

**Arroyo Road Over Dry Creek Bridge Project  
(Bridge Number 33C-0448) NES**



**Natural Environment Study**

Alameda County, California

Caltrans District 4

Federal Aid #: BRLO-5933 (138)

**December 2022**



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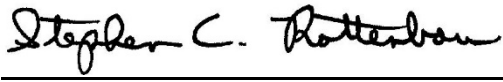
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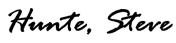
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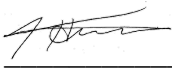
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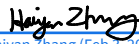
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## Summary

### Project Description

The Arroyo Road over Dry Creek Bridge Project (“Project”) proposes the replacement of the existing bridge (Bridge Number 33C-0448) over Dry Creek on Arroyo Road near Livermore, Alameda County. The replacement bridge would be a cast-in-place, reinforced concrete, single-span slab bridge that will accommodate two travel lanes plus shoulders and traffic-rated vehicular barriers to meet Caltrans Highway Design Manual standards. The bridge will also accommodate a 12-foot (ft) wide Class I bike path separated from traffic by an interior vehicular traffic rated barrier. The replacement structure will be 34 ft long and will be supported by integral diaphragm type abutments on deep foundations.

The roadway profile will be raised approximately 2 ft to meet hydraulic and geometric requirements. To accommodate the raised profile, wider bridge structure, and longer span, the roadway centerline at the bridge will be shifted to the southwest to maintain traffic throughout construction while balancing impacts from slopes encroaching upon agricultural land (vineyard) to the northwest, an open space park to the southwest, grazing land to the northeast, and a golf course to the southeast. The access driveway will be reconstructed to connect into the raised roadway.

The biological study area (BSA) encompasses the area of anticipated permanent and temporary construction impact areas for the Project and extends 50 ft beyond impact areas in all directions in order to characterize adjacent habitats that may be indirectly impacted by Project activities, and which may also support special-status species.

The Project sponsor is the Alameda County Public Works Agency. The Project is funded primarily through the state set-aside of Federal funds for the Highway Bridge Program, as administered through Caltrans Local Assistance. The Class I Bike Path will be funded using local dollars.

### Project Impacts on Sensitive Biotic Habitats

Seven habitat types were identified within the 9.32-acre (ac) BSA: California annual grassland/ruderal grassland (4.38 ac); developed (2.83 ac); vineyard (0.68 ac); golf course (0.60 ac); riparian grassland (0.53 ac); riverine (0.27 ac); and pond (0.03 ac).

Permanent direct effects on sensitive biotic habitats would occur from Project actions, including permanent impacts on up to 0.89 ac of California annual grassland/ruderal grassland, 0.17 ac of riparian grassland, and 0.11 ac of riverine habitat consisting of an ephemeral stream. These impacts would result from tree removal, grading, realignment and raising of roadway, and construction of the replacement bridge.

Approximately 1.75 ac of California annual grassland/ruderal grassland, 0.13 ac of riparian grassland, and 0.07 ac of riverine habitat will be temporarily impacted during construction due to temporary construction access and temporary staging during Project activities.

No substantial effects on water drainage or on the contributing watershed are anticipated to occur from Project implementation. With the implementation of measures designed to avoid and minimize impacts to water quality, no substantial effects on water quality within Dry Creek would occur as a result of Project implementation. From a biological perspective, the impacts to Dry Creek and sensitive riparian habitats are not expected to substantially impact the functions or values of the aquatic habitats, as the Project will adopt all necessary avoidance and minimization methods (AMMs), including the General Construction Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit, General Construction permit, and the East Alameda County Conservation Strategy (EACCS) AMM standards. Nevertheless, mitigation will be provided via preservation, enhancement, and management of replacement habitat as per EACCS guidelines, with ratios for preservation and enhancement based on the linear feet of permanent impacts to streams.

### **Special-Status Plant Species**

Several special-status plant species are known to occur in the Project region. All of these plants are associated with habitat types that do not occur within the BSA, occur at elevations outside of the range of elevations in the BSA, are present on specific soil types or microhabitats that do not occur within the BSA, or are absent from the BSA due to disturbance or local extirpation. Thus, special-status plants are not expected to occur within the BSA and are therefore not expected to be adversely impacted by the Project.

### **Special-Status Animal Species**

A number of special-status animal species are known to occur in the Project region, but many are not expected to occur in the BSA because of the lack of suitable habitat and/or because the BSA is outside of the known range of the species. Several special-status wildlife species that occur in the Project region may occur within the BSA only as uncommon to rare visitors, migrants, or transients; these species are not expected to reside or breed on the site, to occur in large numbers, or otherwise to make substantial use of the site. They include the tricolored blackbird (*Agelaius tricolor*), yellow warbler (*Setophaga petechia*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle (*Aquila chrysaetos*), San Joaquin kit fox (*Vulpes macrotis mutica*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Other wildlife species, which occur in habitats within or adjacent to the BSA and could potentially be affected by the Project, are the monarch butterfly (*Danaus plexippus*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), coast horned lizard (*Phrynosoma blainvillii*), southwestern pond turtle (*Actinemys pallida*), burrowing owl (*Athene*

*cunicularia*), loggerhead shrike (*Lanius ludovicianus*), white-tailed kite (*Elanus leucurus*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and American badger (*Taxidea taxus*).

### **Presence of Invasive Non-native Plant Species**

Twelve invasive plant species were observed within or adjacent to the BSA. These include 11 species with a California Invasive Pest Council (Cal-IPC) rating of limited or moderate invasiveness and potential for ecological impact: Italian thistle (*Carduus pycnocephalus*), stinkwort (*Dittrichia graveolens*), bristly ox-tongue (*Helminthotheca echioides*), milk thistle (*Silybum marianum*), shortpod mustard (*Hirschfeldia incana*), smilo grass (*Stipa miliacea*), wild oat (*Avena fatua*), riggut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), curly dock (*Rumex crispus*), and Japanese flowering cherry (*Prunus serrulata*). One species has a Cal-IPC rating of high invasiveness and potential for ecological impact: yellow star thistle (*Centaurea solstitialis*). The spread of existing weeds resulting from Project actions would be avoided by implementing specific weed control measures such as seeding disturbed areas with a fast-growing native seed mix. Additionally, all machinery would be washed prior to entering the BSA and before being used at another construction site.

### **Permits Required**

In-stream work up to the ordinary high water mark of Dry Creek will require a Section 404 permit (likely a Nationwide Permit) from the U.S. Army Corps of Engineers and a Section 401 water quality certification from the Regional Water Quality Control Board. Additionally, work within the channel of Dry Creek and riparian habitat will require a Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code. Incidental take approval from the U.S. Fish and Wildlife Service (USFWS) will be needed due to the potential for the Project to result in take of the California tiger salamander and California red-legged frog, which are listed under the Federal Endangered Species Act (i.e., the Project is likely to adversely affect these species). As a result, Section 7 consultation with the USFWS is expected to be necessary. Caltrans, with its delegated National Environmental Policy Act (NEPA) authority, is the lead federal agency for Section 7 consultation. It is likely that an ITP from the CDFW will be needed due to the potential for the Project to result in take of the California tiger salamander, which is also listed under the California Endangered Species Act.

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### Acronyms List

AASHTO	American Association of State Highway and Transportation Officials
ac	acre(s)
BMPs	best management practices
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife

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CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CLC	California Land Conservation
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Alameda County
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EACCS	East Alameda County Conservation Strategy
EFH	Essential Fish Habitat
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMP	Fisheries Management Plan
ft	feet/foot
HBP	Highway Bridge Program
In	linear
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
mi	mile(s)
OHWM	ordinary high water mark
PBO	Programmatic Biological Opinion
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
Porter-Cologne Project	Porter-Cologne Water Quality Control Act Arroyo Road over Dry Creek Bridge Project
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USACE	U. S. Army Corps of Engineers
USFWS	U. S. Fish and Wildlife Service
USGS	U. S. Geological Survey
WOPA	Wetlands Only Practicable Alternative

## Chapter 1. Introduction

The Alameda County (County) Public Works Agency is proposing to replace the structurally deficient Arroyo Road over Dry Creek Bridge (Bridge Number 33C-0448) with a new bridge that meets current applicable County, American Association of State Highway and Transportation Officials (AASHTO), and Caltrans design criteria and standards. In addition to the new bridge, the Project will ensure the roadway through the Project limits meets current County, AASHTO, and Caltrans standards and will provide a Class I bike path over the bridge. The Project is funded primarily through the state set-aside of Federal funds for the Highway Bridge Program (HBP), as administered through Caltrans Local Assistance. The Class I Bike Path will be funded using local dollars.

H. T. Harvey & Associates conducted a background review and field surveys for the Project on February 18 and 19, 2020. Based on these studies and information about the Project received through July 2022, H. T. Harvey & Associates drafted this Natural Environment Study (NES). All documents were compiled according to template guidelines prepared by Caltrans. Caltrans has assumed Federal Highway Administration (FHWA) responsibility for environmental review, consultation, and coordination on this Project, as assigned by FHWA pursuant to 23 USC 327. Caltrans will also act as the lead federal agency under Section 7 of the Federal Endangered Species Act (FESA).

### 1.1. Project History

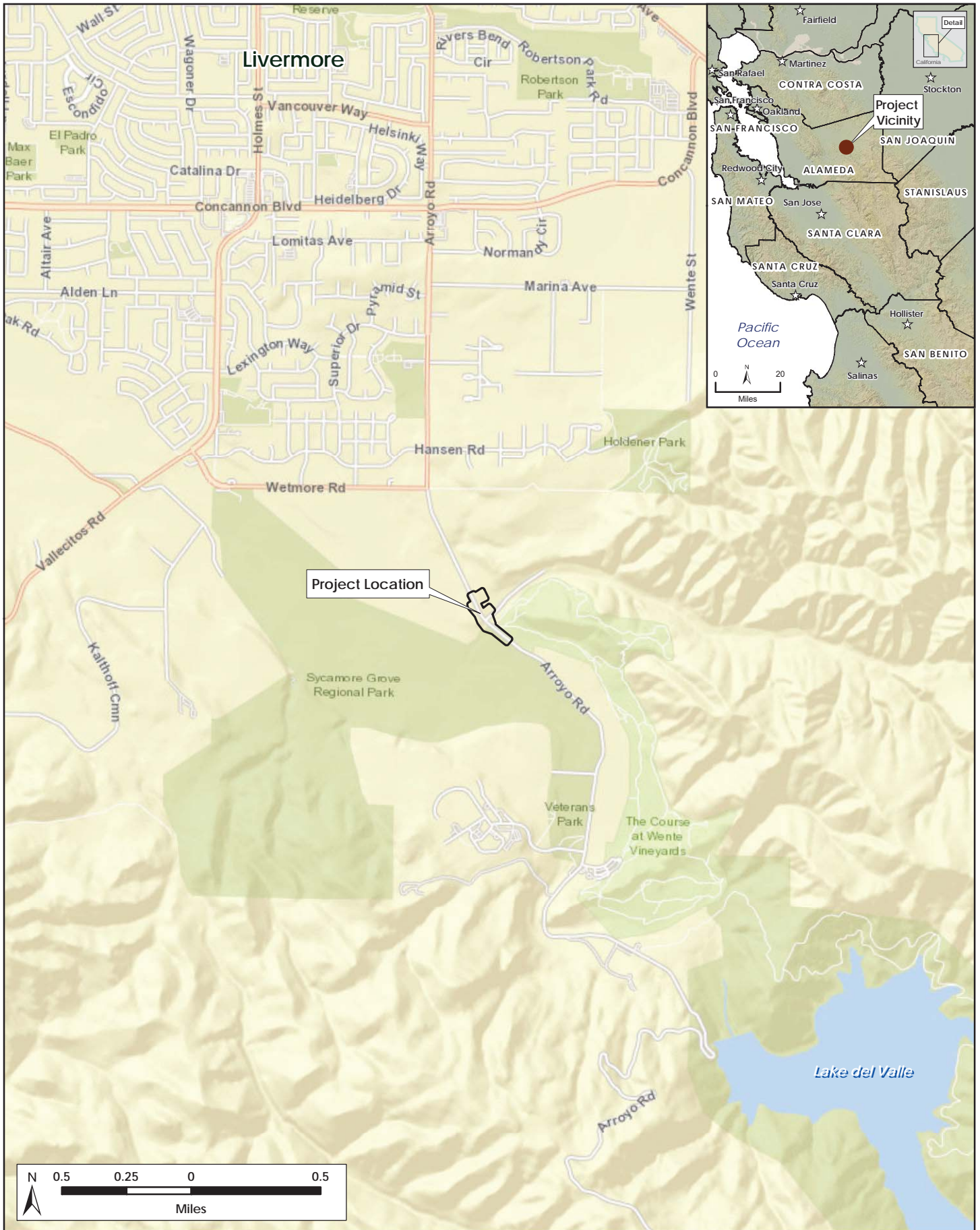
#### 1.1.1. Project Purpose and Need

The purpose of the Project is to provide a safe crossing over Dry Creek on Arroyo Road, given the existing bridge is functionally obsolete and nearing the end of its useful life. The need for the Project is that the existing bridge is deteriorating and is too narrow for current and future traffic volumes.

### 1.2. Project Description

#### 1.2.1. Project Location

The Project is located in a rural area of Alameda County, Township 03S, Range R02, in the *Livermore, California* U.S. Geological Survey (USGS) quadrangle. No Section number is associated with the Project location. The existing bridge crosses Dry Creek on Arroyo Road in Alameda County, California (Figure 1). Surrounding land uses include agricultural, residential, commercial, and regional park land uses. Arroyo Road follows an approximate northwest-southeast alignment and is classified as a local rural road. The future Average Daily Traffic estimate is 6,206 as listed on the current Caltrans Bridge Inspection Report. Arroyo Road serves as the single point of access across Dry Creek for all points south, including large commercial agricultural/ranching parcels, a golf course, Department of Veteran Affairs health care services complex, a camp,



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recreational parks, and reservoir facilities. Specific land use conditions are noted for the following parcels adjoining the Project site:

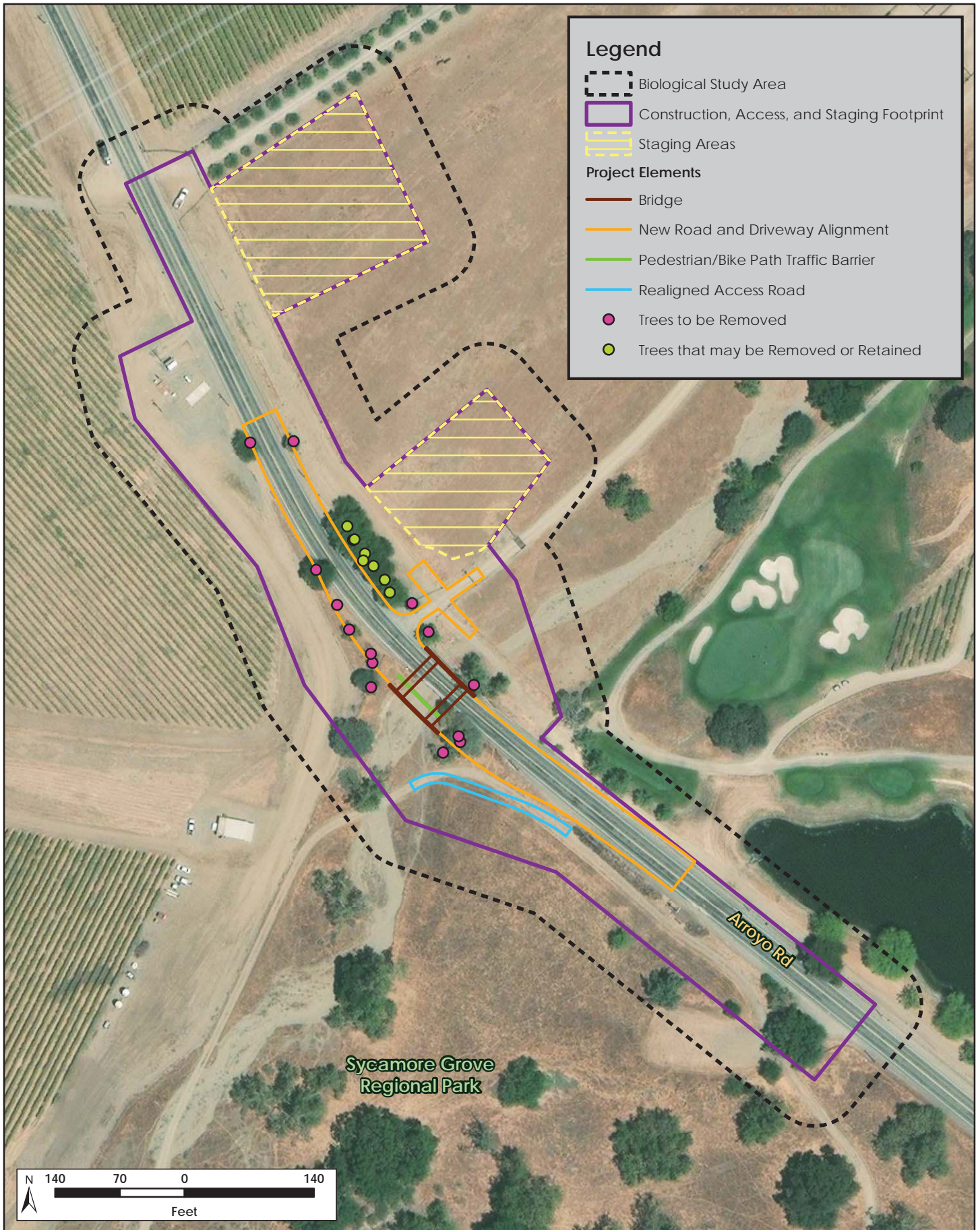
- Wente Bros, northwest (APN 099-0500-001-03): California Land Conservation (CLC) (Williamson) Act contract, and South Livermore Valley Agricultural Land Trust
- Wente Land & Cattle Co, northeast (APN 099-0625-002-01): CLC (Williamson) Act contract
- Cresta Blanca Golf, LLC, southeast (APN 099-0625-002-03): CLC (Williamson) Act contract

The existing concrete-encased steel girder bridge is a 25-foot (ft) long single span structure consisting of two 10-ft wide traffic lanes and narrow 1-ft wide shoulders, one lane traveling in each direction. A separate timber pedestrian walkway is present along the east side of the bridge. The existing geometry of the road provides limited sight distance at the bridge due to profile and alignment constraints. Safety features for the structure, such as railing and guardrail, do not meet current standards.

Within the Project area, Dry Creek is a natural watercourse with uncontrolled flows. The majority of the year the creek does not contain water. During peak rainfall events, the bridge constricts the flow at the crossing, the creek overtops the south channel bank, and the water flows across the south approach roadway.

A private gated access driveway connects to Arroyo Road immediately northeast of the bridge. Additional private frontage roads north of the bridge parallel Arroyo Road on each side.

A Project site plan, which includes Project elements within permanent impact areas is shown on Figure 2. The Project plans and communications with the Project engineer (Wood Rodgers Inc.) and planner (David J. Powers & Associates) were used to determine the limits of the Project's Biological Study Area (BSA), which encompasses the area of anticipated permanent and temporary construction impacts for the Project. The Project impact areas within the BSA include portions of the Dry Creek channel, portions of the associated riparian grassland, and California annual grasslands as shown in Figure 3.

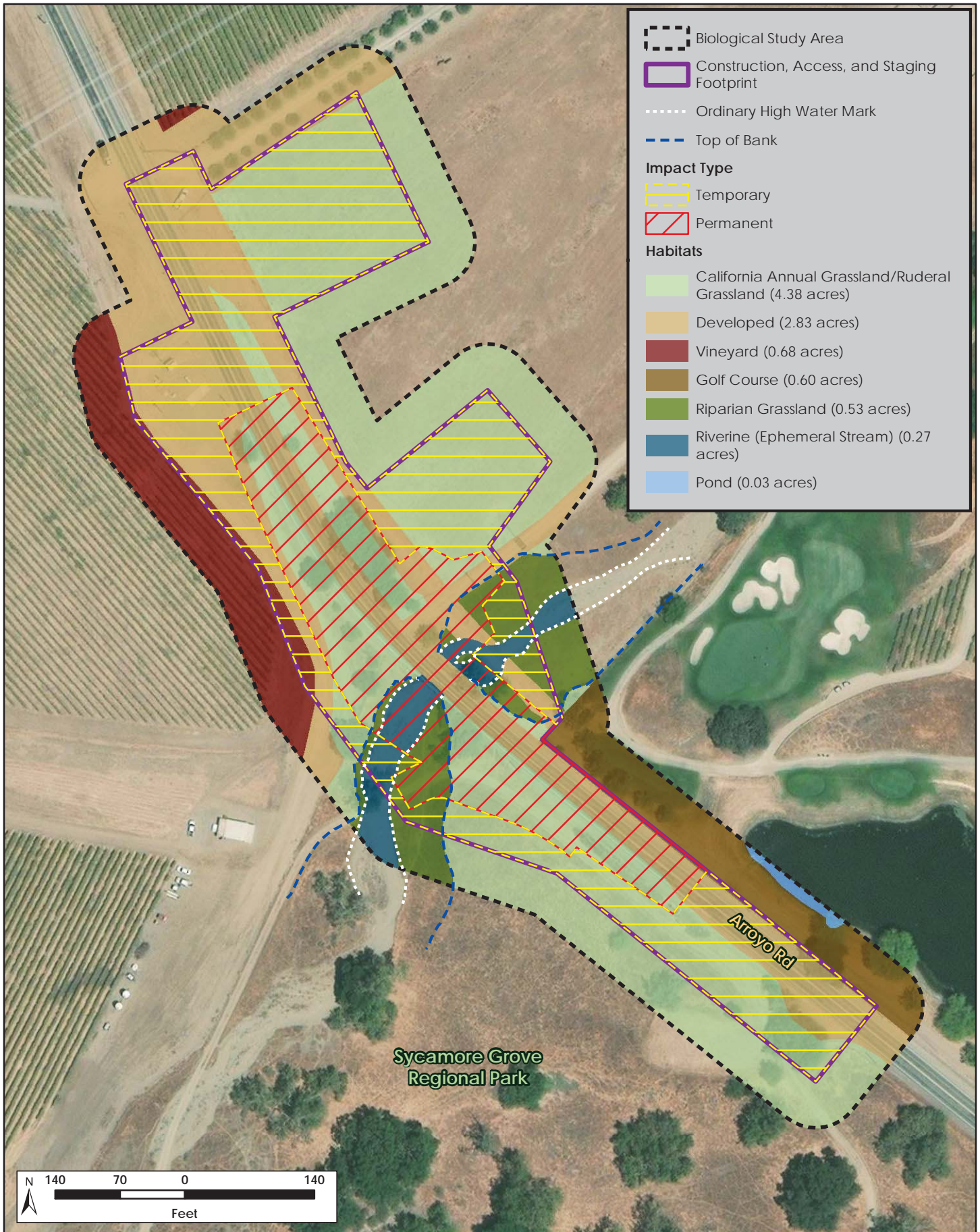


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**H. T. HARVEY & ASSOCIATES**  
Ecological Consultants

**Figure 2. Project Site Plan**  
Arroyo Road Over Dry Creek Bridge Project – Natural Environment Study (4405-01)  
December 2022



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**Figure 3. Habitats and Project Impact Areas**  
Arroyo Road Over Dry Creek Bridge Project – Natural Environment Study (4405-01)  
December 2022

### 1.2.2. Project Description

The proposed Project is the replacement of the existing Dry Creek Bridge. The replacement bridge will be a cast-in-place, reinforced concrete, single-span slab bridge that will accommodate two travel lanes plus shoulders and traffic rated vehicular barriers to meet Caltrans Highway Design Manual standards. The bridge will also accommodate a 12-ft wide Class I bike path separated from traffic by an interior vehicular traffic rated barrier. The replacement structure will be 34 ft long and will be supported by integral diaphragm type abutments on deep foundations.

The roadway profile will be raised approximately 2 ft to meet hydraulic and geometric requirements. To accommodate the raised profile, wider bridge structure, and longer span, the roadway centerline at the bridge will be shifted to the southwest to maintain traffic throughout construction while balancing impacts from slopes encroaching upon agricultural land (vineyard) to the northwest, the Livermore Area Recreation and Park District's Sycamore Grove Park to the southwest, and grazing land to the northeast.

An access driveway to agricultural and pasture areas, located immediately north of the existing bridge will be reconstructed to connect into the raised roadway.

#### 1.2.2.1. Right of Way

Based on a preliminary records search, Arroyo Road is within a 40-ft wide recorded Alameda County right of way. Due to widening of the bridge and slight horizontal realignment of the road through the Project site, permanent right of way acquisition will be required from the following two parcels:

- Wente Bros (APN 099-0500-001-03), located northwest of the bridge
- Livermore Area Recreation & Park District (APN 099-0500-001-08), located southwest of the bridge

Temporary construction easements will be needed from the following parcels to construct the proposed improvements and access driveway and to remove the existing bridge:

- Wente Bros (APN 099-0500-001-03), located northwest of the bridge
- Livermore Area Recreation & Park District (APN 099-0500-001-08), located southwest of the bridge
- Wente Land & Cattle Co (APN 099-0625-002-01), located northeast of the bridge

Acquisitions and easements will not require relocation of residences or businesses.



### **1.2.2.2. Utilities**

Overhead electric lines on wooden poles run along the southwest side of the roadway, and overhead telecommunication lines on wooden poles run along the northeast side of the roadway. There is an abandoned underground waterline along the northeast side of the roadway, crossing the creek via attachment to the existing bridge. Additional private potable and irrigation water lines run along the northeast side of the roadway within the private frontage road with service drop lines running easterly. To accommodate the widened roadway, the proposed Project includes the following:

- Overhead utility lines and support poles along both sides of the roadway will require permanent relocation.
- An abandoned water line will be removed with the existing bridge within the limits of excavation for the new bridge and capped within the approach roadway.

No modifications are expected to the private water lines.

### **1.2.2.3. Construction Schedule**

Construction is anticipated to begin in 2025 or 2026 and last for approximately 18 months as allowed within defined environmental work windows. Construction will take place Monday through Friday during daylight hours; no night work is anticipated.

### **1.2.2.4. Construction Methods**

#### **Installing Construction Area Signs**

Prior to construction, appropriate signage will be installed, identifying construction areas and lane shifts. Detailed signage plans will be reviewed and approved by the County. Residents, businesses, and other stakeholders will be informed of the Project developments and impacts to traffic operations during construction. Signs will remain in place throughout the duration of construction.

#### **Staging Areas**

The contractor will mobilize equipment and materials in the designated staging areas located on the Wente Land & Cattle Co property (APN 099-0625-002-01) on the northeast side of the road. Staging areas will be returned to pre-Project condition at the conclusion of construction activities.

#### **Clearing, Grubbing, and Tree Removal**

Clearing and grubbing of vegetation and removal of any trees will be completed.

## **Demolition**

Best management practices (BMPs) will be implemented during construction. Demolition of the existing Arroyo Road Bridge, timber pedestrian crossing, and portions of roadway will be performed in accordance with Alameda County standards supplemented by Caltrans Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the demolition will be removed from the Project site and properly disposed of by the contractor. Demolition will occur during the second stage of construction.

## **Stream Diversion**

Dry Creek is historically dry during the anticipated periods of construction, and no stream diversions are likely to be needed. However, if there is water flow in Dry Creek during the construction period, the flow will be diverted into pipe(s) through the active construction zone. The diversion will be established in conformance with County specifications as well as California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), and U.S. Fish and Wildlife Service (USFWS) regulatory requirements. The stream diversion will be constructed within the existing channel to protect and maintain water flow in Dry Creek during demolition and construction activities. Materials to construct the diversion will consist of pipe(s) sized to convey flow rates anticipated during construction and sandbags and plastic sheeting to construct diversion dams in the channel upstream and downstream of the site. All stream diversion work will be contained within the approved Project area of disturbance. Equipment used may include light truck, mounted cranes above the channel and small earthwork equipment (e.g., compact loaders and excavators) and laborers within the channel between the diversion dams. Operational timeline for the stream diversion will likely be April 15 to October 15, but will depend on permit restrictions imposed by the resource agencies.

## **New Bridge Foundations**

The new bridge foundations will likely consist of cast-in-drilled-hole concrete pile foundations. Abutments and adjacent side slopes will be armored with rock slope protection (RSP) to mitigate scour, if needed.

### **1.2.2.5. Construction Phasing**

Arroyo Road dead-ends several miles southeast of the bridge and is the only access in or out of the area for residents, businesses, and recreational users. No offsite detour is available. The bridge will be constructed in two stages in order to maintain traffic throughout construction.

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Stage one consists of constructing a portion of the new bridge to the west of the existing bridge. Grading, paving, and barrier installation will transition the approaches from the portion of the new bridge to the existing roadway. Normal two-lane, two-way traffic operations will largely be maintained on the existing roadway and bridge. Short durations of single lane, two-way traffic operations will be required for the roadway conform connection to the exiting roadway. Stage two consists of moving two-lane, two-way traffic onto the Stage one roadway and bridge section, demolishing the existing bridge and pedestrian crossing, and constructing a portion of the new bridge in the current location of the existing bridge. Grading, paving, and barrier installation will transition the approaches from the portion of the new bridge to the existing roadway. The stage will conclude with a closure pour and installation of the interior barrier.

Construction activities in each stage will generally include the erection of falsework and the form-reinforce-pour operations for the reinforced concrete cast-in-place spanning slab and abutments. The bridge span is short enough that falsework could span over the channel without the need for temporary supports in the channel itself. Once the bridge portion has been constructed, falsework will be removed, and concrete surfaces will be finished. The wingwalls will be constructed with form-reinforce-pour operations. Backfill will be placed behind the abutment walls and approaches built up with roadway base materials. The bridge barrier, roadway approaches, and Midwest guardrail systems will be installed, and the roadway will be prepared for final surfacing and striping.

## Chapter 2. Study Methods

### 2.1. Regulatory Requirements

Based on the anticipated work, the proposed Project will be subject to a number of regulatory requirements. The following laws, orders, and guidelines pertain to the regulation of biological resources that may occur within the BSA.

#### 2.1.1. Federal Endangered Species Act

FESA protects listed wildlife species from harm or “take” which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury to a listed wildlife species. An activity can be defined as “take” even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands or if the project requires a federal action, such as a Clean Water Act (CWA) Section 404 fill permit from the USACE.

The USFWS and National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened and endangered species under FESA. These agencies also maintain lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

**Project Applicability:** Three federally listed species may occur within the BSA – the federally threatened California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*), and the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*). Additionally, the monarch butterfly (*Danaus plexippus*), a federal candidate species, may occur as a migrant or scarce breeder.

No aquatic breeding habitat for California red-legged frog or California tiger salamander is present in the BSA, but the California tiger salamander is known to breed within 1 mi of the BSA, and the California red-legged frog is known to occur in Arroyo Valle, which flows as close as 0.2 mile (mi) south of the BSA (CNDDDB 2022). Upland dispersal and refugial habitat is present in the BSA, and these two species may be present in refugial habitats (i.e. California ground squirrel [*Otospermophilus beecheyi*] burrows) or as seasonal dispersants through the BSA. There is some potential for the Project to result in the injury or mortality of California red-legged frogs and California tiger salamanders, even with the implementation of avoidance and minimization measures as described in Section 4.3.1.3 below. In addition, individual red-legged frogs or California tiger salamanders may need to be actively relocated from the BSA to avoid injury or mortality.

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Because the Project may affect, and is likely to adversely affect, the California red-legged frog and California tiger salamander, USFWS take approval would be sought for these species in conjunction with CWA Section 404 permitting.

East Alameda County Conservation Strategy (EACCS) habitat modeling places the BSA on the margin of core habitat for the San Joaquin kit fox (ICF International 2010). However, all available data indicate that the current range of the San Joaquin kit fox does not extend into the BSA region (USFWS 2020). Further, the species is not known in the vicinity of the BSA; the nearest record of the species is a 1989 CNDDDB record approximately 7 mi to the northeast (CNDDDB 2022). While the BSA provides ostensibly suitable foraging and denning habitat for kit foxes, the existing high levels of human disturbance and lack of recent records anywhere in the vicinity suggest that the species is unlikely to occur in the BSA. However, the possibility that it could occur as a rare forager or dispersant cannot be ruled out. With avoidance and minimization measures described in this NES, injury or mortality of San Joaquin kit foxes is not expected to occur. Thus, USFWS take approval would not be sought for this species. The Project may affect, but is not likely to adversely affect, the San Joaquin kit fox.

The monarch butterfly occurs in the BSA region primarily as a migrant, and no wintering aggregations are known as far inland as the BSA. If larval host plants are present in the BSA (these would not necessarily have been detectable during February surveys), the species may be present as a scarce breeder from March through October.

The ephemeral stream habitat in the BSA lacks sufficient hydroperiod to support the federally threatened Central California coast steelhead (*Oncorhynchus mykiss*), other anadromous fish, or delta smelt (*Hypomesus transpacificus*), and the BSA is inaccessible to these species due to downstream barriers. Thus, these species are determined to be absent from the BSA.

The BSA is outside the known range of the federally threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), and suitable chaparral and scrub habitat are not present. Thus, the species is determined to be absent from the BSA.

No open water habitat sufficiently extensive for foraging, or salt pannes or beaches for nesting and roosting, are present in the BSA for the federally endangered California least tern (*Sternula antillarum browni*). Thus, this species is determined to be absent from the BSA.

Three federally listed plant species are known to occur in the nine-quadrangle area encompassing the BSA (California Native Plant Society [CNPS] 2020, California Natural Diversity Database [CNDDDB] 2020). However, there is no suitable habitat available within the BSA for any of these species and they are all considered absent from the BSA.

### 2.1.2. California Endangered Species Act

The California Endangered Species Act (CESA), California Fish and Game Code, Chapter 1.5, §§ 2050–2116, prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state-listed species (Fish and Game Code § 2070). The CDFW regulates activities that may result in “take” of individuals listed under the Act (i.e., “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of “take” under the Fish and Game Code. The CDFW, however, has interpreted “take” to include the “killing of a member of a species which is the proximate result of habitat modification.”

**Project Applicability:** State listed species that may occur within the BSA include the state endangered California tiger salamander, and the state threatened San Joaquin kit fox and tricolored blackbird (*Agelaius tricolor*).

The California tiger salamander is known to breed within 1 mi southwest of the BSA, as described above in Section 2.1.1. Thus, it is expected that incidental take approval from CDFW would be needed due to the potential for the Project to result in take of the California tiger salamander.

The tricolored blackbird, state listed as threatened, may occur in the BSA as a non-breeding forager. Nesting habitat is absent from the BSA, and the species is not expected to form nesting colonies in or near enough to the BSA to be adversely affected by Project activities. Thus, CDFW take approval would not be sought for this species.

As described in section 2.1.1, above, the San Joaquin kit fox is not expected to occur in the BSA except as a rare dispersant or forager, and is not expected to be adversely affected by Project activities. Thus, the Project would not adversely affect any individuals, and take approval would not be sought for this species.

There are no state-listed or candidate plant species likely to occur in the BSA. Four state rare or endangered plant species protected under the California Native Plant Protection Act are known to occur in the nine-quadrangle area encompassing the BSA (CNPS 2022, CNDDDB 2022). However, there is no suitable habitat within the BSA for any of these species and they are all considered absent from the BSA.

### 2.1.3. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur within the U.S. 200-nautical-mi limit. The Act establishes eight Regional Fishery Management Councils responsible for the

preparation of fishery management plans to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from NMFS, establish Essential Fish Habitat (EFH) in fishery management plans (FMPs) for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH and respond in writing to NMFS recommendations.

**Project Applicability:** A species list downloaded from NMFS's California Species List Tools website on September 2, 2022 (Appendix B) suggests that EFH for the Coho salmon (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*) is potentially present in the *Livermore, California* U.S. Geological Survey (USGS) quadrangle (NMFS 2020). However, ephemeral Dry Creek in the BSA lacks sufficient hydroperiod for these or other anadromous fish, and the BSA is inaccessible to these species due to downstream barriers. Therefore, no EFH for these or any other fish species is present in the BSA.

#### **2.1.4. Clean Water Act and California Water Quality Laws**

Under Section 404 of the CWA, the USACE is responsible for regulating the discharge of fill material into waters of the U.S (including wetlands and other waters). The USACE defines wetlands in 33 Code of Federal Regulations (CFR) Part 323.2 as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” The boundaries of wetlands that fall under USACE jurisdiction are delineated using an approach that relies on identification of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology.

In aquatic riverine habitat, the USACE jurisdiction extends to the ordinary high water mark, which is defined in 33 CFR Part 328.3 as “the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris.”

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), the State Water Resources Control Board (SWRCB) has the ultimate authority over state water rights and water quality policy. Porter-Cologne broadly defines waters of the state as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCBs) to oversee water quality on a day-to-day basis. Pursuant to Section 401 of the federal CWA, projects that are regulated by the USACE must obtain water quality certification from the appropriate RWQCB. This certification ensures that the Project would uphold state water quality standards. The RWQCB also claims jurisdiction over areas not claimed by the USACE that directly affect water quality, such as areas below

top of bank in streams, and may require a joint Section 401 water quality certification/Waste Discharge Requirement for impacts to areas within the bank but outside federal CWA jurisdiction.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, and subsequently revised these guidelines on April 6, 2021. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures for Discharges of Dredged or Fill Material to Waters of the State describe riparian habitat buffers as important resources that may be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs for impacts. The RWQCBs may impose mitigation requirements even if the USACE does not, and it should be noted that the State of California's jurisdiction to regulate its water resources is much broader than that of the federal government. The SWRCB works in coordination with the RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its jurisdiction, and has the authority to approve, with or without conditions, or deny projects that could affect waters of the state under CWA Section 401 and Porter-Cologne.

**Project Applicability:** Any work within the active channels of Dry Creek up to its ordinary high water marks (OHWM) falls under the jurisdiction of the USACE and the RWQCB. Therefore, a Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB will be required. During the reconnaissance survey of the BSA on February 18 and 19, 2020, the bed of Dry Creek was mapped as aquatic riverine habitat, with an OHWM and the top of bank as shown on Figure 3. No obligate wetland plants were observed within the BSA during the reconnaissance survey. However, a wetland delineation will be conducted as part of this Project to confirm the absence of wetland habitats within the BSA. If wetlands are confirmed to be absent from the BSA, potential USACE and RWQCB jurisdictional waters are limited to 0.27 ac of aquatic riverine habitat (other waters) within the OHWM of Dry Creek. The 0.53 ac of riparian grassland found along the banks of Dry Creek would be considered "important buffer habitats to streams" by RWQCB and would be subject to jurisdiction by that agency as well.

### **2.1.5. Federal Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction



and Relocation of Migratory Bird Nest Contents”. Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

In recent years, there have been changes to how the MBTA is implemented and enforced with respect to incidental take of protected birds. However, on October 4, 2021, the USFWS published a final rule revoking a January 7, 2021 regulation that limited the scope of the MBTA. The final rule went into effect on December 3, 2021. With this final and formal revocation of the January 7, 2021 rule, the USFWS returns to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent.

**Project Applicability:** All native bird species within the BSA are covered by the MBTA except the California quail (*Callipepla californica*), which is in a family that is explicitly excluded from MBTA protection. As described in Section 4.3.9.3, the Project would incorporate measures to avoid impacts on nesting birds.

#### **2.1.6. Executive Order 13112 – Invasive Species**

Executive Order 13112 was signed on February 3, 1999. This Executive Order established the National Invasive Species Council and states “(a) Each federal agency whose actions may affect the status of invasive species shall, to the extent practical and permitted by law, (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions”.

**Project Applicability:** Twelve invasive plant species were observed within or adjacent to the BSA. These include 11 species with a California Invasive Pest Council (Cal-IPC) rating of limited or moderate invasiveness and potential for ecological impact: Italian thistle (*Carduus pycnocephalus*), stinkwort (*Dittrichia graveolens*), bristly ox-tongue (*Helminthotheca echioides*), milk thistle (*Silybum marianum*), shortpod mustard (*Hirschfeldia incana*), smilo grass (*Stipa miliacea*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), curly dock (*Rumex crispus*), and Japanese flowering cherry (*Prunus serrulata*). One species has a Cal-IPC rating of high invasiveness and potential for ecological impact: yellow star thistle (*Centaurea solstitialis*). These invasive plants are known to cause substantial and apparent to severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2022). Project activities could introduce or spread weeds to, from, or within the BSA and surrounding areas. Given the proposed Project’s Federal Highway Administration federal nexus, per Executive Order 13112 it is required to

implement avoidance and minimization measures intended to reduce impacts of development related to weed introduction or spread. These avoidance and minimization measures are described in Section 5.6.

### **2.1.7. Executive Order 11988 – Floodplain Management**

Executive Order 11988 was signed on May 24, 1977. This Executive Order established a national policy "to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The order further provides that each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities, (2) providing federally undertaken, financed, or assisted construction and improvements, and (3) conducting federal activities and programs impacting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. Executive Order 11988 applies to federally funded projects occurring within the 100-year floodplain or critical actions within the 500-year floodplain. "Critical actions" are defined as activities for which even a slight chance of flooding is too great a risk.

**Project Applicability:** The Project complies with Executive Order 11988 because construction of the road and bridge have been designed to avoid impacts within the 100-year floodplain to the minimum necessary, to convey floods under the proposed bridge without altering these flows, and to accommodate flood flows associated with the 100 year flood of Dry Creek. Moreover, the Project has been designed to minimize floodplain impacts, such as channel scour, to the greatest extent feasible. Therefore, the Project would not result in the substantial or adverse modification of any floodplain, and would not directly or indirectly support further development within the floodplain.

### **2.1.8. Executive Order 11990 – Protection of Wetlands**

Executive Order 11990 was signed on May 24, 1977. This Executive Order established a national policy "to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." The order further provides that each agency shall provide leadership to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally undertaken, financed, or assisted construction and improvements; and (3)

conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, permitting, and licensing activities.

**Project Applicability:** A formal wetlands delineation is planned, but has not yet been performed on the Project site. However, no obligate wetland plants or habitat characteristics were observed within the channel bed of Dry Creek within the BSA during the February 2020 reconnaissance surveys.

### **2.1.9. California Environmental Quality Act**

Section 15380(b) of CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in the FESA and CESA and the section of the state Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a substantial effect on a species that has not yet been listed by either the USFWS or the CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of “species of special concern” that serve as “watch lists.” Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection.

**Project Applicability:** All potentially rare or sensitive species, or habitats capable of supporting rare species, were considered for environmental review in this NES as per CEQA § 15380(b) (see Chapters 3 and 4).

### **2.1.10. California Fish and Game Code**

Pursuant to § 1603 of the California Fish and Game Code, the CDFW regulates any project proposed by any person that will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds.” Fish and Game Code § 1602 requires an entity to notify the CDFW of any proposed activity that may modify a river, stream, or lake. If the CDFW determines that proposed activities may substantially have an adverse impact on fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared, which sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA.

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Sections 1600–1607 of the California Fish and Game Code require that a Notification of LSAA application be submitted to the CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions in the application and, if necessary, prepares a LSAA that includes measures to protect affected fish and wildlife resources.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW typically considers a river, stream, or lake to include its riparian vegetation, but it may also extend to its floodplain. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life”. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 California Code of Regulations 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (California Department of Fish and Game 1994). Riparian is defined as “on, or pertaining to, the banks of a stream”; therefore, riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (California Department of Fish and Game 1994).

Certain sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Fish and Game Code § 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code. Fish and Game Code §§ 3503, 3513, and 3800 (and other sections and subsections) protects native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Fish and Game Code § 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.”

Bats and other non-game mammals are protected by Fish and Game Code § 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied non-breeding bat roost, resulting in the death of bats) or

disturbance that causes the loss of a maternity colony of bats (resulting in the death of young) may be considered “take” by the CDFW.

**Project Applicability:** Any work within the riparian corridor of Dry Creek, including areas within the bed and banks of this stream, or impacts to associated riparian canopy, would require a LSAA from the CDFW in accordance with Fish and Game Code § 1602. Such areas are shown on Figure 3 as riparian grassland and Riverine land cover types.

The California Fish and Game Code also protects most native birds, mammals, reptiles, and amphibians. Chapter 4 describes measures that would be taken to avoid and minimize impacts on animals protected by the California Fish and Game Code.

#### **2.1.11. California Streets and Highways Code (Barriers to Fish Passage)**

California Streets and Highways Code § 156-156.4 requires that Caltrans complete an assessment of potential barriers to anadromous fish passage prior to commencing Project design, “for any project using state or federal transportation funds programmed after January 1, 2006 if that project affects a stream crossing on a stream where anadromous fish are, or historically were found”.

**Project Applicability:** Anadromous fishes are not present, nor were they historically present in ephemeral Dry Creek. Thus, the replacement of this bridge will not affect any stream crossing where anadromous fish are, or were historically, found.

#### **2.1.12. State Requirements to Control Construction-Phase and Construction Water Quality Impacts**

##### **2.1.12.1. Construction Phase**

Caltrans projects in California must comply with state requirements to control the discharge of stormwater pollutants under the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit (SWRCB Order No. 2014-0077-DWQ) and the Statewide Construction General Permit (SWRCB Order No. 2009-0009-DWQ). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Management Plan must be developed and maintained during the project and must include the use of BMPs to protect water quality until the site is stabilized.

Standard permit conditions under these permits require that the applicant utilize various measures, including on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks. Additionally, both the Construction General Permit and Statewide Storm Water Permit do not extend coverage to projects if

stormwater discharge-related activities are likely to jeopardize the continued existence, or result in take of any federally listed endangered or threatened species.

**Project Applicability:** The proposed Project will comply with the requirements of the NPDES Statewide Storm Water Permit and Statewide Construction Permit; thus, construction-phase activities would not result in detrimental water quality effects on biological/regulated resources.

#### **2.1.12.2. Post-Construction Phase**

In many Bay Area counties, including Alameda County, projects must also comply with the San Francisco Bay RWQCB's Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2009-0074, as amended). These policies, which are in line with the Statewide Storm Water Permit measures, require that all projects implement BMPs and incorporate Low Impact Development practices into the design that prevents stormwater runoff pollution, promotes infiltration, and holds/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate features such as green roofs, pervious surfaces, tree planters, grassy swales, and bioretention or detention basins.

**Project Applicability:** The proposed Project will comply with the requirements of the Municipal Regional Stormwater NPDES Permit, and the NPDES Statewide Storm Water Permit; therefore, post-construction activities would not result in detrimental water quality effects on biological/regulated resources.

#### **2.1.13. East Alameda County Conservation Strategy**

The East Alameda County Conservation Strategy (EACCS) (ICF International 2010) is designed to serve as a coordinated approach to conservation in the eastern portion of Alameda County, in which the County and the Cities of Dublin and Livermore are active participants.

**Project Applicability.** The BSA for the proposed Project overlaps the study area for the EACCS, and occurs just within the southern border of Conservation Zone 2 (see Figure 3-1, ICF International 2010). Conservation Zone 2 falls within the mostly urbanized footprint of the Livermore Valley, including the intersection of Interstate-680 and Interstate-580, and the intersection of State Route 84 and Interstate-680. Dominant land cover types in Conservation Zone 2 comprise annual grassland (3,409 acres [ac]) and mixed riparian forest and woodland (410 ac) (ICF International 2010). Conservation Zone 2 includes land cover types of high conservation priority and require compensatory mitigation should any permanent impacts have the potential to occur as a result of proposed projects. Sensitive land cover types within Conservation Zone 2 include California annual grasslands (Figure 3-2, ICF International 2010), coast live oak forest

and woodland (Figure 3-4, ICF International 2010), and mixed riparian forest/woodland, mixed willow riparian scrub, sycamore alluvial woodland, and perennial freshwater marsh (Figure 3-5, ICF International 2010). Focal plant and wildlife species of the EACCS are addressed below.

One land cover type of high conservation priority in the EACCS was identified within the BSA: California annual grassland. Mitigation for impacts on land cover types that are considered high conservation priority by the EACCS is determined at the focal species level first; if focal species are absent, mitigation ratios are determined in the EACCS by natural community type. Because all non-developed portions of the BSA are considered to provide habitat for one or more EACCS focal species, mitigation for impacts to California Annual Grassland will be provided at the focal species level.

None of the six focal plant species covered by the EACCS have suitable habitat in the BSA, which comprises primarily disturbed and ruderal California annual grassland. Thus, no impacts to focal plant species are expected and no mitigation is necessary.

Seven of the 12 focal wildlife species covered by the EACCS have potential to occur within the BSA or have suitable habitat modeled by the EACCS in the BSA, including California red-legged frog, California tiger salamander, San Joaquin kit fox, tricolored blackbird, western burrowing owl (*Athene cunicularia*), golden eagle (*Aquila chrysaetos*), and American badger (*Taxidea taxus*). Of these seven, only four (California red-legged frog, California tiger salamander, western burrowing owl, and American badger) have the potential to be adversely affected by Project activities. Mitigation for impacts to these species and their habitats must conform to conditions required by the EACCS.

#### **2.1.14. Alameda County Tree Ordinance**

The County of Alameda protects trees within the County right-of-way that are at least 10 ft tall and 2-inches diameter at breast height (dbh) on the mainstem. Removal of such trees requires an encroachment permit from the County. Typically such a permit requires, if feasible, replacement of the ordinance tree (Alameda County General Code Chapter 12.11, inclusive).

**Project Applicability.** Fourteen trees of six different species (one olive [*Olea europea*], three coast live oaks [*Quercus agrifolia*], one cherry blossom [*Prunus serrulata*], five blue oaks [*Quercus douglassii*], two California sycamores [*Platanus racemosa*], one California buckeye [*Aesculus californica*], and one unidentified dead tree) are scheduled for removal from the Project site. All of the trees qualify for protection under the County's tree ordinance. An additional eight protected trees could be removed as a result of Project impacts.

### **2.1.15. Resources Reviewed and Literature Search**

Prior to field work several environmental documents relevant to the Project Site were reviewed. These included:

- EACCS (ICF International 2010)
- Programmatic Biological Opinion for the East Alameda Conservation Strategy (PBO) (USFWS 2012).

Maps and aerial imagery of the BSA were obtained from:

- USGS topographic maps
- National Wetlands Inventory (2022)
- Google Earth Pro software (Google LLC 2022)
- Natural Resource Conservation Service Soils Inventory (2022)

Information concerning threatened, endangered, or other special-status species or habitats of concern was collected and reviewed from several sources to develop a list of species and habitats of concern that may occur in the Project vicinity. These sources included Rarefind 5 (CNDDDB 2022) for the *Livermore, California* USGS 7.5-minute quadrangle in which the BSA occurs, as well as the surrounding eight quadrangles: *Diablo, Tassajara, Byron Hot Springs, Dublin, Altamont, Niles, La Costa Valley, and Mendenhall Springs*. CNDDDB records within the Project vicinity are shown on Figures 4 and 5. Relevant information available through USFWS, CDFW, California Native Plant Society (CNPS), the EACCS, and technical publications, as described below, was also reviewed.

#### **2.1.15.1. USFWS and NMFS Species Lists**

Lists of federally threatened and endangered species and critical habitat potentially occurring in the region were generated from the USFWS Ventura and Sacramento Fish and Wildlife Offices via the USFWS Information for Planning and Consultation website on September 2, 2022 (Appendix A). NMFS lists of endangered and threatened species and critical habitat were also generated for the *Livermore, California* USGS quadrangle (Appendix B).

#### **2.1.15.2. California Native Plant Society**

The CNPS, a non-governmental conservation organization, in collaboration with the CDFW, maintains a ranked list of plant species of concern in California – the California Rare Plant Rank (CRPR). Vascular plants included on these lists are defined as follows:







CRPR 1A—Plants considered extinct.

CRPR 1—Plants considered rare, threatened, or endangered in California and elsewhere.

CRPR 2—Plants considered rare, threatened, or endangered in California but more common elsewhere.

CRPR 3—Plants about which more information is needed - review list.

CRPR 4—Plants of limited distribution - watch list.

These ranks are further described by the following threat code extensions:

1—seriously endangered in California

2—fairly endangered in California

3—not very endangered in California

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing on CNPS lists are, in general, considered to meet CEQA's Section 15380 criteria (see Section 2.2.2.1 above) and adverse effects on these species may be considered substantial.

CNPS's *Online Inventory of Rare Plants* (CNPS 2022) supplied information regarding the distribution and habitats of vascular plants ranked as CRPR 1A, 1B, 2, 3, and 4 in the *Livermore, California* USGS 7.5-minute quadrangle, and the eight surrounding quadrangles. Additional information on special-status plant species and their distribution within the area were obtained from the *Jepson Flora Project* (2020).

All CNPS lists and applicable records were consulted to determine the probability of occurrence for all special-status plant species within the BSA. These lists were combined with the USFWS lists, the California Natural Diversity Database (CNDDDB) records from within the 9-quadrangle area, records from Calflora (2022), and all other sources to create an initial list of species to consider for occurrence within the BSA.

### **2.1.15.3. Special-Status Species**

For the purposes of this assessment, special-status species include:

- Species listed or proposed for listing as threatened or endangered under FESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [proposed species]).

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- Species that are candidates for possible future listing as threatened or endangered under FESA (73 Federal Register 75176, November 9, 2009).
- Species listed or proposed for listing by the state of California as threatened or endangered under CESA (14 CCR 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (CFGC Section 1900 et seq.).
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (CRPRs 1A, 1B, 2, 3, and 4).
- Animal species listed as California species of special concern by the CDFW.
- Animals listed as state fully protected by the CDFW (CFGC Section 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

### **2.2. Personnel and Survey Dates**

This report was prepared by the following personnel at H. T. Harvey & Associates:

- Kelly Hardwicke, Ph.D., Principal Plant Ecologist/Wetland Specialist
- Steve Rottenborn, Ph.D., Principal Wildlife Ecologist
- Stephen L. Peterson, M.S., Senior Wildlife Ecologist
- Jane Lien, B.S., Wildlife Ecologist
- Jillian Pastick, M.S., Plant/Wetland Ecologist

#### **2.2.1. Reconnaissance-level Surveys**

Reconnaissance-level surveys of the BSA were conducted by H. T. Harvey & Associates ecologists Stephen L. Peterson, M.S. and Jill Pastick, M.S. on February 18 and 19, 2020. The purpose of these surveys was to: 1) assess existing biotic habitats; 2) assess the area for its potential to support special-status species and natural communities of concern; 3) identify potential jurisdictional habitats, including waters of the U.S. and state; and 4) provide information for the initial Project impact assessment.

Habitat acreages were calculated for all habitat types within the BSA using GIS and aerial imagery interpretation. Reconnaissance-level surveys were deemed adequate to assess the effects of the Project on biological resources for the purposes of this NES.

### **2.2.2. Waters of the U.S. and State Survey**

A formal wetland delineation will be conducted as part of the environmental review of the Project, but has not yet been completed. However, H. T. Harvey & Associates Plant Ecologist Jill Pastick, M.S. conducted a survey of the BSA on February 18 and 19, 2020 to map the extent and distribution of potentially jurisdictional wetlands and other waters on the 9.32-ac BSA. Jill Pastick performed preliminary mapping of the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the CWA as well as waters of the state that may be subject to regulation under Porter Cologne.

During the survey, Pastick surveyed for “other waters”, which include lakes, slough channels, seasonal ponds, tributary waters, and non-wetland linear drainages. Such areas are identified by the seasonal or perennial presence of standing or running water and generally lack hydrophytic (i.e., plants adapted to inundated soils and indicative of wetland conditions) vegetation. In non-tidal or muted tidal waters, USACE jurisdiction extends to the OHWM, which is defined in 33 CFR Part 328.3 as “the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris.” The OHWM of Dry Creek was mapped in the field according to the presence of these physical characteristics. The mapped OHWM of Dry Creek is shown on Figure 3.

### **2.2.3. Tree Survey**

A tree survey was conducted in the BSA, concurrently with the reconnaissance-level survey, by Jill Pastick, M.S. on February 19, 2020. The purpose of this survey was to record the location of all trees within the Project footprint with a diameter at breast height of 4 inches or greater, in order to support permitting of the removal of any trees that would fall under the riparian jurisdiction of the CDFW or RWQCB. These data, along with a tree table, and location map, are presented in Appendix C.

## **2.3. Agency Coordination and Professional Contacts**

Lists of federally threatened and endangered species and critical habitat potentially occurring in the region were generated from the USFWS Sacramento Fish and Wildlife Office via the USFWS Information for Planning and Consultation website on September 2, 2022 (Appendix A). NMFS lists of endangered and threatened species and critical habitat were also generated for the quadrangle maps within which the proposed Project

occurs (Appendix B). No additional agency coordination has occurred for the proposed Project.

#### **2.4. Limitations That May Influence Results**

Focused surveys for special-status plant species were not conducted for the preparation of this NES. The occurrence of all special-status plant species could be ruled out due to at least one or a combination of the following reasons: (1) a lack of suitable habitat types within the BSA, (2) a lack of suitable edaphic conditions, (3) inappropriate elevational range or the species' range is not expected to include the BSA due to local extirpation or requirements for microhabitat conditions lacking from the BSA, or (4) the level of disturbance within the BSA. In addition, during the reconnaissance-level survey, the plant ecologist looked for special-status plant species that might have been detectable at the time, suitable habitat for special-status plants, and associate species.

For special-status wildlife species, focused surveys were not deemed necessary given the particular species involved, habitat conditions within the BSA, Project-specific conditions, and recent surveys conducted for other projects in the vicinity. For some species, such as the California red-legged frog and California tiger salamander, inferring presence was reasonable given the species' known or potential occurrence in the Project site vicinity and potential for dispersal onto the site. For these species, which can be difficult to detect, focused surveys were not deemed appropriate because a negative finding would not necessarily guarantee that the species would not be present during Project construction. For other species, such as the tricolored blackbird, assessment of habitat conditions and occurrence records in the region was adequate to determine that the species was absent from the BSA. In either case (i.e., whether inferring presence based on available information or determining absence based on the lack of suitable habitat), information obtained during more focused surveys or at a time of year more conducive for detecting the species would not have altered the determinations regarding potential presence or absence of these species. This methodology is consistent with the generally accepted standards for the preparation of an NES in that it may recommend further, focused surveys to determine presence/absence of species with potential to be present.

## **Chapter 3. Results: Environmental Setting**

### **3.1. Description of the Existing Physical and Biological Conditions**

#### **3.1.1. Study Area**

The 9.32-ac BSA is located along a 0.25-mi stretch of Arroyo Road at Dry Creek within the *Livermore, California* USGS 7.5-minute quadrangle in Alameda County, California (Figure 1). The BSA encompasses all areas and features that may be temporarily or permanently affected by the Project, as well as surrounding areas that may be indirectly affected, or where important biological resources occur and were considered in the NES analysis. The BSA is adjacent to Wentz Vineyard properties (i.e., vineyards and golf course) found along the north, northwest, and southeast boundaries; a ranch with grazing pastures located along the northeast boundary of the BSA; and the City of Livermore's Sycamore Grove Park, which is located along the southern and southwest boundary of the BSA. Dry Creek, an ephemeral stream that originates in the Diablo Range approximately 3.5 mi southeast from the Project site, flows northeast to southwest underneath Arroyo Road through the BSA and joins with Arroyo Valle, approximately 0.2 mi southwest of the BSA.

Existing improvements to the lands surrounding the BSA generally consist of private paved and unpaved roads used to access private property, fences, barns, corrals, wells, water tanks, single-family homes and various outbuildings.

#### **3.1.2. Physical Conditions**

Elevations in the BSA range from approximately 496 ft to 538 ft above mean sea level (North American Vertical Datum of 1988) (Google Inc. 2022). Mild cool temperatures are common in the winter. The summer is characterized by mild to hot temperatures. Climate conditions in the BSA include a 30-year average of approximately 15.6 inches of annual precipitation, and an average temperature range from 48.6°F to 71.9°F (PRISM 2022).

The BSA is underlain by five soil types: 1) Livermore (Lm), a very gravelly coarse sandy loam; 2) Pleasanton (PgB), a gravelly loam, 3-12 % slopes; 3) Riverwash (Rh); 4) Shedd silt loam (SdE2), 30-45 % slopes, eroded; and 5) Shedd, a paralithic bedrock (NRCS 2022). Serpentine soils are not present within the BSA.

The existing bridge crosses Dry Creek, which originates in the Diablo Range and joins with Arroyo Valle.

### 3.1.3. Biological Conditions

Seven biotic habitat/land cover types were identified within the 9.23-ac BSA (Figure 3), which are listed below in Table 1. Appendix D includes photos of various habitats across the BSA, and Appendix E provides a list of all plant species identified within or directly adjacent to the Project site. Vegetation and wildlife occurrence within each of these biotic habitat/land cover types is described in more detail below.

**Table 1: Biotic Habitat/Land Cover Types within the BSA**

Biotic Habitat/Land Cover Type	Acreage within the BSA	Percent (%) of the BSA
California Annual Grassland/Ruderal Grassland	4.38	47%
Developed	2.83	30%
Vineyard	0.68	7%
Golf Course	0.60	6%
Riparian Grassland	0.53	6%
Riverine (Ephemeral Stream)	0.27	3%
Pond	0.03	<1%
<b>Total</b>	<b>9.32</b>	<b>100%</b>

#### 3.1.3.1. California Annual Grassland/Ruderal Grassland

**Vegetation.** The majority (4.38 ac) of the BSA consists of California annual grassland/ruderal grassland habitat (Photos 1 through 4, Appendix D) with scattered trees. Much of this habitat is dominated by a suite of non-native grasses, such as foxtail barley, wild oat, smilo grass, and rigput brome. Common weedy, non-native forbs include bristly ox tongue, dove’s-foot crane’s-bill (*Geranium molle*), and cheeseweed (*Malva parviflora*). Very few native grassland and forb species occur in this habitat; however, a few small patches of native tall annual willowherb (*Epilobium brachycarpum*) and common fiddleneck (*Amsinckia intermedia*) were observed. Scattered trees occur throughout the grasslands in the BSA, including mature native coast live oaks, blue oaks, California sycamores, California buckeyes, and one mature valley oak (*Quercus lobata*). Other species of mature trees found in this habitat include non-native olive (*Olea europea*) and pine (*Pinus* sp.) trees.

Several invasive species occur in the grasslands of the BSA, including but not limited to, stinkwort, yellow star thistle, and black mustard. The grassland habitat in the southwest portion of the BSA (within Sycamore Grove Regional Park) is infrequently disturbed and therefore is taller and denser than the grassland habitats found in the northeast area of



the BSA, which are disturbed by grazing and therefore shorter and less dense with more ruderal vegetation.

**Wildlife.** Small mammals such as the California ground squirrel and Botta's pocket gopher (*Thomomys bottae*) are common residents of annual and ruderal grasslands, and burrows of these species were observed in the BSA. Deer mice (*Peromyscus maniculatus*) and California voles (*Microtus californicus*) are likely common throughout this habitat as well. Black-tailed deer (*Odocoileus hemionus columbianus*) are common browsers in this habitat, and coyotes (*Canis latrans*) hunt prey in the grasslands of the BSA.

A number of common bird species may utilize the scattered trees in this habitat for cover, nesting, and foraging, including Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Dryobates nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), Hutton's vireo (*Vireo huttoni*), California scrub-jay (*Aphelocoma californica*), violet-green swallow (*Tachycineta thalassina*), chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), and Bewick's wren (*Thryomanes bewickii*). These trees may also provide hunting perches and nesting substrate for native raptors, such as the great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*).

Bird species that nest in nearby woodland habitats will forage within grassland areas during the nesting season as well; these include the western bluebird (*Sialia mexicana*), violet-green swallow, mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), and California scrub-jay. Raptors such as the red-tailed hawk and white-tailed kite (*Elanus leucurus*) may forage for small mammals within these grassland habitats.

Several reptile species regularly occur in grassland habitats, including the western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), Pacific rattlesnake (*Crotalus oreganus*), and common kingsnake (*Lampropeltis getula*). Burrows of Botta's pocket gophers provide refugia for these reptile species, as well as for common amphibians such as the western toad (*Anaxyrus boreas*) and Pacific treefrog (*Pseudacris regilla*).

Mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and the non-native Virginia opossum (*Didelphis virginiana*) are also expected to occur in this habitat type. Trees with cavities or loose bark may provide roosting habitat for small numbers of bats, including the California myotis (*Myotis californicus*) and Mexican free-tailed bat (*Tadarida brasiliensis*), but no trees capable of supporting large day roosts are present in the BSA, and no evidence of substantial day roosts or maternity colonies were observed during the reconnaissance survey.

### 3.1.3.2. Developed

**Vegetation.** Approximately 2.83 ac of developed habitat is present in the BSA in the form of the existing bridge, wooden pedestrian pathway (Photos 5 and 6, Appendix D), hardscaped areas along Arroyo Road, and hard pack dirt and gravel roads (Photo 7, Appendix D). Small landscaped areas with ornamental trees are found along the edges of the ranch property driveway, east of Arroyo Road and adjacent to the Wente Vineyards Golf Course in the southeast section of the BSA. With the exception of minimal ornamental vegetation such as a Japanese cherry tree (*Prunus serrulata*) and ornamental rose (*Rosa* sp.) bushes, these areas are unvegetated and heavily/frequently disturbed.

**Wildlife.** Although these developed areas provide little to no wildlife habitat value, some wildlife species that are typically accustomed to high levels of human disturbance may occur in this habitat. These include native bird species such as the native house finch and non-native European starling (*Sturnus vulgaris*) and rock pigeon (*Columba livia*). Additional bird species, such as Anna's hummingbird, American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), and lesser goldfinch may utilize trees or other vegetation within developed areas for nesting. Mammals such as the non-native house mouse (*Mus musculus*) and Norway rat (*Rattus norvegicus*) and the native raccoon can also occur in developed portions of the BSA. Reptiles such as western fence lizards and gopher snakes bask on the paved surfaces in order to raise their body temperature.

### 3.1.3.3. Vineyard

**Vegetation.** The vineyard land cover type encompasses 0.68 ac in the northeast section of the BSA (Photo 9, Appendix D). No trees or other naturally occurring vegetation is present in this intensively cultivated vineyard area of the BSA.

**Wildlife.** This vineyard land cover type supports relatively few wildlife species due to the frequent disturbance associated with farming, the low stature of the vineyard trellises, and the lack of structural diversity in the vegetation. Rodent control is practiced throughout many agricultural and vineyard fields, reducing the abundance of small mammals and the suitability of these fields as foraging habitat for raptors and larger mammals that prey on smaller mammals. Nevertheless, the infrequency of human presence and heterogeneity of habitats in some agricultural and vineyard areas results in fairly heavy wildlife use, at least by some species. California ground squirrel and Botta's pocket gopher burrows occur along margins of the vineyard within the BSA, and raptors such as red-tailed hawks, American kestrels (*Falco sparverius*), and white-tailed kites forage at the edges of fields. Gopher snakes and western fence lizards are among the reptiles that forage at the edges of vineyard and agricultural lands.

#### 3.1.3.4. Golf Course

**Vegetation.** The Wente Vineyards Golf Course comprises approximately 0.60 ac of the BSA on the east side of Arroyo Road in the southeast section of the BSA (Photo 8, Appendix D). A few trees, including olive and California sycamore planted along the paved golf course pathway, fall within this habitat type in the BSA. The remainder of this land cover type within the BSA consists of manicured lawn.

**Wildlife.** Wildlife use of the golf course within the BSA is limited by human disturbance (e.g., due to mowing and recreational use) and the limited extent of the vegetation present. Nevertheless, this vegetation provides some value to local wildlife species. Trees provide nesting and foraging opportunities for urban-adapted species of birds such as the Anna's hummingbird, American robin, and mourning dove. Additional common bird species that could nest in trees and other vegetation on the golf course include the American crow, house finch, lesser goldfinch, bushtit, and dark-eyed junco (*Junco hyemalis*). Migrants and wintering birds such as the white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), yellow-rumped warbler (*Setophaga coronata*), and cedar waxwing (*Bombycilla cedrorum*) will forage in the trees within the golf course during spring, fall, and winter.

The urban-adapted, non-native eastern gray squirrel (*Sciurus carolinensis*) may utilize the larger California sycamore trees on the golf course for nesting and foraging. Native raccoons and striped skunks and non-native Norway rats, and house mice are also common in these habitats. Western fence lizards commonly occur on golf courses, and may bask on paved pathways in order to raise their body temperature.

#### 3.1.3.5. Riverine (Ephemeral Stream)

Dry Creek was mapped as riverine (ephemeral stream) habitat and its channel makes up approximately 0.27 ac of the BSA. Ephemeral streams convey water during and immediately following rain events, and then dry out shortly afterwards, typically staying dry throughout the summer months. No water or wet conditions were present in Dry Creek during the reconnaissance surveys conducted in February 2020. Dry Creek has a narrow channel bed (15-20 ft) on the east side of the existing bridge. The channel runs underneath the bridge on Arroyo Road to the southwest, where it widens to approximately 47 ft. The substrate of the channel bed consists of sand, gravel, and some small to medium cobble.

The northwest bank of Dry Creek cuts into the upslope of the riparian grassland habitat (Photo 10, Appendix D). The remaining banks at OHWM are relatively shallow and intergrade with the adjacent grassland habitats that are part of the floodplain of Dry Creek (Photo 11, Appendix D), up to the mapped top of bank as shown on Figure 3. A

portion of the channel that is immediately east of the existing bridge is cut off from the eastern extent of the channel by a hard pack gravel service road (Photo 12, Appendix D).

No emergent wetland vegetation was observed within the riverine habitat of Dry Creek, although there were a few scattered patches of a hydrophytic rush (*Juncus* sp.). However, the density of this species did not meet the minimum 5% cover threshold for vegetated wetlands. The majority of the riverine habitat was not shaded, with the exception of small areas near the existing bridge where large trees were present. The channel contains some woody debris (e.g., downed limbs), from adjacent trees and a few patches of ruderal grasses and forbs, primarily on the east portion of the channel. (Photo 3 of Appendix D shows this vegetation in the channel).

**Wildlife.** The ephemeral nature of Dry Creek precludes the presence of fish. Similarly, aquatic wildlife species are not expected to occur regularly within the channel, but may utilize this habitat for dispersal when water is present. Wildlife using adjacent habitats are expected to forage and take shelter in the vegetation along the banks of the channel. However, due to the limited extent of this habitat type within the BSA, it is not expected to support wildlife species not found in adjacent, more extensive, grassland habitats.

#### **3.1.3.6. Riparian Grassland**

Riparian habitat in the BSA (0.53 ac) comprises grassy habitats similar to the California Annual Grassland discussed in section 3.1. Riparian trees are largely absent from this habitat type, with the exception of one mature, 58-in dbh California sycamore (*Platanus racemosa*) rooted within the channel of Dry Creek (Photo 4, Appendix D). The herbaceous layer of this habitat supports similar species to those found in the adjacent grassland habitat, with which it intergrades with to the north.

**Wildlife.** Riparian habitat is typically of high value to wildlife, with water and streamside vegetation supporting a diverse and abundant fauna. However, the lack of structural diversity and limited extent of riparian trees in the BSA, as well as the generally dry conditions of Dry Creek for the most of the year, greatly limits its value for wildlife. Riparian grasslands mapped in the BSA consist of non-native grasslands with sparsely scattered native trees intergrading into the surrounding habitats. Thus, the species occurring within the surrounding grassland habitats (described above) are expected to utilize this habitat as well.

#### **3.1.3.7. Pond**

**Vegetation.** A portion of the pond on the Wente Vineyards Golf Course makes up approximately 0.03 ac of the BSA (Photo 8, Appendix D). It is located in the southeast

section of the BSA and is surrounded by manicured lawns of the golf course and bordered on its west side by two non-native Chinese weeping willows (*Salix* sp.) and a native California sycamore. The pond does not support any emergent vegetation within the section of the BSA where it occurs.

**Wildlife.** Ponds and other water features on golf courses typically support relatively few wildlife species due to heavy disturbance from golf course management activities, including the removal of emergent aquatic vegetation in ponds. Nonetheless, a few aquatic species may occur in the pond including the native Pacific treefrog and western toad, as well as non-native bullfrogs (*Lithobates catesbeianus*), red swamp crayfish (*Procambarus clarkia*), and red-eared sliders (*Trachemys scripta elegans*).

No fish were observed in the pond during the reconnaissance survey; however, it is possible that the pond may provide habitat for some non-native fish species such as western mosquitofish (*Gambusia affinis*), which in the past were introduced to golf course water features to reduce the levels of mosquito larvae.

Invertebrates likely to be present in this habitat include species in the orders Diptera (aquatic flies), Trichoptera (caddisflies), and Ephemeroptera (mayflies).

A number of bird species may forage across the pond and at its edges including violet-green swallows, black phoebe (*Sayornis nigricans*), spotted sandpiper (*Actitis macularius*), as well as a number of common waterbird species such as the American coot (*Fulica americana*), Canada goose (*Branta canadensis*), and mallard (*Anas platyrhynchos*).

## **3.2. Regional Species and Habitats and Natural Communities of Concern**

### **3.2.1. Overview and Methods**

Special-status fish, wildlife, and plant species that occur in the Project region are presented in Table 2. Special-status plant and animal species for which potential habitat is present in the BSA are noted and are discussed in further detail in Sections 4.2 and 4.3, respectively. Natural communities of special concern are discussed in Section 4.1.

### **3.2.2. Special-Status Plant Species**

A query of the CNPS inventory (CNPS 2022) and CNDDDB database (CNDDDB 2022) identified a total of 58 special-status plant species as potentially occurring in at least one of the nine USGS 7.5-minute quadrangles containing or surrounding the BSA for CRPR 1 and 2 species, or in Alameda County for CRPR 3 and 4 species. CNDDDB-mapped records of special-status plants within the BSA vicinity are shown on Figure 4. Table 2 lists the species that are known to occur within the Project region along with their habitat

requirements, whether habitat is present for that species within the BSA, and the rationale for that determination. All of these species were determined to be absent from the site based on: (1) a lack of suitable habitat types within the BSA, (2) a lack of suitable edaphic conditions, (3) inappropriate elevational range or the species' range is not expected to include the BSA due to local extirpation or requirements for microhabitat conditions lacking from the BSA, or (4) the level of disturbance within the BSA. A list of all plant species identified during the reconnaissance-level survey is provided in Appendix E.

### 3.2.3. Special-Status Fish and Wildlife Species

The list of special-status fish and wildlife species that occur in the Project region, developed from the resources described in Chapter 2, was considered for potential to occur within the BSA (Table 2). CNDDDB-mapped records of special-status animals within the BSA vicinity are shown on Figure 5. A number of special-status animal species are known to occur in the Project region but are not expected to occur on the site because of the lack of suitable habitat or because the site is outside of the known range of the species. These species are included in Table 2 to indicate the rationale for considering them absent from the site. Several other special-status wildlife species that occur in the Project region may occur within the BSA only as uncommon to rare visitors, migrants, or transients, but are not expected to reside or breed on the site, to occur in large numbers, or otherwise to make substantial use of the site.

Special-status wildlife species that may occur in habitats within or adjacent to the BSA and may potentially be affected by Project activities are the monarch butterfly, California tiger salamander, California red-legged frog, San Joaquin kit fox, coast horned lizard (*Phrynosoma blainvillii*), southwestern pond turtle (*Actinemys pallida*), burrowing owl, loggerhead shrike (*Lanius ludovicianus*), white-tailed kite, pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and American badger. These species are discussed in further detail in Chapter 4.

Additionally, the tricolored blackbird, yellow warbler (*Setophaga petechia*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle, and Townsend's big-eared bat (*Corynorhinus townsendii*) are expected to occur in the BSA, but only as occasional foragers, migrants, or transients. These species are not expected to nest in, or otherwise regularly use the BSA, and are thus not expected to be adversely affected by Project activities. In addition, although ostensibly suitable habitat is present in the BSA for the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), no woodrat nests were detected in the BSA during the reconnaissance survey (during which the biologist conducted a focused survey for evidence of the species). Therefore, this species is considered to be absent from the BSA and is not expected to be adversely affected by Project activities.

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**Table 2. Listed, Proposed Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the BSA**

Common Name	Scientific Name	Status <sup>1</sup>	General Habitat Description	Habitat Present/Absent <sup>2</sup>	Rationale
<b>Federal or State Endangered or Threatened Species</b>					
<b>Plants</b>					
Palmate-bracted bird's beak	<i>Chloropyron palmatum</i>	FE, SE, CRPR 1B.1	Alkaline flats or barrens within chenopod scrub and valley/foothill grassland. 16 – 512 ft.	A	There are no suitable alkaline flat or barrens within the BSA. Only known in Alameda County from the Livermore Wetlands Preserve, approximately 6 mi east of the BSA. Considered absent due to lack of suitable habitat.
Livermore tarplant	<i>Deinandra bacigalupii</i>	SE, CRPR 1B.1	Alkaline meadows and along edges of alkali barrens or sinks. 495 – 611 ft.	A	No suitable alkaline soils are present in the BSA.
Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	FE, SE, CRPR 1B.1	Cismontane woodland, chaparral, valley and foothill grassland, pinyon and juniper woodland. 885-1805 ft.	A	This species grows primarily on slopes, and suitable slope habitat is absent from the BSA.
California seablite	<i>Suaeda californica</i>	FE, CRPR 1B.1	Marshes and swamps.	A	No suitable marsh or swamp habitat is present in the BSA.
<b>Animals</b>					
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE	Ephemeral freshwater and playa pools in the Central Valley and the San Francisco Bay Area.	A	No historical CNDDDB records of the species are found within the BSA region. Furthermore, the BSA is outside of the species' range and the EACCS does not map any portions of the BSA (or adjacent areas) as suitable habitat for this species (ICF International 2010). Determined to be absent.

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Common Name	Scientific Name	Status <sup>1</sup>	General Habitat Description	Habitat Present/Absent <sup>2</sup>	Rationale
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	FE	Ephemeral freshwater and vernal pools in the Central Valley and the San Francisco Bay Area.	A	Historical CNDDDB records of this species are suppressed, so it is unknown if there are any known records of the species in the BSA region. However, no suitable habitat was found within the BSA and the EACCS does not map any portions of the BSA (or adjacent areas) as suitable habitat for this species (ICF International 2010). Determined to be absent.
Vernal pool fairy shrimp	<i>Lepidurus packardi</i>	FE	Ephemeral freshwater and vernal pools in the Central Valley and the San Francisco Bay Area.	A	The nearest historical CNDDDB records of the species is found approximately 6 mi north of the BSA, where in the early 1990s individuals of the species were found in an alkali sink containing vernal pools on the Springtown site. Other individuals were found in pools within seasonal wetlands on the Stonechase site. The most recent record comes from 2005, when the species was detected in vernal pools in a heavily grazed pasture north of Livermore, approximately 7 mi northeast of the BSA (CNDDDB 2022). However, no suitable habitat for the species was identified within the BSA. Further, the EACCS does not map any portions of the BSA (or adjacent areas) as suitable habitat for this species (ICF International 2010). Determined to be absent.
Monarch butterfly	<i>Danaus plexippus</i>	FC	Requires milkweeds ( <i>Asclepias</i> spp.) for egg-laying and larval development, but adults obtain nectar from a wide variety of flowering plants in many habitats. Individuals congregate in winter roosts, primarily in Mexico and the central and southern California coast. Breeds from March to October.	HP	The monarch butterfly occurs in the Project region primarily as a migrant, and no current or historical overwintering sites are known as far inland as the BSA, so no large nonbreeding aggregations would occur. While no milkweed plants were observed in the BSA during the February 2020 reconnaissance surveys, those surveys were not conducted at the appropriate time of year to detect such plants, and larval host plants may occur in small numbers. Thus, small numbers of individuals may breed in the BSA from March through October. Individuals may also forage in the BSA from spring through fall.



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Common Name	Scientific Name	Status <sup>1</sup>	General Habitat Description	Habitat Present/Absent <sup>2</sup>	Rationale
Callippe silverspot butterfly	<i>Speyeria callippe callippe</i>	FE	Grassland habitat containing Johnny jump-up ( <i>Viola pedunculata</i> ), the larval host plant.	A	The EACCS maps the BSA as potential habitat for the Callippe Silverspot butterfly (ICF International 2010). However, there are only four known extant populations of the species, and Alameda County occurrences are extirpated (USFWS 2009).
Central California Coast steelhead	<i>Oncorhynchus mykiss</i>	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	A	Dry Creek is an ephemeral stream which lacks sufficient hydroperiod in the BSA for the Central California coast steelhead or other anadromous fish. Determined to be absent.
Delta smelt	<i>Hypomesus transpacificus</i>	FT, SE	Shallow, tidal water in the Sacramento/San Joaquin River Delta.	A	Dry Creek is an ephemeral stream which lacks sufficient hydroperiod in the BSA for the Delta smelt or other fish. Determined to be absent.
California tiger salamander	<i>Ambystoma californiense</i>	FT, SE	Vernal or temporary pools in annual grasslands or open woodlands.	HP	The EACCS maps the BSA as potential upland habitat for the California tiger salamander (ICF International 2010), and the species is known in the vicinity of the BSA from breeding records in a stock pond and mitigation pond located in Sycamore Grove Park, approximately 0.65 mi west-southwest of the BSA (CNDDDB 2022) and within the species' known dispersal distance. Additionally, the Wente Vineyards Golf Course pond, within and adjacent to the BSA, may provide suitable breeding habitat for the species. Dry Creek does not provide suitable breeding habitat, though the species may disperse across or along the channel. California annual grasslands in the BSA support California ground squirrel and pocket gopher colonies whose burrows can provide suitable refugia for California tiger salamander. Thus, the species may disperse across the BSA or take refuge in small mammal burrows on the Project footprint, and is determined to be potentially present.

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California red-legged frog	<i>Rana draytonii</i>	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	HP	The EACCS maps the BSA as potential upland/movement habitat (ICF International 2010), and the species is known in the vicinity of the BSA from two CNDDDB records. The closest record is 1.3 mi southeast of the BSA, in Arroyo Valle downstream from the Del Valle Reservoir dam. The species may be present in other reaches of Arroyo Valle, which flows within 0.2 mi of the BSA and has direct connectivity with Dry Creek. Additionally, the Wente Vineyards Golf Course pond, within and adjacent to the BSA, may provide suitable breeding habitat for the species. Dry Creek does not provide suitable breeding habitat, as it lacks sufficient hydroperiod for larval development. However, the ephemeral Dry Creek channel, which connects with Arroyo Valle to the southwest, provides suitable dispersal and foraging habitat when water is present, and California annual grassland habitats in the BSA provide suitable foraging, dispersal and refugia habitat for red-legged frogs. California red-legged frogs may be briefly present in BSA reaches of Dry Creek when water is present, and they may forage or disperse across upland habitats in the BSA.
Foothill yellow-legged frog	<i>Rana boylei</i>	SE, CSSC	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	A	Although the EACCS maps Dry Creek as potential breeding and movement habitat for the foothill yellow-legged frog, it acknowledges that “. . . the model likely overestimates foothill yellow-legged frog habitat substantially. Site surveys would need to verify whether each stream was suitable for the species” (ICF International 2010). Suitable habitat is absent from the BSA, as Dry Creek is an ephemeral stream which lacks sufficient hydroperiod to support the species. Thus, the species is considered absent from the BSA.

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Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT, ST	Primarily associated with scrub and chaparral. Also may occur in any inner Coast Range plant community.	A	Although the EACCS maps the BSA as part of a recovery unit area for the species (ICF International 2010), there is no suitable scrub or chaparral habitat within or near the BSA, and the BSA is outside the species' range. Determined to be absent.
California least tern	<i>Sternula antillarum browni</i>	FE, SE	Nests along the coast on bare or sparsely vegetated, flat substrates. In the San Francisco Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters.	A	No nesting, roosting, or suitable open water foraging habitat is present in the BSA. Determined to be absent.
Tricolored blackbird	<i>Agelaius tricolor</i>	ST	Nests in extensive emergent vegetation and fields.	HP	Marginally suitable foraging habitat for this species occurs in the California annual grasslands in the BSA, and the EACCS maps the BSA as foraging habitat for the species (ICF International 2010). However, suitable nesting habitat in the form of dense stands of emergent vegetation is absent from the BSA, and the species is not expected to establish a nesting colony there. Nonetheless, there is some potential, albeit low, for individuals or small groups of tricolored blackbirds to pass through the BSA briefly as foragers or migrants.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE, ST	Extensive open grasslands or grasslands with scattered shrubby vegetation.	HP	EACCS habitat modeling places the BSA along the outer margin of core habitat for the San Joaquin kit fox (ICF International 2010), and ostensibly suitable habitat is present in the BSA. However, all available data indicates that the current range of the San Joaquin kit fox does not extend into the BSA region (USFWS 2020). An historical CNDDB record of a kit fox den with two adult and two juveniles was recorded in 1989, approximately 7 mi northeast of the BSA, north of the Lawrence Livermore National

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					Laboratory Site and Patterson Pass Road (CNDDDB 2022). However, scent dog surveys conducted in 2018 at Lawrence Livermore National Laboratory Site detected no kit fox sign across approximately 20.5 mi of transects (USFWS 2020). Given the existing high levels of human disturbance and lack of recent records anywhere in the vicinity, this species is not expected to occur in the BSA, except, possibly, as a rare dispersant or forager.
<b>California Native Plant Society (CNPS) Rare Species</b>					
Santa Clara thorn-mint	<i>Acanthomintha lanceolata</i>	CRPR 4.2	Chaparral, Cismontane woodland, Coastal scrub in rocky soils. 260 – 3935 ft.	A	Suitable scrub and woodland habitat is absent from the BSA.
California androsace	<i>Androsace elongata</i> ssp. <i>acuta</i>	CRPR 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland; generally on rocky, grassy slopes; 490 – 4,280 ft.	A	Known from eastern Alameda County within the Diablo range. Ostensibly suitable rocky soils are present in the BSA, but the BSA is too weedy and disturbed to provide suitable habitat.
Slender silver moss	<i>Anomobryum julaceum</i>		Damp rocks and acidic substrates along road cuts.	A	Suitable damp conditions are absent from the BSA.
Mt. Diablo manzanita	<i>Arctostaphylos auriculata</i>	CRPR 1B.3	Chaparral, cismontane woodland. 445 – 2135 ft.	A	No suitable chaparral or woodland habitat is present in the BSA.
Contra Costa manzanita	<i>Arctostaphylos manzanita</i> ssp. <i>laevigata</i>	CRPR 1B.2	Chaparral. 1410 – 3610 ft.	A	No suitable chaparral is present in the BSA and the BSA is outside the altitudinal range of this species.

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Alkali Milk-Vetch	<i>Astragalus tener</i> <i>var. tener</i>	CRPR 1B.2	Playas, Valley and foothill grassland, Vernal pools. 5-195 ft.	A	Suitable alkaline/saline soils are absent from the BSA and the BSA is outside the species' altitudinal range.
Heartscale	<i>Atriplex cordulata</i> var. <i>cordulata</i>	CRPR 1B.2	Chenopod scrub, meadows and seeps with saline or alkaline soils; valley and foothill grassland in sandy soils; 0 – 560 ft.	A	Suitable alkaline/saline soils are absent from the BSA and the BSA is too weedy and disturbed to provide suitable habitat.
Crownscale	<i>Atriplex coronata</i> var. <i>coronata</i>	CNPS Rank 4.2	Chenopod scrub, valley and foothill grassland, vernal pools in clay alkaline soils; 0 – 1,935 ft.	A	Known primarily from the Livermore Wetlands Preserve in eastern Alameda County. Suitable clay alkaline soils are absent from the BSA.
Brittlescale	<i>Atriplex depressa</i>	CRPR 1B.2	Chenopod scrub, valley and foothill grassland, vernal pools in clay alkaline soils; 0 – 1,050 ft.	A	Known primarily from the Livermore Wetlands Preserve in eastern Alameda County. Suitable clay alkaline soils are absent from the BSA.
Lesser saltscale	<i>Atriplex minuscula</i>	CRPR 1B.1	Chenopod scrub, playas, valley and foothill grassland in clay alkaline soils; 45 – 655 ft.	A	Known primarily from the Livermore Wetlands Preserve in eastern Alameda County. Suitable alkaline/clay soils are absent from the BSA.
Big-scale balsamroot	<i>Balsamorhiza macrolepis</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland, often serpentinite. 150 – 5100 ft.	A	Suitable serpentine soils are absent from the BSA, and the grassland habitats are too weedy and disturbed to support this species.
Big tarplant	<i>Blepharizonia plumosa</i>	CRPR 1B.1	Valley and foothill grasslands in clay soils.	A	Suitable clay soils are absent from the BSA.

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Brewer's calandrinia	<i>Calandrinia breweri</i>	CRPR 4.2	Chaparral, coastal scrub/sandy or loamy, disturbed sites, and burns.	A	No suitable chaparral or scrub habitat is present in the BSA.
Mt. Diablo fairy-lantern	<i>Calochortus pulchellus</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland. 100 – 2755 ft.	A	This species grows on grassy slopes and openings in chaparral and oak woodland communities. The Project site is primarily disturbed and weedy California annual grassland, and this species is not expected to occur due to lack of suitable habitat.
Congdon's tarplant	<i>Centromadia parryi</i> ssp. <i>congdonii</i>	CRPR 1B.1	Valley and foothill Grassland in depressions, swales floodplains with alkaline soils; usually disturbed areas; 0 – 755 ft.	A	Suitable alkaline soils are absent from the BSA.
Oakland star-tulip	<i>Calochortus umbellatus</i>	CRPR 4.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland; usually on serpentine. 330 – 2295 ft.	A	Suitable serpentine habitats are absent from the BSA.
Chaparral harebell	<i>Campanula exigua</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland. 900 – 4100 ft.	A	The BSA is outside this species' altitudinal range, and it is not expected to occur.
Hispid salty bird's beak	<i>Chloropyron molle</i> ssp. <i>hispidum</i>	CRPR B.1	Saline marshes, playas, and flats within valley and foothill grassland; 0 – 510 ft.	A	Suitable saline soils are absent from the BSA.

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Santa Clara red ribbons	<i>Clarkia concinna</i> ssp. <i>automixa</i>	CRPR 4.3	Chaparral, cismontane woodland. 295 – 4920 ft.	A	Suitable chaparral and woodland habitat is absent from the BSA.
Small-flowered morning-glory	<i>Convolvulus simulans</i>	CRPR 4.3	Chaparral, cismontane woodland. 100 – 2430 ft.	A	Suitable chaparral and woodland habitat is absent from the BSA.
Hospital Canyon larkspur	<i>Delphinium californicum</i> ssp. <i>interius</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Coastal scrub. 640 – 3595 ft.	A	Suitable scrub and woodland habitats are absent from the BSA.
Recurved larkspur	<i>Delphinium recurvatum</i>	CRPR 1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland in alkaline soils. 10 – 2590 ft.	A	Suitable alkaline soils are absent from the BSA.
Mt. Diablo Buckwheat	<i>Eriogonum truncatum</i>	CRPR 1B.1	Chaparral, Coastal scrub, Valley and foothill grassland in sandy soils. 10 – 1150 ft.	A	The grasslands on the Project site are too disturbed and weedy to provide suitable habitat.
Bay buckwheat	<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i>	CRPR 4.2	Cismontane woodland, Lower montane coniferous forest. 2295 – 7220 ft.	A	The BSA is outside the altitudinal range of this species.
Jepson's woolly sunflower	<i>Eriophyllum jepsonii</i>	CRPR 4.3	Chaparral, cismontane woodland, coastal scrub. 655 – 3365 ft.	A	Suitable woodland/chaparral habitat is absent from the BSA.
Jepson's coyote-thistle	<i>Eryngium jepsonii</i>	CRPR 1B.2	Valley and foothill grassland, Vernal pools in clay soils. 10 – 985 ft.	A	Suitable clay soils are absent from the BSA.
Diamond-petaled California poppy	<i>Eschscholzia rhombipetala</i>	CRPR 1B.1	Valley and foothill grassland, 0 -3200 ft.	A	This species is not known in the BSA region, and the grasslands in the BSA are too weedy and disturbed to provide suitable habitat.

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San Joaquin spearscale	<i>Extriplex joaquinana</i>	CRPR 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils; 0 – 2,740 ft.	A	Suitable alkaline soils are absent from the BSA.
Stinkbells	<i>Fritillaria agrestis</i>	CRPR 4.2	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland in clay and sometimes serpentine soils. 35 – 5100 ft.	A	Suitable serpentine/clay soils are absent from the BSA.
Fragrant fritillary	<i>Fritillaria liliacea</i>	CRPR 1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland, often in serpentine soils. 10 – 1345 ft.	A	Suitable serpentine soils are absent from the BSA and the BSA is too weedy and disturbed to provide suitable habitat.
Phlox-leaf serpentine bedstraw	<i>Galium andrewsii</i> ssp. <i>gatense</i>	CRPR 4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest in rocky serpentine soils. 490 – 4755 ft.	A	Suitable serpentine soils are absent from the BSA.
Diablo helianthella	<i>Helianthella castanea</i>	CRPR 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland generally in rocky alluvial soils; 195 – 4,265 ft.	HP/SA	While marginally suitable habitat is present in the BSA, this species is known only from the Berkeley Hills in Alameda County. While the February 2020 reconnaissance surveys were not conducted during the bloom period for this species, vegetative growth would have been evident, and no plants in the genus <i>Helianthella</i> were detected during the surveys. Determined to be absent.



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Brewer's western flax	<i>Hesperolinon breweri</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland, usually serpentine soils. 100 – 3100 ft.	A	Suitable serpentine soils are absent from the BSA.
Hogwallow starfish	<i>Hesperovax caulescens</i>	CRPR 4.2	Drying shrink-swell clay of shallow vernal pools and flats/depressions in Valley and foothill grassland; sometimes in alkaline soil; 0 – 1,655 ft.	A	Suitable vernal pool habitats are absent from the BSA.
Ferris' goldfields	<i>Lasthenia ferrisiae</i>	CNPS Rank 4.2	Wet saline flats and vernal pools with clay soils; 65 – 2,295 ft.	A	Suitable saline flats, vernal pools, and clay soils are absent from the BSA.
Legenere	<i>Legenere limosa</i>	CRPR 1B.1	Vernal pools.	A	Vernal pool habitat is absent from the BSA.
Bristly leptosiphon	<i>Leptosiphon acicularis</i>	CRPR 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. 180 – 4920 ft.	A	This species is not known in the BSA region, and the grasslands in the BSA are too disturbed and weedy to provide suitable habitat for this species.
Serpentine leptosiphon	<i>Leptosiphon ambiguus</i>	CRPR 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland/ usually serpentinite.	A	Suitable serpentine habitat is absent from the BSA.
Hall's bush-mallow	<i>Malacothamnus hallii</i>	CRPR 1B.2	Chaparral, Coastal scrub. 35 – 2495 ft.	A	Suitable chaparral and coastal scrub habitat is absent from the BSA.
Woodland woollythreads	<i>Monolopia gracilens</i>	CRPR 1B.2	Broadleaved upland forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, in	A	Suitable serpentine soils are absent from the BSA.

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			serpentine soils. 330 – 3935.		
Prostrate vernal pool navarretia	<i>Navarretia prostrata</i>	CRPR 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; mesic. 10 – 3,970 ft.	A	Suitable mesic conditions are absent from the BSA.
Tehama navarretia	<i>Navarretia heterandra</i>	CRPR 4.3	Heavy soils, vernal pools, wet or drying flats in Valley and foothill grassland. 100 – 3315 ft.	A	Suitable heavy soils are absent from the BSA.
Mt. Diablo phacelia	<i>Phacelia phacelioides</i>	CRPR 1B.2	Chaparral, Cismontane woodland, in rocky soils. 1640 -4495 ft.	A	The BSA is outside the altitudinal range of this species.
Oregon polemonium	<i>Polemonium careum</i>	CRPR 2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest. 0 – 6005 ft.	A	Suitable prairie, scrub, and forest habitats are absent from the BSA.
California alkali grass	<i>Puccinellia simplex</i>	CRPR 1B.2	Coastal salt marsh; 5 – 3,050 ft.	A	Coastal salt marsh is absent from the BSA.
Chaparral ragwort	<i>Senecio aphanactis</i>	CRPR 2B.2	Chaparral, Cismontane woodland, Coastal scrub, sometimes alkaline soils. 50 – 2625 ft.	A	Suitable chaparral/scrub and woodland habitats are absent from the BSA.
Long-styled sand-spurrey	<i>Spergularia macrotheca</i> var. <i>longistyla</i>	CRPR 1B.2	Marshes and swamps, Meadows and seeps, in alkaline soils. 0 – 835 ft.	A	Suitable alkaline soils are absent from the BSA.
Most beautiful jewelflower	<i>Streptanthus albidus</i> ssp. <i>paramoenus</i>	CRPR 1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland, in	A	Suitable serpentine soils are absent from the BSA.

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			serpentine soils. 310 - 3280 ft.		
Mt. Diablo jewelflower	<i>Streptanthus hispidus</i>	CRPR 1B.3	Chaparral, Valley and foothill grassland in rocky soils. 1200 – 3935 ft.	A	The BSA is outside the altitudinal range of this species.
Northern slender pondweed	<i>Stuckenia filiformis</i> ssp. <i>alpine</i>	CRPR 2B.2	Marshes and swamps. 985 – 7055 ft.	A	Suitable habitat is absent from the BSA, and the BSA is outside the altitudinal range of this species.
California seablite	<i>Suaeda californica</i>	CRPR 1B.1	Marshes and swamps. 0 – 50 ft.	A	Suitable habitat is absent from the BSA, and the BSA is outside the altitudinal range of this species.
Saline clover	<i>Trifolium hydrophilum</i>	CRPR 1B.2	Salt marshes and open areas in alkaline soils. 0 – 985 ft.	A	Suitable alkaline soils are absent from the BSA.
Coastal triquetrella	<i>Triquetrella californica</i>	CRPR 1B.2	Coastal bluff scrub, Coastal scrub. 35 – 330 ft.	A	The species is not known in the BSA region and suitable habitat is absent from the BSA.
Caper-fruited tropidocarpum	<i>Tropidocarpum capparideum</i>	CRPR 1B.1	Valley and foothill grassland in alkaline soils; 0 – 1495 ft.	A	Suitable alkaline soils are absent from the BSA.
Oval-leaved viburnum	<i>Viburnum ellipticum</i>	CRPR 2B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest. 705 – 4595 ft.	A	Suitable habitat is absent from the BSA.
<b>California Species of Special Concern</b>					
Coast horned lizard	<i>Phrynosoma blainvillii</i>	CSSC	Open habitats with sandy, loosely textured soils, such as chaparral, coastal scrub, annual grassland, and clearings in riparian woodlands with the presence of native harvester ants	HP	Suitable habitat for the species is found in the sandy soils of the Dry Creek channel bed and in open spaces with loosely textured and sandy soils found in the California annual grassland and woodland habitats within the BSA. The nearest historical CNDDDB record of the species is located approximately 4.4 mi east-southeast of the BSA, northeast of Lake Del Valle Reservoir (CNDDDB 2022).

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			( <i>Pogonomyrmex barbatus</i> ).		
Western spadefoot	<i>Scaphiopus hammondi</i>	CSSC	Grasslands and occasionally valley-foothill hardwood woodlands; vernal pools or similar ephemeral pools required for breeding.	A	The species is not known to occur as far west as the BSA, and no records of the species occur in the vicinity. Suitable seasonal wetland habitat is absent from the vicinity. Determined to be absent.
Southwestern pond turtle	<i>Actinemys pallida</i>	CSSC	Occurs in and around a wide variety of perennial or nearly perennial aquatic habitats including canals, stock ponds, lakes, streams, and rivers. Nests in uplands, typically in close proximity to aquatic habitat.	HP	Aquatic habitat for the southwestern pond turtle is absent from the reach of Dry Creek within the BSA. However, suitable aquatic habitat for the species is found in the golf course pond in the southeastern portion of the BSA, and Arroyo Valle, located approximately 0.2 mi southwest of the BSA, where southwestern pond turtles have been observed (CNDDDB 2022). The species may utilize the ephemeral stream habitat of Dry Creek in the BSA for dispersal or to move between suitable aquatic foraging and upland breeding habitats. Annual grasslands throughout the BSA provide suitable nesting habitat for the species. Thus, southwestern pond turtles may occur within the BSA, primarily as transients, but potentially also as breeders in upland habitat.
Burrowing owl	<i>Athene cunicularia</i>	CSSC (burrows)	Grasslands and ruderal habitats where ground squirrel or other burrows are present.	HP	Although no burrowing owls or evidence of their presence (i.e., whitewash and/or pellets) was found within the BSA or the immediate vicinity, numerous burrows of California ground squirrels and active ground squirrel colonies were observed during the reconnaissance survey. Because suitable breeding and foraging habitat for burrowing owls is present throughout the BSA, particularly in the upland grasslands, burrowing owls may utilize California annual and ruderal grasslands within the BSA.

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Loggerhead shrike	<i>Lanius ludovicianus</i>	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	HP	Suitable foraging habitat for loggerhead shrikes is available throughout the grassland habitat on site, and loggerhead shrikes are known to occur in the BSA vicinity (CNDDDB 2022). Suitable nesting habitat is available within the BSA in isolated shrubs or trees, and up to one pair of this species may nest in the BSA.
Yellow warbler	<i>Setophaga petechia</i>	CSSC (nesting)	Nests in riparian woodlands, especially dominated by cottonwood ( <i>Populus</i> spp.), willow ( <i>Salix</i> spp.), and alder ( <i>Alnus</i> spp.).	HP/SA (nesting)	The riparian habitat found within the BSA does not provide suitable nesting habitat for the species. Yellow warblers may occur as occasional migrant foragers on the BSA, but are not expected to nest on or adjacent to the BSA.
Yellow-breasted chat	<i>Icteria virens</i>	CSSC (nesting)	Nests in dense stands of willow and other riparian habitat.	A	No suitable riparian or willow habitat occurs within the BSA. Determined to be absent.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	CSSC (nesting)	Breeds and forages in meadows, fallow fields, and pastures. Prime breeding habitat features very large, unfragmented areas of grassland with patches of bare ground, and clumps of shrubby vegetation surrounded by denser grass cover for singing perches and nest sites (Vickery 1996, Lyon 2000, Sutter and Ritchison 2005).	HP/SA (nesting)	Records of nesting in the Project region indicate that breeding does not occur in or near the BSA, but instead in more extensive grasslands surrounding the urbanized Livermore area. While small patches of open grassland are present within and adjacent to the BSA, they are not extensive enough to support breeding. Thus, while the species may occur in the BSA in small numbers during migration, it is not expected to occur as a breeder.
Pallid bat	<i>Antrozous pallidus</i>	CSSC	Forages over many habitats; roosts in caves, rock outcrops,	HP	Pallid bats do not breed in the BSA vicinity, but the species is known from a number of historical records in the BSA region, and a single suppressed CNDDDB record within approximately 1 mi of the

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Common Name	Scientific Name	Status <sup>1</sup>	General Habitat Description	Habitat Present/Absent <sup>2</sup>	Rationale
			buildings, and hollow trees.		BSA (CNDDDB 2022). Suitable roosting habitat for individual or a moderate number of pallid bats may be present in larger trees with cavities in the BSA, although no evidence of large numbers of bats was observed during the reconnaissance survey in February 2020. Suitable foraging habitat is present throughout the grasslands of the BSA, and this species may roost or forage in the BSA.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	HP	No suitably large tree cavities or other structures capable of supporting a roost or breeding colony of the species was observed in the BSA. However, suitable foraging habitat is present throughout the grasslands of the BSA, and this species may occur throughout BSA as an occasional forager.
Western red bat	<i>Lasiurus blossevillii</i>	CSSC	Riparian woodlands; riparian obligate that roosts in the foliage of large trees.	HP	The species does not breed in the region; however, suitable riparian roosting habitat is available in the BSA and the species may roost in the foliage of trees in the BSA.
American badger	<i>Taxidea taxus</i>	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	HP	Badgers are not known to occur within the BSA and no individuals or suitable burrows were observed during reconnaissance level surveys in 2020. However, badgers have been recorded in the surrounding vicinity, with the nearest CNDDDB record located approximately 4 mi northwest of the BSA, near Sandia National Laboratories in Livermore (CNDDDB 2022). Suitable denning and foraging habitat for badgers is present in the grassland habitats, although badgers are unlikely to den on-site due to the surrounding high levels of human disturbance. Should badgers occur in the BSA, they would most likely be dispersing or foraging individuals. Nevertheless, there is some potential for badgers to den in the BSA, albeit low.

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Common Name	Scientific Name	Status <sup>1</sup>	General Habitat Description	Habitat Present/Absent <sup>2</sup>	Rationale
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	HP/SA	Riparian and woodland habitats in the BSA provide suitable habitat for this species. However, no nests were observed in the BSA during the reconnaissance survey in 2020. Species determined to be absent.
<b>State Fully Protected Species</b>					
White-tailed kite	<i>Elanus leucurus</i>	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	HP	White-tailed kites are known to occur in the BSA region, but were not observed during reconnaissance level surveys in 2020. Grassland habitat provides suitable foraging habitat for kites, and isolated trees on site may provide suitable nesting habitat for up to one pair of nesting white-tailed kites.
Golden eagle	<i>Aquila chrysaetos</i>	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas.	HP	The EACCS models the riparian corridor of Arroyo Valle – located approximately 0.2 mi southwest of the BSA – as potential nesting habitat for the species. However, no golden eagle nests are known from the BSA or vicinity and suitably large trees or structures that could support an eagle nest are largely absent from the BSA. In addition, the EACCS models the BSA as potential foraging habitat for the species. Thus, golden eagles may occur as occasional foragers on the BSA, but are not expected to nest on or adjacent to the BSA.

<sup>1</sup> Status: Federally Endangered (FE); Federally Threatened (FT); State Endangered (SE); State Threatened (ST); California Fully Protected Species (SP); California Species of Special Concern (CSSC); California Rare Plant Rank (CRPR).

CNPS Rare Plant Ranks

- 1A = Plants presumed extinct in California
- 1B = Plants that are rare, threatened, or endangered in California and elsewhere
- 2 = Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 = Plants about which more information is needed—a review list
- 4 = A watch list of plants of limited distribution

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### CNPS Threat Code Extensions

0.1: Seriously endangered in California

0.2: Fairly endangered in California

0.3: Not very endangered in California

<sup>2</sup> Absent [A] - no habitat present and no further work needed. Habitat Present [HP] - habitat is, or may be present. The species may be present. Present [P] - the species is present. Habitat Present/Species Absent [HP/SA] – there is suitable habitat for the species, but its potential presence on the site has been ruled out due to other factors. Critical Habitat [CH] – Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.



### 3.2.4. Habitats and Natural Communities of Special Concern

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDDB 2022). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings are a reflection of the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (Faber-Langendoen et al. 2012):

- G1/S1: Critically imperiled
- G2/S2: Imperiled
- G3/S3: Vulnerable
- G4/S4: Apparently secure
- G5/S4: Secure

A query of sensitive habitats in Rarefind (CNDDDB 2022) identified seven sensitive habitats as occurring within the nine USGS 7.5-minute quadrangles containing or surrounding the BSA: alkali meadow (Rank G3/S2.1), alkali seep (Rank G3/S2.1), cismontane alkali marsh (Rank G1/S1.1), northern claypan vernal pool (Rank G1/S1.1), sycamore alluvial woodland (Rank G1/S1.1), valley needlegrass grassland (Rank G3/S3.1), and valley sink scrub (Rank G1/S1.1). Sycamore alluvial woodland (Rank G1/S1.1) is characterized by Holland (1986) as being open to moderately closed, winter-deciduous broadleaved riparian woodland overwhelmingly dominated by well-spaced sycamores. California buckeye and elderberry are widely spaced in the subcanopy. Understories are usually introduced grasses or mulefat (*Baccharis salicifolia*). The CNDDDB maps sycamore alluvial woodland in close proximity to the south of the BSA (Figure 4); however, this sensitive habitat does not occur within the BSA and is considered absent. No other sensitive habitat type occurs within the BSA vicinity.

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority (CDFW 2022). The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFW 2022).

## Chapter 4. Results: Biological Resources, Discussion of Impacts, and Mitigation

Various biological resources, including sensitive and regulated habitats, as well as special-status plants and animals, could potentially be impacted by the Project. This section describes these biological resources, potential impacts to them, avoidance and minimization measures incorporated into the Project to protect them, and any necessary measures to compensate for impacts to these biological resources in accordance with applicable environmental laws and regulations. Table 3 lists the acreage of impacts per habitat type.

**Table 3. Acreage of Impacts per Habitat Type<sup>1</sup>**

Biotic Habitat/Land Use Type	Acreage of Permanent Impacts	Acreage of Temporary Impacts
Developed	0.74	1.28
California Annual Grassland/Ruderal Grassland	0.89	1.75
Riparian Grassland	0.17	0.13
Riverine (Ephemeral Stream)	0.11	0.07
Golf Course	0.02	0.02
Vineyard	0	0.08
<b>Total</b>	<b>1.93</b>	<b>3.33</b>

### 4.1. Habitats and Natural Communities of Special Concern

#### 4.1.1. Discussion of Riverine (Ephemeral Stream) Habitat within Dry Creek

The BSA supports aquatic riverine habitat occurring within the OHWM of Dry Creek. As described in Chapter 2, this habitat is considered sensitive/regulated because it would be considered waters of the U.S./state and is expected to be claimed as jurisdictional by the USACE, RWQCB, and CDFW. The ephemeral channel of Dry Creek conveys water only during and immediately following rain events, and is generally dry during the summer months.

##### 4.1.1.1. Survey Results

A wetland delineation will be performed as part of the environmental review of the Project, but has not yet been completed. However, the OHWM and top of bank were mapped during the February 2020 reconnaissance surveys. The BSA contains 0.27 ac of aquatic riverine habitat that occurs within the OHWM of Dry Dreek, comprising a total stream reach of 390 linear (ln) ft (Figure 3). The creek was dry at the time of the surveys. A small amount of wetland vegetation was observed growing within the aquatic riverine habitat on the site (less than 5% cover), but

<sup>1</sup> Values are approximate due to rounding error.

may be more abundant during some years depending on hydrological conditions relating to frequency and intensity of flows. The channel is primarily unshaded, with a sparse riparian canopy of only a few trees, and underlain by a substrate of sand, gravel, and small to medium cobble. Approximately 30 In ft of the channel are currently shaded by the existing car and pedestrian bridges.

#### **4.1.1.2. Project Impacts**

The Project will result in direct permanent impacts to 0.11 ac and 148 In ft of ephemeral stream habitats through construction of the new bridge, which may include placement of fill, piles, wing walls, abutments and RSP. The Project will also result in direct temporary impacts to 0.07 ac and 96 In ft of ephemeral stream habitat due to construction access, movement of equipment and personnel, and possible construction of cofferdams and stream bypass structures. Indirect impacts could include interruption or alteration of hydrology to waters downstream of the Project, or reduction in water quality downstream of the Project if water is present in the channel of Dry Creek and mitigation measures are not employed.

Potential shading effects upon vegetation growth are expected to have a negligible effect. Although the new bridge will be slightly longer and wider than the existing vehicle and pedestrian bridges, the river bottom currently consists of sands and gravel with some cobbles of varying sizes and the area is largely devoid of vegetation. Thus, no in-channel wetlands within the BSA will be lost due to shading in the area of the new bridge deck, as none currently exist.

#### **4.1.1.3. Avoidance and Minimization Efforts**

The following measures will be implemented to minimize any potential Project effects on aquatic riverine habitat and water quality:

- Work within streams would be restricted to the dry season from April 15 to October 15 [or as directed by regulatory permitting agency] to protect water quality.
- All appropriate Avoidance and Minimization Measures (AMMs) listed in the EACCS that would apply to and protect these aquatic habitats will be implemented.
- The limits of Dry Creek shall be clearly depicted on final Project plan sets.
- Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur, as feasible.
- Final grading and construction plans shall minimize construction-related impacts to Dry Creek to the maximum extent feasible to achieve Project goals and improvements.
- All temporarily impacted habitat will be restored to pre-Project conditions through the re-establishment of original contours within Dry Creek.

**Minimization of Effects on Water Quality.** The Project applicant will implement BMPs as recommended or required by the conditions of resource agency permits to protect water quality. These measures will include, but are not limited to, the following:

- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat.
- No equipment will be operated in the live stream channel.
- Equipment staging and parking areas shall occur within established access areas in upland habitat above the top of bank.
- Machinery or vehicle refueling, washing, and maintenance shall occur at least 100 ft from the top of bank. Equipment shall be regularly maintained to prevent fluid leaks. Any leaks shall be captured in containers until the equipment is moved to a repair location. A spill prevention and response plan will be prepared prior to construction and will be implemented immediately for cleanup of fluid or hazardous materials spills.
- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody.
- The Project will comply with the Municipal Regional Stormwater NPDES Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters.

#### **4.1.1.4. Compensatory Mitigation**

The Project will provide compensatory mitigation for permanent loss of riverine habitat. According to the EACCS, such mitigation is typically provided based on the standards (e.g., EACCS mitigation ratios) set for focal species that occur in the riverine habitat to be impacted. Because riverine habitat in the Project footprint provides dispersal and foraging habitat for California red-legged frog but is outside of designated critical habitat for the species, the mitigation ratio for the impacts may be 2.5:1, as determined by the EACCS requirements for focal species (ICF International 2010). Such mitigation may take the form of the purchase of credits in a mitigation bank and/or Project-specific mitigation. However, compensatory mitigation will ultimately be determined based on the conditions of permits from the USACE, RWQCB, and CDFW required for these impacts.

#### **4.1.1.5. Cumulative Impacts**

Cumulative impacts to the aquatic riverine habitat within Dry Creek and within other streams within the region result from past, current, and reasonably foreseeable future projects in the region. Proposed Alameda County projects that may affect similar stream habitat include

periodic maintenance and replacement of bridges throughout Alameda County and other development projects in this portion of Alameda County.

Although such projects will result in impacts to aquatic riverine habitats within the area, it is expected that most current and future projects that affect these habitats will have to mitigate these impacts through the CEQA, CFGC Section 1602, or CWA Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to the affected aquatic riverine habitat, either directly or indirectly, minimizing cumulative impacts to this habitat.

Any contribution of the Project to cumulative effects on aquatic riverine habitat that may be incurred will be minimized as per Section 4.1.1.3. Thus, provided that the Project successfully incorporates the applicable avoidance and conservation measures described in this NES, the Project will not contribute to substantial cumulative effects on aquatic riverine habitat in Dry Creek or other streams the Project vicinity.

#### **4.1.2. Discussion of Riparian Grassland**

Riparian habitats are found along streams, rivers, creeks, and lakes. Riparian habitat can range from dense thickets of shrubs to closed canopy of large mature trees, to non-forested, grassy areas below the top-of-bank and above the OHWMs of streams. Riparian systems have been removed, degraded, and disturbed since the first settlers arrived in California, with losses estimated to be as high as 95% of historic levels.

Riparian habitat quality can be quantified based upon fish and wildlife habitat values such as the presence/absence and the density of the overstory vegetation, the presence or absence of native species, and the complexity of vegetation structure (e.g., presence of tree, shrub, and herbaceous layers). The three habitat quality categories are:

High quality — native overstory with continuous understory or occurring in dense thickets; dense native overstory with sparse, non-native or no understory; and native willow thicket.

Medium quality — sparse native overstory with sparse, non-native or no understory, non-native overstory with native understory, and dense non-native overstory with sparse, non-native or no understory.

Lower quality — sparse non-native overstory with sparse, non-native or no understory. In addition, any areas *not* included in medium or high quality categories covered with riprap, gabions, etc. (e.g., ruderal habitat and bare ground).

#### **4.1.2.1. Survey Results**

A reconnaissance survey was conducted on February 19, 2020 by H. T. Harvey & Associates plant ecologist, Jillian Pastick, M.S. During this survey, Ms. Pastick mapped the riparian grassland occurring within the BSA. There are 0.53 ac of riparian grasslands in the BSA. The riparian habitat within the BSA is of low quality due to the overall lack of overstory and sparse, non-native understory/herbaceous cover: the riparian vegetation comprises one mature California sycamore tree, a few widely scattered native shrubs, and sparse, primarily non-native grasses, many of which are invasive, such as wild oats and ripgut brome.

#### **4.1.2.2. Project Impacts**

The Project will result in 0.17 ac of permanent impacts to riparian grasslands in the BSA due to construction of the new bridge, including realignment of the roadway and placement of fill, piles, wing walls, abutments and RSP outside of the ordinary high water marks of Dry Creek but below the top of bank. An additional 0.13 ac of riparian grassland would be temporarily impacted due to staging of equipment and personnel and equipment access. No riparian trees will be removed as a result of Project activities, and Impacts to other woody vegetation, such as shrubs, are expected to be very limited, as only a few small woody shrubs are present in the permanent impact areas. Impacts to herbaceous vegetation are expected to be limited as well, due to the somewhat low quality and sparse cover of herbaceous vegetation in these areas. Since no riparian trees (and only, potentially, a very small number of small shrubs) will be removed, no effects from loss of riparian shading are expected.

The 0.17 ac of riparian grassland habitat that will be permanently impacted within the BSA represents only a small fraction of this habitat type present along Dry Creek. Further, since no riparian trees will be impacted, and effects on other vegetation will be limited to primarily sparse, non-native grasses and a few small shrubs, no substantial effects on the functions and values of the riparian corridor are anticipated.

#### **4.1.2.3. Avoidance and Minimization Efforts**

- The Project will comply with the Municipal Regional Stormwater NPDES Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which will prevent stream downcutting, riparian bank erosion, or other downstream impacts.
- All impacts to riparian habitats will be designed to be the minimum necessary. Work areas in riparian areas will be restricted to areas immediately adjacent to permanent impact locations. Access within the outer banks of Dry Creek will be minimized and will not utilize long access paths from top-of-bank to the channel below.
- No equipment will be staged or refueled in the Dry Creek riparian habitat.

- All appropriate AMMs listed in the EACCS that would apply to and protect these riparian habitats will be implemented.
- The limits of riparian grassland along Dry Creek shall be clearly depicted on final Project plan sets.
- Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur, as feasible.
- All temporarily impacted riparian grassland will be restored to pre-Project conditions through the re-establishment of original contours within Dry Creek.

#### **4.1.2.4. Compensatory Mitigation**

The Project will provide compensatory mitigation for permanent loss of riparian grassland habitat. According to the EACCS, such mitigation is typically provided based on the standards (e.g., EACCS mitigation ratios) set for focal species that occur in the riverine habitat to be impacted. Because riverine habitat in the Project footprint provides dispersal and foraging habitat for California red-legged frog but is outside of designated critical habitat for the species, the mitigation ratio for the impacts may be 2.5:1, as determined by the EACCS requirements for focal species (ICF International 2010). Such mitigation may take the form of the purchase of credits in a mitigation bank and/or Project-specific mitigation. However, compensatory mitigation will ultimately be determined based on the conditions of permits from the RWQCB and CDFW required for these impacts.

#### **4.1.2.5. Cumulative Impacts**

Riparian habitats in the Project vicinity have been impacted by several past development projects within the Livermore area and riparian habitats within the BSA may also be impacted by future development. These projects will all undergo (or have undergone) separate CEQA and/or NEPA review, and will require separate environmental permitting from regulatory agencies. Ecological impacts determined to be significant during CEQA or NEPA review for these individual projects will be required to mitigate these impacts through the CEQA, Section 1600, and/or Section 404/401 permitting processes. Additionally, many of these projects will mitigate impacts to riparian habitats as per the EACCS guidelines and conditions. Therefore, this Project will not contribute substantially to cumulative impacts on riparian habitats.

### **4.2. Discussion of Special-Status Plant Species**

As discussed in Chapter 3, special-status plant species with some potential to occur in the BSA vicinity are indicated in Table 2.

#### **4.2.1. Survey Results**

Reconnaissance-level surveys conducted in February 2020 determined that all special-status plant species known to occur within the region were rejected for potential occurrence in the BSA because of (1) a lack of suitable habitat types within the BSA, (2) a lack of suitable edaphic conditions, (3) inappropriate elevational range or the species' range is not expected to include the BSA due to local extirpation or requirements for microhabitat conditions lacking from the BSA, or (4) the level of disturbance within the BSA. Therefore, no special-status plant species are present.

#### **4.2.2. Project Impacts**

The Project would not affect special-status plant species.

#### **4.2.3. Avoidance and Minimization Efforts**

Because the Project will not affect special-status plants, additional avoidance and minimization efforts are necessary.

#### **4.2.4. Cumulative Impacts**

The Project would make no contribution to cumulative effects on special-status plants.

### **4.3. Special-Status Animal Species**

As discussed in Chapter 3, the following special-status animal species were determined to potentially occur in the BSA: the California tiger salamander, California red-legged frog, San Joaquin kit fox, monarch butterfly, coast horned lizard, southwestern pond turtle, burrowing owl, white-tailed kite, loggerhead shrike, golden eagle, yellow warbler, grasshopper sparrow, tricolored blackbird, American badger, Townsend's big-eared bat, pallid bat, and western red bat.

However, the tricolored blackbird, yellow warbler, grasshopper sparrow, golden eagle, and Townsend's big-eared bat are expected to occur in the BSA only as occasional foragers, migrants, or transients; these species are not expected to nest in, or otherwise regularly use, the BSA, and they are not expected to be adversely affected by Project activities. The Project's effects on nonbreeding habitat for these species are not expected to result in appreciable impacts on regional populations, and no avoidance or minimization measures for these species are warranted. Thus, they are not discussed further.

The following sections discuss the special-status animal species that have the potential to breed on or immediately adjacent to the BSA and/or to regularly use it, that have the potential to be



substantially affected by the Project (e.g., due to their rarity), and/or that are of particular concern to resource agencies and therefore require additional discussion.

#### **4.3.1. Discussion of the California Red-legged Frog and California Tiger Salamander**

The USFWS listed the California red-legged frog as threatened in 1996, due to continued habitat degradation throughout the species' range and population declines (USFWS 1996). It is also designated by the CDFW as a California species of special concern. Critical habitat was most recently designated in 2010 (USFWS 2010), and designated critical habitat is located approximately 2 mi south of the BSA (Figure 5). The California red-legged frog is California's largest native frog. The species is generally restricted to riparian and lacustrine habitats in California and northern Baja California. Red-legged frogs prefer deep, calm pools (usually more than 2 ft deep) in creeks, rivers, or lakes below 5000 ft in elevation (Jennings and Hayes 1994). Breeding habitat requirements include freshwater emergent or dense riparian vegetation, such as willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if a permanent water body or dense vegetation stands are nearby.

Adult red-legged frogs are normally active at night and breed in still water during the late winter or early spring after waters recede. Females attach eggs in a single cluster to vegetation just under the surface of the water. The eggs hatch in approximately one week and larvae feed on plant and animal material. It takes a minimum of approximately 4 months for the larvae to metamorphose into juvenile frogs. On rare occasions larvae over winter. Red-legged frogs can move considerable distances overland. Dispersal often occurs within creek drainages, but movements of more than a mile over upland habitats have been reported (Bulger et al. 2003). Red-legged frogs are often found in summer months in habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat.

The California tiger salamander was listed as threatened under the FESA throughout its range by the USFWS on August 4, 2004 (USFWS 2004) and was listed as threatened under the CESA by the CDFW on August 19, 2010. Critical habitat for the California tiger salamander was designated in August 2005 (USFWS 2005). The BSA is not located within designated critical habitat for this species.

The California tiger salamander occurs in areas of the Central Valley and California Coast Ranges where temporary ponded environments (e.g., vernal pools or human-made ponds providing water for at least 3 months) are surrounded by uplands that support small mammal burrows. Breeding pools are usually ephemeral pools (e.g., vernal pools), but they must retain water long enough for metamorphosis to occur. Permanent ponds are also used for breeding, but larger ponds often contain predators that consume eggs and larvae, and prevent successful breeding.

During summer months, California tiger salamanders occur in subterranean refuge sites, usually in small mammal burrows, but also in crevices in the soil. After winter rains have moistened the ground, the salamanders emerge from their refugia and migrate to breeding pools. Females deposit eggs one, or occasionally up to four, at a time in the water and attach them to submerged vegetation or debris. Females may lay eggs twice in a single season (USFWS 2004). Lifetime reproductive success of females is fairly low; females in one study bred an average of 1.4 times in their lives, producing about 11 young each (Trenham et al. 2000). Adults may live more than 10 years, but do not reproduce until they are 4 to 5 years old (Trenham et al. 2000). Eggs take 10 to 14 days to hatch. Aquatic juveniles usually complete metamorphosis after 3 to 6 months. Generally, ephemeral breeding ponds dry up during summer months, but over-summering larvae have been observed (Shaffer et al. 1993). Following metamorphosis, juveniles spend a few days at the pond margin, and then migrate to refuge sites. Overland migration may extend up to 1.2 mi, but most California tiger salamanders remain within 0.4 mi of their breeding ponds (USFWS 2004).

#### **4.3.1.1. Survey Results**

The EACCS maps areas within the BSA as potential upland and movement habitat for the California red-legged frog and potential upland habitat for the California tiger salamander. No individual California tiger salamanders or California red-legged frogs were detected in the BSA during the February 2020 reconnaissance-level surveys, and no focused and/or protocol-level surveys for California tiger salamanders or California red-legged frogs were conducted for this Project.

The California tiger salamander is known to breed within 0.65 mi of the BSA, in a stock pond in Sycamore Grove Regional Park, southwest of the BSA (CNDDDB 2022) and within the species' known dispersal distance. Ostensibly suitable breeding habitat is also present within and adjacent to the BSA, in the pond on the Wente Vineyards Golf Course, though breeding is not known in this location. Dry Creek does not provide suitable breeding habitat for the species. The California annual grasslands in the BSA support California ground squirrels and Valley pocket gophers, and burrows of both of these animals can provide suitable refugia for California tiger salamanders (Jennings and Hayes 1994). Thus, California tiger salamanders may be present in upland refugia in the BSA, and there is a possibility that they breed in the pond within and adjacent to the BSA.

The California red-legged frog may breed in aquatic habitats found in Arroyo Valle, approximately 1000 feet southwest of the BSA, as well as in the Wente Vineyards Golf Course pond, within and southeast of the BSA. While neither of these aquatic habitats are known breeding locations, the CNDDDB identifies breeding in reaches of Arroyo Valle 1.3 mi southeast (approximately 1.75 mi upstream) of the BSA (CNDDDB 2022). Breeding is reasonably likely to occur in other reaches of Arroyo Valle, including reaches that pass within approximately 1000

feet of the BSA as described above. Breeding is also known from a 2005 CNDDDB record in a stock pond approximately 1.15 mi southeast of the BSA. Again, while this is somewhat beyond the species' typical dispersal distance, it is within dispersal distance of Arroyo Valle where it flows within 1000 feet of the BSA. Thus, adult California red-legged frogs may be present in reaches of Arroyo Valle near the BSA, and they may also forage or disperse through Dry Creek at times of year when water is present. The pond in the BSA also provides ostensibly suitable breeding habitat, and individuals may also disperse across the upland habitats in the BSA during movements between aquatic habitats in the Project vicinity. Like the California tiger salamander, California red-legged frogs may also take refuge in small mammal burrows in the BSA.

#### **4.3.1.2. Project Impacts**

Construction activities associated with the Project could result in the direct loss and indirect disturbance of California red-legged frogs and California tiger salamanders and their breeding and/or foraging and dispersal habitats. The Project could impact individual California red-legged frogs and California tiger salamanders as a result of:

- direct mortality during construction as a result of trampling by construction personnel or equipment;
- direct mortality due to roadkill caused by the construction and vehicular use in and around the Project footprint;
- direct mortality from the collapse of underground burrows resulting from soil compaction;
- direct or indirect mortality resulting from the loss of dispersal habitat and refugia;
- indirect impacts to aquatic breeding or foraging habitat due to degradation of water quality resulting from unregulated discharge of hazardous materials, contaminants, or sediment in aquatic habitats during construction; and
- physiological stress, increased risk of predation, or increased competition with conspecifics when any individuals found during pre-activity surveys are relocated to suitable habitat outside of the BSA.

The Project could result in impacts to as much as 3.11 ac of non-breeding habitat, including California annual grassland, riparian grassland, and riverine habitats that may serve as foraging, dispersal or upland refugial habitat for one or both of these species.

**Permanent Direct Impacts.** Approximately 1.16 ac of potential California tiger salamander and California red-legged frog foraging, dispersal, and upland refugial habitat would be permanently lost due to Project construction in areas that currently provide natural habitat that may be used by California red legged frogs and California tiger salamanders.

**Temporary Direct Impacts.** Approximately 1.95 ac of potential California tiger salamander and California red-legged frog foraging, dispersal, and upland refugial habitat will be temporarily impacted by utilization as construction access and staging while the Project is being constructed. However, these areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

Because the Project may result in the injury or mortality of individual California red-legged frogs and/or California tiger salamanders, the Project **may affect, and is likely to adversely affect**, these two FESA-listed species. However, the implementation of the avoidance and minimization measures and the compensatory mitigation described below will mitigate Project impacts, and no adverse modification of designated critical habitat will occur.

#### **4.3.1.3. Avoidance and Minimization Efforts**

The Project will employ the general and species-specific AMMs detailed in the EACCS, as well as the General Minimization Measures and species-specific measures (as applicable) listed in the PBO for the EACCS to protect special-status amphibians. Types of AMMs include general measures that apply to all work, activity-specific measures designed to address anticipated effects of certain work activities or particular types of resources, and standard BMPs. The measures shown below are the General Minimization Measures prescribed by the PBO, as well as species-specific measures that pertain to the California red-legged frog and California tiger salamander that will be incorporated into the Project. The description of each measure is verbatim from the PBO, except for some measures italicized text in square brackets has been added to indicate more specifically how the Project will implement those measures. General Measures from the EACCS are included in Appendix F.

#### **PBO General Minimization Measures**

- 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 [*California tiger salamander, California red-legged frog, and/or San Joaquin kit fox*].
- A Service-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for the California tiger salamander, California red-legged frog, and San Joaquin kit fox [*that could result in take of any listed species*]. The Service-approved biological monitor(s) will be given the authority to stop any work that may result in the take of the [*California tiger salamander, California red-legged frog, or San Joaquin kit fox*]. 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

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monitor will be the contact for any employee or contractor who might inadvertently kill or injure a [*California tiger salamander, California red-legged frog, or San Joaquin kit fox*] 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.

- Prior to construction, a construction employee education program will be conducted in reference to the [*California tiger salamander, California red-legged frog, or San Joaquin kit fox, and other sensitive species and habitats that may occur in the Project area*]. 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.
- Preconstruction surveys for the [*California tiger salamander, California red-legged frog, and San Joaquin kit fox*] 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.
- To prevent the accidental entrapment of special-status 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.
- The applicant will prepare a [*California tiger salamander and California red-legged frog*] translocation plan for the Project to be reviewed and approved by the Service prior to

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Project implementation. The plan will include trapping and translocation methods, translocation site, and post translocation monitoring.

- Only Service-approved biologists will conduct surveys and move listed species.
- 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.
- 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.
- 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.
- Grading and construction will be limited to the dry season [*April 15 to October 15*].
- 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.
- 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.
- 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.
- 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 [*and*

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*supports shall be placed on the inside of the fence.]* 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.

- 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.
- 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.
- 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.
- 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.

### **PBO Measures for California red-legged frog and California tiger salamander**

- A Service-approved biologist shall survey the work site immediately prior to construction activities. If [*California red-legged frogs, California tiger salamanders, or larvae or eggs of either species*] 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.
- Bare hands shall be used to capture [*California red-legged frogs and/or 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."

#### **4.3.1.4. Compensatory Mitigation**

Compensatory mitigation for the permanent loss of 1.16 ac of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS (ICF International 2010). The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (on an acreage basis). Mitigation will take the form of purchase of mitigation credits from a conservation bank or Project-specific mitigation consisting of the preservation, enhancement, and long-term management of suitable habitat occupied by these species.

#### **4.3.1.5. Cumulative Effects**

Cumulative impacts arise due to the linking of impacts from past, current, and reasonably foreseeable future projects in the region. Future development activities in Alameda County, and around the BSA, will result in impacts on the same types of habitats and species that will be affected by the Project. The Project, in combination with other projects in the area and other activities that impact the species that are affected by this Project, could have cumulative effects on sensitive habitats and special-status species. Other projects in the area include past and planned transportation and commercial development projects that could adversely affect these species and restoration projects that will benefit these species.

However, the EACCS provides conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources. Projects in the region that impact resources similar to those impacted by the Project will be subject to CEQA requirements, and many will necessitate regulatory permits as well. It is expected that such projects will mitigate their impacts on sensitive habitats and special-status species through the incorporation of mitigation measures and compliance with permit conditions. Thus, provided that this Project successfully incorporates the mitigation measures described in the EACCS and PBO, as well as other regulatory permits issued for the Project, the Project will not have a cumulatively considerable contribution to cumulative effects on the California tiger salamander or California red-legged frog.

#### **4.3.2. Discussion of the San Joaquin Kit Fox**

The San Joaquin kit fox is the largest subspecies of the kit fox, the smallest canid species in North America. The San Joaquin kit fox was listed as endangered by the USFWS in 1967 and by the State of California in 1971. Loss of habitat from urban, agricultural, and industrial



development are the principal factors in the decline of the San Joaquin kit fox. Subpopulations of the San Joaquin kit fox appear to be increasingly isolated from one another due to development within its range (USFWS and CDFG 2003). Critical habitat has not been designated for this species.

The San Joaquin kit fox is primarily nocturnal and typically occurs in annual grassland or mixed shrub/grassland habitats throughout low, rolling hills and in the valleys. It requires underground dens for temperature regulation, shelter, reproduction, and predator avoidance. Kit foxes commonly modify and use dens constructed by other animals and human-made structures (USFWS 1998). Dens are usually located on loose-textured soils on slopes less than 40 degrees, but San Joaquin kit fox dens vary across the fox's geographic range in regard to the number of openings, shape, and the slope of the ground on which they occur (USFWS 1998). Kit foxes change dens frequently, often using numerous dens each year.

Breeding occurs from December through February with pups usually born in February or March. One litter per year, with an average of four pups per litter, is typical (McGrew 1979). The pups remain with the parents until June or July at which time the juveniles usually disperse distances of 0.6 to 4.4 mi. A six year study at Elk Hills Naval Petroleum Reserves in California reported average dispersal distances of  $5.0 \pm 0.9$  mi (Scrivner et al. 1987).

#### **4.3.2.1. Survey Results**

No individual San Joaquin kit foxes or sign were observed during the February 2020 reconnaissance surveys. EACCS habitat modeling places the BSA along the outer margin of core habitat for the species (ICF International 2010), and ostensibly suitable habitat is present in the BSA. However, all available data indicates that the current range of the San Joaquin kit fox does not extend into the BSA region (USFWS 2020). An historical CNDDDB record of a kit fox den with two adults and two juveniles was recorded in 1989, approximately 7 mi northeast of the BSA, north of the Lawrence Livermore National Laboratory Site and Patterson Pass Road (CNDDDB 2022), and the closest more recent record (2002) is approximately 12 mi to the east (CNDDDB 2022). However, scent dog surveys conducted in 2018 at the Lawrence Livermore National Laboratory Site detected no kit fox sign across approximately 20.5 mi of transects (USFWS 2020). Given the existing high levels of human disturbance and lack of recent records in the vicinity, this species is not expected to occur in the BSA except, possibly, as a rare dispersant or forager. It is not expected to den or otherwise reside on the site for a substantial amount of time.

#### **4.3.2.2. Project Impacts**

The Project is not expected to impact, directly or indirectly, the San Joaquin kit fox because there is no evidence or expectation the BSA is occupied by kit foxes. However, due to the presence of ostensibly suitable grassland habitat, both in the BSA and in areas between the

BSA and known historical occurrences to the east, there is some potential for an occasional kit fox to disperse into the BSA.

If a kit fox were to be present in the site when construction occurs, there is some potential for it to alter its movements or foraging patterns, take shelter in staged materials, or be struck by a vehicle. Implementation of the measures indicated below would minimize any impacts to individuals of this species, in the unlikely event that one occurs on site.

The Project may affect but, is not likely to adversely affect, the San Joaquin kit fox.

#### **4.3.2.3. Avoidance and Minimization Efforts**

In order to avoid the take of individual San Joaquin kit foxes, should one occur in the BSA, the following measures will be implemented. A preconstruction survey of the Study Area for San Joaquin kit fox and their dens by a qualified biologist prior to the start of construction activities. In the unlikely event that the species is detected during the preconstruction survey, avoidance of impacts to occupied kit fox dens will be implemented per the Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or during Ground Disturbance (USFWS 1999) and EACCS Measure MAMM-1. In addition, implementation of the General Minimization Measures listed in the PBO for the EACCS (Section 4.3.1.3) will further avoid impacts.

#### **EACCS Measure MAMM-1**

- 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, a qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999).
- Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or the following standards listed in the PBO for the EACCS:
  - Potential Den— A total of 4-5 flagged stakes will be placed 50 feet from the den entrance to identify the den location;
  - 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;

- Natal or 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.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

#### **4.3.2.4. Compensatory Mitigation**

Because the Project will not impact important habitat used regularly (or possibly at all) by the San Joaquin kit fox and will not result in injury or mortality of individuals, no compensatory mitigation for impacts to this species is necessary. Furthermore, lands providing compensatory mitigation for impacts to the California red-legged frog and California tiger salamander are expected to be at least as suitable for the San Joaquin kit fox as habitats on the Project site.

#### **4.3.2.5. Cumulative Effects**

The Project will not have a cumulatively considerable contribution to cumulative effects on the San Joaquin kit fox for reasons similar to those described in Section 4.3.1.5.

### **4.3.3. Discussion of the Monarch Butterfly**

The monarch butterfly, a federal candidate species, feeds and breeds exclusively on plant species in the subfamily Asclepiadoideae, with 27 species of milkweed (*Asclepias* sp.), as well as a few plants in closely related genera, having been recorded as larval food plants (Malcolm and Brower 1986). Monarchs are known to overwinter along the California coast from Mendocino County south to Baja California, with the largest groups typically occurring in Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. They typically begin arriving at overwintering sites in mid-October (Hill et al. 1976), where they form dense clusters on the branches and leaves of trees. Monarchs depart from these overwintering sites in late-February or March. At this time, they disperse across California and several western states to breed (Dingle et al. 2005).

#### **4.3.3.1. Survey Results**

No monarch butterflies were observed within or adjacent to the BSA during the reconnaissance surveys in February 2020. This species occurs in the Project vicinity primarily as a migrant, and no current or historical overwintering sites are known in the BSA vicinity, so no large nonbreeding aggregations are expected to occur. No larval host plants were observed during reconnaissance surveys, though the surveys were not conducted at the appropriate time of year to detect them if present. Because much of the grassland in the BSA is grazed, however, it is unlikely that large aggregations of milkweeds are present. However, it is possible that a small

number of milkweeds could be present, and that small numbers of individual monarch butterflies could breed on these host plants in the BSA from May through October.

#### **4.3.3.2. Project Impacts**

If monarch butterfly eggs, larvae, or pupae were present on larval host plants on the Project site, Project activities could impact this species. Heavy equipment use, vehicle traffic, and worker foot traffic within impact areas could result in the injury or mortality of monarch butterflies (including eggs, larvae, and pupae) or their host plants (e.g., physically breaking, crushing, wilting, burying, or uprooting plants and damaging their roots as a result of soil disturbance by heavy equipment). In addition, monarch butterflies and their host plants may be affected by petrochemicals, hydraulic fluids, and solvents that are spilled or leaked from construction vehicles or equipment.

However, because milkweeds are expected to be scarce in the BSA, the loss of suitable habitat or larval hostplants would not result in a substantial impacts to the regional availability of such habitat, larval hostplants, or monarch butterfly populations. Similarly, if any host plants containing monarch butterfly eggs, larvae, or pupae were to be impacted, they would represent such a small proportion of the regional population of monarchs that such impacts would not result in a substantial reduction in regional populations of monarchs.

#### **4.3.3.3. Avoidance and Minimization Efforts**

Because the monarch butterfly is not expected to be substantially affected by the Project, no avoidance and minimization measures to reduce impacts to this species are necessary. However, the mitigation measure described below, as well as those described in section 4.3.1.3 to protect the California red-legged frog and California tiger salamander, will avoid potential deleterious impacts on monarch butterflies in the BSA.

- If a monarch butterfly is detected during the course of the Project, any Project activities that could result in harm to the individual will cease until the individual has moved out of the Project area on its own.

#### **4.3.3.4. Compensatory Mitigation**

Because the monarch butterfly is not expected to be substantially affected by the Project, no compensatory mitigation for impacts to this species is necessary.

#### **4.3.3.5. Cumulative Effects**

Cumulative impacts on monarch butterflies result from past, current, and reasonably foreseeable future projects in the region, including road improvement projects and other projects that affect these species' habitats. Although such projects could result in impacts on monarch

butterflies, as with the Project, it is expected that most current and future projects that have substantial impacts on this species and its habitats will be required to mitigate these impacts through CEQA. Such mitigation will minimize cumulative impacts on this species. With implementation of avoidance and mitigation measures, the Project will not make a considerable contribution to cumulative effects on the monarch butterfly.

#### **4.3.4. Discussion of the Coast Horned Lizard**

The coast horned lizard, a California species of special concern, is a California endemic that is distributed along the coast from Contra Costa County in the north to San Diego County in the south and in patches throughout the Central Valley. Coast horned lizards occupy a variety of open habitats possessing sandy, loosely textured soils, including chaparral, coastal scrub, annual grassland, and clearings in riparian woodlands. They are most strongly associated with loose soils free of plant debris, and with the presence of native ants (Fisher et al 2002). Individuals may bury themselves in loose soils to avoid heat or predation; during longer periods of inactivity, such as during hibernation, they may burrow under debris such as rocks or downed logs, or occupy small mammal burrows. Coast horned lizard populations have declined significantly because of loss of habitat and the introduction of Argentine ants (*Linepithema humile*) (Fisher et al. 2002).

##### **4.3.4.1. Survey Results**

No coast horned lizards were detected during the February 2020 reconnaissance surveys. However, the species is known in the Project vicinity from a single CNDDDB record in approximately 4.4 mi southeast of the BSA (CNDDDB 2022). Suitable loose, sandy soils and sparse vegetation are present in the BSA in the California annual grassland and riparian grassland habitats. While rocks and woody or other debris are largely absent from the BSA, small mammal burrows provide refugial habitat, and this species may occur in the BSA.

##### **4.3.4.2. Project Impacts**

In the absence of avoidance and minimization measures, the Project could affect individual coast horned lizards similarly to California tiger salamander and California red-legged frog, as follows:

- direct mortality during construction as a result of trampling by construction personnel or equipment;
- direct mortality due to roadkill caused by the construction and vehicular use in and around the Project footprint;
- direct mortality from the collapse of underground burrows resulting from soil compaction;
- indirect mortality resulting from the loss of dispersal habitat and refugia; and

- physiological stress, increased risk of predation, or increased competition with conspecifics when any individuals found during pre-activity surveys are relocated to suitable habitat outside of the BSA.

Approximately 1.16 ac of coast horned lizard habitat would be permanently lost due to the Project construction in areas that currently provide natural habitat that may be used by coast horned lizards. An additional 1.95 ac of coast horned lizard habitat would be temporarily impacted due to utilization as staging areas during Project construction, though these areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

#### **1.1.1.1. Avoidance and Minimization Efforts**

The coast horned lizard is not a covered species under the EACCS, and thus, no species-specific AMMs are included in the EACCS. However, the mitigation measure described below, as well as those described in section 4.3.1.3 to protect the California red-legged frog and California tiger salamander, will avoid potential deleterious impacts on coast horned lizards in the BSA.

- If a coast horned lizard is detected during the course of the Project, any Project activities that could result in harm to the lizard will cease until the individual has moved out of the Project area on its own or has been relocated by an approved biologist.

#### **4.3.4.3. Compensatory Mitigation**

With the implementation of the Avoidance and Minimization Efforts listed above, Project activities are not expected to result in a substantial effect on habitat for, or populations of, the coast horned lizard. As a result, the Project will not have a substantial impact on the coast horned lizard and therefore, no compensatory mitigation is warranted.

#### **4.3.4.4. Cumulative Effects**

Cumulative impacts on coast horned lizards result from past, current, and reasonably foreseeable future projects in the region, including road improvement projects and other projects that affect these species' habitats. Although such projects could result in impacts on coast horned lizards, as with the Project, it is expected that most current and future projects that have substantial impacts on this species and its habitats will be required to mitigate these impacts through CEQA. Such mitigation would minimize cumulative impacts on this species. With implementation of avoidance and mitigation measures, the Project will not make a considerable contribution to cumulative effects on the coast horned lizard.

#### **4.3.5. Discussion of the Southwestern Pond Turtle**

The southwestern pond turtle occurs in ponds, streams, and other aquatic habitats in the Pacific Slope drainages of California and northern Baja California, Mexico. Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component. Nesting season typically occurs from April through July with the peak occurring in late May to early July. Females lay eggs in upland habitats, typically in clay or silty soils in unshaded (often south-facing) areas within a few hundred meters of aquatic habitat. Nesting sites typically consist of open habitat with full sun exposure and are typically located along stream or pond margins, but if no suitable habitat is available, adults have been documented making considerable overland journeys and nesting as far as 1300 ft (0.25 mi) from the water (Jennings and Hayes 1994, Bury and Germano 2008). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Although degradation of aquatic habitats due to development, introduction of non-native predators, and water diversions all impact southwestern pond turtles, destruction of non-aquatic habitat (e.g., basking areas and nesting habitats) is equally detrimental to their long-term persistence.

##### **4.3.5.1. Survey Results**

No southwestern pond turtles were observed during the February 2020 reconnaissance surveys. However, the species is known in the Project vicinity from several CNDDDB records, one of which is in Arroyo Valle approximately 0.6 mi southeast of the BSA (CNDDDB 2022). Arroyo Valle flows within approximately 1000 ft of the BSA, and has direct connectivity to Dry Creek, within the BSA. Dry Creek is ephemeral, and lacks sufficient hydroperiod to offer suitable aquatic habitat to southwestern pond turtles during most times of year. However, the Wente Vineyards Golf Course pond, within and outside the southeastern portion of the BSA, provides suitable aquatic habitat for this species. Individuals may be present in this pond, and they may also nest in upland habitats surrounding this pond, within the BSA. Additionally, they may disperse between Arroyo Valle and the pond via upland habitats in the BSA, and through aquatic habitats of Dry Creek when water is present.

##### **4.3.5.2. Project Impacts**

Southwestern pond turtles may occasionally occur in the BSA. In the absence of avoidance and minimization measures, The Project could impact southwestern pond turtles as a result of:

- direct mortality during construction as a result of crushing by construction personnel or equipment;
- direct mortality due to roadkill caused by the construction and vehicular use in and around the Project footprint;

- direct mortality from crushing of subterranean nests by heavy equipment or soil compaction;
- indirect mortality due to loss of suitable aquatic or upland nesting and dispersal habitat;
- indirect impacts to aquatic habitat due degradation of water quality resulting from unregulated discharge of hazardous materials, contaminants, or sediment in aquatic habitats during construction; and
- physiological stress, increased risk of predation, or increased competition with conspecifics when any individuals found during pre-activity surveys are relocated to suitable habitat outside of the BSA.

The Project will not result in the loss of any aquatic habitat, as the Wente Vineyards Golf Course pond is outside of permanent impact areas. However, the Project will result in the permanent loss of 0.89 ac California annual grassland that may be utilized as upland dispersal and nesting habitat due to construction in areas that currently provide natural habitat that may be used by Southwestern pond turtles. Additionally, 1.75 ac of California annual grassland that may provide upland nesting and dispersal habitat would be temporarily impacted due to utilization as construction access and staging areas during Project construction, though these areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

#### **4.3.5.3. Avoidance and Minimization Efforts**

Because southwestern pond turtles may periodically occupy the terrestrial and aquatic habitats of the BSA during dispersal or nesting events, there is some potential for the Project to result in the injury or mortality of the species. The southwestern pond turtle is not a covered species under the EACCS, and thus, no species-specific AMMs are included in the EACCS. However, the mitigation and avoidance measure described below, as well as those described in Sections 4.1.1.3 for riverine habitat, 4.1.2.3 for riparian habitat, and 4.3.1.3 for California red-legged frog and California tiger salamander, will also minimize impacts on individual southwestern pond turtles.

- If a southwestern pond turtle is detected during the course of the Project, any Project activities that could result in harm to the turtle will cease until the individual has moved out of the Project area on its own or has been relocated by an approved biologist.

#### **4.3.5.4. Compensatory Mitigation**

With the implementation of the Avoidance and Minimization Efforts listed above, Project activities are not expected to result in a substantial effect on habitat for, or populations of, the



southwestern pond turtle. As a result, the Project will not have a substantial impact on the southwestern pond turtle and therefore, no compensatory mitigation is warranted.

#### **4.3.5.5. Cumulative Effects**

Cumulative impacts on southwestern pond turtles result from past, current, and reasonably foreseeable future projects in the region, including road improvement projects and other projects that affect these species' habitats. Although such projects could result in impacts on southwestern pond turtles, as with the Project, it is expected that most current and future projects that have substantial impacts on this species and its habitats will be required to mitigate these impacts through the CEQA, Section 1600, and/or Section 404/401 permitting processes. Such mitigation will minimize cumulative impacts on this species. With implementation of avoidance and mitigation measures, the Project will not make a considerable contribution to cumulative effects on the southwestern pond turtle.

#### **4.3.6. Discussion of the Burrowing Owl and American Badger**

Burrowing owls and American badgers are California species of special concern. Burrowing owls are also protected by the MBTA and the California Fish and Game Code, which prohibit take of individuals (including active nests).

The burrowing owl is a small, terrestrial owl of open country. It prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use the abandoned burrows of ground squirrels for shelter and nesting. The nesting season as recognized by the CDFW runs from February 1 through August 31. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate (Gorman et al. 2003); young birds disperse across the landscape from 0.1 to 35 mi from their natal burrows (Rosier et al. 2006). Burrowing owl populations have declined substantially in the San Francisco Bay area in recent years, with declines estimated at 4-6% annually (DeSante et al. 2007).

The American badger is a stocky, burrowing mammal that occurs in grassland habitats throughout the western United States. Badgers can have large territories, up to 21,000 ac in size, with territory size varying by sex and by season. They are strong diggers and feed primarily on other burrowing mammals, such as ground squirrels. In central California, American badgers typically occur in annual grasslands, oak woodland savannas, semi-arid shrub/scrublands, and any habitats with stable ground squirrel populations or other fossorial rodents (Zeiner et al. 1990a). They occur to a lesser extent in agricultural areas, where intensive cultivation inhibits den establishment and reduces prey abundance. Badgers are primarily nocturnal, although they are often active during the day. They breed during late summer, and females give birth to a litter of young the following spring.

#### 4.3.6.1. Survey Results

The EACCS models areas within the Study Area as potential habitat for the burrowing owl and American badger.

Neither burrowing owls nor evidence of their presence (i.e., whitewash, pellets or feathers) were detected in the BSA during the February, 2022 reconnaissance surveys. Burrowing owls are, however, known in the Project vicinity from a number of CNDDDB records within approximately 4 mi to the northeast (CNDDDB 2022). Burrows of California ground squirrels and active ground squirrel colonies were observed during the reconnaissance surveys, and the grassland habitats in and surrounding the BSA provide suitable foraging and breeding habitat. Thus, burrowing owls may be present anywhere in the undeveloped habitats within the BSA where ground squirrel burrows are present. Given the proximity of all suitable habitat to Arroyo Road, the likelihood of nesting is low, but there is some potential for burrowing owls to nest and/or roost in ground squirrel burrows.

No American badgers or potential badger dens were observed in the BSA during the reconnaissance-level survey. Badgers are not known to occur on-site, but have been recorded in the surrounding vicinity (CNDDDB 2022). Suitable denning and foraging habitat for badgers is present in grassland habitats, although badgers are unlikely to den on-site due to the surrounding high levels of human disturbance. Should badgers occur in the BSA, they would most likely represent dispersing or foraging individuals. Nevertheless, there is some potential (albeit low) for badgers to den in the BSA.

#### 4.3.6.2. Project Impacts

The number of burrowing owls and American badgers that could potentially occur in the Project footprint is low due to the relatively small extent of the BSA compared to the available grassland habitats surrounding it and the close proximity of human disturbance associated with the roadway and golf course. Nevertheless, individuals could potentially be present in burrows within and nearby the Project footprint when Project activities occur. Construction activities associated with the Project could result in the direct loss and indirect disturbance of burrowing owls and American badgers and their habitats. The Project could impact individual burrowing owls and American badgers as a result of:

- direct mortality during construction as a result of crushing or collision with construction vehicles or equipment;
- increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- direct mortality from the collapse of underground burrows, resulting from soil compaction;

- indirect mortality resulting from the loss of breeding, foraging, or dispersal habitat; and
- loss of eggs (for burrowing owls) or young (for either species) as a result of abandonment of occupied nests/dens due to construction-related disturbance.

The Project could result in impacts to as much as 3.12 ac of habitat, including all undeveloped habitat types that will be impacted, that may serve as foraging, dispersal, or nesting/denning habitat for burrowing owls or American badgers. Two categories of habitat impacts were identified:

**Permanent impacts.** Approximately 1.17 ac of potential burrowing owl and American badger habitat would be permanently lost due to the construction of the new bridge, placement of fill, pavement, and other hardscape in areas that currently provide natural habitat that may be used by burrowing owls or American badgers.

**Temporary impacts.** Approximately 1.95 ac of potential burrowing owl and American badger foraging and breeding habitat would be temporarily impacted due to utilization as construction access and staging areas during Project construction. Areas used for construction access and staging during construction would be subject to grading but would not be paved or otherwise permanently altered. These areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

#### **4.3.6.3. Avoidance and Minimization Efforts**

Should burrowing owls or American badgers be discovered on or near the BSA, avoidance of disturbance to the burrow or den will be conducted per EACCS Measure BIRD-2 below, or EACCS Measure MAMM-1 (Section 4.3.2.3 above), as appropriate. In addition, implementation of the Mitigation Measure below, and the General Minimization Measures listed in the PBO for the EACCS, will further avoid impacts.

Preconstruction surveys for nesting burrowing owls and denning American badgers will be conducted by a qualified biologist per EACCS requirements. To the extent access allows, all suitable habitat within 0.5 mi of the Project footprint will be surveyed for nesting burrowing owls and for American badgers. The survey should be conducted during the owl's nesting season, defined by the EACCS as March 15 to September 1. This survey will consist of at least two site visits within 30 days prior to construction (with the second survey no more than 7 days prior to construction). The biologist will examine all potential burrows within 0.5 mi, as access permits, for signs of nesting burrowing owls (i.e., owls, pellets, feathers, and/or whitewash) and for American badger dens.

#### **EACCS Measure BIRD-2**

- If an active burrowing owl 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 minimum be 250-ft radius from the nest.
- If 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 ft.
- 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, and 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.

#### **4.3.6.4. Compensatory Mitigation**

The EACCS identifies burrowing owl nesting habitat as suitable habitat within 0.5 mi of a documented nest occurrence during the previous 3 years, and it recommends compensatory mitigation in the event of any impacts to such habitat. In the event that burrowing owls are found to be nesting on or within 0.5 mi of the Project footprint during preconstruction surveys, or if owls need to be evicted from burrows (which can only occur when they are not actively nesting) to implement the Project, compensatory mitigation will be necessary to mitigate for impacts on occupied burrowing owl habitat. If the California red-legged frog/California tiger salamander habitat mitigation provides suitable habitat for burrowing owls as well, then no additional mitigation for impacts to burrowing owls would be necessary. Otherwise, additional habitat mitigation would be necessary, in the form of purchase of mitigation credits from a conservation bank or Project specific mitigation in an area that supports such habitat. The EACCS prescribes mitigation ratios of 3:1 to 3.5:1 (mitigation:impact), depending on the location of the mitigation site.

#### **4.3.6.5. Cumulative Effects**

Because of the very low probability that American badgers would occur or den on the BSA, the Project is not expected to contribute substantially to cumulative impacts on this species. Similarly, the number of burrowing owls likely to be impacted by construction activities is low due to the relatively small size of the BSA compared to surrounding suitable habitat and adjacent human disturbance. Nevertheless, compensatory mitigation for the California red-legged frog and California tiger salamander will likely benefit these species as well. In addition, projects in the region that impact resources similar to those impacted by the Project will be subject to CEQA requirements, and many will necessitate regulatory permits as well. It is expected that such projects will mitigate their impacts on sensitive habitats and special-status

species through the incorporation of mitigation measures and compliance with permit conditions. Thus, the Project will not have a cumulatively considerable contribution to cumulative effects on the burrowing owl or American badger.

#### **4.3.7. Discussion of the White-tailed kite and Loggerhead Shrike**

The white-tailed kite (a state fully protected species), and the loggerhead shrike (a California species of special concern when nesting), may nest in the BSA, or close enough to the BSA to be impacted by Project activities. These species are assessed together because potential impacts of the Project on these species would be similar, and Project avoidance and minimization measures for these species are similar. Habitat for the white-tailed kite and loggerhead shrike consists of extensive grasslands interspersed with trees or shrubs, in which these species will nest.

##### **White-tailed Kite**

White-tailed kites are year-round residents, establishing breeding territories in grasslands, agricultural fields, cismontane woodlands, and other open habitats that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates (Polite et al. 1990, Dunk 1995, Erichsen et al. 1996). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite et al. 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997).

##### **Loggerhead Shrike**

The loggerhead shrike is distributed throughout much of California, except in higher-elevation and heavily forested areas including the Coast Ranges, the Sierra Nevada, the southern Cascades, the Klamath and Siskiyou ranges, and the highest parts of the Transverse Ranges (Humple 2008). While the species range in California has remained stable over time, populations have declined steadily (Cade and Woods 1997). Loggerhead shrikes establish breeding territories in open habitats with relatively short vegetation that allows for visibility of prey; they can be found in grasslands, scrub habitats, riparian areas, other open woodlands, ruderal habitats, and developed areas including golf courses and agricultural fields (Yosef 1996). They require the presence of structures for impaling their prey; these most often take the form of thorny or sharp-stemmed shrubs, or barbed wire (Humple 2008). Ideal breeding habitat for loggerhead shrikes comprises short grass habitat with many perches, shrubs, or trees for nesting, and sharp branches or barbed wire fences for impaling prey.

#### **4.3.7.1. Survey Results**

No loggerhead shrikes or white-tailed kites were observed during the February 2020 reconnaissance surveys. However, the loggerhead shrike and white-tailed kite are year-round residents and breeders in the Project vicinity (Cornell Lab of Ornithology 2022), and grasslands within the BSA provide suitable breeding habitat for these species. Mature trees in the BSA also provides suitable nesting habitat for the white-tailed kite and loggerhead shrike. Because of the relatively large territory requirements of white-tailed kites and loggerhead shrikes, no more than one nesting pair of any of these species is expected to occur within the BSA.

#### **4.3.7.2. Project Impacts**

Construction disturbance during the breeding season could result in the destruction of active nests, the incidental loss of fertile eggs or nestlings, or the abandonment of nests of protected bird species. The Project could also remove up to 22 trees from the Project's permanent impact areas in order to construct the bridge and realign the existing road, and would therefore impact potential nesting, roosting, and foraging habitat for these species.

Neither of these species is particularly rare in the region, and suitable habitat for these species is relatively abundant. The BSA represents a miniscule fraction of suitable nesting and foraging habitat for these species in the region, and the Project's effects on these species are not expected to result in appreciable impacts on regional populations. Therefore, impacts on these species would not be substantial.

#### **4.3.7.3. Avoidance and Minimization Efforts**

The white-tailed kite and loggerhead shrike, along with other native bird species that breed in the vicinity of the site, are protected by both the MBTA and the California Fish and Game Code, which prohibit the take of any individual bird, egg, or nest. This Project will implement measures to avoid and minimize effects (described in Section 4.3.9.3 below) to active nests of such protected birds. If any white-tailed kites or loggerhead shrikes nest in or near the BSA, these measures will result in the avoidance of effects to these species. In addition, implementation of the General Minimization Measures listed in the PBO for the EACCS (Appendix E) will further avoid impacts.

#### **4.3.7.4. Compensatory Mitigation**

The Project would have no substantial impact on the regional abundance of the white-tailed kite or loggerhead shrike, and thus no substantial impacts on these species or their habitat. As a result, no compensatory mitigation is warranted.

#### **4.3.7.5. Cumulative Effects**

Cumulative impacts on the White-tailed kite and loggerhead shrike result from past, current, and reasonably foreseeable future projects in the region. For some projects, impacts on these species may be considered significant during the CEQA process, and mitigation for such impacts would be provided. Mitigation for impacts on these species or their habitats may also be required through the Section 1600 process. As a result, cumulative projects are not expected to have a significant cumulative effect on these species.

With implementation of the avoidance and minimization measures described in Section 4.3.6, the Project will have no measurable contribution to cumulative effects on populations, or habitat, for these species.

#### **4.3.8. Discussion of the Pallid Bat and Western Red Bat**

The pallid bat, a California species of special concern, occurs throughout California with the exception of the northwest corner of the state and the high Sierra Nevada (Hall 1981, Zeiner et al. 1990). The species is most commonly found in oak savannah and in open dry habitats with rocky areas, trees, buildings, or bridge structures that are used for roosting (Zeiner et al. 1990; Ferguson and Azerrad 2004). Coastal colonies commonly roost in deep crevices in rocky outcroppings, in buildings, under bridges, and in the crevices, hollows, and exfoliating bark of trees. Roosts generally have unobstructed entrances/exits, and are high above the ground, warm, and inaccessible to terrestrial predators (Sherwin and Rambaldini 2005). Typically, pallid bats use separate day and night roosts (Hermanson and O'Shea 1983). In general, day roosts are more enclosed, protected spaces than are night roosts, which often occur in open buildings, porches, garages, highway bridges, and mines. Colonies can range in size from a few individuals to over a hundred (Barbour and Davis 1969), and they usually consist of at least 20 individuals (Wilson and Ruff 1999). Pallid bats typically winter in canyon bottoms and riparian areas. After mating during the late fall and winter, females leave to form maternity colonies, often on ridge tops or other warmer locales (Johnston et al. 2006). Maternity colonies in California may be active from May to October (Gannon 2003). Pallid bat roosts are very susceptible to human disturbance.

The western red bat is a migratory species that occurs from Shasta County to the Mexican border, and from the Pacific coast to the eastern edge of forests in the Sierra Nevada (Johnston and Whitford 2009). This species day roosts and night roosts in the foliage of trees except during inclement weather periods in winter when it is expected to roost on the ground under leaf litter. Females typically give birth to twins in June and maternity roosts, sites where females give birth and raise young, occur in mature lowland riparian habitat in the Central Valley and some coastal valleys from Salinas Valley south. Western red bats do not raise young in the San Francisco Bay Area west of the Delta; however, males and females overwinter throughout forested and wooded areas of the Bay Area region, particularly along creek riparian habitats.

#### **4.3.8.1. Survey Results**

No pallid bats or western red bats were observed within or adjacent to the BSA during the reconnaissance surveys in February 2020. However, no focused surveys (i.e., acoustic monitoring, netting) to determine presence of this species have been performed within the BSA or surrounding area. Pallid bats occur as a migrants and winter residents in the riparian habitats of the BSA, and western red bats may winter in the BSA. However, neither species breeds in the BSA. Suitable roosting habitat is present in the BSA for both species in the form of large deciduous trees. Thus, small numbers may roost in trees from approximately October through May throughout the BSA.

#### **4.3.8.2. Project Impacts**

If a pallid bat or western red bat were roosting in a tree to be removed by the Project, or if it were roosting very close to construction areas, the individual is expected to flush from the tree. Bats that are flushed during daylight hours would not be subject to injury or mortality from the Project itself, though they could potentially be preyed upon by diurnal predators such as raptors. Nevertheless, the number of individuals that could be affected by the Project is very low.

The Project could remove up to 22 trees in order to realign the road and construct the new bridge, and would therefore impact potential roosting habitat for the pallid bat and western red bat. However, given the abundance of other suitable roosting habitat, within and immediately adjacent to the BSA, the removal of trees and other Project activities will have no measurable effect on regional populations of these species. Therefore, no substantial impacts on the pallid bat will or western red bat occur.

#### **4.3.8.3. Avoidance and Minimization Efforts**

Because the pallid bat and western red bat are not expected to be substantially affected by the Project, no avoidance and minimization measures to reduce impacts to these species are necessary.

#### **4.3.8.4. Compensatory Mitigation**

Because the pallid bat and western red bat are not expected to be substantially affected by the Project, no compensatory mitigation for impacts to these species are necessary.

#### **4.3.8.5. Cumulative Effects**

Cumulative impacts on the pallid bat and western red bat result from past, current, and reasonably foreseeable future projects in the region. For some projects, impacts on this species may be considered significant during the CEQA process, and mitigation for such impacts would be provided. Mitigation for impacts on this species or their habitats may also be required



through the Section 1600 process. As a result, cumulative projects are not expected to have a significant cumulative effect on these species. Additionally, the Project will not substantially affect the pallid bat and western red bat and, therefore, the Project contribution is not cumulatively considerable.

#### **4.3.9. Discussion of Migratory Birds**

As described in Chapter 2, the MBTA and CFGC protect migratory birds, including their eggs, nests, and young. With the exception of white-tailed kite and loggerhead shrike discussed above, no birds that have the potential to nest along the BSA are special-status species, and all are regionally common. It has been determined that the Project would not substantially impact certain special-status bird species potentially present in the site. Nevertheless, the Project will implement measures to avoid impacts on active nests of migratory birds to comply with the MBTA and CFGC.

##### **4.3.9.1. Survey Results**

Several species of birds protected under the MBTA and the CFGC may nest within and adjacent to the BSA. These include, among others, Anna's hummingbird, ash-throated flycatcher, California scrub-jay, violet-green swallow, chestnut-backed chickadee, bushtit, Bewick's wren, and other common bird species as described above in Section 3.1.3.

##### **4.3.9.2. Project Impacts**

With implementation of the Avoidance and Minimization Efforts described below, the Project is not expected to result in the death or injury of migratory birds or their active nests, eggs, or young. The Project would impact potential nesting habitat for migratory birds, with the removal of up to 22 trees. However, given the abundance of suitable nesting habitat within and immediately adjacent to the BSA, Project impacts would have no measurable impact on regional populations of these species.

##### **4.3.9.3. Avoidance and Minimization Efforts**

A combination of the following measures will be implemented to ensure that Project activities comply with the MBTA and California Fish and Game Code.

- **Avoidance of the Nesting Bird Season.** If feasible, Project activities will be scheduled to avoid the avian nesting season. If such activities are scheduled to take place outside the nesting season, all impacts on nesting birds, including raptors, protected under the MBTA and California Fish and Game Code, would be avoided. The nesting season for most birds in Alameda County typically extends from February 1 through August 31, although in most years, a majority of birds have finished nesting by August 1.

- **Vegetation Removal during the Non-Nesting Season.** If Project activities will not be initiated until after the start of the nesting season, potential nesting substrate (e.g., bushes, trees, grasses, and other vegetation) that is scheduled to be removed by the Project may be removed prior to the start of the nesting season (e.g., prior to 1 February) to reduce the potential for initiation of nests. If it is not feasible to schedule vegetation removal during the nonbreeding season, or where vegetation cannot be removed (e.g., in areas immediately adjacent to the site), then pre-construction surveys for nesting birds will be conducted as described below. It is not recommended to remove sensitive and/or regulated wetland vegetation prior to construction, because of the potential water quality impacts such activities could enact.
- **Pre-construction/Pre-disturbance Surveys for Nesting Birds.** If it is not possible to schedule Project activities between September 1 and February 1, then pre-construction surveys for nesting birds will be conducted by a qualified biologist to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than one week prior to the initiation of Project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, grasslands, and structures) within 300 ft of impact areas for raptor nests and burrowing owls and within 100 ft of impact areas for nests of non-raptors.
- **Buffers around Active Nests.** If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to work areas to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation. Typical buffers are 250 ft for burrowing owls, 300 ft for other raptors, and 50-100 ft for non-raptors. Because the majority of the site is already subject to disturbance by vehicles and pedestrians, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.
- **Nest Deterrence.** If necessary to avoid impacts to active nests (i.e., nests containing eggs or young), nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February to prevent active nests from becoming established.

#### **4.3.9.4. Compensatory Mitigation**

Because the Project would avoid impacts on individual birds and their active nests, and would have less-than-significant impact on habitats for migratory birds, no compensatory mitigation is warranted.

#### **4.3.9.5. Cumulative Effects**

Cumulative impacts on migratory birds result from past, current, and reasonably foreseeable future projects in the region. For some projects, impacts on these species may be considered significant during the CEQA process, and mitigation of such impacts would be provided. Mitigation of impacts on migratory birds and their habitats may also be required through the permitting process. As a result, cumulative projects are not expected to have a significant cumulative effect on these species.

With the implementation of the avoidance and minimization measures described above, the Project would have no measurable contribution to cumulative effects on populations, or habitat, of migratory birds.

#### **4.3.10. Discussion of Wildlife Movement**

##### **4.3.10.1. Survey Results**

The BSA is not located within a particularly important corridor for terrestrial wildlife movement, as the Project vicinity contains extensive natural habitat suitable for use by terrestrial species and suitable for movement among areas of core habitat. Due to lack of consistent flows, Dry Creek does not provide an important movement corridor for any aquatic species. However, during rain events, it may provide a dispersal pathway for California red-legged frogs and southwestern pond turtles.

##### **4.3.10.2. Project Impacts**

Project activities are unlikely to, but may produce a temporary barrier to wildlife movement along Dry Creek due to dewatering structures via a cofferdam/culvert system as described above in Section 4.1.1.2. If dewatering were to occur, animals would likely be able to move downstream through the diversion pipe, but they would likely not be able to move upstream through the pipe. However, Project demolition and construction would occur during the dry season, when Dry Creek is expected to be dry, and use of the Project site as a movement pathway by aquatic species would be at its lowest.

If amphibians or terrestrial animals try to avoid dewatering activity within the stream bed, they may attempt to move upslope and cross the road, increasing their risk of road mortality

somewhat. However, these animals will be able to continue moving along the Dry Creek drainages during construction, even if they need to move around the work areas.

Once Project construction is complete, animals will be able to move through the Project area as freely as they currently do. Thus, there will be no permanent impacts to wildlife movement in the BSA.

#### **4.3.10.3. Avoidance and Minimization Efforts**

The Project site provides a movement pathway for aquatic wildlife species, though the majority of such movement would occur during the wet season. Project demolition and construction would occur during the dry season, when use of the Project site as a movement pathway by aquatic species would be at its lowest. Nonetheless, measures to avoid and minimize impacts on aquatic and riparian habitats and water quality will be implemented as described above in Sections 4.1.1.3 and 4.1.2.3, and would therefore avoid and minimize impacts on wildlife movement areas.

#### **4.3.10.4. Compensatory Mitigation**

The Project is not expected to result in any substantial or long-term impacts on wildlife movement, and thus no compensatory mitigation is necessary.

#### **4.3.10.5. Cumulative Effects**

Cumulative effects on wildlife movement result from past, current, and reasonably foreseeable future projects in the region. Because regional/landscape-level movements of wildlife are most important for consideration, the projects that contribute to cumulative effects include any development projects that would reduce connectivity within and between the mountain ranges, streams, and riparian areas. Currently, the scarcity of urban development and other impediments to wildlife movement in the vicinity allows for relatively unimpeded movement within the region. There are no reasonably foreseeable projects that would result in a significant impediment to wildlife movement in the Project vicinity, and therefore the Project will not contribute to a substantial cumulative impact to wildlife movement. Furthermore, as discussed above, the Project would not result in substantial or long-term impacts on wildlife movement; therefore, the Project contribution is not cumulatively considerable.

### **4.4. Summary of FESA Impact Determination**

Although not included in recent Caltrans NES Guidelines, a summary of determination of effect has been included within this chapter for informational purposes. Table 6 provides a summary of determination of effects under FESA.

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**Table 4: Summary of Potential Project Impacts on Federally Listed, Proposed, or other Special-Status Species or Critical Habitat for these Species in Relation to FESA**

Common Name	Scientific Name	Status	Potential Effect Under FESA
Palmate-bracted bird's beak	<i>Chloropyron palmatum</i>	FE	No effect
Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	FE	No effect
California seablite	<i>Suaeda californica</i>	FE	No effect
California tiger salamander	<i>Ambystoma californiense</i>	FT	May affect, likely to adversely affect*
California red-legged frog	<i>Rana draytonii</i>	FT	May affect, likely to adversely affect*
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	May affect, not likely to adversely affect*

\* With implementation of the Avoidance and Minimization Efforts described herein

Key to Table 6 Abbreviations: Status: Federal Endangered (FE), Federal Threatened (FT), Proposed Threatened (PT)

## **Chapter 5. Conclusions and Regulatory Determinations**

### **5.1. Federal Endangered Species Act Consultation Summary**

Caltrans, as part of its NEPA assignment of federal responsibilities by the FHWA, effective October 1, 2012 and pursuant to 23 USC 327, is the lead federal agency for Section 7 of the FESA. Provisions of the FESA, as amended (16 USC 1531), protect federally listed threatened and endangered species and their habitats from unlawful take. “Take” under FESA includes activities such as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The USFWS regulations define harm to include some types of “significant habitat modification or degradation.” The U.S. Supreme Court ruled on June 29, 1995, that “harm” may include habitat modification “...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”

Three federally listed species could potentially occur within the BSA: California red-legged frog, California tiger salamander, and San Joaquin kit fox. Measures to avoid, minimize, and compensate for impacts on these species are described in Sections 4.3.1.3 and 4.3.2.3 above. Nevertheless, it is likely that incidental take approval from the USFWS will be needed due to the potential for the Project to result in take of the California tiger salamander and California red-legged frog (i.e., the Project is likely to adversely affect these species). As a result, Section 7 consultation with the USFWS is expected to be necessary. Caltrans, with its delegated NEPA authority, is the lead federal agency for Section 7 consultation.

### **5.2. Essential Fish Habitat Consultation Summary**

No EFH exists within the BSA, since no fish species subject to any fisheries management plans are present. Therefore, consultation with NMFS regarding EFH is not warranted.

### **5.3. California Endangered Species Act Consultation Summary**

Provisions of CESA (CFGF Chapter 1.5, Sections 2050–2116) protect state-listed threatened and endangered species. The CDFW regulates activities that may result in “take” of individuals. Take is defined as, “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”.

Due to the potential for the Project to result in take of the California tiger salamander, incidental take approval from CDFW for that species may be necessary.

### **5.4. Federal Migratory Bird Treaty Act**

As described in Section 4.3.6.3, the Project incorporates measures to avoid effects on nesting birds.

## 5.5. Wetlands and Other Waters and CDFW Riparian Jurisdictional Coordination Summary

Dry Creek was mapped to each opposing bank within the BSA as riverine habitat (Figure 3). This habitat is regulated as Waters of the U.S. and state by the USACE and the RWQCB, respectively. The OHWM represents the upper limit of “other waters” of the U.S. under Section 404 of the CWA, and includes some areas covered in upland vegetation but that technically occur below the OHWM as determined by the change in topography and/or the incised stream banks. Wetlands within this channel would also be claimed by both agencies. Both the RWQCB and CDFW are expected to regulate riparian habitat to each opposing top-of-bank of the Dry Creek channel as waters of the State. The RWQCB will regulate these areas under the Porter Cologne Act as areas that influence water quality within the Project region, although the CDFW will regulate these areas as “bed and banks” riparian habitat.

All work within the wetland and waters in the BSA, including dewatering activities, would require the Project proponent to notify the USACE prior to construction and apply for appropriate permits. The Project may qualify for NWP 14, Linear Transportation Projects, if impacts to streams are minimized enough to adhere to the 300 In ft impact cap. Otherwise, the Project would require an IP, which involves an Alternatives Analysis conducted according to Section 404(b)(1) guidelines of the CWA. In addition, the Project proponent would apply for 401 water quality certification or joint 401 water quality certification/Waste Discharge Requirement from the RWQCB, and a LSAA from the CDFW; and will comply with all measures required by these permits. Further, if there are impacts to wetlands, a Wetlands Only Practicable Alternative (WOPA) will be submitted to Caltrans for review.

## 5.6. Invasive Species

A number of invasive plant species were observed in the BSA, occurring in the California annual grassland/ruderal grassland, riparian grassland, and developed habitats. Weed species rated as having a moderate or high ecological impact or invasive potential by the Cal-IPC are of particular concern and include yellow star thistle, Italian thistle, stinkwort, black mustard, wild oat, ripgut brome, foxtail barley, and curly dock. Soil disturbance (an impact expected from this Project) is often followed by an invasion of the disturbed area by these species. However, BMPs for weed control will be implemented for this Project and include the following measures:

1. Prior to access to the site, all construction equipment will be washed to prevent the introduction of new infestations. Prior to being used at another construction site, the equipment will be washed again, to prevent spread of invasives from the Project footprint to new locations. If equipment is washed on site, it will be done in such a manner that soil, weed seeds, and other materials are collected and not allowed to drain into avoided areas, or into sensitive and regulated habitats.

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2. Following proposed Project implementation, native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground or ground denuded of vegetation by proposed Project activities.

Therefore, with the implementation of these measures, Project-related impacts are not expected to cause an increase in invasive species populations within the site.



## Chapter 6. References

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**Appendix A – USFWS Species List**



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Sacramento Fish And Wildlife Office  
Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:  
Project Code: 2022-0082040  
Project Name: Arroyo Road Bridge Over Dry Creek

September 02, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)



(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

### **Sacramento Fish And Wildlife Office**

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
(916) 414-6600

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## Project Summary

Project Code: 2022-0082040  
Project Name: Arroyo Road Bridge Over Dry Creek  
Project Type: Bridge - Replacement  
Project Description: Bridge replacement.  
Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.63823305,-121.76425044020996,14z>



Counties: Alameda County, California

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## Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2873">https://ecos.fws.gov/ecp/species/2873</a>	Endangered

### Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered

### Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/5524">https://ecos.fws.gov/ecp/species/5524</a>	Threatened

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## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

## Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a>	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened

## Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak <i>Cordylanthus palmatus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1616">https://ecos.fws.gov/ecp/species/1616</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **IPaC User Contact Information**

Agency: California Department of Transportation District 4  
Name: Jane Lien  
Address: 983 University Avenue  
City: Los Gatos  
State: CA  
Zip: 95032  
Email: jlien@harveyecology.com  
Phone: 4084583200

## **Lead Agency Contact Information**

Lead Agency: Federal Highway Administration

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**Appendix B – NMFS Species List**



Quad Name **Livermore**

Quad Number **37121-F7**

### **ESA Anadromous Fish**

SONCC Coho ESU (T) -  
CCC Coho ESU (E) -  
CC Chinook Salmon ESU (T) -  
CVSR Chinook Salmon ESU (T) -  
SRWR Chinook Salmon ESU (E) -  
NC Steelhead DPS (T) -  
CCC Steelhead DPS (T) -  
SCCC Steelhead DPS (T) -  
SC Steelhead DPS (E) -  
CCV Steelhead DPS (T) -  
Eulachon (T) -  
sDPS Green Sturgeon (T) -

### **ESA Anadromous Fish Critical Habitat**

SONCC Coho Critical Habitat -  
CCC Coho Critical Habitat -  
CC Chinook Salmon Critical Habitat -  
CVSR Chinook Salmon Critical Habitat -  
SRWR Chinook Salmon Critical Habitat -  
NC Steelhead Critical Habitat -  
CCC Steelhead Critical Habitat -  
SCCC Steelhead Critical Habitat -  
SC Steelhead Critical Habitat -  
CCV Steelhead Critical Habitat -  
Eulachon Critical Habitat -  
sDPS Green Sturgeon Critical Habitat -

### **ESA Marine Invertebrates**

Range Black Abalone (E) -  
Range White Abalone (E) -

### **ESA Marine Invertebrates Critical Habitat**

Black Abalone Critical Habitat -

### **ESA Sea Turtles**

East Pacific Green Sea Turtle (T) -  
Olive Ridley Sea Turtle (T/E) -  
Leatherback Sea Turtle (E) -  
North Pacific Loggerhead Sea Turtle (E) -

### **ESA Whales**

Blue Whale (E) -  
Fin Whale (E) -  
Humpback Whale (E) -  
Southern Resident Killer Whale (E) -  
North Pacific Right Whale (E) -  
Sei Whale (E) -  
Sperm Whale (E) -

### **ESA Pinnipeds**

Guadalupe Fur Seal (T) -  
Steller Sea Lion Critical Habitat -

### **Essential Fish Habitat**

Coho EFH - **X**  
Chinook Salmon EFH - **X**  
Groundfish EFH -  
Coastal Pelagics EFH -  
Highly Migratory Species EFH -

### **MMPA Species (See list at left)**

### **ESA and MMPA Cetaceans/Pinnipeds**

**See list at left and consult the NMFS Long Beach office  
562-980-4000**

MMPA Cetaceans -  
MMPA Pinnipeds -

## **Appendix C – Tree Survey**



September 14, 2022

Will Burns, AICP | Vice President & Principal Project Manager  
David J. Powers & Associates, Inc.  
1736 Franklin Street, Suite 400  
Oakland, CA 94612

**Subject:** Arroyo Road over Dry Creek Bridge Project – Tree Survey Report (HTH #4405-01)

Dear Will Burns:

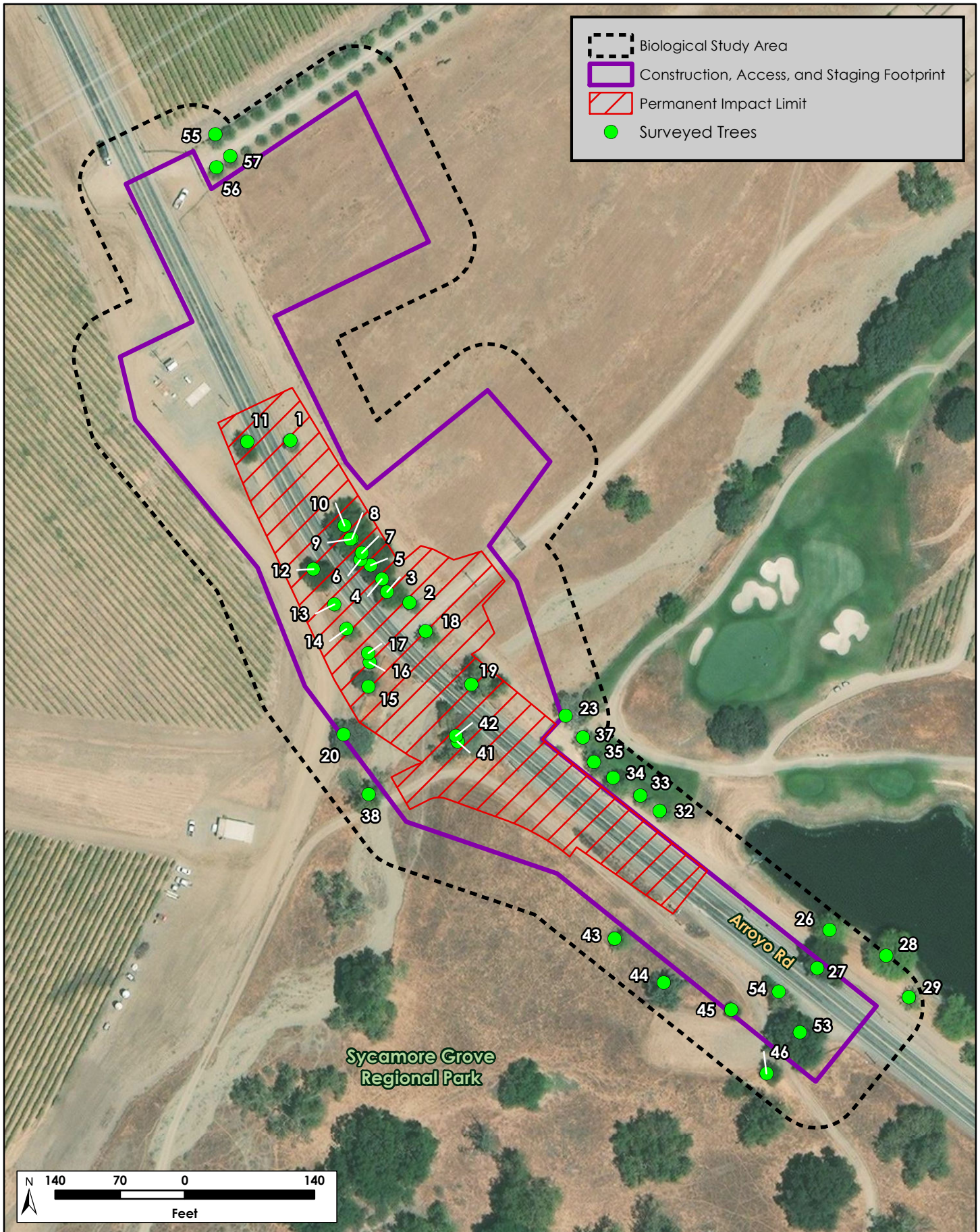
As requested, H. T. Harvey & Associates has conducted a tree survey in support of the Arroyo Road over Dry Creek Bridge Project located in Livermore, California. This report was prepared to support permitting for trees to be removed by the Project and that would fall under the riparian jurisdiction of the California Department of Fish and Wildlife and Regional Water Quality Control Board. This report provides an inventory of all trees located within the Biological Study Area (BSA) of the Project site with a diameter at breast height (DBH) of 4 inches or greater. Each tree was identified to species, number of stems, their DBH and height recorded, and the location of each tree was mapped and is shown on Figure C1. A tree table with this information is provided below.

## Methods

The tree survey was completed on February 19, 2020 by H. T. Harvey & Associates plant ecologist Jill Pastick, M.S. Each tree surveyed was mapped using a Trimble Geo 7X GPS, and identified to species (scientific and common name), and each tree's height was estimated. The diameter of each tree was also measured; for trees with multiple trunks, the diameter of each stem was measured at 4.5 feet (ft) above ground (i.e., DBH), and the DBH of all stems were summed to produce the DBH for the tree. A total of 42 trees, with a DBH of 4 inches or more at 4.5 ft above ground, were surveyed and measured by Pastick. Trees with a DBH less than 4 inches were excluded from the survey.

## Survey Results

Forty-two (42) trees of nine species with DBH measurements ranging between 6 and 132 inches were surveyed within the BSA (Figure C1, Table 1C). Of these species, coast live oak (*Quercus agrifolia*) was the most abundant species observed, making up 13 of the 42 trees surveyed. Of the 42 trees surveyed at the time, none were found to be dead. Twenty-one (21) trees were located in the permanent impact limits of the Project site. Five trees were located outside of the permanent impact limits, but within the construction work access and staging areas; and, the other 16 trees were located within the BSA but outside of all project work areas of the Project site. Each tree species, height, number of stems, and DBH is shown in Table 1C below.



N:\Projects\4400\4405-01\Reports\Tree Survey\Rp1\Fig C1 Tree Locations.mxd



**H. T. HARVEY & ASSOCIATES**  
Ecological Consultants

**Figure C1. Tree Locations**

Arroyo Road over Dry Creek Bridge Project – Tree Survey Report (4405-01)  
September 2022

**Table 1C. Tree Survey Data**

Tree Number ID	Scientific Name	Common Name	Number of Stems	Total DBH (inches)	Estimated Height (ft)
1	<i>Olea europea</i>	olive	3	13	15
2	<i>Quercus agrifolia</i>	coast live oak	1	9.5	15
3	<i>Quercus agrifolia</i>	coast live oak	1	23	30
4	<i>Aesculus californica</i>	California buckeye	2	13	18
5	<i>Quercus agrifolia</i>	coast live oak	3	18	30
6	<i>Quercus agrifolia</i>	coast live oak	1	22	35
7	<i>Quercus agrifolia</i>	coast live oak	2	25.5	30
8	<i>Quercus agrifolia</i>	coast live oak	1	11	30
9	<i>Quercus agrifolia</i>	coast live oak	3	61	30
10	<i>Quercus agrifolia</i>	coast live oak	2	40	30
11	<i>Quercus agrifolia</i>	coast live oak	1	22	20
12	<i>Quercus agrifolia</i>	coast live oak	1	23	20
13	<i>Quercus douglassii</i>	blue oak	2	7.5	8
14	<i>Quercus douglassii</i>	blue oak	13	64.5	10
15	<i>Quercus douglassii</i>	blue oak	1	20	20
16	<i>Quercus douglassii</i>	blue oak	2	7.5	15
17	<i>Quercus douglassii</i>	blue oak	7	26.5	15
18	<i>Prunus serrulata</i>	cherry blossom	2	29	20
19	<i>Platanus racemosa</i>	California sycamore	1	51	35
20	<i>Quercus douglassii</i>	blue oak	1	46	30
23	<i>Aesculus californica</i>	California buckeye	2	44	30
26	<i>Salix</i> sp.	Chinese weeping willow	3	20	25
27	<i>Quercus agrifolia</i>	coast live oak	1	35.5	35
28	<i>Salix</i> sp.	Chinese weeping willow	2	42	35
29	<i>Platanus racemosa</i>	California sycamore	1	9	22
32	<i>Platanus racemosa</i>	California sycamore	1	7	18
33	<i>Platanus racemosa</i>	California sycamore	1	6	18
34	<i>Platanus racemosa</i>	California sycamore	1	13	22
35	<i>Platanus racemosa</i>	California sycamore	1	14	28
37	<i>Platanus racemosa</i>	California sycamore	1	10	18
38	<i>Platanus racemosa</i>	California sycamore	1	58	40
41	<i>Platanus racemosa</i>	California buckeye	10	132	20
42	<i>Platanus racemosa</i>	California sycamore	2	28	15
43	<i>Quercus douglassii</i>	blue oak	1	11	18
44	<i>Pinus</i> sp.	Pine species	9	92	20
45	<i>Quercus agrifolia</i>	coast live oak	2	11	12
46	<i>Quercus douglassii</i>	blue oak	1	8	20
53	<i>Quercus lobata</i>	valley oak	1	106	45
54	<i>Quercus agrifolia</i>	coast live oak	5	45.5	20
55	<i>Olea europea</i>	olive	1	8	10
56	<i>Olea europea</i>	olive	1	8	10
57	<i>Olea europea</i>	olive	1	8	10

Please feel free to contact me at [speterson@harveyecology.com](mailto:speterson@harveyecology.com) or (408) 300-8690 if you have any questions regarding this survey.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen L. Peterson". The signature is written in a cursive style with a large, stylized initial "S".

Stephen L. Peterson, M.S.  
Project Manager, Senior Wildlife Ecologist

## Appendix D – Site Photographs



**Photo 1: Representative photo of the California annual grassland habitat in the southwest portion of the BSA (part of Sycamore Grove Regional Park).**



**Photo 2: Representative photo of the ruderal grassland habitat located in the northeast portion of the BSA (part of a pasture to be used as a staging area).**





**Photo 3: Representative photo of the California annual grassland habitat located in the southwest portion of the BSA (part of Sycamore Grove Regional Park).**



**Photo 4: Representative photo of riparian grassland habitat on the top of the northwest bank of Dry Creek in the BSA.**



**Photo 5: Photo of existing bridge on Arroyo Road in the BSA, looking east from the Dry Creek channel.**



**Photo 6: Photo of existing wooden pedestrian pathway on east side of bridge, looking south along Arroyo Road.**



**Photo 7: Representative photo of developed areas (with vineyard in the back) located in the northwest portion of the BSA. Wente Vineyard property shown west of Arroyo Road.**



**Photo 8: Representative photo of the Wente Vineyards Golf Course and Pond land cover types in the southeast portion of the BSA, east of Arroyo Road.**



**Photo 9: Representative photo of the vineyard land cover type (behind developed area) located in the northwest portion of the BSA.**



**Photo 10: Representative photo of the riverine (ephemeral stream) habitat of Dry Creek located on the west side of the existing bridge, where the channel cuts into the bank of the riparian grassland habitat area on top.**



**Photo 11: Representative photo of the Dry Creek channel on the east side of the existing bridge, where the riverine habitat intergrades with ruderal grasslands in the BSA.**



**Photo 12: Photo of the east side of the Dry Creek channel that is cut off by a hardpacked gravel access road and fenceline.**

## Appendix E – Plants Identified in the BSA

Family	Scientific Name	Common Name	Cal-IPC Status*
Asteraceae	<i>Artemisia californica</i>	California sagebrush	
	<i>Carduus pycnocephalus</i>	Italian thistle	Moderate
	<i>Centaurea solstitialis</i>	yellow star thistle	High
	<i>Dittrichia graveolens</i>	Stinkwort	Moderate
	<i>Helminthotheca echioides</i>	bristly ox-tongue	Limited
	<i>Silybum marianum</i>	milk thistle	Limited
Boraginaceae	<i>Amsinckia intermedia</i>	common fiddleneck	
Brassicaceae	<i>Brassica nigra</i>	black mustard	Moderate
	<i>Hirschfeldia incana</i>	shortpod mustard	Moderate
Fabaceae	<i>Trifolium</i> sp.	clover	
Fagaceae	<i>Quercus agrifolia</i>	coast live oak	
	<i>Quercus douglasii</i>	blue oak	
	<i>Quercus lobata</i>	valley oak	
Geraniaceae	<i>Erodium</i> sp.	stork bill	
	<i>Geranium molle</i>	dove's foot crane's bill	
Juncaceae	<i>Juncus</i> sp.	rush	
Malvaceae	<i>Malva parviflora</i>	cheeseweed	
Oleaceae	<i>Olea europea</i>	olive	
Onagraceae	<i>Epilobium brachycarpum</i>	tall annual willowherb	
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	
Plantaginaceae	<i>Plantago</i> sp.	plantago	
	<i>Veronica persica</i>	birdseye speedball	
Platanaceae	<i>Platanus racemosa</i>	California sycamore	
Poaceae	<i>Stipa miliacea</i>	smilo grass	Limited
	<i>Avena fatua</i>	wild oat	Moderate
	<i>Bromus diandrus</i>	ripgut brome	Moderate
	<i>Hordeum murinum</i>	foxtail barley	Moderate
Polygonaceae	<i>Rumex crispus</i>	curly dock	Limited
Rosaceae	<i>Prunus serrulata</i>	cherry blossom	
	<i>Rosa</i> sp.	ornamental rose	
Salicaceae	<i>Salix babylonica</i>	Chinese weeping willow	
Sapindaceae	<i>Aesculus californica</i>	California Buckeye	

\* Cal-IPC Status Descriptions (Cal-IPC 2022)

**High** – Species has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure

## *Natural Environment Study*

**Moderate** – Species have substantial and apparent ecological impacts on physical processes, plant and animal communities, and vegetation structure

**Limited** – Species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score

## **Appendix F – EACCS General Avoidance and Mitigation Measures to Reduce Effects on Focal Species**

GEN-01 Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and Avoidance and Minimization Measures (AMMs) that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.

GEN-02 Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

GEN-03 Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these requirements, AMMs.

GEN-04 The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).

GEN-05 Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

GEN-06 Off-road vehicle travel will be minimized.

GEN-07 Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land-cover types, or during off-road travel.

GEN-08 Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

GEN-09 Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

GEN-10 To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.

GEN-11 Pipes, culverts and similar materials greater than four inches in diameter, will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.

GEN-12 Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.



## *Natural Environment Study*

GEN-13 Stockpiling of material will occur such that direct effects to covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.

GEN-14 Grading will be restricted to the minimum area necessary.

GEN-15 Prior to ground disturbing activities in sensitive habitats, project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.

GEN-16 Significant earth moving-activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1-inch of rain or more).

GEN-17 Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.


# 5933 (138) NES Revised - Signed


Final Audit Report


2023-02-03


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