033 Morgan Territory Road in Livermore, Alameda County, California (APN 903-0007-001-01), and evaluates likely impacts to these resources resulting from site development. The project site is located in the Tassajara 7.5" U.S. Geological Survey (USGS) quadrangle, and is described by the Public Land Survey system as being in Section 7, Township 2 South, Range 2 East.

Development activities can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, these activities may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of the Alameda County. This report addresses issues related to: 1) sensitive biotic resources occurring on the site; 2) the federal, state, and local laws regulating such resources, and 3) mitigation measures which may be required to reduce the magnitude of anticipated impacts. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss project impacts to biological resources likely to occur on the site within the context of CEQA or any state or federal laws; and
- Identify avoidance and mitigation measures that would reduce impacts to a less-than-significant level as identified by CEQA and that are generally consistent with recommendations of the resource agencies for affected biological resources.



	Live Oak Associates, Inc.
	Oasis Fund Grow Facility Site / Vicinity Map

Date	Project #	Figure #
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The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the site, discussed in Section 2.0. Sources of information used in the preparation of this analysis included: 1) the *California Natural Diversity Data Base* (CDFW 2018), 2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018), and 3) the *East Alameda County Conservation Strategy* (EACCS), and 4) manuals and references related to plants and animals of Alameda County. A reconnaissance-level field survey of the study area was conducted on October 15, 2018, by LOA ecologists Katrina Krakow and Pamela Peterson, at which time the principal biotic habitats of the site were identified, and the constituent plants and animals of each were noted.

1.1 PROJECT DESCRIPTION

The proposed project includes a cannabis grow house (32,000 square-foot greenhouse building with 22,000 square-feet of canopy) and one processing building with associated security fencing and parking lot. A leach field and well(s) are also planned. The existing barn is not proposed to be part of the cannabis cultivation facility, and is not planned for removal as a part of this project. Although current plans are not impacting the existing creek crossing, this report takes into consideration the potential for plans to change to replace the culvert bridge, should replacement become necessary. Site plans are included as Appendix C.

2 EXISTING CONDITIONS

The project site is located at 7033 Morgan Territory Road in Livermore, Alameda County, California (APN 903-0007-001-01). The site is surrounded by open space and pasture land with scattered residences and barns. The site is generally level in elevation from approximately 200 feet (60 m) National Geodetic Vertical Datum (NGVD) at the southwest end of the site to approximately 220 feet (67 m) NGVD in the northeast end of the site. The site consists non-native California grassland with a barn and wellhouse with Cayetano Creek running along the western boundary of the site paralleling Morgan Territory Road. Surrounding land uses are primarily open space and rural residential.

Two soil types from two soil series— Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14 and Diablo clay, 9 to 15 percent slopes—were identified on the project site (NRCS 2018). Both soil types are considered to be hydric. Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. Under sufficiently wet conditions, hydric soils support the growth and regeneration of hydrophytic vegetation. Soils of the site are not serpentine soils, therefore, the site would not support special status plant species that are endemic to serpentine soils. Diablo soils are considered to be mildly alkaline, however, other soils of the site are not known to support conditions suitable for special status plant species specifically endemic on alkaline soils.

The East Bay has a Mediterranean climate with warm to hot, dry summers and cool winters. Annual precipitation in the general vicinity of the site is highly variable from year to year. Average annual rainfall is approximately 16 inches, most of which falls between October and April.

Table 1. Soils occurring on the Oasis Grow Facility property (NRCS 2018).

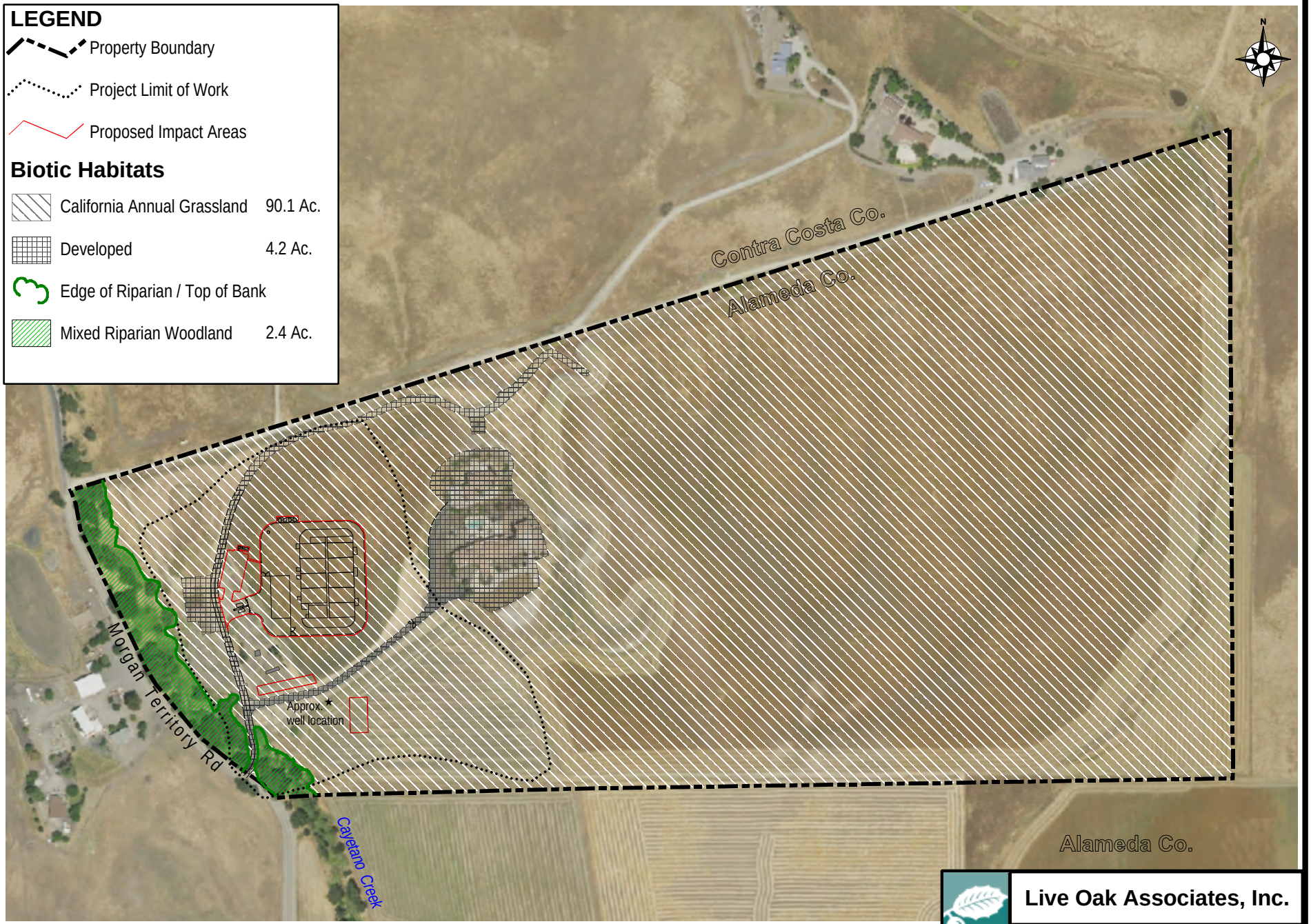
Soil Series/Soil	Map Symbol	Parent Material	Surface Permeability	Hardpan/ Duripan	Hydric
Clear Lake Series Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14	CdB	Fine textured alluvium derived from sandstone and shale	Slow to very slow	No	Yes
Diablo Series Diablo clay, 9 to 15% slopes	DbD	Alluvium derived from shale and siltstone	Slow	No	Yes

2.1 BIOTIC HABITATS

Two biotic habitats were identified on the project site (Figure 2), and for the purposes of this report, these habitats have been classified as California annual grassland and mixed riparian woodland. Development on the site is limited to a barn, a small stucco structure which is presumed to be an old pumphouse, and a well. A large metal storage container also is present on the site. A list of the vascular plant species observed on the project site and the terrestrial vertebrates using, or potentially using, the site are provided in Appendices A and B, respectively.

2.1.1 California Annual Grassland

The site primarily supports California annual grassland habitat (90.1 acres) dominated by annual grasses and forbs of European origin. At the time of the October 2018 survey, most of the grasslands of the site appeared to have been recently mowed and vegetation height in these mowed areas was generally less than 4 inches in height. A small test pit was also observed within this habitat. Annual grasses within this habitat were mostly senescent. The dominant grass observed within this habitat was wild oats (*Avena* sp.), although other grasses observed included ripgut brome (*Bromus diandrus*), farmer's foxtail (*Hordeum murinum*), soft chess (*Bromus hordeaceous*), and perennial wild-rye (*Festuca perennis*). Forbs observed to be present within the grasslands included, but were not limited to, black mustard (*Brassica nigra*), horehound (*Marrubium vulgare*), Italian thistle (*Carduus pycnocephalus*), bristly oxtongue (*Helminthotheca echioides*), bindweed (*Convolvulus arvensis*), burclover (*Medicago polymorpha*), yellow star thistle (*Centaurea solstitialis*), Russian thistle (*Kali tragus*), and curly dock (*Rumex crispus*). Trees present within this habitat included Monterey cypress (*Cupressus macrocarpa*) and olive (*Olea europaea*).



Sources:
Aerial Photograph Courtesy of USDA FSA APFO Aerial Photography Field Office, 9/28/2016

Live Oak Associates, Inc.

Oasis Fund Grow Facility
Biotic Habitats

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Several amphibian and reptile species forage in grasslands for insects, birds, and small mammals. These include the Pacific chorus frog (*Pseudacris regilla*), western toad (*Anaxyrus boreas*), western fence lizard (*Sceloporus occidentalis*), which was observed during the October site visit, California alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), California kingsnake (*Lampropeltis californiae*), and northern Pacific rattlesnake (*Crotalus oreganus oreganus*). It is possible that the Foothill yellow-legged frog (*Rana boylii*), California red-legged frog (*Rana draytonii*), may use the riparian corridor and upland habitat and that the Alameda whipsnake (*Masticophis lateralis euryxanthus*) may use this habitat, as it may use grasslands of the site for movement from the riparian habitat and for foraging.

Numerous resident and migratory birds breed and forage in grassland habitats. Avian species observed in this habitat during the October 2018 site visit include the turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), wild turkey feathers (*Meleagris gallopavo*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), song sparrow (*Melospiza melodia*), western meadowlark (*Sturnella neglecta*).

Mammals observed or evidence of their presence (scat, tracks, etc.) during the October 2018 site visit was limited to California ground squirrel (*Otospermophilus beecheyi*) burrows and black-tailed deer (*Odocoileus hemionus columbianus*). Other small mammals that may occur in this habitat (but evidence was not observed) include the western harvest mouse (*Reithrodontomys megalotis*) and California meadow vole (*Microtus californicus*).

The occurrence of small mammals usually attracts predators, including reptiles (e.g., snakes) and birds (e.g., raptors and loggerhead shrike) previously discussed. Medium and larger mammalian predators are also expected to occur due to available prey, including gray foxes (*Urocyon cinereoargenteus*), coyotes (*Canis latrans*), bobcats (*Lynx rufus*), and cougars (*Puma concolor*).

2.1.2 Mixed Riparian Woodland

Mixed riparian woodland habitat (2.4 acres) is associated with Cayetano Creek along the western boundary of the site. Dominant native riparian trees in this habitat included valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*). Other trees and shrubs observed in this habitat included black walnut (*Juglans hindsii*), blue gum (*Eucalyptus globulus*), blue elderberry

(*Sambucus cerulea*), and poison oak (*Toxicodendron diversilobum*). The riparian woodland habitat supported a generally sparse growth of herbaceous understory. Plant species observed in the understory of this habitat included grass species similar to those within the annual grasslands of the site, as well as mugwort (*Baccharis douglasiana*), umbrella sedge (*Cyperus eragrostis*), narrowleaf milkweed (*Asclepias fascicularis*), prickleseed buttercup (*Ranunculus muricatus*), and California fuchsia (*Epilobium canum*).

At the time of the October survey, the creek was completely dry. The width between the top of the banks was estimated at more than 100 feet and the width between the Ordinary High Water marks on opposing banks was estimated between 10 to 12 feet. The access driveway for the property traverses the creek from Morgan Territory Road via a culvert bridge. The width of the culvert was estimated at 6 feet.

Riparian systems serve as dispersal corridors and islands of habitat for a number of wildlife species, particularly for smaller vertebrates such as amphibians and reptiles. This creek conveys water to provide a seasonal source of drinking water for species occurring in the surrounding habitats and, when wet, also provides potential breeding habitat for Pacific chorus frogs, Foothill yellow-legged frogs, and potential movement habitat for the California red-legged frog. The creek may also support suitable habitat for the slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), California newt (*Taricha torosa*), and yellow-eyed ensatina (*Ensatina eschscholtzii xanthoptica*). Reptiles that may utilize riparian systems include the skilton skink (*Eumeces skiltonianus skiltonianus*), California alligator lizard, gopher snake, and California kingsnake.

Many resident and migratory bird species occur in riparian habitats. Birds observed in the riparian woodland during the October 2018 site visit was limited to the wild turkey (feathers), common raven (*Corvus corax*), western scrub jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), song sparrow, and European starling (*Sturnus vulgaris*). Other species expected to occur in this habitat include the Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), Anna's hummingbird (*Calypte anna*), downy woodpecker (*Picoides pubescens*), Nuttall's woodpecker (*Picoides nuttallii*), and Bullock's oriole, as well as species expected to occur in the surrounding habitats. Suitable

roosting habitat for bats such as the western red bat may occur in the blue gum and oak trees within the riparian habitat.

2.1.3 Developed

As indicated above, developed areas of the site (4.2 acres) were limited to a barn, a small stucco building presumed to be a pumphouse, the access driveway, a well, and a storage area for the dumpster. A large metal cargo container is also present on the site. The barn and pumphouse do not support suitable habitat for roosting bats. As the roof of the barn is metal with open-air sides and the pumphouse appears to have had a fire in the past which severely damaged the roof of the structure.

Wildlife inhabiting the surrounding grasslands and riparian woodlands would also be expected to occur within this habitat.

2.2 MOVEMENT CORRIDORS

Habitat corridors are vital to terrestrial animals for connectivity between core habitat areas (i.e., larger intact habitat areas where species make their living). Connections between two or more core habitat areas help ensure that genetic diversity is maintained, thereby diminishing the probability of inbreeding depression and geographic extinctions. This is especially true in fragmented landscapes and the surrounding urbanized areas as found in the rural/urban matrix along the edges of the Cities of Dublin and Livermore.

The quality of habitat within the corridors is important. "Better" habitat consists of an area with minimal human interference (e.g., roads, homes, etc.) and is more desirable to more species than areas with sparse vegetation and high-density roads. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, that allow animals to access locations containing various biotic resources essential to maintaining their life cycles.

Healthy riparian areas that support structural diversity, (i.e., understory species to saplings to mature riparian trees) have a high biological value. They not only support a rich and diverse wildlife community but have also been shown to facilitate regional wildlife movement. Riparian areas can vary from tributaries winding through scrubland to densely vegetated riparian forests.

A riparian zone can be defined as an area that has a source of fresh water (e.g., rill, stream, river), a defined bank, and upland areas consisting of moist soils (e.g., wetter than would be expected from seasonal rainfall). These areas support a characteristic suite of vegetative species, many of which are woody, that are adapted to more moist soils. Such vegetation in the area surrounding Dublin and Livermore include California buckeye (*Aesculus californica*), elderberry (*Sambucus* sp.), walnut (*Juglans* sp.), California laurel (*Umbellularia californica*), toyon (*Heteromeles arbutifolia*), oaks (*Quercus* sp.), and willow (*Salix* sp.).

Five functions of corridors, rather than physical traits, are relevant when analyzing the value of linkages (Beier and Loe, 1992). These five functions used to evaluate the suitability of a given property for use as a habitat corridor are as follows:

1. Wide ranging mammals can migrate and find mates;
2. Plants can propagate within the corridor and beyond;
3. Genetic integrity can be maintained;
4. Animals can use the corridor in response to environmental changes or a catastrophic event;
5. Individuals can recolonize areas where local extinctions have occurred.

A corridor is "wide enough" when it meets these functions for the suite of animals in the area. It is important to note that landscape linkages are used differently by different species. For instance, medium to large mammals (or some bird species) may traverse a corridor in a matter of minutes or hours, while smaller mammals or other species may take a longer period of time to move through the same corridor (e.g., measured in days, weeks and even years). Landscape linkages are not simply highways that animals use to move back and forth. While linkages may serve this purpose, they also allow for slower or more infrequent movement. Width and length must be considered in evaluating the value of a landscape linkage. A long narrow corridor would most likely only be useful to wide ranging animals such as cougars and coyotes when moving between core habitat areas. To the extent practicable, conservation of linkages should address the needs of "passage species" (those species that typically use a corridor for the express purpose of moving from one intact area to another) and "corridor dwellers" (slow moving species such as plants and some amphibians and reptiles that require days or generations to move through the corridor).

Cayetano Creek and its riparian habitat will be avoided by the project and is consistent with habitats typically identified as wildlife corridors. Section 2.4.4 in the EACCS discusses three types of habitat connectivity and wildlife linkages: 1) grassland corridors in east Alameda County; 2) aquatic-upland connectivity throughout the study area; and 3) riparian/stream connectivity throughout the study area.

Grassland Corridors: The EACCS mainly discusses grasslands on the eastern side of the county as being important for wildlife movement, specifically grasslands along I-580. As I-580 acts as a barrier for some species, it is important to maintain connectivity of grasslands in the region for species using this habitat to maintain "populations and genetic integrity" (ICF International 2010). The EACCS (ICF International 2010) identifies species that may use this type of corridor as California red-legged frog (*Rana draytonii*; in some instances), California ground squirrel (*Otospermophilus beecheyi*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis*), mule deer (*Odocoileus hemionus columbianus*), and other generalist wildlife species.

Aquatic-Upland Corridors: The EACCS discusses aquatic-upland connectivity mainly as a function of the connectivity of ponds to upland habitat and to each other. The site does not support ponds, however, potential habitat for California red-legged frogs exists within the onsite creek, which holds water intermittently; for any California red-legged frogs occurring in these areas, upland habitat of the site may be an important aspect of their overall habitat use.

Riparian/Stream Corridors: The site is east of Cayetano Creek within the Livermore Watershed as shown in Figure 2-7 of the EACCS (ICF International 2010). The EACCS identifies species that may use riparian/stream corridors for movement and foraging as the Alameda whipsnake, San Joaquin kit fox, and California tiger salamander, and breeding habitat as the California red-legged frog, foothill yellow-legged frog, and Central Coast steelhead.

Although the EACCS does not identify landscape-level linkage corridors in the region, the Conservation Lands Network (accessed September 4, 2018), which provides GIS data regarding critical linkages for wildlife, does not identify the site to be within a Critical Linkage.

Many wildlife linkages are broad areas of regional movement corridors for wildlife that generally includes a wide swath of land used for movement between two or more core areas for multiple regional species.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural, urban, and other uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFW. The CDFW and California Native Plant Society (CNPS) have developed their own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special status species."

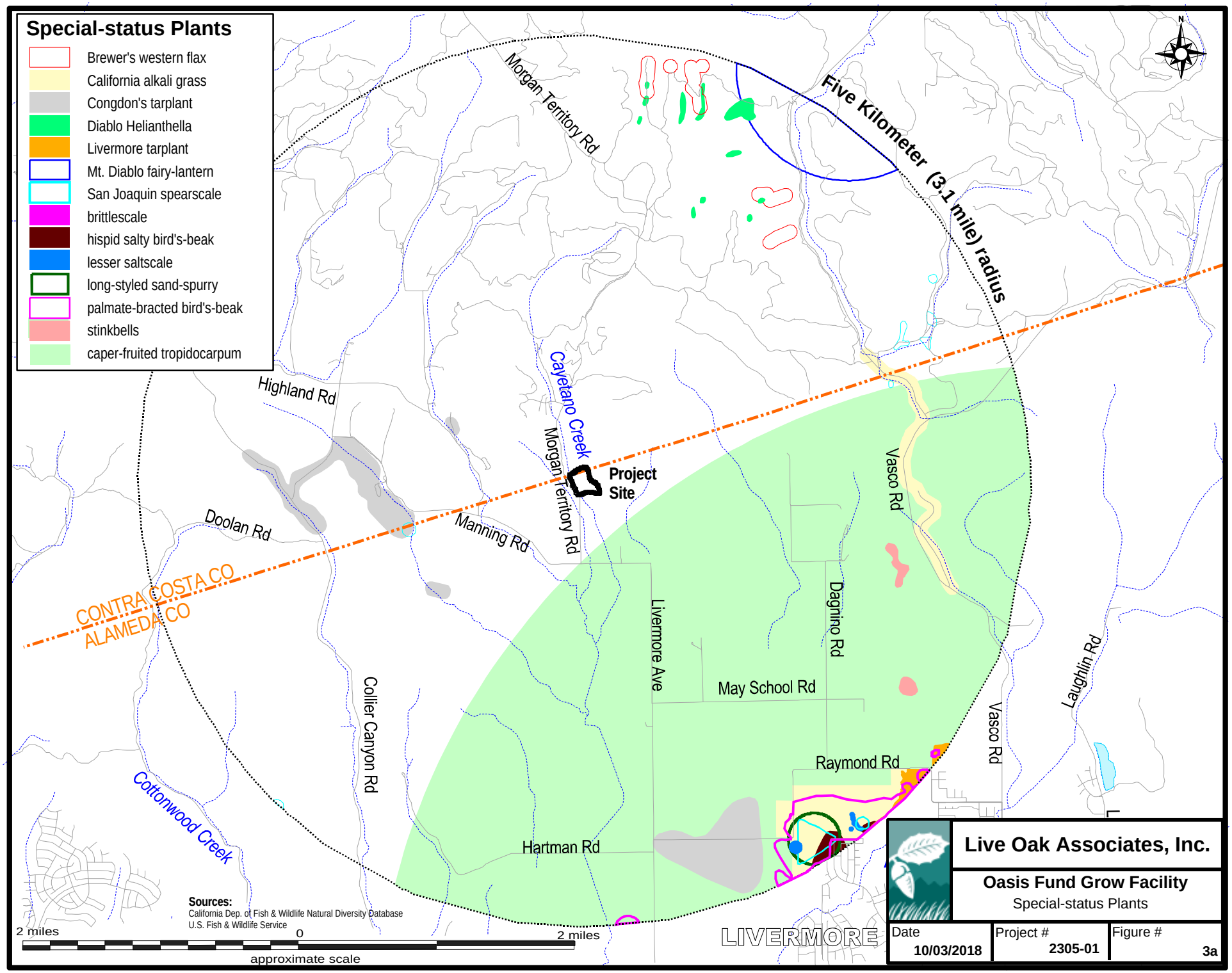
A number of special status plants and animals occur in the site's vicinity (Figure 4). These species and their potential to occur in the study area are listed in Table 2 on the following pages. Sources of information for this table included *California Natural Diversity Data Base* (CDFW 2018), *Listed Plants* and *Listed Animals* (USFWS 2018), *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2018), *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018), *California Bird Species of Special Concern* (Shuford and Gardall 2008), and *California Amphibian and Reptile Species of Special Concern* (Thompson et al. 2016). This information was used to evaluate the potential for special status plant and animal species that occur on the site. Figures 3a, 3b, 3c, and 4 depicts the location of special status species found by the California Natural Diversity Data Base (CNDDB).

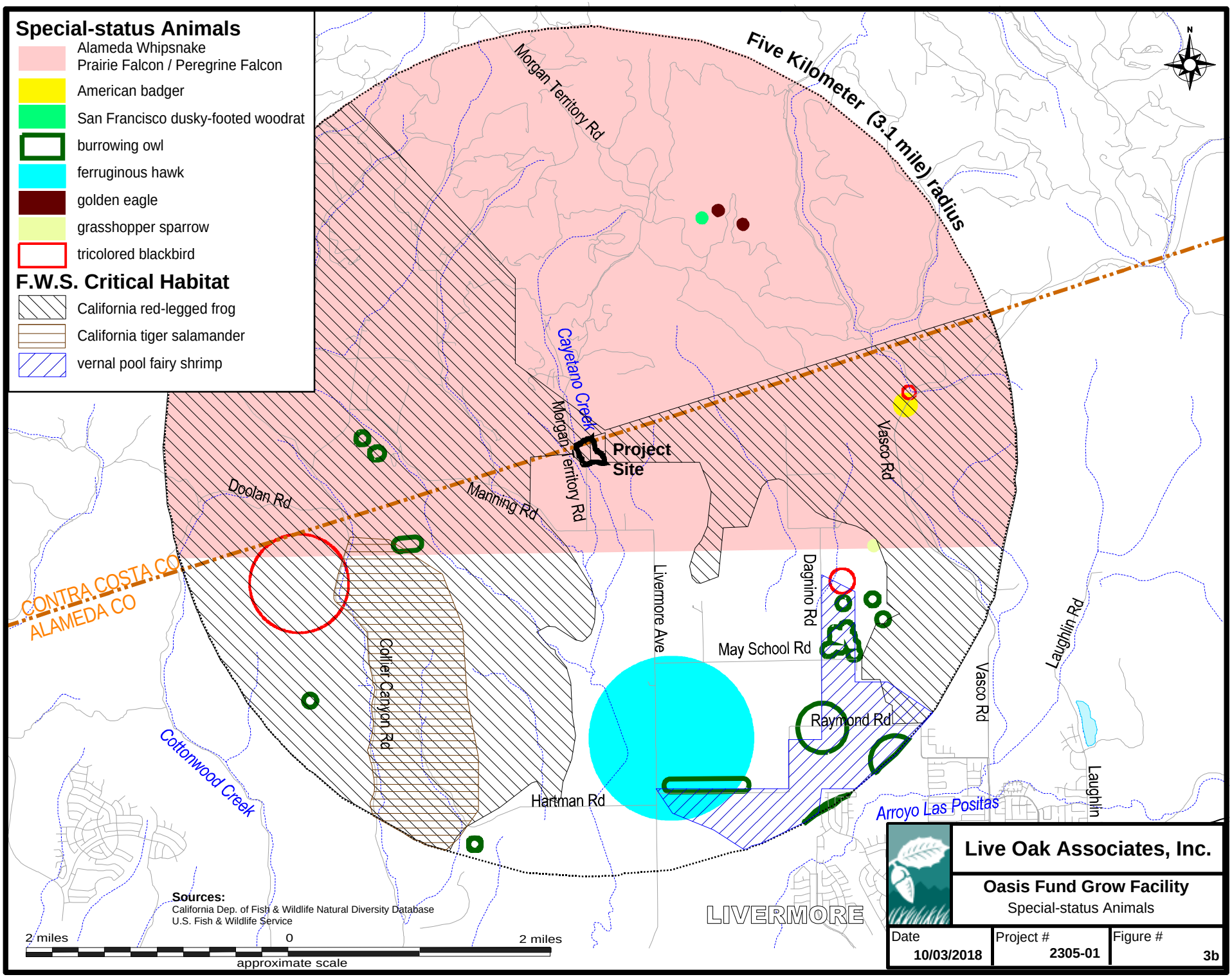
A search of published accounts for all relevant special status plant and animal species was conducted for the Tassajara USGS 7.5" quadrangle in which the project site occurs and for the eight surrounding quadrangles (Clayton, Antioch South, Brentwood, Diablo, Byron Hot Springs, Dublin, Livermore, and Altamont) using the California Natural Diversity Data Base Rarefind5

(CDFW 2018). All species listed as occurring in these quadrangles on CRPR Lists 1A, 1B, 2, 3, or 4 were also reviewed.

Because serpentine and alkaline soils are absent from the site, those species that are uniquely adapted to serpentine or alkaline conditions, such as the alkali milk-vetch (*Astragalus tener* var. *tener*), Oakland star-tulip (*Calochortus umbellatus*), chaparral harebell (*Campanula exigua*), serpentine collomia (*Collomia diversifolia*), Mt. Diablo bird's-beak (*Cordylanthus nidularius*), phlox-leaf serpentine bedstraw (*Galium andrewsii ssp. gatense*), woodland woollythreads (*Monolopia gracilens*), most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*) and caper-fruited tropidocarpum (*Tropidocarpum capparideum*) are considered absent from the site. Other plant species occur in habitats not present in the study area (e.g., brackish and freshwater marshes, coastal scrub, etc.), outside the range of the project site, or significantly above or below elevations of the site (60 to 67 meters), and, therefore, are also considered absent from the site. These species include the California androsace (*Androsace elongata ssp. acuta*), slender silver moss (*Anomobryum julaceum*), coast rockcress (*Arabis blepharophylla*), Mt. Diablo manzanita (*Arctostaphylos auriculata*), Contra Costa manzanita (*Arctostaphylos manzanita* ssp. *laevigata*), Brewer's calandrinia (*Calandrinia breweri*), Bolander's water hemlock (*Cicuta maculate var. bolanderi*), Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*), Lime Ridge eriastrum (*Eriastrum ertterae*), Toren's grimmia (*Grimmia torenii*), Hall's bush mallow (*Malacothamnus hallii*), Lime Ridge navarretia (*Navarretia gowenii*), Antioch Dunes evening primrose (*Oenothera deltoids ssp. howellii*), Mt. Diablo phacelia (*Phacelia phacelioides*), hairless popcorn-flower (*Plagiobothrys glaber*), Oregon polemonium (*Polemonium carneum*), California alkali grass (*Puccinellia simplex*), rock sanicle (*Sanicula saxatilis*), chaparral ragwort (*Senecio aphanactis*), Mt. Diablo jewel-flower (*Streptanthus hispidus*), slender-leaved pondweed (*Stuckenia filiformis*) Suisun Marsh aster (*Symphyotrichum lentum*), and coastal triquetrella (*Triquetrella californica*).

Animals that would also be absent from the site due to unsuitable habitat conditions include the San Bruno elfin butterfly (*Callophrys mossii bayensis*).


Special-status Plants
Brewer's western flax
California alkali grass
Congdon's tarplant
Diablo Helianthella
Livermore tarplant
Mt. Diablo fairy-lantern
San Joaquin spearscale
brittlescale
hispid salty bird's-beak
lesser saltscale
long-styled sand-spurry
palmate-bracted bird's-beak
stinkbells
caper-fruited tropidocarpum
Five Kilometer (3.1 mile) radius
Morgan Territory Rd
Highland Rd
Cayetano Creek
Morgan Territory Rd
Project Site
Doolan Rd
Manning Rd
CONTRA COSTA CO
ALAMEDA CO
Vasco Rd
Livermore Ave
Dagnino Rd
May School Rd
Collier Canyon Rd
Cottonwood Creek
Hartman Rd
Raymond Rd
Vasco Rd
Laughlin Rd
LIVERMORE
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service
2 miles
0
2 miles
approximate scale
Live Oak Associates, Inc.
Oasis Fund Grow Facility
Special-status Plants
Date
10/03/2018
Project #
2305-01
Figure #
3a


Special-status Animals
Alameda Whipsnake
Prairie Falcon / Peregrine Falcon
American badger
San Francisco dusky-footed woodrat
burrowing owl
ferruginous hawk
golden eagle
grasshopper sparrow
tricolored blackbird
F.W.S. Critical Habitat
California red-legged frog
California tiger salamander
vernal pool fairy shrimp
Five Kilometer (3.1 mile) radius
N
Morgan Territory Rd
Cayetano Creek
Morgan Territory Rd
Project Site
Vasco Rd
Doolan Rd
Manning Rd
CONTRA COSTA CO
ALAMEDA CO
Collier Canyon Rd
Livermore Ave
Dagnino Rd
May School Rd
Vasco Rd
Laughlin Rd
Raymond Rd
Cottonwood Creek
Hartman Rd
Arroyo Las Positas
Laughlin
LIVERMORE
Sources:
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2 miles
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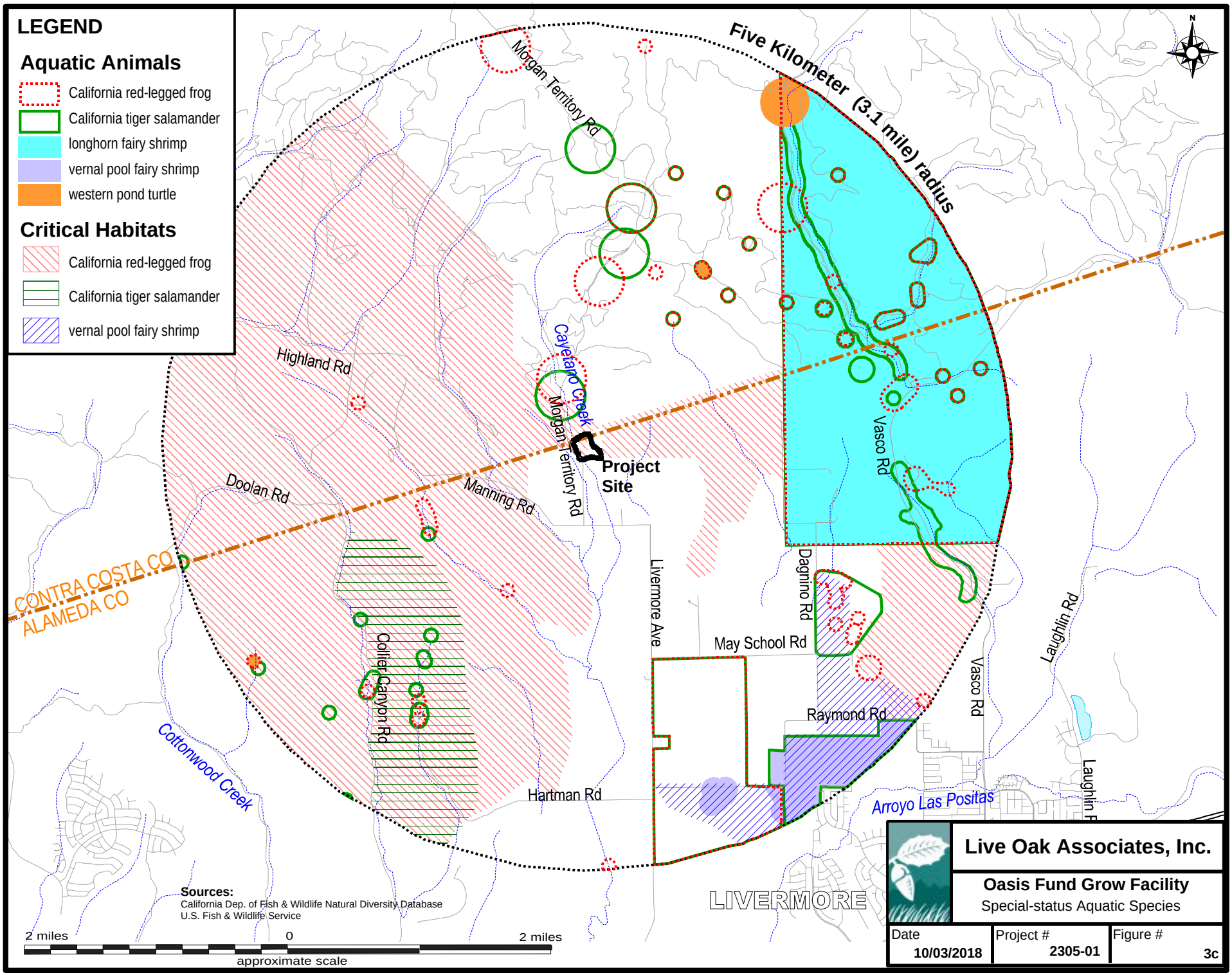
Figure #
3b


LEGEND
Aquatic Animals
California red-legged frog
California tiger salamander
longhorn fairy shrimp
vernal pool fairy shrimp
western pond turtle
Critical Habitats
California red-legged frog
California tiger salamander
vernal pool fairy shrimp
Five Kilometer (3.1 mile) radius
Morgan Territory Rd
Highland Rd
Cayetano Creek
Project Site
Vasco Rd
Doolan Rd
Manning Rd
CONTRA COSTA CO
ALAMEDA CO
Livermore Ave
Dagnino Rd
May School Rd
Laughlin Rd
Collier Canyon Rd
Raymond Rd
Cottonwood Creek
Hartman Rd
Arroyo Las Positas
LIVERMORE
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service
2 miles
0
2 miles
approximate scale
Live Oak Associates, Inc.
Oasis Fund Grow Facility
Special-status Aquatic Species
Date
10/03/2018
Project #
2305-01
Figure #
3c

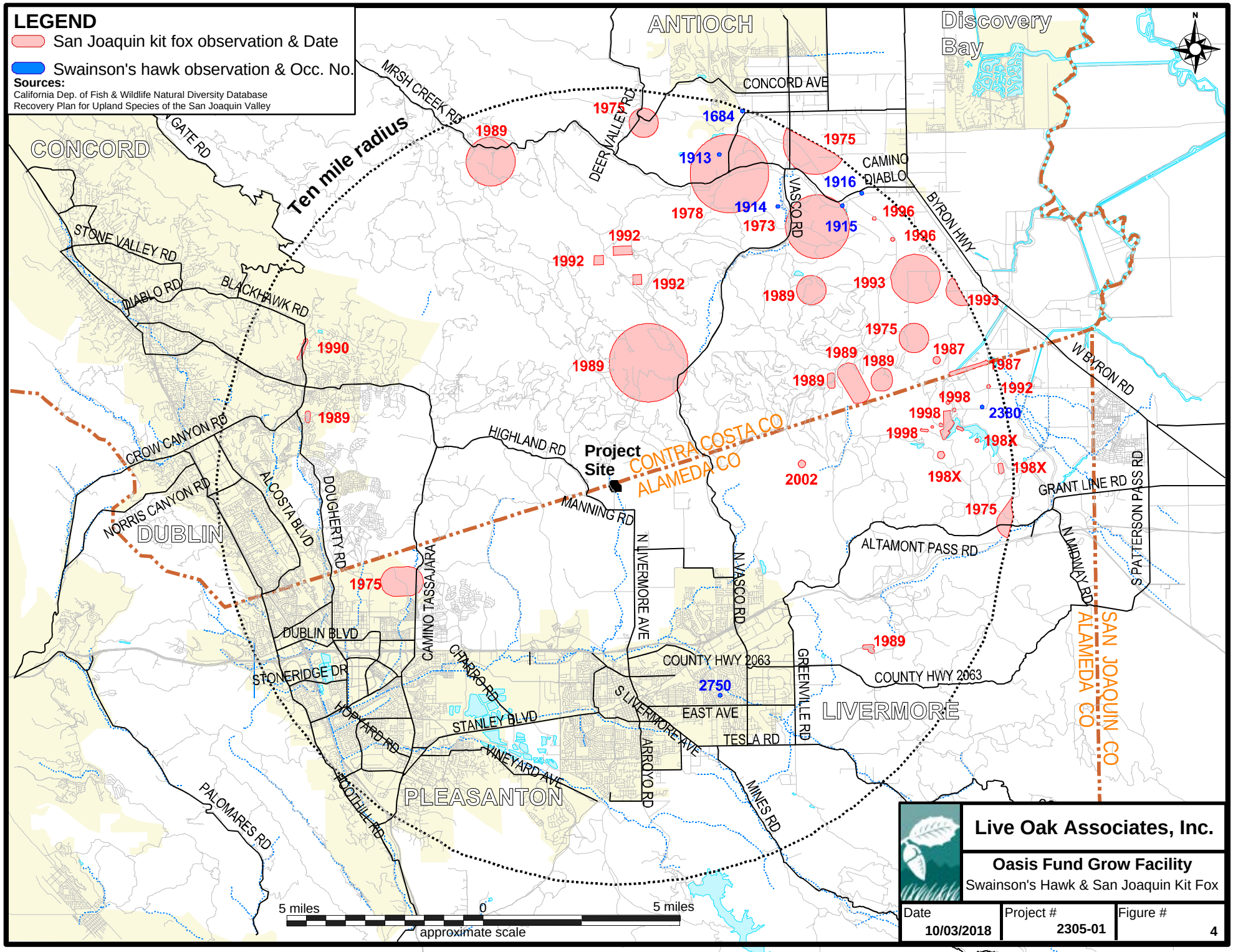

LEGEND
San Joaquin kit fox observation & Date
Swainson's hawk observation & Occ. No.
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
Recovery Plan for Upland Species of the San Joaquin Valley
Ten mile radius
ANTIOCH
Discovery Bay
CONCORD
DUBLIN
PLEASANTON
LIVERMORE
Project Site
CONTRA COSTA CO
ALAMEDA CO
SAN JOAQUIN CO
MARSH CREEK RD
CONCORD AVE
DEER VALLEY RD
CAMINO DIABLO
VASCO RD
BYRON HWY
W BYRON RD
GATE RD
STONE VALLEY RD
DIABLO RD
BLACKHAWK RD
CROW CANYON RD
NORRIS CANYON RD
ALCOSTA BLVD
DOUGHERTY RD
HIGHLAND RD
MANNING RD
GRANT LINE RD
S PATTERSON PASS RD
ALTAMONT PASS RD
N MIDWAY RD
N LIVERMORE AVE
N VASCO RD
DUBLIN BLVD
CAMINO TASSAJARA
CITARRO RD
STONERIDGE DR
COUNTY HWY 2063
GREENVILLE RD
EAST AVE
TESLA RD
S LIVERMORE AVE
ARROYO RD
STANLEY BLVD
HOPYARD RD
VINEYARD AVE
FOOTHILL RD
PALOMARES RD
MINES RD
1975
1989
1684
1913
1975
1916
1914
1915
1978
1973
1996
1992
1993
1987
1998
2380
198X
2002
2750
5 miles
0
5 miles
approximate scale
Live Oak Associates, Inc.
Oasis Fund Grow Facility
Swainson's Hawk & San Joaquin Kit Fox
Date 10/03/2018
Project # 2305-01
Figure # 4

Table 2: Special status species that could occur in the project vicinity.
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Large-flowered fiddleneck *(Amsinckia grandiflora)*	FE, CE, CRPR 1B	Habitat: Cismontane woodland and valley and foothill grasslands. Elevation: 275-550 meters. Blooms: Annual herb; April–May.	**Possible.** Grasslands of the site provide potentially suitable habitat. However, the closest known occurrence of this species is approximately four miles southeast of the site, last observed in 2005 in the Springtown Wetlands Preserve.
Palmate-bracted bird's-beak (*Chloropyron palmatum*)	FE, CE, CRPR 1B	Habitat: Alkaline soils of chenopod scrub and valley and foothill grasslands. Elevation: 5-155 meters. Blooms: Annual herb; May–October.	**Absent.** Habitat for this species is absent from the site.
Livermore tarplant *(Deinandra bacigalupii)*	CE CRPR 1B	Habitats: Occurs in alkaline soils in meadows and seeps. Elevation: 150-185 meters. Blooms: Annual herb; June-October.	**Unlikely.** The grasslands of the site provide marginal habitat for this species due to an absence of highly alkaline and mesic soils. The closest documented population of this species is approximately three miles southeast of the site.
Contra Costa goldfields (*Lasthenia conjugens*)	FE, CRPR 1B	Habitat: Alkaline soils in mesic valley and foothill grasslands and vernal pools. Elevation: 0-470 meters. Blooms: Annual herb; March–June.	**Absent.** Habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Bent-flowered fiddleneck (*Amsinckia lunaris*)	CRPR 1B	Habitat: Coastal bluff scrub, cismontane woodland, and valley and foothill grasslands. Elevation: 3-500 meters. Blooms: Annual herb; March–June.	**Possible.** Grasslands of the site provide potentially suitable habitat. However, there are no known occurrences of this species within three miles of the site.
Heartscale (*Atriplex cordulata*)	CRPR 1B	Habitat: Occurs in saline or alkaline soils of chenopod scrub, meadows and seeps, and sandy valley and foothill grassland. Elevation: 0-560 meters. Blooms: Annual herb; April-October.	**Absent.** Habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Crownscale *(Atriplex coronata var. coronata)*	CRPR 4	Habitat: Occurs in alkaline soils, often clay, in chenopod scrub, Valley and foothill grasslands, and vernal pools. Elevation: 1-590 meters. Blooms: Annual herb; March-October.	**Absent.** Habitat for this species is absent from the site.
Brittlescale (*Atriplex depressa*)	CRPR 1B	Habitat: Occurs on alkaline clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools. Elevation: 1-320 meters. Blooms: Annual herb; April-October.	**Absent.** Habitat for this species is absent from the site.
Lesser saltscale (*Atriplex minuscula*)	CRPR 1B	Habitat: Occurs in alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grasslands. Elevation: 15-200 meters Blooms: Annual herb; May-October.	**Absent.** Habitat for this species is absent from the site.
Big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepis*)	CRPR 1B	Habitat: Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine. Elevation: 90-1555 meters. Blooms: Perennial herb; March-June.	**Absent.** Although potentially suitable habitat is present on the site, this perennial species would have been identifiable during the October survey if it was present and it was not observed.
Big tarplant (*Blepharizonia plumosa*)	CNPS 1B	Habitats: Found in Valley and foothill grassland, usually on clay soil. Elevation: 30-505 meters. Blooms: Annual herb; July-October.	**Absent**. Grasslands of the site provide potential habitat for this species, however, the October survey occurred during this species' blooming season, and if present, it would have been identifiable with flower or fruit and no tarplant species were observed.
Mt. Diablo fairy lantern (*Calochortus pulchellus*)	CRPR 1B	Habitat: On woody and brushy slopes within chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elevation: 45-840 meters. Blooms: Bulbiferous herb; April–June.	**Unlikely.** Riparian habitat of the site would provide very marginal habitat for this species. The closest recorded observance of this species is approximately two miles northeast of the site, last observed in 2010.
Congdon's tarplant (*Centromadia parryi ssp. congdonii*)	CRPR 1B	Habitat: Occurs on valley and foothill grasslands on alkaline soils. Elevation: 0-230 meters. Blooms: Annual herb; May-November.	**Absent**. Grasslands of the site provide potential habitat for this species, however, the October survey occurred during this species' blooming season, and if present, it would have been identifiable with flower or fruit and no tarplant species were observed.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Hispid bird's-beak (*Chloropyron mole ssp. hispidum*)	CRPR 1B	Habitat: Alkaline soils within meadows and seeps, playas, and valley and foothill grasslands. Elevation: 1-155 meters. Blooms: Annual herb; June-September.	**Absent.** Habitat for this species is absent from the site.
Santa Clara red ribbons (*Clarkia concinna ssp. automixa*)	CRPR 4	Habitat: Chaparral and cismontane woodland. Elevation: 90-1500 meters. Blooms: Annual herb; April–July.	**Absent.** Habitat for this species is absent from the site.
Small-flowered morning-glory (*Convolvulus simulans*)	CRPR 4.2	Habitat: Occurs in clay and serpentine seeps in chaparral openings, coastal scrub, and Valley and foothill grasslands. Elevation: 30-740 meters. Blooms: Annual herb; March-July.	**Absent.** Habitat for this species is absent from the site.
Hoover's cryptantha *(Cryptantha hooveri)*	CRPR 1A	Habitat: Occurs in inland dunes and sandy Valley and foothill grasslands. Elevation: 9-150 meters. Blooms: Annual herb; April-May.	**Absent.** Habitat for this species is absent from the site.
Recurved larkspur *(Delphinium recurvatum)*	CRPR 1B	Habitat: Occurs in chenopod scrub, cismontane woodland, and valley and foothill grasslands. Elevation: 3-750 meters. Blooms: Perennial herb; March-June.	**Unlikely**. Although the grassland and riparian woodland of the site would provide marginal habitat for this species, leaves of this perennial species would have been identifiable during the October survey if it were present and it was not observed. The closest occurrence is more than five miles east of the site.
Western leatherwood (*Dirca occidentalis*)	CRPR 1B	Habitat: Found in mesic habitats such as broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland. Elevation: 30-395 meters. Blooms: Perennial deciduous shrub; January-April.	**Absent.** Although potential habitat occurs in the riparian woodland on the site, this perennial shrub would have been observed if present and it was not observed.
Mt. Diablo buckwheat (*Eriogonum truncatum*)	CRPR 1A	Habitat: Sandy soils of chaparral, coastal scrub, valley and foothill grassland. Elevation: 3-350 meters. Blooms: Annual herb; April–September.	**Absent.** Habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Jepson's woolly sunflower *(Eriophyllum jepsonii)*	CRPR 4	Habitat: Chaparral, cismontane woodland, coastal scrub, sometimes on serpentine. Elevation: 200-1025 meters. Blooms: Perennial herb; April–June.	**Absent.** Habitat for this species is absent from the site.
Jepson's coyote-thistle *(Eryngium jepsonii)*	CRPR 1B	Habitat: Occurs in valley and foothill grassland and vernal pools on clay soils. Elevation: 3-300 meters. Blooms: Perennial herb; April-August.	**Absent.** Habitat for this species is absent from the site.
Spiny-sepaled button-celery *(Eryngium spinosepalum)*	CRPR 1B	Habitat: Occurs in valley and foothill grasslands and vernal pools. Elevation: 80-975 meters. Blooms: Annual/Perennial herb; April-June.	**Unlikely.** Grasslands of the site provide marginal habitat for this species and there is only one occurrence documented in Alameda County which was in 1972 approximately 10 miles northeast of the site. .
Diamond-petaled California poppy *(Eschscholzia rhombipetala)*	CRPR 1B	Habitat: Occurs in valley and foothill grassland with alkali and clay soils. Elevation: 0-975 meters. Blooms: Annual herb; March-April.	**Absent.** Habitat for this species is absent from the site.
San Joaquin spearscale *(Extriplex joaquinana)*	CRPR 1B	Habitat: Occurs in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands on alkaline soils. Elevation: 1-835 meters. Blooms: Annual herb; April-October.	**Absent.** Habitat for this species is absent from the site.
Stinkbells *(Fritillaria agrestis)*	CRPR 4	Habitats: Occurs in chaparral, valley grassland, foothill woodland, wetland, and riparian habitats, and can be associated with serpentine soils. Elevation: 10-1555 meters. Blooms: Bulbiferous herb; March-June.	**Unlikely.** Habitats of the site are marginal for this species and serpentine soils are absent. The closest known occurrences of this species are approximately 2 to 2 ½ miles southeast of the site.
Fragrant fritillary (*Fritillaria liliacea*)	CRPR 1B	Habitat: Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands. Often occurs on serpentinite. Elevation: 3-410 meters. Blooms: Bulbiferous herb; February–April.	**Unlikely.** Habitats of the site are marginal for this species and serpentine soils are absent. The closest known occurrences of this species are approximately 15 miles west of the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Diablo helianthella (*Helianthella castanea*)	CRPR 1B	Habitat: Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation: 60-1300 meters. Blooms: Perennial herb; March–June.	**Absent.** Although potentially suitable habitat is present on the site, this perennial species would have been identifiable during the October survey if it was present and it was not observed.
Hogwallow starfish (*Hesperevax caulescens*)	CRPR 4	Habitat: Mesic/clay soils within valley and foothill grasslands, shallow vernal pools. Sometimes alkaline. Elevation: 0-505 meters. Blooms: Annual herb; March-June.	**Absent.** Habitat for this species is absent from the site.
Brewer's western flax (*Hesperolinon breweri*)	CRPR 1B	Habitat: Usually occurs on serpentine soils of chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 30-900 meters. Blooms: Annual herb; May–July.	**Absent.** Habitats of the site are extremely marginal for this species and serpentine soils are absent from the site. The nearest documented occurrences of this species are more than three miles northwest and northeast of the site.
Woolly rose-mallow *(Hibiscus lasiocarpos var. occidentalis)*	CRPR 1B	Habitat: Freshwater marshes and swamps. Often in rip rap on sides of levees. Elevation: 0-120 meters. Blooms: Perennial herb; June–September.	**Absent.** Habitat for this species is absent from the site.
Bristly leptosiphon *(Leptosiphon acicularis)*	CRPR 4	Habitat: Chaparral, cismontane woodland, valley and foothill grassland. Elevation: 55-1500 meters. Blooms: Annual herb; April–July.	**Unlikely.** Although grasslands of the site provide marginal habitat, the closest known occurrences of this species are more than 10 miles west of the site.
Showy golden madia *(Madia radiata)*	CRPR 1B	Habitat: Occurs in cismontane woodland, valley and foothill grassland Elevation: 25-900 meters. Blooms: Annual herb; March-May.	**Unlikely.** Habitats of the site are extremely marginal for this species and the closest documented occurrences of the species is more than 20 miles southeast of the site.
San Antonio Hills monardella (*Monardella antonina ssp. antonina*)	CRPR 3	Habitat: Chaparral and cismontane woodland. Elevation: 320-1000 meters. Blooms: Perennial rhizomatous herb; June-August.	**Absent.** Although the riparian woodland on the site provides potential habitat for this species, this perennial species would have been identifiable during the October survey if present and it was not observed.
Little mousetail (*Myosurus minimus ssp. apus*)	CRPR 3	Habitat: Alkaline vernal pools in valley and foothill grasslands. Elevation: 20-640 meters. Blooms: Annual herb; March-June.	**Absent.** Habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Tehama navarretia (*Navarretia heterandra*)	CRPR 4	Habitat: Mesic valley and foothill grasslands and vernal pools. Elevation: 30-1010 meters. Blooms: Annual herb; April–June.	**Absent.** Habitat for this species is absent from the site.
Adobe navarretia (*Navarretia nigelliformis ssp. nigelliformis*)	CRPR 4	Habitat: Clay soils in vernally mesic valley and foothill grassland, sometimes in vernal pools, sometimes on serpentine. Elevation: 100-1000 meters. Blooms: Annual herb; April–June.	**Absent.** Habitat for this species is absent from the site.
Shining navarretia (*Navarretia nigelliformis ssp. radians*)	CRPR 1B	Habitat: Occurs in cismontane woodlands, valley and foothill grasslands, and vernal pools. Elevation: 76-1000 meters. Blooms: Annual herb; April-July.	**Unlikely.** While potentially suitable habitat is present, the nearest documented occurrences of this species are more than ten miles southeast of the site.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CRPR 1B	Habitat: Occurs in mesic areas within coastal scrub, meadows and seeps, alkaline valley and foothill grasslands, and vernal pools. Elevation: 15-1210 meters. Blooms: Annual herb; April-July.	**Absent.** Habitat for this species is absent from the site.
Lobb's aquatic buttercup (*Ranunculus lobbii*)	CRPR 4	Habitat: Mesic soils within cismontane woodland, North Coast coniferous forest, valley and foothill grasslands and vernal pools. Elevation: 15-470 meters. Blooms: Annual herb; February-May.	**Absent.** Habitat for this species is absent from the site.
Long-styled sand-spurrey (*Spergularia macrotheca var. longistyla*)	CRPR 1B	Habitat: Alkaline meadows, seeps, marshes and swamps. Elevation: 0-255 meters. Blooms: Perennial herb; February-May.	**Absent.** Habitat for this species is absent from the site.
Saline clover (*Trifolium hydrophilum*)	CRPR 1B	Habitat: Marshes and swamps, valley and foothill grasslands on mesic or alkaline soils, and vernal pools. Elevation: 0-300 meters. Blooms: Annual herb; April–June.	**Absent.** Habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity. (Cont'd.)
PLANTS (adapted from CDFW 2018 and CRPR 2018)
Other special status plants listed by CRPR

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	CRPR 1A	Habitat: Occurs in alkaline soils of valley and foothill grassland. Elevation: 1-455 meters. Blooms: Annual herb; March-April.	**Absent.** Habitat for this species is absent from the site.
Oval-leaved viburnum (*Viburnum ellipticum*)	CRPR 2	Habitat: Chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 215-1400 meters. Blooms: Perennial deciduous shrub; May–June.	**Absent.** While potentially suitable habitat is present in the riparian woodland of the site, this perennial shrub would have been identifiable if present during the October survey and it was not observed.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE	Occurs on grassy hills surrounding the San Francisco Bay that support the host plant *Viola pedunculata*.	**Absent**. Although grasslands exist onsite, the site is not within modeled potential habitat in the East Alameda County Conservation Strategy mitigation zone for this species. Additionally, the nearest recorded observation of this species is more than 3 miles from the site.
Longhorn fairy shrimp *(Branchinecta longiantenna)*	FE	Occurs in ephemeral wetlands and vernal pools of California.	**Absent.** Suitable habitat for longhorn fairy shrimp in the form of vernal pools is absent from the study area. The nearest recorded observation of LHFS is more than 3 miles from the site.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools of California's Central Valley.	**Absent**. Vernal pools are absent from the site. The nearest documented occurrences of this species are more than 3 miles from the site.
Vernal pool tadpole shrimp *(Lepidurus packardi)*	FE	Occurs in vernal pools of California. Vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**Absent.** Suitable habitat for vernal pool tadpole shrimp in the form of vernal pools is absent from the study area. The nearest recorded observation of VPTS is more than 3 miles from the site.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
California tiger salamander (*Ambystoma californiense*)	FT, CT	Breeds in vernal pools and stock ponds of central California. Adults aestivate in grassland habitats adjacent to the breeding sites.	**Unlikely**. The site is within or adjacent to modeled potential habitat CTS and the North mitigation area of the East Alameda County Conservation Strategy, and although several small mammal burrows occur onsite which are suitable for estivation, the creek does not likely hold pools suitable for breeding habitat for this species and breeding ponds do not exist onsite or within a mile of the site, therefore, although estivation habitat is present, it is unlikely CTS would occur onsite. The nearest documented observation of this species is more than 3 miles from the site.
Foothill yellow-legged frog (*Rana boylii*)	CSC CCT	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools.	**Possible.** The reach of Cayetano Creek onsite is identified as potential breeding and movement habitat of the FYLF by the East Alameda County Conservation Strategy. The nearest documented observation of this species is more than 3 miles from the site.
California red-legged frog (*Rana draytonii*)	FT, CSC	Rivers, creeks and stock ponds of the Sierra foothills and coast range, preferring pools with overhanging vegetation.	**Possible.** The ephemeral creek onsite lacks deep pools of water required for breeding and potential breeding ponds do not exist onsite or within the local vicinity of the site. Cayetano Creek may act as a dispersal corridor for CRLF should CRLF occur nearby. The project is within Critical Habitat designated by the USFWS for the CRLF. The site is within modeled potential habitat/movement habitat CRLF and the North mitigation area of the East Alameda County Conservation Strategy.
Alameda whipsnake (*Masticophis lateralis euryxanthus*)	FT, CT	Ranges from the inner coast range in western and central Contra Costa and Alameda counties. Typically occurs in chaparral and scrub habitats with rock outcrops and talus pilings. Also occurs in scrub communities, grasslands, oak, and oak/bay woodlands.	**Possible.** Suitable habitat exists onsite for all life stages of the whipsnake. The riparian corridor onsite provides suitable habitat, and the grasslands are adjacent to these woodlands, which may be used for feeding and dispersal habitat. The site is located within the southern end of a recovery unit for the Alameda whipsnake.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Swainson's hawk (nesting) (*Buteo swainsonii*)	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** Foraging habitat is available throughout the project area and moderate-quality breeding habitat for Swainson's hawk exists within the riparian corridor of the site. There are six documented occurrences of this species within ten miles of the site. The nearest recorded observation of Swainson's hawk is nearly eight miles to the northeast of the site.
Tricolored blackbird (*Agelaius tricolor*)	CCE	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Unlikely.** Breeding habitat is absent from the site. Marginal foraging habitat is present on the site and the site is within modeled foraging habitat for the East Alameda County Conservation Strategy. The nearest documented occurrence of this species is approximately two miles to the west of the site.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Frequents annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing and suitable prey base. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat. May forage in adjacent agricultural habitats.	**Possible.** Although not observed during the 2018 site visit, denning and foraging habitat for the San Joaquin kit fox occurs onsite. There have been thirty-three documented occurrences of this species within ten miles of the site between 1975 and 2002. The nearest observation of this species was documented approximately two and a half miles to the north of the site in 1989. The site is within the North Mitigation Area for San Joaquin kit fox.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Western spadefoot (*Spea hammondii*)	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	**Unlikely.** Vernal pools required for breeding are absent from the study area. The nearest record is more than three miles from the site.
San Joaquin whipsnake (*Masticophis flagellum ruddocki*)	CSC	Open, dry habitats with little or no tree cover. Found in valley grasslands and saltbush scrub in the San Joaquin Valley.	**Unlikely.** The nearest documented occurrence of this species is more than three miles from the site.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Northern California legless lizard *(Anniella pulchra)*	CSC	The NCLL (previously called silvery legless lizard) occurs mostly underground in warm moist areas with loose soil and substrate. The NCLL occurs in habitats including sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	**Unlikely.** The site does not support sandy substrate. The nearest recorded observation more than three mile from the site.
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Occur in grasslands, scrublands, oak woodlands, etc. of central California. Common in sandy washes with scattered shrubs.	**Unlikely.** Habitats onsite are of poor quality for coast horned lizards. The nearest documented observation of this species is more than three miles from the site.
Western pond turtle (*Actinemys marmorata*)	CSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams and irrigation ditches with aquatic vegetation. Needs basking sites and sandy banks or grassy open fields for egg laying.	**Possible.** Suitable habitat exists onsite for the WPT in Cayetano Creek when water is present. This species would not be expected to utilize the site for nesting or hibernation/estivation unless a nearby off-site pond exists. WPT would most likely use the site from time to time for feeding and as a movement corridor when the creek holds water. The nearest documented occurrence of this species is more than three miles from the site.
White-tailed kite (*Elanus leucurus*)	CP	Open grasslands and agricultural areas throughout central California.	**Possible.** Potentially suitable breeding and foraging habitat for this species is present on the site.
Northern harrier (*Circus cyaneus*)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	**Possible.** Potentially suitable breeding and foraging habitat for this species is present on the site.
American peregrine falcon (nesting) *(Falco peregrines anatum)*	CP	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter.	**Possible.** Although potentially suitable breeding habitat is absent from the site, suitable foraging habitat for this species is present onsite and this species is known to occur within the local vicinity of the site.
Golden eagle (*Aquila chrysaetos*)	CP	Typically frequents rolling foothills, mountain areas, woodland areas, sage-juniper flats, and desert habitats.	**Possible.** Although appropriately sized breeding trees and cliffs are absent from the site, the East Alameda County Conservation Strategy identifies the project site as being within modeled foraging habitat for golden eagles. Golden eagles are known to occur nearly 2 miles northwest of the site.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Burrowing owl (*Athene cunicularia*)	CSC	Open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. Often associated with California ground squirrels.	**Possible.** Burrowing owls are known to be within the local vicinity with the closest known recorded occurrence being less than two miles to the west of the site. The site provides potentially suitable foraging and breeding habitat for this species. The site is located within modeled potential habitat for burrowing owls in the East Alameda County Conservation Strategy.
Loggerhead shrike (nesting) *(Lanius ludovicianus)*	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Nests in tall shrubs and dense trees. Forages in grasslands, marshes, and ruderal habitats. Can often be found in cropland.	**Possible.** The site supports suitable breeding and foraging habitat for the loggerhead shrike.
Grasshopper sparrow *(Ammodramus savannarum)*	CSC	Occurs in California during spring and summer in open grasslands with scattered shrubs.	**Possible.** The site supports marginal habitat for the grasshopper sparrow, however, it may occur on the site from time to time.
Townsend's big-eared bat (*Plecotus townsendii townsendii*)	CSC	Primarily a cave-dwelling bat that may also roost in buildings. Occurs in a variety of habitats of the state.	**Possible.** Foraging habitat is present on the site; however, roosting habitat is absent from the site for this species. The nearest documented occurrence of this species is more than three miles from the site.
Western red bat *(Lasiurus blossevillii)*	CSC	Roosts in tree or shrub foliage, although will occasionally use caves.	**Possible.** Trees with foliage thick enough for roosting western red bats is present within the riparian corridor of the site. The nearest documented occurrence of this species is more than three miles from the site.
Pallid bat (*Antrozous pallidus*)	CSC	Grasslands, chaparral, woodlands, and forests of California; most common in dry rocky open areas that provide roosting opportunities.	**Possible.** Foraging habitat is present on the site. Suitable roosting habitat is absent. The nearest documented occurrence of this species is more than three miles from the site.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSC	Hardwood forests, oak riparian and shrub habitats.	**Possible.** The riparian woodlands provide potentially suitable habitat for this species. However, no woodrat nests were observed during the site visit, and the nearest documented occurrence of this species is more than two and a half miles to the northeast of the site.

Table 2: Special status species that could occur in the project vicinity.
ANIMALS (adapted from CDFW 2018 and USFWS 2018)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
American badger (*Taxidea taxus*)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	**Possible.** Although no badger sign was observed during the 2018 site visit, suitable habitat exists onsite for badgers. The nearest documented occurrence of this species is just over two miles to the east of the site. The site is located within modeled potential habitat for badgers in the East Alameda County Conservation Strategy.
Ringtail (*Bassariscus astutus*)	CP	Rocky or talus slopes in semi-arid or riparian habitats.	**Possible.** Suitable habitat is restricted to the riparian woodlands onsite. Ringtails have not been documented within three miles of the site.

*Explanation of Occurrence Designations and Status Codes

Present: Species observed on the sites at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the sites, but it could occur there from time to time.
Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Protected
CSC	California Species of Special Concern		

CRPR	California Rare Plant Rank		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

2.4 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.6 of this report for additional information.

A formal wetland delineation and waters of the U.S. analysis has not been completed for the site. However, jurisdictional waters are presumed to be present on the site in the form of Cayetano Creek, an ephemeral stream which the existing driveway passes over. Current plans do not include impacting the creek, however, the analysis in this report allows for the potential for plans to change to impact the creek by replacing the culvert bridge.

The limit of USACE jurisdiction, as well as that of the RWQCB, over Cayetano Creek determined to be jurisdictional tributary waters is the ordinary high water mark. This creek would also be subject to the jurisdiction of the CDFW which regulates the bed-and-bank of streams, creeks or channels.

No wetlands occur on the site. Wetlands are only considered to be jurisdictional by the USACE if they connect to other Waters of the United States per the U.S Supreme Court decision *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC Decision) and *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (referred together as the Rapanos decision).

3 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project's impacts. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory findings of significance" if the project has the potential to

> Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal "endangered species" legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both

agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.2.4 Bats

Sections 2000 and 4150 of the California Fish and Game Code states that it unlawful to take or possess a number of species, including bats, without a license or permit as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as "an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering". In addition, the Townsend's big-eared bat is currently proposed to be listed in the state of California as Endangered. The Townsend's big-eared bat is currently under a 1-year review with CDFW, during which time, it will be afforded full protections as other Endangered species until the Commission has finalized their ruling.

3.2.5 The Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act of 1940 (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as

follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

3.2.6 Wetlands and Other Jurisdictional Waters

Section 404 of the Federal Clean Water Act

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- 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;
- All interstate waters including interstate wetlands:
- 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;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* impose a "significant

nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary high water marks" on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values.

Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Act

Under Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. In addition, the RWQCB regulates the filling of "waters of the state" based on the provisions of the Porter-Colgne Water Quality Control Act. Waters of the State is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally regulated under Section 401 of the CWA. Therefore, the filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System

(NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

Section 1602 of the California Fish and Game Code (Lake and Streambed Alteration Agreements)

The California Department of Fish and Wildlife has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.2.7 Local Ordinances, Policies, and Habitat Conservation Plans

3.2.7.1 East Alameda County Conservation Strategy

The East Alameda County Conservation Strategy of 2010 provides "context and guidance to project applicants, local jurisdictions with permit authority, and resource agencies in determining the potential impacts of a project and the level and type of mitigation necessary to offset those impacts". This document suggests a standard mitigation ratio of 3:1, which may vary depending on the type of habitat lost and the type of Conservation Zone the project is within.

3.2.7.2 Alameda County General Plan; East County Area Plan (2000)

The Alameda County has a General Plan which is split into several area plans. The site is within the East County Area Plan. Among other policies, this plan includes policies on riparian corridor buffers. Policy 336 of the East County Area Plan (Revised by Initiative Nov. 2000) identifies an appropriate setback of 100 feet from riparian corridors:

"Policy 336: In all cases, siting of development envelopes and structures shall be controlled so that views from roads, trails and other public places are not substantially blocked and to minimize environmental harm. No structures may be located on ridgelines or hilltops or so that they protrude above ridgelines or hilltops contrary to Policy 106, nor within 100 feet of riparian corridors, in Federal Emergency Management designated floodplains, or where they will have a significant adverse effect on an environmentally sensitive area as defined in Policy 332."

All General Plan policies should be followed.

3.2.7.3 City of Livermore Municipal Code – Tree Preservati

Protected trees are illegal to remove or encroach into the protected zone within the City unless a tree permit has been issued by the City pursuant to the provisions of this article. (Ord. 2065 § 1(A), 2018; Ord. 1830 § 3, 2007). Chapter 12.20 of the City's municipal code defines a Protected tree as:

"…a single-trunked tree, a multi-trunked tree, or a stand of trees dependent upon each other for survival that meets any one or more of the following criteria:

1. Any tree located on private property occupied by single-family residential development that meets the following criteria:

    a. Any tree with a circumference (CBH) of 60 inches or more; or

    b. Any California native tree having a circumference (CBH) of 24 inches or more;

2. Any tree located on private property occupied by commercial, industrial, institutional (i.e., religious, public agency, hospital, care facilities, etc.), mixed-use or multifamily residential (two or more units) development with a circumference (CBH) of 24 inches or more; or
3. Any tree located on an undeveloped or underdeveloped property, regardless of zoning district, use, or development status, for which new development is proposed, with a circumference (CBH) of 18 inches or more; or
4. Any tree located in an open space, riparian, or habitat area with a circumference (CBH) of 18 inches or more; or
5. Any tree approved as part of a site plan approval, or required as a condition of approval for a development project, zoning use permit, use permit or other site development review; or
6. Any tree designated by the City Council as determined to be an ancestral tree; and/or
7. Any tree listed on the City's ancestral tree inventory; or
8. Any tree required to be planted as mitigation for unlawfully removed trees."

3.2.7.4 HCPs/NCCPs

No known habitat conservation plans are in effect for this property. However, the project is within the Livermore Watershed of Conservation Zone 4 of the East Alameda County

Conservation Strategy for which a Programmatic Biological Opinion has been prepared (USFWS 2012) in which the project must follow guidelines for the Congdon's tarplant, California tiger salamander (CTS North), California red-legged frog (CRLF North in Critical Habitat), Alameda whipsnake (Unit 4), golden eagle, western burrowing owl, American badger, and San Joaquin kit fox (SJKF North) as these species have the potential to occur onsite. The site is also within the Livermore Valley Non-listed Species Mitigation Area and Springtown East Bay California Native Plant Society Core Biological Protection Area.

3.3 IMPACTS AND MITIGATIONS SPECIFIC TO THE PROJECT SITE

The proposed project includes a cannabis grow house (32,000 square-foot greenhouse building with 22,000 square-feet of canopy) and one processing building with associated security fencing and parking lot. A leach field and well(s) are also planned. The existing barn is not proposed to be part of the cannabis cultivation facility, and is not planned for removal as a part of this project. Although current plans are not impacting the existing creek crossing, this report takes into consideration the potential for plans to change to replace the culvert bridge, should replacement become necessary.

3.3.1 Loss of Habitat for Special Status Plants

Potential Impacts. Most special status plant species that occur, or once occurred, within the project region are considered absent from the site or unlikely to occur there because habitat is absent or marginal on the site for these species, the species is not known to occur in the immediate project vicinity, the species is a species that could be ruled out as occurring on the site during the October 2018 survey, and/or it has not been observed in the region in many decades (Table 2). The project would be expected to have a less than significant impact on these latter species. There are two special status plant species that have potential to occur within the annual grasslands of the site and these include the large-flowered fiddleneck and bent-flowered fiddleneck. Both of these latter species are annual forbs that bloom in the spring and that would not have been visible/identifiable during the October 2018 survey. A focused survey conducted in April would be sufficient to rule out the occurrence of either of these species on the site. If either species occurs on the site and if the project would impact a population of these species, this may be considered significant under CEQA. Neither of these fiddleneck species is considered a focal species of the EACCS.

Mitigation. Should the botanical surveys confirm that special status plants are absent from the impacted areas of the site, then no mitigation would be required. If populations of these species are present, and if it is determined by a qualified botanist or plant ecologist that project impacts to these species are significant under CEQA, then the following mitigations will be implemented which will reduce impacts to a less-than-significant level.

Avoidance. In consultation with a botanist or plant ecologist, and to the maximum extent feasible, the project will be designed to avoid substantial direct and indirect impacts (e.g. the establishment of an appropriately sized buffer) to these species.

***Compensation*.** If the project cannot be designed to avoid significant impacts to special status plant populations, then the following compensatory measures will be implemented.

***Onsite Preservation*.** The onsite proposed open space area should be surveyed during the appropriate blooming season to determine whether populations of the species being significantly impacted by the project are also present within areas that will be preserved. If populations of the species are present on the preservation area, it should be determined by a qualified botanist or plant ecologist whether these populations to be preserved would adequately compensate, or partially compensate, for lost populations on the project site. If it is determined that preserved populations would completely compensate for impacted populations, then no further compensation would be required. However, if it is determined that populations of the impacted species are absent from the site, or that they are present but their preservation would only partially mitigate for lost populations, then additional mitigation measures described below will be implemented.

Development of a Site Restoration Plan. If the project cannot be designed to avoid significant impacts to special status plants (as discussed above) and the preservation area does not support adequate populations of the impacted species to compensate for project impacts, then a Site Restoration Plan must be developed for the significantly impacted species by a qualified botanist or plant ecologist and approved by the City prior to the start of project development. The objective of this mitigation measure would be to replace the special status plants and habitat lost during project implementation. The proposed restoration program should be monitored for a period of five years from the date of site grading. The restoration plan should contain at a minimum the following:

- Identification of appropriate locations on the conservation area as determined by the botanist or plant ecologist (i.e., areas with suitable soils, aspect, hydrology, etc.) to restore lost plant populations.
- A description of the propagation and planting techniques to be employed in the restoration effort. Perennial plants to be impacted by site grading should be salvaged and raised in a greenhouse for eventual transplanting within the restoration areas. Annual plants can best be established by collecting seeds of onsite plants prior to project implementation and then directly seeding into suitable habitat on the conservation area.
- A timetable for implementation of the restoration plan.
- A monitoring plan and performance criteria.
- A description of remedial measures to be performed in the event that initial restoration measures are unsuccessful in meeting the performance criteria.
- A description of site maintenance activities to follow restoration activities. These may include weed control, irrigation, and control of herbivory by livestock and wildlife.

*Off-site Mitigation***.** If an onsite restoration plan is not feasible, mitigation for impacted special status plant species could be accommodated through restoration or preservation at an off-site location. Any off-site restoration plan would be subject to the same minimum requirements as indicated above for an onsite restoration plan.

If off-site preservation is the mitigation alternative chosen, then the mitigation site must be confirmed to support populations of the impacted species and must be preserved in perpetuity via deed restriction, establishment of a conservation easement, or similar preservation mechanism. A qualified botanist or plant ecologist should prepare a Preservation Plan for the site containing, at a minimum, the following elements:

- A monitoring plan and performance criteria for the preserved plant population.
- A description of remedial measures to be performed in the event that performance criteria are not met.
- A description of maintenance activities to be conducted on the site including weed control, trash removal, irrigation, and control of herbivory by livestock and wildlife.

The project proponent will be responsible for funding the development and implementation of any onsite or off-site Preservation Plan.

3.3.2 Loss of Habitat for Special Status Animals

Potential Impacts. Twenty-nine special status animal species occur, or once occurred, regionally (Table 2). Of these, ten would be absent from or unlikely to occur on the site due to unsuitable habitat conditions, including the Callippe silverspot butterfly, longhorn fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, tricolored blackbird, western spadefoot, San Joaquin whipsnake, northern California legless lizard, and Coast horned lizard.

The remaining 19 species may occur more frequently as regular foragers or may be resident on the site, including Foothill yellow-legged frog, California red-legged frog, western pond turtle, Alameda whipsnake, white-tailed kite, Swainson's hawk, northern harrier, American peregrine falcon, golden eagle, burrowing owl, loggerhead shrike, grasshopper sparrow, Townsend's big-eared bat, western red bat, pallid bat, San Francisco dusky-footed woodrat, American badger, ringtail, and San Joaquin kit fox.

These species either occur on the site incidental to home range and migratory movements, thus using the site infrequently, or may forage on the site year-round or during migration. Project buildout would have a minimal effect on the breeding success of these species and would, at most, result in a relatively small reduction of foraging and/or nesting habitat that is abundantly available regionally. Therefore, the loss of habitat for these species would be considered less than significant.

Construction activities may result in injury of individuals of these species, which would be considered significant.

Mitigation. Mitigation measures for potential impacts to these species are discussed in Sections 3.3.3 through 3.3.13.

3.3.3 Impacts to Foothill Yellow-Legged Frogs

Potential Impacts. Impacts to individual FYLF may occur should FYLF occur in the riparian corridor and if plans change to include work within the riparian corridor. The creek area of the site is expected to be the highest quality habitat for FYLF onsite.

Mitigation. The primary approach to mitigate impacts to FYLF would be based upon 1) avoidance of riparian and aquatic resources to the maximum extent possible and 2) implementation of minimization measures.

Avoidance. Avoidance of a sensitive resource is usually considered the preferred mitigation for any project. Therefore, from a standpoint of avoiding impacts to FYLF, the project is designed in ways that avoids impacts to riparian habitat to the maximum extent practicable. The site currently is planned to be built outside of the riparian corridor except for the existing access road over the creek and, should the County require it, the potential for updating the culvert bridge over the creek.

Minimization. The project should be designed, built, and operated in ways that minimize both direct and indirect impacts to the FYLF (both during and post-buildout). Implementation of the following measures, partially summarized below and described more fully in Appendix D "Minimization Measures for Red-Legged Frogs", should be taken during construction to avoid take of individual FYLF.

- Conduct surveys for FYLF or assume presence onsite within the riparian habitat.
- Prior to the start of construction, an approved qualified biologist should train all construction personnel regarding habitat sensitivity, identification of special status species, and required practices.
- Pre-construction surveys should be conducted to ensure that FYLF are absent from the construction area. If FYLF are present, they should be relocated by a qualified biologist.
- The construction zone should be cleared, and silt fencing should be erected and maintained around construction zones to prevent FYLF from moving into these areas.
- A biological monitor should be present onsite during particular times of construction, such as if changes to the project require culvert bridge replacement, to ensure no FYLF are harmed, injured, or killed during these construction activities.

Specific Avoidance and Minimization Measures for the Foothill yellow-legged frog reported in Table 3-3 of the EACCS include:

- "If aquatic habitat is present, a qualified biologist will stake and flag an exclusion zone prior to activities. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew). The exclusion zone will encompass the maximum practicable distance from the work site and at least 500 feet from the aquatic feature wet or dry.
- A qualified biologist will conduct preconstruction surveys prior to activities define a time for the surveys (before ground breaking). If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFG approved relocation site.
- A Service-approved biologist should be present for initial ground disturbing activities.
- If the work site is within the typical dispersal distance (contact USFWS/CDFG for latest research on this distance for species of interest) of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work.
- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A qualified biologist possessing a valid ESA Section 10(a)(1)(A) permit or Service approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside fenced area.
- Work will be avoided within suitable habitat from October 15 (or the first measurable fall rain of 1" or greater, to May 1."

Compensation: upland habitat. Standardized mitigation ratios for the FYLF, according to Table 3-10, is 3:1, as the FYLF was not listed at the time of the EACCS was implemented. To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of any proposed mitigation lands for the FYLF.

Should onsite mitigation occur, a Mitigation and Monitoring Plan should be prepared for the explicit purpose managing these lands. This plan should be submitted to the County for review and approval. At a minimum this plan should:

- Identify the approaches to be used and provide evidence that sufficient water budget exists for any proposed enhancement;
- Identify a suitable planting regime for restoring or enhancing riparian habitats;
- Identify success criteria for monitoring both the upland and riparian habitats that are consistent with similar habitats regionally;
- Monitor restored or enhanced riparian habitats for 5 years;
- Define and identify maintenance and management activities to manage the habitats to meet the stated goals of support habitat characteristics suitable for the FYLF. This may include suitable fencing so as to control access, limited cattle grazing or other procedures to manage grass height and forage production at levels that benefit the FYLF, removal of trash.
- Define and provide for a financial mechanism such as a non-wasting endowment or an assessment district that funds the management of the open space into perpetuity.

These measures would reduce impacts to FYLF to a less-than-significant level.

3.3.4 Impacts to California Red-Legged Frogs

Potential Impacts. Impacts to individual CRLF may occur should CRLF occur in upland burrows. The site is within Critical Habitat for the CRLF. The creek area of the site is expected to be the highest quality habitat for CRLF onsite and it is only expected to act as a movement corridor, as breeding is not expected to occur onsite.

Mitigation. The primary approach to mitigate impacts to CRLF would be based upon 1) avoidance of riparian and aquatic resources to the maximum extent possible, 2) implementation of minimization measures.

Avoidance. Avoidance of a sensitive resource is usually considered the preferred mitigation for any project. Therefore, from a standpoint of avoiding impacts to CRLF, the project is designed in

ways that avoids impacts to riparian and upland habitats to the maximum extent practicable. The site currently is planned to be built outside of the riparian corridor except for the existing access road over the creek and, should the County require it, the potential for updating the culvert bridge over the creek.

Minimization. The project should be designed, built, and operated in ways that minimize both direct and indirect impacts to the CRLF (both during and post-buildout). Implementation of the following measures, partially summarized below and described more fully in Appendix D, should be taken during construction to avoid take of individual CRLF.

- Conduct protocol-level CRLF surveys or assume presence onsite.
- Prior to the start of construction, an approved qualified biologist should train all construction personnel regarding habitat sensitivity, identification of special status species, and required practices.
- Pre-construction surveys should be conducted to ensure that CRLF are absent from the construction area. If CRLF are present, they should be relocated by a qualified biologist.
- The construction zone should be cleared, and silt fencing should be erected and maintained around construction zones to prevent CRLF from moving into these areas.
- A biological monitor should be present onsite during particular times of construction, such as if changes to the project require culvert bridge replacement, to ensure no CRLF are harmed, injured, or killed during these construction activities.

Specific Avoidance and Minimization Measures for the California red-legged frog reported in Table 3-3 of the EACCS include:

- "If aquatic habitat is present, a qualified biologist will stake and flag an exclusion zone prior to activities. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew). The exclusion zone will encompass the maximum practicable distance from the work site and at least 500 feet from the aquatic feature wet or dry.

- A qualified biologist will conduct preconstruction surveys prior to activities define a time for the surveys (before ground breaking). If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFG approved relocation site.
- A Service-approved biologist should be present for initial ground disturbing activities.
- If the work site is within the typical dispersal distance (contact USFWS/CDFG for latest research on this distance for species of interest) of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work.
- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A qualified biologist possessing a valid ESA Section 10(a)(1)(A) permit or Service approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside fenced area.
- Work will be avoided within suitable habitat from October 15 (or the first measurable fall rain of 1" or greater, to May 1."

In addition, the EACCS specifies that a project should obtain an Incidental Take Permit if occupied habitat is adjacent to the site and suitable habitat is on the project site.

Compensation: upland habitat. Standardized mitigation ratios for the CRLF, according to Table 3-7 in the EACCS, is 3:1 if the development area is within critical habitat and 2.5:1 if the development area is outside of critical habitat. As the development area is within critical habitat, a mitigation ratio of 3:1 should be employed; mitigation lands may be onsite or mitigation credits can be purchased from a mitigation bank. To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of any proposed mitigation lands for the CRLF.

Should onsite mitigation occur, a Mitigation and Monitoring Plan should be prepared for the explicit purpose managing these lands. This plan should be submitted to the County for review and approval. At a minimum this plan should:

- Identify the approaches to be used and provide evidence that sufficient water budget exist for any proposed enhancement;
- Identify a suitable planting regime for restoring or enhancing riparian habitats;
- Identify success criteria for monitoring both the upland and riparian habitats that are consistent with similar habitats regionally;
- Monitor restored or enhanced riparian habitats for 5 years;
- Define and identify maintenance and management activities to manage the habitats to meet the stated goals of support habitat characteristics suitable for the CRLF. This may include suitable fencing so as to control access, limited cattle grazing or other procedures to manage grass height and forage production at levels that benefit the CRLF, removal of trash.
- Define and provide for a financial mechanism such as a non-wasting endowment or an assessment district that funds the management of the open space into perpetuity.

These measures would reduce impacts to CRLF to a less-than-significant level.

3.3.5 Impacts to Western Pond Turtles

Potential Impacts. The proposed project would result in the loss of a small amount of potential upland habitat that is of very low quality for western pond turtles. Therefore, impacts to WPT habitat would be considered minimal. However, it is possible, albeit highly unlikely, that WPT would move into the construction zone, which may result in mortality to individual western pond turtles. The loss of these individuals would constitute a significant impact under CEQA.

Mitigation. Implementation of the avoidance, minimization, and compensation measures for the CRLF (see Section 3.3.4 would adequately address impacts to western pond turtles.

The project should implement the following measures (see Appendix D for a more complete set of minimization measures):

- Prior to the start of construction, a qualified biologist should train all construction personnel regarding habitat sensitivity, identification of special status species, and required practices.
- Pre-construction surveys should be conducted to ensure that western pond turtles (WPT) are absent from the construction area. If WPT are present, a qualified biologist possessing all necessary permits should relocate them.
- Immediately following the pre-construction surveys, the construction zone should be cleared, and silt fencing should be erected and maintained around construction zones to prevent WPT from moving into these areas.
- A biological monitor should be present onsite during particular times of construction, such as if changes to the project require culvert bridge replacement, to ensure no WPT are harmed, injured, or killed during project buildout.

3.3.6 Impacts to Alameda Whipsnakes

Potential Impacts. The proposed project would result in the loss of a small amount of upland habitat in the form of grassland habitat adjacent to riparian habitat. Riparian habitat adjacent to the development area provide suitable habitat, and the adjacent grasslands may be used for feeding and dispersal habitat. Therefore, impacts to Alameda whipsnake habitat would be considered less-than-significant. It is possible that Alameda whipsnakes would move into the construction zone, which may result in mortality to individuals. The loss of these individuals would constitute a significant impact under CEQA.

Mitigation. Implementation of the avoidance, minimization, and compensation measures for the CRLF (see Section 3.3.4) would adequately address impacts to Alameda whipsnakes (see Appendix D for a more complete set of minimization measures).

Specific Avoidance and Minimization Measures for the Alameda whipsnake reported in Table 3-3 of the EACCS include:

- "No monofilament plastic will be used for erosion control.
- Barrier fencing may be used to exclude focal reptiles. Barrier fencing will be removed within 72 hours of completion of work.

- Construction crews or on-site biological monitor will inspect open trenches in the morning and evening for trapped reptiles.
- Ground disturbance in suitable habitat will be minimized.
- A USFWS and CDFG-approved biological monitor will be present for all ground disturbing activities in suitable habitat.
- A qualified biologist possessing a valid ESA Section 10(a)(1)(A) permit or Service approved under an active biological opinion, and approved by CDFG will be contracted to trap and to move reptiles to nearby suitable habitat if listed reptiles are found inside fenced area."

Additional applicable goals of the EACCS for the Alameda whipsnake include:

- Conservation Action AWS-6 strives to "implement grazing management plans on all protected lands in Alameda whipsnake Recovery Units that are based on the most up-to-date research findings on grazing levels and whipsnake population response".
- Section 3.5.3.8 states that "…protection of parcels that include parts of important linkages as described in the Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California, may qualify as mitigation locations for this species".
- "Conduct Alameda whipsnake surveys on private and public lands on both sides of I-580, I-680, and SR 84 to identify linkages between Recovery Unit 3 and units to the north and south. Linkages are important for breeding and genetic diversity among whipsnake populations."
- "Protect suitable habitat, which includes a matrix of chaparral and scrub communities, rock outcrops, annual grasslands, and riparian corridors inside Recovery Units for Alameda whipsnake. If possible, priority for protection should be given to areas that are also designated critical habitat. This will help reach the USFWS draft recovery goals for this species."

To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the East Alameda

County Conservation Strategy (EACCS; ICF International 2010) should be used as part of the assessment for suitability of mitigation lands for the Alameda whipsnake. The site is outside of critical habitat, but within a recovery unit; mitigation ratios depend on where mitigation lands are located. Standardized mitigation ratios for the Alameda whipsnake, according to Table 3-9 in the EACCS, if the development area is within critical habitat the mitigation area is within critical habitat and the same Recovery Unit the mitigation ratio is 3:1, if the development area is outside of critical habitat but inside a Recovery Unit and the mitigation area is outside critical habitat but inside the same recovery unit the mitigation ratio is 3:1, and it is 2.5:1 if the development area is outside of critical habitat but inside a Recovery Unit and the mitigation area is inside critical habit and the same Recovery Unit. Other types of mitigation requires site-specific agency approval.

3.3.7 Disturbance to Nesting Raptors and Migratory Birds

Potential Impacts. Trees and structures throughout the site provide suitable nesting habitat for both listed and non-listed nesting raptors and migratory birds. If a raptor or other migratory bird, regardless of its federal or state status, were to nest on or adjacent to the site prior to or during proposed construction activities, such activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of raptors or result in mortality of individual birds constitute a violation of state and federal laws and would be considered a significant impact under CEQA.

Mitigation. The below measures would be necessary to reduce the impact to nesting birds and raptors to a less-than-significant impact.

- To the maximum extent practicable, trees planned for removal should be removed during the non-breeding season (September 1 through January 31). If it is not possible to avoid tree removal or other disturbances during the breeding season (February 1 through August 31), a qualified biologist should conduct a pre-construction survey for tree-nesting raptors and other tree- or ground-nesting migratory birds in all trees or other areas of potential nesting habitat within the construction footprint and within 250 feet of the footprint, if such disturbance will occur during the breeding season. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities during the breeding season.

- If nesting raptors or migratory birds are detected on the site during the survey, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffer (up to 250 feet) would be determined at that time and may vary depending on location and species. Buffers should remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary, as the birds are expected to abandon their roosts during construction activities. Implementation of the above measures would mitigate impacts to tree-nesting raptors and other migratory birds to a less-than-significant level.
- Surveys for Swainson's hawk nests within a half mile of the site should be conducted within nesting season.
- Should any active nests be discovered in or near proposed construction zones, the qualified biologist shall establish a suitable construction-free buffer around the nest. This buffer shall be identified on the ground with flagging or fencing, and shall be maintained until the biologist has determined that the young have fledged.

3.3.8 Impacts to Burrowing Owls

Potential Impacts. Although no burrowing owls were observed on the site during the 2018 site visit, suitable habitat for burrowing owls is present onsite in the form of small mammal burrows. If a burrowing owl were to nest or occupy a burrow in the proposed development area prior to the start of construction, construction activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success or result in mortality of individual owls constitute a violation of state and federal laws and would be considered a significant impact under CEQA.

Additionally, should burrowing owls occur in the development area during the breeding season, project buildout would result in the permanent loss of burrowing owl habitat. This loss of habitat would also be considered a significant adverse impact. The loss of potential foraging habitat for burrowing owls is less than significant due to the small size of the project site.

Mitigation. In order to avoid impacts to active burrowing owl nests, a qualified biologist should conduct pre-construction surveys for burrowing owls within the construction footprint and within

250 feet of the footprint no more than 14 days prior to the onset of ground disturbance. These surveys should be conducted in a manner consistent with accepted burrowing owl survey protocols. Specific Avoidance and Minimization Measures for the burrowing owl reported in Table 3-3 of the EACCS include:

- "If an active nest is identified near a proposed work area work will be conducted outside of the nesting season (March 15 to September 1).
- If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no-activity zone will be established by a qualified biologist. The no-activity zone will be large enough to avoid nest abandonment and will at a minimum, be 250-feet radius from the nest.
- If the burrowing owls are present at the site during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet.
- If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls."

Additional applicable goals of the EACCS for the burrowing owl include:

- "Increase the burrowing owl nesting population (number of nesting pairs) and number of nesting locations in the study area."
- "Objective 19.3. Protect and monitor all burrowing owl nest sites, including surrounding foraging habitat, in the study area."
- "Conservation Action BUOW-1 [and BUOW-2]. Acquire, through fee title purchase or conservation easement, parcels with documented burrowing owl nests…[or] …with a history of burrowing owl occupation and/or nesting activity during the previous three breeding seasons…in the study area."

- "Conservation Action BUOW-3. Mitigate the loss of burrowing owl nesting habitat (suitable habitat within 0.5 mile of documented nest occurrence during previous 3 years)..."
- "Objective 19.4. Enhance suitable burrowing owl habitat on public and private lands in the study area through implementation of species-specific measures in management plans."
- "Conservation Action BUOW-6. Purchase easements on land surrounding burrowing owl nest colonies or potential nest sites to ensure that the parcel will remain in types of grazing land, irrigated pasture, or dryland agriculture that provide foraging habitat for nesting burrowing owls."
- "Conservation Action BUOW-8. Consistent with GRA-10, cease using rodenticides in protected areas and, when possible, outside protected areas. When rodent management is needed to protect the integrity of structures such as levees and stock pond dams or to prevent nuisance populations on adjacent private lands, encourage land managers to use IPM principles."

To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of mitigation lands for the burrowing owl. Standardized mitigation ratios for the burrowing owl, according to Table 3-10 in the EACCS, is 3:1 within the Livermore Valley Mitigation Area where the project is sited.

3.3.9 Potential Impacts to Golden Eagles

Potential Impacts. Large trees of suitable size for nesting golden eagles are absent from the site. Therefore, the proposed project is not expected to impact golden eagle nests. Foraging habitat is present on the site. The loss of potential foraging habitat is less than significant due to the small size of the project site.

Mitigation. Although nesting habitat is absent from the development footprint, pre-construction surveys conducted for golden eagles should be conducted to determine the presence or absence of golden eagle nests within 250 feet of the development footprint, surveys for other nesting raptors will also survey for golden eagle nests.

Specific Avoidance and Minimization Measures for the golden eagle reported in Table 3-3 of the EACCS include:

- "If an active nest is identified near a proposed work area work will be conducted outside of the nesting season (February 1 to September 1).
- "If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no-activity zone will be established by a qualified biologist. The no-activity zone will be large enough to avoid next abandonment and will at a minimum be 250-feet radius from the nest."
- "If an effective no-activity zone cannot be established in either case, an experienced golden eagle biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the eagles, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the eagles."

Additional applicable goals of the EACCS for the golden eagle include:

- "Maintain the nesting golden eagle population in the study area at a level that allows for long-term viability without human intervention."
- "Objective 17.4. Enhance suitable golden eagle habitat on public and private lands in the study area through implementation of species-specific measures in management plans."
- "Conservation Action GOEA-4. Consistent with Conservation Action GRA-10, cease using rodenticides in protected areas and, when possible, outside protected areas. When rodent management is needed to protect the integrity of structures such as levees or stock pond dams or to prevent nuisance populations on adjacent private lands, encourage land managers to use IPM principles."

To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of mitigation lands for

the golden eagle. Standardized mitigation ratios for the golden eagle, according to Table 3-10 in the EACCS, is 3:1 within the Livermore Valley Mitigation Area where the project is sited.

3.3.10 Impacts to American Badgers

Potential Impacts. Impacts to the American badger would be similar to those for the burrowing owl. Development of the project would result in a less-than-significant loss of habitat for the American badger, but may result in harm or injury to individuals of this species, which would constitute a significant adverse impact.

The loss of potential habitat for badgers is less than significant due to the small size of the project site.

Mitigation. Pre-construction surveys conducted for burrowing owls should also be used to determine the presence or absence of badgers in the development footprint. If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet (or distance specified by the resource agencies, i.e., CDFW) should be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor should be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The monitor would be necessary onsite until it is determined that young are of an independent age and construction activities would not harm individual badgers. Once it has been determined that badgers have vacated the site, the burrows can be collapsed or excavated, then ground disturbance can proceed.

Specific Avoidance and Minimization Measures for the badgers reported in Table 3-3 of the EACCS include:

- "If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the proposed work area and cannot be avoided during construction, qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFG.

- If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999). Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or will be as follows: Potential Den–50 feet; Known Den–100 feet; Natal or Pupping Den–to be determined on a case-by-case basis in coordination with USFWS and CDFG.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active".

Additional applicable goals of the EACCS for the badger include:

- "Maintain the American badger population while protecting and enhancing important regional linkages for the species in the study area."
- "Objective 20.2. Maintain the American badger population in the study area at a level that allows for long-term viability of the population."
- "Conservation Action AMB-2. Acquire parcels in the study area with documented American badger populations through fee title purchase or conservation easement."
- "Conservation Action AMB-4. Acquire parcels that protect linkages across I-580 and I-680 through fee title purchase, conservation easement, or agricultural easement."
- "Objective 20.3. Enhance suitable American badger habitat on public and private lands in the study area through implementation of species-specific measures in management plans."
- "Conservation Action AMB-6. Allow the expansion of California ground squirrel colonies on all protected lands except when needed to protect the integrity of structures such as levees or stock pond dams or to prevent nuisance populations on adjacent private lands."

- "Conservation Action AMB-7. Consistent with GRA-10 and BUOW-8, cease using rodenticides in protected areas and, when possible, outside protected areas. When rodent management is needed to protect the integrity of structures such as levees or stock pond dams or to prevent nuisance populations on adjacent private lands, encourage land managers to use IPM principles."

To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of mitigation lands for the badger. Standardized mitigation ratios for the badger, according to Table 3-10 in the EACCS, is 3:1 within the Livermore Valley Mitigation Area where the project is sited.

3.3.11 Impacts to Bats

Potential Impacts. Bats may roost onsite in the large eucalyptus and oak trees within the riparian corridor and forage over the site. The structures onsite (barn and pumphouse) are not suitable for roosting bats. Should a change in plans occur and work be conducted in the creek during the maternity or overwintering seasons, this work could cause a significant affect on individual bats or a maternity colony.

Mitigation. Should work be required within the riparian corridor, a bat assessment should be conducted outside of maternity season and outside of overwintering season when humane eviction can occur (March 1-April 15 or August 15-October 15). Should trees be planned for removal within the riparian corridor, this is the season when they should be removed after a bat assessment. Tree removal, and humane eviction, should be done as a two-step removal under the direction of a qualified biologist.

3.3.12 Impacts to San Francisco Dusky-Footed Woodrats and Ringtails

Potential Impacts. San Francisco dusky-footed woodrats and ringtails may occur in the riparian corridor. Should work become necessary within the riparian corridor, injury or mortality of an individual of one of these species would be considered a significant impact.

Mitigation. The following mitigation measures should be followed should work be required within the riparian corridor.

- A qualified biologist will conduct a preconstruction survey for San Francisco dusky-footed woodrats and ringtail shall be conducted.
- If ringtail are located, the project would need to wait until they leave the area on their own prior to starting construction.
- Should a woodrat nest be located, and it is in a development area, a qualified biologist who has safely and successfully dismantled woodrat nests before shall dismantle the woodrat nest, while providing temporary shelter such as an overturned wine barrel in the meantime. Dismantling of woodrat nests will only be conducted outside of the breeding season as to avoid harming young.

3.3.13 Impacts to San Joaquin Kit Fox

Potential Impacts. Impacts to the San Joaquin kit fox would be similar to those for the American badger and burrowing owl. Development of the project would result in a less-than-significant loss of habitat for the San Joaquin kit fox, but may result in harm or injury to individuals of this species, which would constitute a significant adverse impact.

The loss of potential habitat for kit foxes is less than significant due to the small size of the project site.

Mitigation. According to the EACCS, because suitable habitat exists onsite, "The project should either assume presence and avoid impacts on the den site through coordination with CDFG and USFWS, and mitigate the loss of any habitat that cannot be avoided; …or conduct approved protocol-level surveys for kit fox. Those surveys would have to be conducted by a USFWS- and CDFG-approved biologist."

Specific Avoidance and Minimization Measures for the San Joaquin kit fox reported in Table 3-3 of the EACCS include:

- "If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the proposed work area and cannot be avoided during construction, qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFG.

- If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (U.S. Fish and Wildlife Service 1999).
- Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or will be as follows: Potential Den–50 feet; Known Den–100 feet; Natal or Pupping Den–to be determined on a case-by-case basis in coordination with USFWS and CDFG.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas is active".

Additional applicable goals of the EACCS for the San Joaquin kit fox include:

- "Increase the San Joaquin kit fox population while protecting and enhancing suitable habitat and important regional linkages for the species in the study area."
    - Objective 21.1. Avoid and minimize direct impacts on San Joaquin kit fox (mortality of individuals and loss of den sites) during project construction and indirect impacts that result from postproject activities by implementing avoidance measures outlined in Tables 3-2 and 3-3.
    - Objective 21.2. Increase the San Joaquin kit fox breeding population in the study area."
        - Conservation Action SJKF-1. Mitigate the loss of suitable San Joaquin kit fox habitat by protecting habitat in accordance with the mitigation guidelines outlined in Table 3-11.
        - Conservation Action SJKF-2. Acquire parcels with documented San Joaquin kit fox den sites in the study area that meet the conservation goals and objectives of this strategy through fee title purchase and/ or conservation easement and using funding that comes from non-mitigation sources (e.g., grant funding, local fundraising efforts)."
    - "Objective 21.3. Increase connectivity of suitable habitat across major infrastructure barriers in the study area."

- Conservation Action SJKF-3. Conduct targeted presence/absence surveys, including scat scent surveys with dogs, on private and public lands on both sides of I-580 and along the California Aqueduct to identify linkages between and across these barriers.
- Conservation Action SJKF-4. Acquire parcels and manage vegetation in aras that protect linkages across infrastructure barriers and that meet the conservation goals and objectives of this strategy through fee title purchase or conservation easement.
- Conservation Action SJKF-5. Create new passages (undercrossings or overcrossings) across I-580 between Livermore and the Alameda/San Joaquin County Line and overcrossings at key locations along the California Aqueduct that are large enough to accommodate movement of terrestrial mammals, including San Joaquin kit fox."

o "Objective 21.3. Enhance suitable San Joaquin kit fox habitat on public and private lands in the study area through implementation of species-specific measures in management plans."

- Conservation Action SJKF-5. Create an incentive program that will encourage private landowners to manage ground squirrels on their property using IPM principles and work toward a balance between species needs and the requirements of a working landscape.
- Conservation Action SFJK-6. Allow the expansion of California ground squirrel colonies on all protected lands except when needed to protect the integrity of structures such as levees or stock pond dams or to prevent nuisance populations on adjacent private lands.
- Conservation Action SFJK-7. Consistent with GRA-10, cease using rodenticides in protected areas and, when possible, outside protected areas. When rodent management is needed to protect the integrity of structures such as levees or stock pond dams or to prevent nuisance populations on adjacent private lands, encourage land managers to use IPM principles."

To ensure that mitigation habitat meets or exceeds the value of the habitat lost to development, *Focal Species Impact/Mitigation Scoring Sheets* located in Appendix E of the EACCS (ICF International 2010) should be used as part of the assessment for suitability of mitigation lands for the badger. Standardized mitigation ratios for the San Joaquin kit fox, according to Table 3-11 in the EACCS, is 3:1 within the North Mitigation Area where the project is sited.

3.3.14 Disturbance to Waters of the United States or Riparian Habitats

Potential Impacts. A formal wetland delineation of the site was not conducted as a part of this evaluation. No wetlands were observed on the site during the October 2018 survey, however, potentially jurisdictional waters are present on the site in the form of Cayetano Creek, and intermittent creek, along the site's western boundary. This hydrologic feature would be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) and any fill being placed within the creek as a result of the project would require permits from some or all of these agencies. Generally, the jurisdiction of the USACE is the Ordinary High Water mark (OHWM) on opposing banks, in the absence of adjacent wetlands, and the jurisdiction of the RWQCB and CDFW is the top of bank or the dripline of woody riparian vegetation, whichever is greater. Additionally, impacts to the bed, bank or associated woody riparian vegetation may be considered a significant impact under CEQA.

As indicated previously, the access driveway to the project site traverses the creek via a culvert bridge. At this time, it is unknown whether the project will require any work within the creek such as to widen or improve the existing culvert bridge or require the installation of a storm drain outfall.

Mitigation. Should the project not require the placement of fill within the bed and bank of the creek, or result in the removal of woody riparian vegetation, then the project would not require regulatory permits and would not result in a significant impact and require mitigation under CEQA. However, should the project require impacts within the bed and bank of the creek, or disturbance to woody riparian vegetation, the project should implement avoidance, minimization, and/or compensation measures to reduce impacts to jurisdictional waters and riparian habitats to a less-than-significant level.

Avoidance. The preferred method of mitigation would be avoidance of all waters of the U.S. and State by designing the project so that it avoids the placement of fill within potential jurisdictional waters and impacts to riparian habitat.

Minimization. If full avoidance is not possible, actions should be taken to minimize impacts to aquatic and riparian habitats. The project should be designed to the extent possible to minimize impacts to the most sensitive aquatic habitat by not impacting the creek within the Ordinary High Water (OHW) channel and to minimize removal of woody riparian vegetation. Measures taken during construction activities should include placing construction fencing around the riparian areas to be preserved to ensure that construction activities do not inadvertently impact these areas.

As part of project build-out, all proposed lighting should be designed to avoid light and glare impacts to the riparian corridor to be avoided. Light sources should not be visible from riparian areas and should not illuminate riparian areas or cause glare on the opposite side of the channels (e.g., to neighboring properties). Additionally, proposed development activities should be designed and situated to avoid the loss of trees within any riparian areas to the maximum extent practicable.

Compensation. If significant impacts to the riparian corridor cannot be avoided, then an onsite restoration plan should be developed to compensate for impacts. It is expected that all mitigation measures can be accommodated on the site. If the preserved area cannot fully accommodate the mitigation measures, then off-site restoration would be necessary. Mitigation measures would either result in the creation of new habitat as replacement for habitat lost or enhance the quality of existing habitat for native plants and wildlife. Mitigation measures should include replacement of riparian habitat as well as reseeding or replanting of vegetation in temporarily disturbed areas according to a site-specific mitigation plan. At a minimum, this plan should identify mitigation areas, a planting plan, site maintenance activities, success criteria and remedial measures to compensate for lack of success. The mitigation goal should be to create and enhance riparian habitats with habitat functions and values greater than or equal to those existing in the impact zone.

A detailed monitoring plan, including specific success criteria, should be developed and submitted to permitting agencies during the permit process. The mitigation area would be

monitored in accordance with the plan approved by those permitting agencies. The basic components of the monitoring plan consist of final success criteria, performance criteria, monitoring methods, data analysis, as-built plans, monitoring schedule, contingency/remedial measures, and reporting requirements.

A Habitat Mitigation and Monitoring Plan should be prepared that at a minimum:

- Defines the location of all restoration/creation activities;
- Provides evidence of a suitable water budget to support any created wetland and riparian habitats;
- Identifies the species, amount and location of plants to be installed;
- Identifies time of year for planting and method for supplemental watering during the establishment period;
- Identifies the monitoring period which should be not less than 5 years for wetland restoration and not less than 5 years for riparian restoration, defines success criteria that will be required for the wetland restoration to be deemed a success;
- Identifies adaptive management procedures that accommodate the uncertainty that comes with restoration projects. These include (but not limited to) measures to address colonization by invasive species, unexpected lack of water, excessive foraging of installed wetland plants by native wildlife, etc.;
- Defines management and maintenance activities (weeding of invasive, providing for supplemental water, repair of water delivery systems, etc.); and
- Provides for surety in funding the monitoring and ensuring that the created wetland and riparian habitats fall within lands to be preserved and managed into perpetuity.
- The above mitigation measures when implemented would reduce any impacts on waters of the U.S. and state and sensitive riparian habitats to a less-than-significant level. These measures would also be consistent with the EACCS and its objectives and goals for conservation of riparian forest and scrub habitats (Section 3.5.2.5 of the EACCS).

Regulatory issues. The applicant will also need to comply with all state and federal regulations related to construction work that will impact aquatic habitats occurring on the site. The applicant may be required to obtain a Section 404 Clean Water Act permit from the USACE, Section 401 Water Quality Certification from the RWQCB and Section 1600 Streambed Alteration Agreement from the CDFW prior to initiating any construction within these habitats.

3.3.15 Tree Removal Impacts

Potential Impacts. The proposed project may require the removal of trees. The number of trees to be removed will depend on the final project plans. The removal of protected trees would constitute a significant impact. The City of Livermore requires a permit to remove of protected trees as defined in Section 3.2.7. above, however, the site is located outside of the City Limits and Urban Growth Boundary of the City of Livermore. Construction activities that lead to the injury, decline, structural failure, or death of a tree proposed to be retained on the site would also constitute a significant impact.

Mitigation. For trees to be retained, a tree preservation plan should be prepared for the project identifying all protection and mitigation measures to be taken. These measures should remain in place for the duration of construction activities at the project site. Implementation of the above mitigation measures would reduce the loss of trees to a less-than-significant level.

3.3.16 Loss of Habitat for Native Wildlife

Potential Impacts. The habitats of the site are likely to comprise only a portion of most wildlife's entire home range or territory. As such, some species may disperse through the site, but most wildlife presently using the site do so as part of their normal movements for foraging, mating, and caring for young. Wildlife species presently occupying the site would be displaced or lost from the proposed development area.

The proposed development would affect a small area. This development would primarily result in the loss of non-native grassland habitat. But may also impact the creek depending on whether the County requires the project to replace the culvert bridge.

The project is small and is planned outside of and set back from the riparian corridor. This suggests the proposed project, when considered by itself, will neither result in a wildlife population dropping below self-sustaining levels nor threaten to eliminate an animal community.

Furthermore, mitigations have been proposed for a number of species previously discussed to adequately off-set grassland habitat losses.

Therefore, impacts to native wildlife due to the loss of habitat resulting from the proposed project are considered less than significant under CEQA.

Mitigation. Mitigation measures are not warranted.

3.3.17 Interference with the Movement of Native Wildlife

Potential Impacts. The site is located adjacent to a residence with the remainder being open space interspersed with sparse residential development. Within the site itself, wildlife uses the upland non-native grassland of the site as part of their home range and dispersal movements; the creek is likely used as a movement corridor and for dispersal. The proposed development footprint occurs adjacent and set back from the creek. Following project buildout, wildlife species presently using the site are expected to continue moving through the open areas of the property and within the riparian corridor after project build-out. Therefore, impacts to wildlife movements would not be considered significant.

Mitigation. Mitigation measures are not warranted.

3.3.18 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impacts. Proposed construction activities may result in soils left barren in the development footprint. Additionally, extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to sheet, rill, or gully erosion. Furthermore, runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. These pollutants may eventually be carried to sensitive wetland habitats used by a diversity of native wildlife species.

The applicant is expected to comply with the provisions of a grading permit, including standard erosion control measures that employ best management practices (BMPs). Projects involving the grading of large tracts of land must also be in compliance with provisions of a General Construction permit (a type of NPDES permit) available from the California Regional Water Quality Control Board. Compliance with the above permit(s) should result in no impacts to water quality in seasonal creeks, reservoirs, and downstream waters from the proposed project and

should not result in the deposition of pollutants and sediments in sensitive riparian and wetland habitats.

Mitigation. Mitigation measures are not warranted.

3.3.19 Local Ordinances, Conservation Strategies or Habitat Conservation Plans

Potential Impacts. With the exception of local ordinances previously discussed, no local ordinances, HCPs, or NCCPs are known to be in effect for this project. However, the project is within the Livermore Watershed of Conservation Zone 4 of the East Alameda County Conservation Strategy for which a Programmatic Biological Opinion has been prepared (USFWS 2012) in which the project must follow guidelines for the Foothill yellow-legged frog, California red-legged frog, western pond turtle, Alameda whipsnake, golden eagle, western burrowing owl, American badger, and San Joaquin kit fox. as these species have the potential to occur onsite. Guidelines for these species have been included in the avoidance and minimization measures of the sections above. This project will follow mitigation measures identified in this document to help to achieve goals and objectives defined in Section 3.5 and Tables 3-2 and 3-3 of the Conservation Strategy (ICF 2010). The project will follow these measures as well as the additional measures in the Biological Opinion (USFWS 2012) which are attached as Appendix E. Therefore, the proposed project would not be impacted by any local policies related to biological resources.

Mitigation. Additional mitigation measures are not warranted.

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APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plants species listed below were observed on the project site during the field surveys conducted by Live Oak Associates, Inc. on October 15, 2018. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NR - No review
NA - No agreement
NI - No investigation

ANACARDIACEAE – Sumac Family		
Toxicodendron diversilobum	Poison oak	UPL
ASTERACEAE - Sunflower Family		
Artemisia douglasiana	Mugwort	OBL
*Carduus pycnocephalus**	Italian thistle	UPL
*Centaurea solstitialis**	Yellow star thistle	UPL
*Cirsium vulgare**	Bull thistle	FACU
*Helminthotheca echioides**	Bristly ox-tongue	FAC*
*Lactuca serriola**	Prickly lettuce	FAC
BRASSICACEAE – Mustard Family		
*Brassica nigra**	Black mustard	UPL
CAPRIFOLIACEAE – Honeysuckle Family		
Sambucus nigra ssp. caerulea	Blue elderberry	FAC
CONVOLVULACEAE – Morning-Glory Family		
*Convolvulus arvensis**	Field bindweed	UPL
CUPRESSACEAE – Cypress Family		
Cupressus macrocarpa	Monterey cypress	UPL
EUPHORBIACEAE – Spurge Family		
Croton setiger		
Doveweed		*UPL*
FABACEAE – Legume Family		
*Medicago polymorpha**	Burclover	UPL
FAGACEAE – Oak Family		
Quercus agrifolia	Coast live oak	UPL
Quercus lobata	Valley oak	FACU
GERANIACEAE – Geranium Family		

*Erodium sp.**	Filaree	UPL
JUGLANDACEAE – Walnut Family		
Juglans hindsii	California walnut	FAC
LAMIACEAE – Mint Family		
Marrubium vulgare	Horehound	UPL
MORACEAE – Mulberry Family		
*Ficus carica**	Edible fig	UPL
MYRTACEAE – Myrtle Family		
*Eucalyptus globulus**	Blue gum eucalyptus	UPL
OLEACEAE – Olive Family		
Olea europaea	Olive	UPL
ONAGRACEAE – Evening Primrose Family		
Epilobium canum	California fuschia	UPL
POACEAE - Grass Family		
*Avena sp.**	Wild oat	UPL
*Bromus diandrus**	Ripgut brome	UPL
*Bromus hordeaceus**	Soft chess	FACU-
*Festuca perennis**	Italian ryegrass	FAC
*Hordeum murinum**	Farmer's foxtail	NI
*Polypogon monspeliensis**	Rabbitsfoot grass	FACW
POLYGONACEAE – Buckwheat Family		
*Rumex crispus**	Curly dock	FACW-
URTICACEAE – Nettle Family		
Urtica dioica ssp. holosericea	Stinging nettle	FACW

* Introduced non-native species

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE STUDY AREA

The species listed below are those that may reasonably be expected to use the habitats the Oasis property routinely or from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the study area during the October 2018 site visit have been noted with an asterisk.

CLASS AMPHIBIA (Amphibians)

ORDER CAUDATA (Salamanders)

FAMILY SALAMANDRIDAE (Newts)

California newt	*Taricha torosa*

FAMILY PLETHODONTIDAE (Lungless Salamanders)

Yellow-eyed ensatina	*Ensatina eschscholtzii xanthoptica*
California slender salamander	*Batrachoseps attenuatus*
Pacific slender salamander	*Batrachoseps pacificus*
Arboreal salamander	*Aneides lugubris*

ORDER ANURA (Frogs and Toads)

FAMILY BUFONIDAE (True Toads)

Western toad	*Bufo boreas*

FAMILY HYLIDAE (Tree Frogs and Relatives)

Pacific treefrog	*Hyla regilla*

FAMILY RANIDAE (True Frogs)

California red-legged frog	*Rana draytonii*

CLASS REPTILIA (Reptiles)

ORDER TESTUDINES (Turtles)

FAMILY EMYDIDAE (Box and Water Turtles)

Western Pond Turtle	*Actinemys marmorata*

ORDER SQUAMATA (Lizards and Snakes)

SUBORDER SAURIA (Lizards)

FAMILY PHRYNOSOMATIDAE

*Western fence lizard	*Sceloporus occidentalis*

FAMILY SCINCIDAE (Skinks)

Skilton skink	Eumeces skiltonianus skiltonianus

FAMILY ANGUIDAE (Alligator Lizards and Relatives)

California alligator lizard	*Elgaria multicarinata*

SUBORDER SERPENTES (Snakes)

FAMILY COLUBRIDAE (Colubrids)

Sharp-tailed snake	*Contia tenuis*
Coachwhip	*Masticophis flagellum*
Alameda whipsnake	*Masticophis lateralis euryxanthus*
Gopher snake	*Pituophis catenifer*
Common kingsnake	*Lampropeltis getula*

California kingsnake	*Lampropeltis californiae*
FAMILY NATRICIDAE (Live-bearing Snakes)	
Western terrestrial garter snake	*Thamnophis elegans*
FAMILY VIPERIDAE (Vipers)	
Northern Pacific rattlesnake	*Crotalus oreganus oreganus*

CLASS AVES (Birds)

ORDER CICONIIFORMES (Herons, Storks, Ibises and Relatives)

FAMILY CATHARTIDAE (New World Vultures)	
*Turkey vulture	*Cathartes aura*

ORDER ANSERIFORMES (Screamers, Ducks and Relatives)

FAMILY ANATIDAE (Swans, Geese and Ducks)	
Mallard	*Anas platyrhynchos*
Canada Goose	*Branta canadensis*

ORDER FALCONIFORMES (Vultures, Hawks and Falcons)

FAMILY ACCIPITRIDAE (Hawks, Old World Vultures and Harriers)	
White-tailed kite	*Elanus leucurus*
Northern harrier	*Circus cyaneus*
Sharp-shinned hawk	*Accipiter striatus*
Cooper's hawk	*Accipiter cooperii*
Red-shouldered hawk	*Buteo lineatus*
*Red-tailed hawk	*Buteo jamaicensis*
Swainson's hawk	*Buteo swainsonsi*
Golden eagle	*Aquila chrysaetos*
FAMILY FALCONIDAE (Caracaras and Falcons)	
*American kestrel	*Falco sparverius*
American peregrine falcon	*Falco peregrinus*
Merlin	*Falco columbarius*
Prairie falcon	*Falco mexicanus*

ORDER GALLIFORMES (Magapodes, Curassows, Pheasants and Relatives)

FAMILY PHASIANIDAE (Quails, Pheasants and Relatives)	
*Wild turkey	*Meleagris gallopavo*
FAMILY ODONTOPHORIDAE (New World Quail)	
California quail	*Callipepla californica*

ORDER COLUMBIFORMES (Pigeons and Doves)

FAMILY COLUMBIDAE (Pigeons and Doves)	
*Rock pigeon	*Columba livia*
*Mourning dove	*Zenaida macroura*

ORDER STRIGIFORMES (Owls)

FAMILY TYTONIDAE (Barn Owls)	
*Barn owl	*Tyto alba*
FAMILY STRIGIDAE (Typical Owls)	
Western screech owl	*Otus kennicottii*
Great horned owl	*Bubo virginianus*
Burrowing owl	*Athene cunicularia*

ORDER APODIFORMES (Swifts and Hummingbirds)
FAMILY TROCHILIDAE (Hummingbirds)

Anna's hummingbird	*Calypte anna*
Allen's hummingbird	*Selasphorus sasin*

ORDER PICIFORMES (Woodpeckers and Relatives)
FAMILY PICIDAE (Woodpeckers and Wrynecks)

Acorn woodpecker	*Melanerpes formicivorus*
Downy woodpecker	*Picoides pubescens*
Northern flicker	*Colaptes auratus*
Nuttall's woodpecker	*Picoides nuttallii*

ORDER PASSERIFORMES (Perching Birds)
FAMILY TYRANNIDAE (Tyrant Flycatchers)

Black phoebe	*Sayornis nigricans*
*Say's phoebe	*Sayornis saya*
Ash-throated flycatcher	*Myiarchus cinerascens*
Pacific-slope flycatcher	*Empidonax difficilis*

FAMILY LANIIDAE (Shrikes)

Loggerhead shrike	*Lanius ludovicianus*

FAMILY VIREONIDAE (Typical Vireos)

Cassin's vireo	*Vireo cassinii*
Warbling vireo	*Vireo gilvus*
Hutton's vireo	*Vireo huttoni*

FAMILY CORVIDAE (Jays, Magpies and Crows)

Steller's jay	Cyanocitta stelleri
*California scrub-jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
*Common raven	*Corvus corax*

FAMILY ALAUDIDAE (Larks)

California horned lark	*Eremophila alpestris actia*

FAMILY HIRUNDINIDAE (Swallows)

Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Cliff swallow	*Petrochelidon pyrrhonota*
Barn swallow	*Hirundo rustica*

FAMILY PARIDAE (Titmice and Relatives)

Oak titmouse	*Baeolophus inornatus*
Chestnut-backed chickadee	*Poecile rufescens*

FAMILY AEGITHALIDAE (Bushtit)

Bushtit	*Psaltriparus minimus*

FAMILY SITTIDAE (Nuthatches)

White-breasted nuthatch	*Sitta carolinensis*

FAMILY TROGLODYTIDAE (Wrens)

Bewick's wren	*Thryomanes bewickii*
House wren	*Troglodytes aedon*
Winter wren	*Troglodytes troglodytes*

FAMILY REGULIDAE (Kinglets)

Ruby-crowned kinglet	*Regulus calendula*
FAMILY SYLVIIDAE (Old World Warblers and Gnatcatchers)	
Blue-gray gnatcatcher	*Polioptila caerulea*
FAMILY TURDIDAE (Thrushes)	
Western bluebird	*Sialia mexicana*
Hermit thrush	*Catharus guttatus*
American robin	*Turdus migratorius*
FAMILY MIMIDAE (Mockingbirds and Thrashers)	
Northern mockingbird	*Mimus polyglottos*
FAMILY STURNIDAE (Starlings and Allies)	
*European starling	*Sturnus vulgaris*
FAMILY PARULIDAE (Wood Warblers and Relatives)	
Yellow-rumped warbler	*Dendroica coronata*
Yellow warbler	*Dendroica petechia*
Orange-crowned warbler	*Oreothlypis celata*
FAMILY EMBERIZIDAE (Emberizines)	
*California towhee	*Pipilo crissalis*
Lark sparrow	*Chondestes grammacus*
Grasshopper sparrow	*Ammodramus savannarum*
Savannah sparrow	*Passerculus sandwichensis*
*Song sparrow	*Melospiza melodia*
Fox sparrow	*Passerella iliaca*
White-throated sparrow	*Zonotrichia albicollis*
White-crowned sparrow	*Zonotrichia leucophrys*
Dark-eyed junco	*Junco hyemalis*
FAMILY CARDINALIDAE (Cardinals, Grosbeaks and Allies)	
Lazuli bunting	*Passerina amoena*
FAMILY ICTERIDAE (Blackbirds, Orioles and Allies)	
Red-winged blackbird	*Gelaius phoeniceus*
*Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown-headed cowbird	*Molothrus ater*
Bullock's oriole	*Icterus bullockii*
FAMILY FRINGILLIDAE (Finches)	
Purple finch	*Carpodacus purpureus*
House finch	*Carpodacus mexicanus*
Lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*

CLASS MAMMALIA (Mammals)

ORDER DIDELPHIMORPHIA (Marsupials)

FAMILY DIDELPHIDAE (Opossums)	
Virginia opossum	*Didelphis virginiana*

ORDER CHIROPTERA (Bats)

FAMILY VESPERTILIONIDAE (Evening Bats)	
Little brown myotis	*Myotis lucifugus*

Yuma myotis	*Myotis yumanensis*
California myotis	*Myotis californicus*
Western pipistrelle	*Pipistrellus hesperus*
Big brown bat	*Eptesicus fuscus*
Townsend's big-eared bat	*Corynorhinus townsendii*
Western red bat	*Lasiurus blossevillii*
Pallid bat	*Antrozous pallidus*
FAMILY MOLOSSIDAE (Free-tailed Bats)	
California mastiff bat	*Eumops perotis californicus*
Mexican free-tailed bat	*Tadarida brasiliensis*
ORDER LAGOMORPHA (Rabbits, Hares and Pika)	
FAMILY LEPORIDAE (Rabbits and Hares)	
Brush rabbit	*Sylvilagus bachmani*
Black-tailed jackrabbit	*Lepus californicus*
ORDER RODENTIA (Rodents)	
FAMILY SCIURIDAE (Squirrels, Chipmunks and Marmots)	
*California ground squirrel	*Spermophilus beecheyi*
Western gray squirrel	*Sciurus griseus*
Eastern fox squirrel	*Sciurus niger*
FAMILY GEOMYIDAE (Pocket Gophers)	
Botta's pocket gopher	*Thomomys bottae*
FAMILY HETEROMYIDAE (Pocket Mice and Kangaroo Rats)	
California pocket mouse	*Chaetodipus californicus*
FAMILY CRICETIDAE (Mice, Rats and Voles)	
Deer mouse	*Peromyscus maniculatus*
Parasitic mouse	*Peromyscus californicus*
Western harvest mouse	*Reithrodontomys megalotis*
California meadow vole	*Microtus californicus*
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*
ORDER CARNIVORA (Carnivores)	
FAMILY CANIDAE (Foxes, Wolves and Relatives)	
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*
San Joaquin kit fox	*Vulpes macrotis*
Domestic dog	*Canis familiaris*
FAMILY PROCYONIDAE (Raccoons and Relatives)	
Raccoon	*Procyon lotor*
Ringtail	*Bassariscus astutus*
FAMILY MUSTELIDAE (Weasels and Relatives)	
American badger	*Taxidea taxus*
FAMILY MEPHITIDAE (Skunks)	
Striped skunk	*Mephitis mephitis*
FAMILY FELIDAE (Cats)	
Feral cat	*Felis catus*
Mountain lion	*Puma concolor*

Bobcat *Lynx rufus*

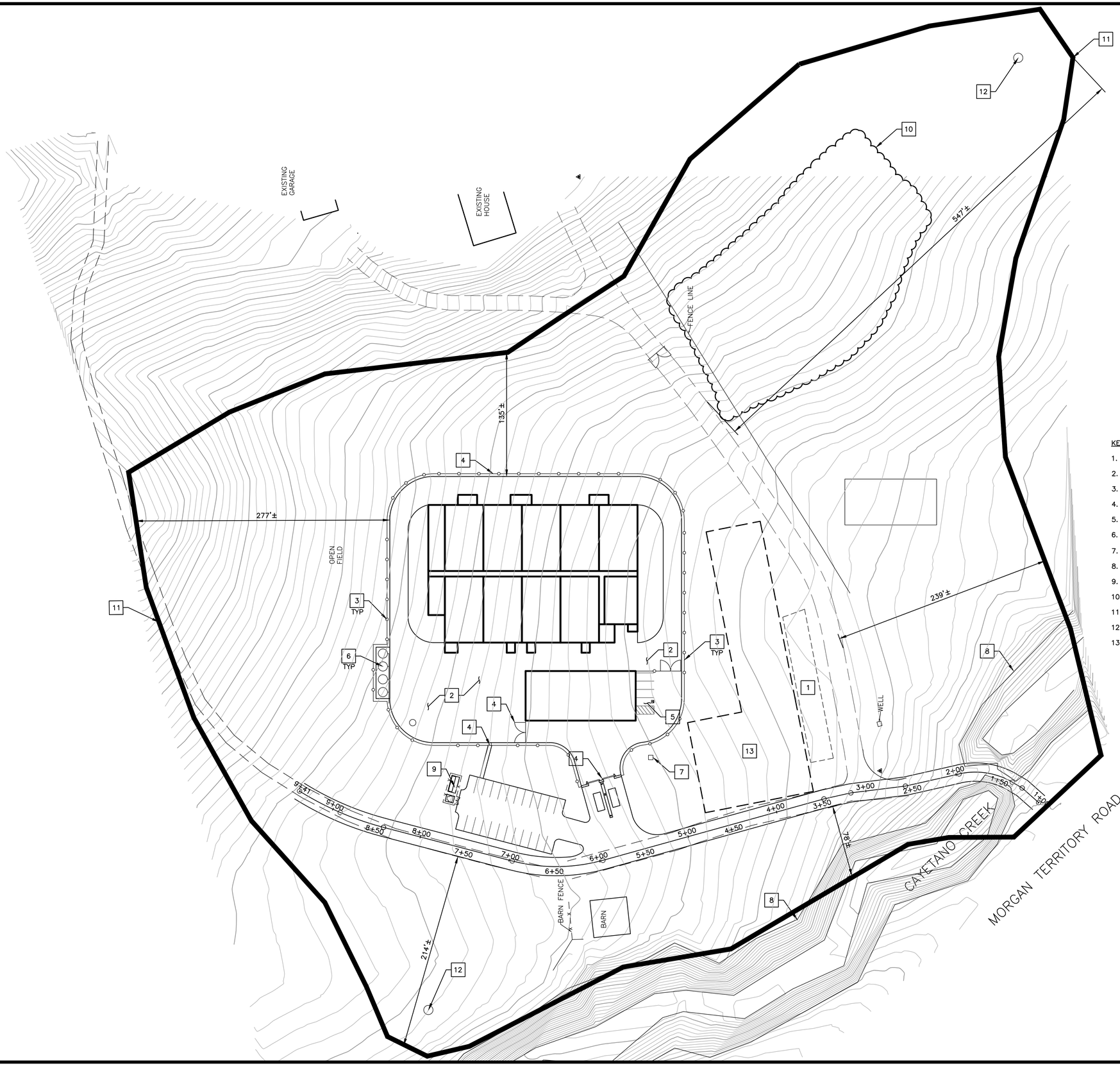
ORDER ARTIODACTYLA (Even-toed Ungulates)

SUBFAMILY BOVINIDAE (Cattle)

FAMILY CERVIDAE (Deer, Elk and Relatives)

Black-tailed deer *Odocoileus hemionus columbianus*

APPENDIX C: Site plans



GRAPHIC SCALE IN FEET

50 0 50 100

SCALE 1" = 50'

KEYNOTES

1. BIORETENTION AREA
2. ASPHALT PAVING
3. SECURITY FENCE
4. SECURITY GATE
5. ACCESSIBLE PARKING SPACE
6. FIRE STORAGE TANK
7. APPROXIMATE LOCATION OF (E) WELL
8. TOP OF CREEK
9. NEW ELECTRICAL TRANSFORMER AND SWITCHGEAR
10. APPROXIMATE LOCATION OF LEACH FIELD
11. AREA OF WORK
12. APPROXIMATE LOCATION OF PROPOSED WELL
13. CONSTRUCTION STAGING AREA

GREENWOOD & MOORE, INC
Civil Engineers • Designers
Land Surveyors • Planners
3111 Castro Valley Blvd., Ste. 200, Castro Valley, California, 94546
Tel: 510-581-2772 Fax: 510-581-6913 www.greenwoodmoore.com

OASIS IMPROVEMENTS
7033 MORGAN TERRITORY RD
LIVERMORE, CA 94550
903-0007-001-01

OVERALL SITE PLAN

CHECKED BY:	STAFF
DRAWN BY:	STAFF
SCALE:	1"=50'
DATE	09-19-2018
PROJECT NO.	2017.043
PHASE NO.	
SHEET NO.	C1.0

APPENDIX D: MINIMIZATION MEASURES FOR CALIFORNIA RED-LEGGED FROGS

The following measures will minimize direct and indirect impacts to California red-legged frogs.

1. Prior to the start of construction, a qualified biologist will train all project staff regarding habitat sensitivity, identification of special status species, and required practices. The training shall include the general measures that are being implemented to conserve these species as they relate to the project, the penalties for non-compliance, and the boundaries of the project area. A fact sheet or other supporting materials containing this information should be prepared and distributed. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.
2. A qualified biologist will survey the project site prior to, and be present to monitor, construction activities during any initial ground disturbance or vegetation clearing or other periods during construction, as necessary. The biologist will capture and relocate any California red-legged frogs that are discovered during the surveys or construction monitoring. Any individuals that are captured should be held for the minimum amount of time necessary to release them to suitable habitat outside of the work area.
3. A qualified biologist will stake and flag exclusion zones around all known locations of CRLF breeding and upland refugia areas in the construction zone. These areas will be avoided during construction activities to the maximum extent practicable. All construction areas will be flagged, and all activity will be confined to these areas.
4. If a CRLF is encountered during construction work, activities will cease until the animal is removed and relocated by a qualified biologist.
5. Construction activities should be limited to the period from May 1 through October 31.
6. Permanent and temporary construction disturbances and other types of project-related disturbances to CRLF habitat shall be minimized to the maximum extent practicable and confined to the project site. To minimize temporary disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, designated cross-country routes, and other designated areas. These areas also should be included in preconstruction surveys and, to the maximum extent possible, should be established in locations disturbed by previous activities to prevent further adverse effects. Sensitive

habitat areas shall be delineated with high visibility flagging or fencing to prevent encroachment of construction personnel and equipment into any sensitive areas during project work activities. At no time shall equipment or personnel be allowed to adversely affect areas outside the project site without authorization from the Service.

7. Because dusk and dawn are often the times when CRLF are most actively foraging and dispersing, all construction activities should cease one half hour before sunset and should not begin prior to one half hour before sunrise.
8. No canine or feline pets or firearms (except for federal, state, or local law enforcement officers and security personnel) shall be permitted at the project site to avoid harassment, killing, or injuring of CRLF.
9. A representative shall be appointed by the applicant who will be the contact source for any employee or contractor who might inadvertently kill or injure a CRLF or who finds a dead, injured or entrapped individual. The representative shall be identified during the tailgate/training session. The representative's name and telephone number shall be provided to the Service prior to the initiation of ground disturbance activities.
10. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes at the project site to ensure that CRLF do not get trapped.
11. A litter control program shall be instituted at the entire project site. All construction personnel should ensure that food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers should be removed from the project area at the end of each working day.

APPENDIX E: ADDITIONAL MINIMIZATION AND MITIGATION MEASURES FROM THE BIOLOGICAL OPINION FOR THE EAST ALAMEDA COUNTY CONSERVATION STRATEGY

PROGRAMMATIC BIOLOGICAL OPINION

FOR THE

EAST ALAMEDA COUNTY CONSERVATION STRATEGY

Suitability Criteria for Projects to be Appended to the Programmatic Biological Opinion

Actions that fall under this consultation are projects that may adversely affect the above mentioned listed species either by take of individuals, temporary disturbance or permanent loss of habitat, and/or temporary disturbance or permanent loss of critical habitat, but which nonetheless are not likely to jeopardize the continued existence of the listed species and are not likely to destroy or adversely modify critical habitat. In order for individual projects to be appended to this Programmatic BO, they must be consistent with the Conservation Strategy and have been reviewed by the Corps and Service via the procedure described above. Individual projects will be located within the Conservation Strategy Study Area and fall under the list of covered activities in this Programmatic BO. Projects that are not covered activities will not be appended to this Programmatic BO and will require individual formal consultation.

Projects will adhere to the maximum extent practicable the Project-Level Use of the Strategy and Conservation Goals and Objectives as outlined in Chapter 3 of the Conservation Strategy including the Generalized Avoidance and Minimization Measures to Reduce Effects on Focal Species, Species-Specific Avoidance and Minimization Measures, Standardized Mitigation Ratios for focal species, and Impact/Mitigation Scoring of Focal Species Habitat. Projects shall follow Conservation Priorities and Summary actions for their specific Conservation Zone as described in Chapter 4 of the Conservation Strategy. All of these sections have been summarized above.

Compensation for project effects should occur within the Conservation Strategy Study Area for the project to be appended to the Programmatic BO. Consistent with the Conservation Strategy, the Service will consider compensation outside of the Conservation Strategy Study Area on a case by case basis. Any projects wishing to use areas outside of the Conservation Strategy Study Area shall provide a biological rational for not compensating within the Conservation Strategy Study Area. The Service reserves the right to determine if the project and compensation is appropriate to append to this Programmatic BO.

BIOLOGICAL OPINION

Description of the Action

Covered Activities

Development Projects:

- Residential
- Commercial
- Industrial
- Parks
- Public Institutions
- Associated Infrastructure (roads, utilities) for new development and redevelopment
- Park Facilities: Security residences, service yards, staging areas, small interpretive

facilities, campgrounds, and picnic areas (includes utilities, fencing for facilities, water and septic, maintenance)

Infrastructure Projects:

- Power Infrastructure and maintenance (includes transmission lines): New and existing infrastructure; minor construction
- Road Construction and Maintenance: New and existing roads
- Trail Construction and Maintenance: New and existing trails
- Rail Construction and Maintenance: New and existing
- Weather Towers and Maintenance: New and existing towers
- Telecommunication Towers and Maintenance: New and existing towers
- Bridge Construction and Maintenance: New and existing bridges and ramps
- Solar Projects: Installation, operation, and maintenance
- Wind Energy Projects: Installation, operation, and maintenance. Avian and bat effects are not included in this consultation.
- Electrical Co-Generation Plants
- Flood Wall Installation
- Bank Stabilization
- Low Flow Crossings and Maintenance
- Levee Installation and Maintenance
- Sedimentation Basins Construction and Maintenance
- Water Detention Basins Construction and Maintenance
- Drainage Pump Station
- New Flood Control Channel: Excavation and construction
- Flood Control Facilities and Appurtenances
- Culvert Installation and Maintenance
- Grade Control Structures: Construction, maintenance, removal
- Water Diversion Structure Construction and Maintenance. The actual diversion of water is not included in this consultation.
- Retaining Walls
- Water Treatment Plants and Appurtenances
- Water Pipelines and Appurtenances
- Sewer/Wastewater Pipelines
- Pump Stations
- Sludge Beds
- Aqueduct and Transmission System Turnouts: Construction and maintenance.
- Wells: Production, monitoring, cathodic protection and injection.
- Water Storage Tanks: Construction and maintenance
- Water Spreading Basins: For groundwater recharge
- Stream Gage: Installation and repairs
- Recycled Water Projects: Irrigation, recharge
- Solid Waste Discharges: Soil disposal, stockpiles (uncontaminated)
- Groundwater remediation systems

Maintenance Projects:

- Sediment Removal: Flood control channel, basin, stock pond
- Debris Removal: For large trash and woody debris
- Dams and Other Water Impoundments (Existing): Maintenance. New construction or increases in capacity or size are not covered.
- Vegetation Management: Riparian, native, and control of invasive vegetation (dependent on application)

Restoration Projects:

- Pond and/or Stream Restoration/Enhancement/Construction
- Fish Barrier Removal and Modification
- Wetland Construction and Maintenance (if needed)
- Channel Reconfiguration to Increase Complexity for Floodplain Creation and Recontouring
- Species/Habitat Conservation/Restoration Projects

Enforcement Actions:

- Actions Related to Regulatory Enforcement (Act, National Environmental Policy Act California Endangered Species Act, California Environmental Quality Act, Clean Water Act, etc...)

Certain activities will be covered as part of a long term management plan for conservation areas that are managed for listed species as compensation for project effects. These activities may include but are not limited to: integrated pest management, vegetation management, grazing, species surveys, conservation area enhancement actions, fence installation and maintenance, grazing water supply infrastructure installation and maintenance, and pond maintenance.

Minimization Measures

To the maximum extent practicable, projects authorized under this Programmatic BO will be designed and implemented in such a way as to minimize adverse effects to listed species and/or their habitat. To achieve that purpose, the projects will follow the Focal Species Goals and Objectives as described in Chapter 3 of the Conservation Strategy, Generalized Avoidance and Minimization Measures to Reduce Effects on Focal Species (Appendix A of this Programmatic BO and Table 3-2 in the Conservation Strategy), Species-Specific Avoidance and Minimization Measures (Appendix B of this Programmatic BO and Table 3-3 in the Conservation Strategy), Standardized Mitigation Ratios (Appendix C of this Programmatic BO and Table 3-4 in the Conservation Strategy), and Impact/Mitigation Scoring of Focal Species Habitat (Appendix D of this Programmatic BO and Appendix E in the Conservation Strategy).

In addition to the measures in the Conservation Strategy and discussed above, the Service has added the following general and species specific minimization measures. The Service recognizes that not all projects will require all of these measures. The applicant may request modification of these measures, if applicable. However, these measures below will be implemented unless

otherwise modified or waived by the Service in writing.

General Minimization Measures

1. At least 15 days prior to any ground disturbing activities, the applicant will submit to the Service for review and approval the qualifications of the proposed biological monitor(s). A qualified biological monitor means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the listed species.

2. A Service-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for listed species. The Service-approved biological monitor(s) will be given the authority to stop any work that may result in the take of listed species. If the Service-approved biological monitor(s) exercises this authority, the Service will be notified by telephone and electronic mail within one working day. The Service-approved biological monitor will be the contact for any employee or contractor who might inadvertently kill or injure a listed species or anyone who finds a dead, injured or entrapped individual. The Service-approved biological monitor will possess a working wireless/mobile phone whose number will be provided to the Service.

3. Prior to construction, a construction employee education program will be conducted in reference to potential listed species on site. At minimum, the program will consist of a brief presentation by persons knowledgeable in endangered species biology and legislative protection (Service-approved biologist) to explain concerns to contractors, their employees, and agency personnel involved in the project. The program will include: a description of the species and their habitat needs; any reports of occurrences in the project area; an explanation of the status of each listed species and their protection under the Act; and a list of measures being taken to reduce effects to the species during construction and implementation. Fact sheets conveying this information and an educational brochure containing color photographs of all listed species in the work area(s) will be prepared for distribution to the above-mentioned people and anyone else who may enter the project area. A list of employees who attend the training sessions will be maintained by the applicant to be made available for review by the Service upon request. Contractor training will be incorporated into construction contracts and will be a component of weekly project meetings.

4. Preconstruction surveys for listed species will be performed immediately prior to groundbreaking activities. Surveys will be conducted by Service-approved biologists. If at any point, construction activities cease for more than five consecutive days, additional preconstruction surveys will be conducted prior to the resumption of these actions.

5. To prevent the accidental entrapment of listed species during construction, all excavated holes or trenches deeper than 6 inches will be covered at the end of each work day with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped at the end of the work day to allow trapped animals an

escape method. Prior to the filling of such holes, these areas will be thoroughly inspected for listed species by Service-approved biologists. In the event of a trapped animal is observed, construction will cease until the individual has been relocated to an appropriate location.

6. Translocation will be approved on a project specific basis. The applicant will prepare a listed species translocation plan for the project to be reviewed and approved by the Service prior to project implementation. The plan will include trapping and translocation methods, translocation site, and post translocation monitoring.

7. Only Service-approved biologists will conduct surveys and move listed species.

8. All trash and debris within the work area will be placed in containers with secure lids before the end of each work day in order to reduce the likelihood of predators being attracted to the site by discarded food rappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.

9. All vegetation which obscures the observation of wildlife movement within the affected areas containing or immediately adjacent aquatic habitats will be completely removed by hand just prior to the initiation of grading to remove cover that might be used by listed species. The Service-approved biologist will survey these areas immediately prior to vegetation removal to find, capture and relocate any observed listed species, as approved by the Service.

10. All construction activities must cease one half hour before sunset and should not begin prior to one half hour after sunrise. There will be no nighttime construction.

11. Grading and construction will be limited to the dry season, typically May-October.

12. Best Management Practices (BMPs) will be used to minimize erosion and impacts to water quality and effects to aquatic habitat. If necessary, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared.

13. The applicant will ensure a readily available copy of this biological opinion is maintained by the construction foreman/manager on the project site whenever earthmoving and/or construction is taking place. The name and telephone number of the construction foreman/manager will be provided to the Service prior to groundbreaking.

14. The construction area shall be delineated with high visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside of the construction area. Such fencing shall be inspected and maintained daily until completion of the project. The fencing will be removed only when all construction equipment is removed from the site.

15. Silt fencing or wildlife exclusion fencing will be used to prevent listed species from entering the project area. Exclusion fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface. The fence will be pulled taut at each support to prevent folds or snags. Fencing shall be installed and maintained in good condition during all construction activities. Such fencing shall be inspected and maintained daily until completion of the project. The fencing will be removed only when all construction equipment is removed from the site.

16. A Service-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project areas shall be removed.

17. Project sites shall be revegetated with an appropriate assemblage of native riparian wetland and upland vegetation suitable for the area. A species list and restoration and monitoring plan shall be included with the project proposal for review and approval by the Service and the Corps. Such a plan must include, but not be limited to, location of the restoration, species to be used, restoration techniques, time of year the work will be done, identifiable success criteria for completion, and remedial actions if the success criteria are not achieved.

18. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

19. A Service-approved biologist shall permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The applicant shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

Callippe Silverspot Butterfly

1. Preconstruction surveys for the larval food plants of callippe silverspot butterfly will be conducted during typical bloom season during a period from January through April. Any larval food plants found within 300 feet of the project footprint will be clearly marked with pin flagging. Flagged areas will be avoided to the maximum extent practicable and if possible, fenced for avoidance. In addition, orange fencing will be placed along the edge of the work area near any larval food plants to prevent workers and vehicles from entering this area.

2. The applicant and contractors will minimize generation and movement of construction-

related dust through BMPs and SWPPP provisions, such as those that would be conditioned by the SFBRWQCB and Bay Area Air Quality Management District. Specifically, contracts would enforce prudent site watering and application of nontoxic soil stabilizers. The amount of watering will be monitored to ensure polluted runoff from roads does not occur (roads will not be over-watered).

California Red-Legged Frog

1. A Service-approved biologist shall survey the work site immediately prior to construction activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists as provided in the relocation plan. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

2. Bare hands shall be used to capture California red-legged frogs. Service-approved biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, Service-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice."

Central California Tiger Salamander

1. A Service-approved biologist shall survey the work site immediately prior to construction activities. If Central California tiger salamanders, larvae, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists as provided in the relocation plan. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move Central California tiger salamanders from the work site before work activities begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of Central California tiger salamanders.

2. Bare hands shall be used to capture Central California tiger salamanders. Service-approved biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, Service-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice."

San Joaquin Kit Fox

1. A qualified Service-approved biologist will conduct a preconstruction survey no more than 30 days before the beginning of ground disturbance or any activity likely to affect San Joaquin kit fox. This measure will be implemented in all off-road construction areas. The biologist will survey the proposed construction area and a 200-foot buffer area around the construction area to identify suitable dens. The biologist will conduct den searches by systematically walking transects spaced 30-100 feet apart through the survey area. Transect distance should be determined on the basis of the height of vegetation such that 100 percent visual coverage of the project area is achieved. If dens are found during the survey, the biologist will map the location of each den as well as record the size and shape of the den entrance; the presence of tracks, scat, and prey remains; and if the den was recently excavated. The biologist will also record information on prey availability (e.g., ground squirrel colonies). The status of the den as defined by the Service should also be determined and recorded. Dens will be classified in one of the following four den status categories:

    a. Potential den: Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is sufficient to conclude that it is being used or has been used by a San Joaquin kit fox. Potential dens comprise: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for San Joaquin kit fox use.

    b. Known den: Any existing natural den or artificial structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records; past or current radio telemetry or spotlighting data; San Joaquin kit fox signs such as tracks, scat, and/or prey remains; or other reasonable proof that a given den is being or has been used by a San Joaquin kit fox.

    c. Natal or pupping den: Any den used by San Joaquin kit fox to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more San Joaquin kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which San Joaquin kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two; therefore, for purposes of this definition either term applies.

    d. Atypical den: Any artificial structure that has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

Written results of the surveys will be submitted to the Service within one week of the completion of surveys and prior to the beginning of ground disturbance and/or construction activities likely to affect San Joaquin kit fox.

2. After preconstruction den searches and before the commencement of construction activities, a qualified Service-approved biologist will establish and maintain the following exclusion zones measured in a radius outward from the entrance or cluster of entrances of each den.

    a. Potential and atypical dens: A total of 4-5 flagged stakes will be placed 50 feet from the den entrance to identify the den location.

    b. Known den: Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den.

    c. Natal/pupping den: The Service will be contacted immediately if a natal or pupping den is discovered at or within 200 feet from the boundary of the construction area.

    d. Construction and other project activities will be prohibited or greatly restricted within these exclusion zones. Only essential vehicular operation on existing roads and foot traffic should be permitted and articulated to the Service. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited in the exclusion zones.

    e. In cases where avoidance is not a reasonable alternative, limited destruction of potential San Joaquin kit fox dens will be allowed. Potential dens can be removed by careful hand excavation by a Service-approved biologist or under the supervision of a Service-approved biologist, after the dens have been monitored for three days with tracking medium or a remote sensor camera and determined to be vacant of San Joaquin kit foxes. If, during excavation or monitoring, a potential den is determined to be currently or previously used (e.g., San Joaquin kit fox sign found inside) by San Joaquin kit fox, then destruction of the den or construction in that area will cease and the Service will be notified immediately.

3. Vehicle traffic will be restricted to established roads, construction areas, and other designated areas.

4. Grading activities shall be designed to minimize or eliminate effects to rodent burrows. Areas with high concentrations of burrows and large burrows suitable for San Joaquin kit fox dens shall be avoided by grading activities to the maximum extent possible. In

addition, when concentrations of burrows or large burrows are observed within the site these areas shall be staked and flagged to ensure construction personnel are aware of their location and to facilitate avoidance of these areas.

5. Compensate for the loss of San Joaquin kit foxes and suitable habitat by protecting occupied habitat and/or restoring suitable habitat to establish and maintain San Joaquin kit fox presence.

Palmate-Bracted Bird's-Beak

1. Prior to any ground disturbance in the project area, if feasible, all seasonal wetlands and areas containing palmate-bracted bird's-beak, and any suitable habitat will be staked or flagged and a temporary barrier (silt fencing, etc.) will be constructed.

Compensation/Mitigation

Compensation/mitigation in this Programmatic BO is only to minimize adverse effects to the above named federally listed species. This section does not cover mitigation for effects/impacts to state listed species or waters regulated by the Corps or SFBRWQCB.

As stated in the Suitability Criteria, compensation should occur within the Conservation Strategy Study Area. Compensation shall be identified and approved prior to project commencement. Ideally, compensation should be implemented prior to project commencement. If the land acquisition is not acquired and protected prior to project effects, financial assurances will be provided to the Service and a strict timeline for conservation easement recordation and management will be implemented.

Compensation for permanent effects to listed species and habitat can occur through buying credits at a Service-approved conservation/mitigation bank or land acquisition, management, and protection. Species presence must be established and documented on the compensation site. The conservation property will be free of all liens and incompatible leases and easements or they will be terminated or subordinated to the conservation easement. Geological Hazard Abatement Districts will not be allowed to be established on compensation areas, manage compensation sites, or fund endowments for the management of listed species habitat. Compensation sites will follow the Conservation Priorities and mitigation ratios in the Conservation Strategy for the listed species affected by the project and will be subject to success requirements.

Compensation for temporary effects is similar to compensation for permanent effects discussed above with the exception that the affected areas need to be restored to pre-project conditions within 12 months from the commencement of the activity. In addition to restoration, compensation will occur at a 1:1 ratio at a Service-approved conservation/mitigation bank or through land acquisition, management, and protection. Projects that require longer than 12 months from the commencement of the activity to restore their effects will be considered to have permanent effects and will be required to use the standardized mitigation ratios.

Land acquisition can either be in fee title with a permanent conservation easement placed on the property or through a permanent conservation easement without holding fee title. A Service-approved recorded conservation easement is required and a copy will be provided to the Service prior to project implementation or within the specific approved timeframe. A Service-approved resource management plan and long-term maintenance and monitoring endowment must be established. The applicant is required to obtain the approval of the conservation easement holder, land manager, and endowment holder of the compensation area.

Appendix F of the Conservation Strategy provides examples of what the Service requires for compensation (conservation easement template, management plan template, requirements for off-site compensation, performance securities). The Service periodically revises these documents. Contact the Sacramento Fish and Wildlife Office for the most recent templates and guidance (916-414-6600; http://www.fws.gov/sacramento/).

Reporting and Notification

In order to verify compliance with the Programmatic BO, the project applicant will be required to submit reports during various stages of project implementation. Applicants with projects that have relatively small effects or are limited in scope and duration can request the Service waive this requirement. The Service will be notified immediately in writing if the project is not in compliance with the Programmatic BO and/or the accompanying letter appending the project to the Programmatic BO. Documentation will be provided to the Service verifying compliance with pre-project minimization measures no later than 14 calendar days before project implementation.

The applicant will provide monthly compliance and status reports to the Service during construction documenting: (1) dates that construction occurred; (2) photo documentation of construction and applicable minimization measures; (3) pertinent information concerning the success of the project in meeting minimization measures including status of the compensation; (4) an explanation of failure to meet such measures, if any; (5) known project effects on listed species, if any; (6)occurrences of incidental take of listed species, if any; (7) documentation of employee environmental education; and (8) other pertinent information. Applicants with projects that have relatively small effects or are limited in scope and duration can request the Service waive this requirement.

The applicant will submit a post-construction compliance report prepared by the Service-approved biologist to the Sacramento Fish and Wildlife Office within 30 calendar days of the date of the completion of construction activity. This report will compile the monthly reports and detail: (1) dates that construction occurred; (2) photo documentation of construction and applicable minimization measures; (3) pertinent information concerning the success of the project in meeting minimization measures including status of the compensation; (4) an explanation of failure to meet such measures, if any; (5) known project effects on listed species, if any; (5) occurrences of incidental take of listed species, if any; (7) documentation of employee environmental education; (8) as built drawings for the project and any compensation/mitigation features; and (9) other pertinent information.

The Service must be notified within one (1) working day of the finding of any injured listed species or any unanticipated damage to its habitat associated with the proposed project. Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Notification must include the date, time, and precise location of the individual/incident clearly indicated on a United States Geological Survey 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. Dead individuals must be sealed in a sealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site. The Service contact persons are the Coast Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Division of Law Enforcement, 2800 Cottage Way, Room W-2928, Sacramento, California 95825, at (916) 414-6660.

Non-Compliance and Remedial Actions

Projects that are not in compliance with the Programmatic BO and the accompanying letter appending the project to the Programmatic BO will be required to correct the matter(s) immediately and provide additional compensation. The amount of additional compensation will be determined on case-by-case basis but will be subject to the same requirements as the original compensation. The amount of remedial compensation will increase commensurate with the degree of the violation and the amount of time the project is out of compliance.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment, the action area is the Conservation Strategy Study Area encompassing 271,485 acres in eastern Alameda County, California. The western boundary runs along the Alameda Creek watershed boundary which encompasses small portions of the cities of Fremont, Union City, and Hayward, though those jurisdictions were not formally part of the planning process. The northern, southern, and eastern boundaries follow the Alameda County line with Contra Costa County, Santa Clara County, and San Joaquin County, respectively (Figure 1-1).

Analytical Framework for the Jeopardy and Adverse Modification Analyses

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Programmatic BO relies on four components: (1) the Status of the Species, which evaluates the longhorn fairy shrimp, vernal pool fairy shrimp, callippe silverspot butterfly, California red-legged frog, Central California tiger salamander, Alameda whipsnake, San Joaquin kit fox, and palmate-bracted bird's-beak's range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the Environmental Baseline, which evaluates the condition of the eight