

APPENDIX A

Biological Resource Assessment, WRA 2018

Biological Resources Assessment

ZONE 7 TRAIL PROJECT (APN: 99-550-2-3)
LIVERMORE, ALAMEDA COUNTY, CALIFORNIA

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October 2018



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LIST OF ACRONYMS

AWS	Alameda whipsnake
BRA	Biological Resource Assessment
CAL-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
Corps	U.S. Army Corps of Engineers
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	Clean Water Act
EACCS	East Alameda County Conservation Strategy
EPA	Environmental Protection Agency
ESA	Endangered Species Act
LARPD	Livermore Area Recreation and Parks District
MBTA	Migratory Bird Treaty Act
NWI	National Wetland Inventory
RWQCB	Regional Water Quality Control Board
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

WRA, Inc. (WRA) prepared this biological resource assessment (BRA) report on behalf of the Livermore Area Recreation and Parks District (LARPD) for the installation of a proposed trail through Zone 7 managed land (Project). The Project Area is located approximately 0.67 mile southeast of the City of Livermore in unincorporated Alameda County, California (Assessor Parcel Number [APN] 99-550-2-3) (Figure 1). The approximately 4.78-acre Project Area comprises an approximately 2-mile single-track walking trail alignment that contains a 10-foot buffer on each side to provide space for minor trail alignment adjustments. Much of the proposed trail is located along an existing cattle trail and an existing access road. This BRA report includes an evaluation of published background information relevant to the Project and findings from a site visit conducted throughout the Project Area on August 23, 2018.

The purpose of this BRA was to gather information necessary to complete a review of biological resources protected under the California Environmental Quality Act (CEQA) and to support the regulatory permit application process. This report describes the results of previous site visits that occurred in the Project Area and reviews relevant existing information in order to evaluate the Project Area for: (1) the potential to support special-status plant and wildlife species; (2) the potential presence of sensitive biological communities, such as wetlands or riparian habitats; and (3) the potential presence of other sensitive biological resources protected by local, state, and federal laws and regulations. This report also identifies potential impacts to biological resources that would result from the Project, discusses avoidance and minimization measures that would protect natural resources, and recommends mitigation measures for potentially significant impacts under CEQA.

This BRA is based on information available at the time of the study and on-site conditions observed during the August 23, 2018 survey performed in the Project Area. A delineation of Waters of the United States ("waters"), subject to United States Environmental Protection Agency (EPA) and United States Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act (CWA), and Waters of the State, subject to Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, was conducted concurrently with the BRA site visit on August 23, 2018 (WRA 2018). Habitat and species information associated with the Project Area are considered suitable for an evaluation of the Project's biological resources impacts under CEQA; however, additional protocol-level plant and wildlife surveys for certain species may be necessary to obtain permits or other regulatory approvals from state and federal regulatory agencies prior to Project implementation.

1.1 Project Area Description

The Project Area consists of a trail corridor that is approximately 10,417 feet (1.9 miles) long and 20 feet wide, which totals to approximately 4.78 acres (Figure 1). The Project Area is situated on rolling hills composed of non-native annual grasslands and patches of oak woodland. A majority of the Project Area is designed to follow an existing cattle trail and along an existing access road. The Project Area is located in the northeastern corner of the La Costa Valley United States Geologic Survey (USGS) 7.5-minute quadrangle (USGS 2015e). The Project Area is bound by Sycamore Grove Park to the northwest and agricultural land and the Livermore Division of the Veterans Affairs Palo Alto Health Care System Hospital to the north. Arroyo Road, Wente Vineyards, and Del Valle Regional Park are located east of the Project Area. Areas south of the Project Area are composed of rolling grassland hills and oak woodland. Elevations in the Project Area range from approximately 655 to 1,170 feet WGS84 (Google Earth 2018).

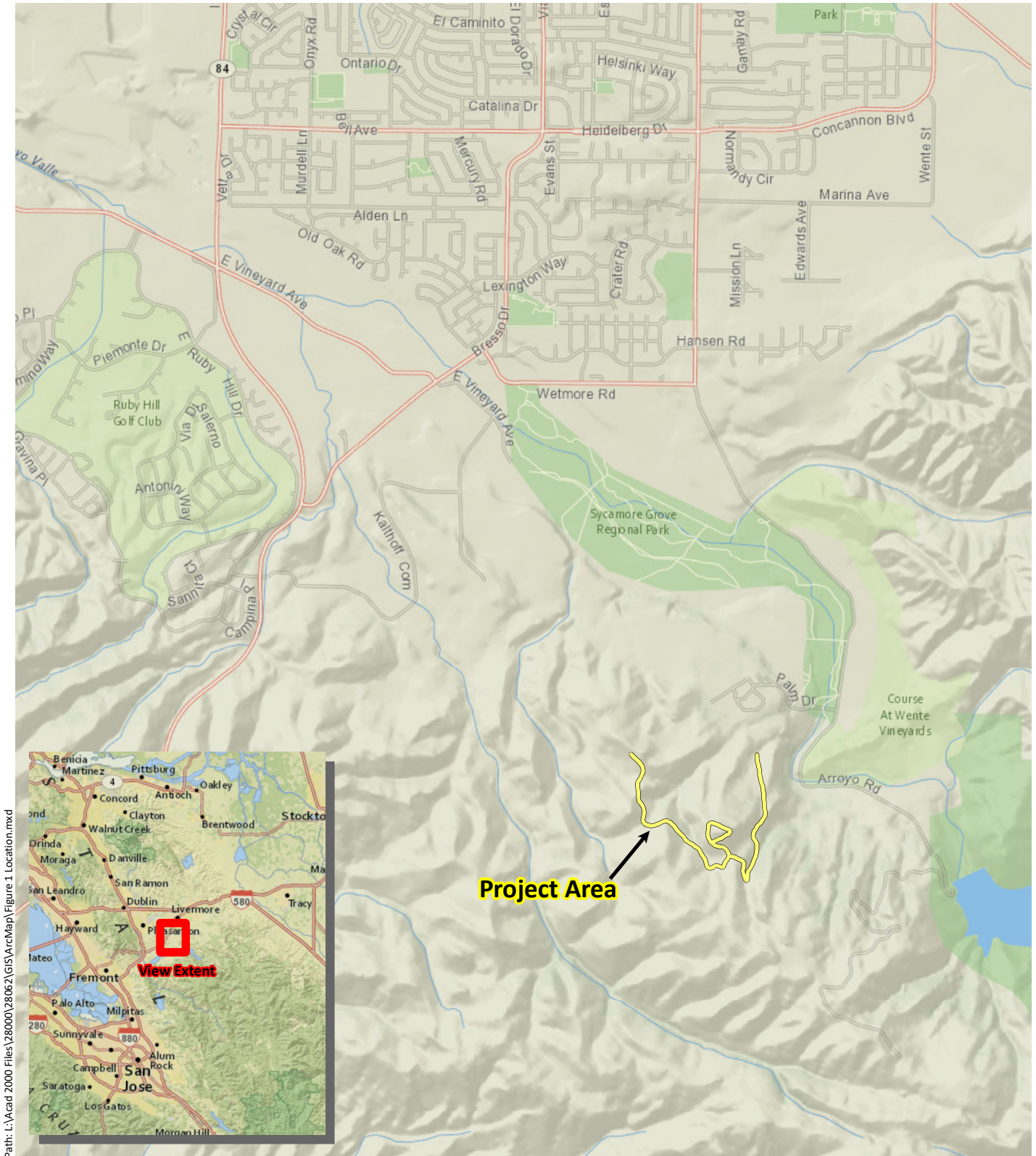


Figure 1. Project Area Location

Zone 7 Trail Project
Livermore, Alameda County, California

0 0.5 1 Miles



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1.2 Project Description

The Project would entail the construction of a single-track public walking trail, which would be managed by the LARPD. The new trail would be approximately 3 to 5 feet in width and would potentially serve as part of a connection between the Valley View Loop in Sycamore Grove Park and the Deer Jaw Trail in Del Valle Park. Work would be limited to surface vegetation scraping and minor benching within the 3 to 5 foot trail width. The Project Area and surrounding vicinity are currently grazed and contain cattle trails. Most of the western portions of the proposed trail would be constructed on existing disturbed cattle trails to minimize Project impacts. The eastern portion of the proposed trail would be situated on existing limited-use access roads. The surrounding area would continue to support cattle grazing. The proposed trail would extend through non-native annual grasslands and patches of oak woodlands. The Project would not require tree removal, though small overhanging branches may be trimmed during Project activities. The proposed trail would be installed by supervised volunteers in two days over a two year period. Hand tools would be used exclusively to minimize impacts.

2.0 REGULATORY BACKGROUND

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations, such as the CWA; state regulations, such as the Porter-Cologne Act, Section 1600-1616 of the California Fish and Game Code (CFGF), and CEQA; Habitat Conservation Plans (HCPs), or local ordinances or policies, such as city or county tree ordinances, and General Plan Elements.

2.1.1 Waters of the United States

The Corps regulates “Waters of the United States” under Section 404 of the CWA. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology.

Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark (OHWM), and herein referred to as non-wetland waters. Non-wetland waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S. generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

2.1.2 Waters of the State

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The RWQCB protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not

systematically protected by other programs. RWQCB jurisdiction includes wetlands and waters that may not be regulated by the Corps under Section 404.

Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit or fall under other federal jurisdiction and have the potential to impact Waters of the State are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

2.1.3 Other Sensitive Biological Communities

Other sensitive biological communities, not discussed above, include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified by the California Department of Fish and Wildlife (CDFW) in local or regional plans, policies, or regulations. The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2018a). Sensitive plant communities are also identified by the CDFW (2018b) and California Native Plant Society (CNPS; 2018a). Vegetation alliances are ranked 1 through 5 by CNDDDB based on NatureServe's (2015) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or United States Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.1.4 Relevant Local Policies, Ordinances, and Regulations

East Alameda County Conservation Strategy

Though not formally binding, the East Alameda County Conservation Strategy (EACCS; ICF 2010) is intended to provide an effective framework to protect, enhance, and restore natural resources. The Project Area is located in the Conservation Zone 12 (CZ-12), and conservation priorities for this zone are listed below.

- Protection of Coulter pine woodland land cover type
- Protection of perennial freshwater marsh and coast live oak forest and woodland land cover types
- Protection and enhancement of ponds to protect breeding habitat for tricolored blackbird (*Agelaius tricolor*), California tiger salamander (CTS; *Ambystoma californiense*), and California red-legged frog (CRLF; *Rana draytonii*), with primary focus on currently occupied habitat and secondary focus on habitat that can be enhanced to encourage occupation
- Protection of critical habitat for Alameda whipsnake (AWS; *Masticophis [Coluber] lateralis euryxanthus*)
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly (*Speyeria callippe callippe*) larval host/food plants and map occurrences of plant populations

2.2 Special-Status Species and Critical Habitat

Plant and Wildlife Species

Special-status species include plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, and USFWS Birds of Conservation Concern are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special-status. In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the CFGC, i.e., sections 3503, 3503.5 and 3513. Under this law, destroying active bird nests, eggs, and/or young is illegal. The Migratory Bird Treaty Act of 1918 (MBTA) provides federal recommendations to protect birds, as well.

Plant species included within the CNPS Inventory of Rare and Endangered Plants (Inventory; CNPS 2017b) with California Rare Plant Rank (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA. Very few Rank 4 plant species meet the definitions of Section 1901 Chapter 10 of the Native Plant Protection Act or Sections 2062 and 2067 of the CFGC that outlines CESA. However, the CNPS and the CDFW strongly recommend that these species be fully considered during the preparation of environmental documentation related to CEQA. This may be particularly appropriate for the type locality of a Rank 4 plant species, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology or occurring on unusual substrates. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of California Rare Plant Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Locally Rare, Unusual, and Significant Plants

Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties, Eighth Edition (Lake 2010), produced by the East Bay Chapter of the CNPS, lists 608 plant taxa as locally rare, unusual, or significant in Alameda and Contra Costa Counties. Of these 608 species, 313 occur in two or fewer regions in Alameda and Contra Costa Counties (ranked A1 in the East Bay), 231 occur in five or fewer regions in the two counties or are otherwise threatened (ranked A2 in the East Bay), and 64 are only known historically and are presumed to have been extirpated from the East Bay during the last century (A1x) (Table 2). A-ranked species receive consideration under sections 15380 and 15125(c) of CEQA and are considered “locally rare” for the purposes of this report. Any locally rare species with potential to occur in the Project Area are discussed in Section 4 of this report.

Table 2. Description of East Bay CNPS Rare Plant Rankings

Rank	Description
A1	Species occurring in two or fewer regions in Alameda and Contra Costa counties
A1x	Species presumed extirpated from Alameda and Contra Costa counties
A1?	Species possibly occurring in Alameda and Contra Costa counties. Identification or location is uncertain
A2	Plants occurring in three to five regions or are otherwise threatened in Alameda and Contra Costa counties.
B	Species occurring in six to nine regions or are otherwise threatened in Alameda and Contra Costa counties (high priority watch list).
C	Species occurring in 10 to 15 regions or are otherwise threatened in Alameda and Contra Costa counties (second priority watch list).

*Ranks preceded by an asterisk (e.g. “*A1”) also have a statewide rarity ranking.

*Species on the watch lists (ranks B and C) are not considered to be special-status based on CEQA guidelines.

Critical Habitat

Critical habitat is a term defined in the ESA as a specific and formally designated geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with designated critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify designated critical habitat to the point that it will no longer aid in the species’ recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas within designated critical habitat that are currently unoccupied by the species, but which are needed for the species’ recovery, are protected by the prohibition against adverse modification of critical habitat.

3.0 METHODS

Prior to conducting field surveys, available reference materials were reviewed, including online soil survey data for the Project Area (California Soil Resources Laboratory [CSRL] 2018), the USGS 7.5-minute quadrangle map for La Costa Valley (USGS 2015a-i), USFWS National Wetland Inventory (NWI) data (USFWS 2018a), rainfall and WETS precipitation data (USDA

2018), the EACCS, Alameda County Breeding Bird Atlas (Richmond et al. 2011), and available aerial photographs of the Project Area (Google Earth 2018).

On August 23, 2018, WRA conducted a site visit to assess the trail alignment and surrounding area. The Project Area was traversed on foot and photographed to capture existing conditions. The surveyors sought to determine: (1) plant communities present within the Project Area and surrounding hillsides, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats are present. Concurrently, a jurisdictional wetland delineation was performed in the Project Area to determine the presence of potential wetlands and other waters subject to federal jurisdiction under Section 404 of the CWA, Section 401 of the CWA, and the Porter-Cologne Water Quality Control Act (WRA 2018a). WRA conducted a review of potential plant and wildlife habitat using the resources listed above to focus field investigations. The review was performed to identify special-status species documented in the vicinity of the Project Area. The findings of the BRA are summarized in Section 4 of this report.

All plant and wildlife species encountered were recorded and are listed in Appendix A. Plants were identified using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012) and subsequent revisions by the Jepson Flora Project (2018) to the taxonomic level necessary to determine rarity. Plant nomenclature follows the Jepson Flora Project (2018). For cases in which regulatory agencies, the CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities. Appendix B provides a list of species-status species that have been documented in the Project Area vicinity and summarizes the potential for occurrence for each of these species based on observed habitat suitability, proximity of known occurrences, or the direct observation of a species. Appendix C includes representative photographs of the Project Area taken during the August 2018 field visit.

3.1 Biological Communities

Prior to the site visits, online soil survey data for the Project Area (CSRL 2018), the USGS 7.5-minute quadrangle map for La Costa Valley (USGS 2015e), NWI wetland data (USFWS 2018), rainfall data and WETS precipitation data (USDA 2018), and available aerial photographs of the site (Google Earth 2018) were reviewed to identify potential sensitive habitats and areas for further investigation. Following the site visit, biological communities present in the Project Area were classified based on existing plant community descriptions described in *A Manual of California Vegetation, Online Edition* (CNPS 2018a, CDFW 2018a). Biological communities were classified as sensitive or non-sensitive, as defined by CEQA and other applicable laws and regulations (see Section 2.2, above).

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, or other state, federal, and local laws, regulations, and ordinances. However, such communities may provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.2 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and

ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Waters

The Project Area and surrounding 100-foot wide corridor were surveyed to determine if any wetlands or non-wetland waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. As stated above, a routine delineation of Waters of the U.S. subject to Corps jurisdiction under Section 404 of the CWA was conducted by WRA (2018). One 0.08-acre perennial wetland was delineated in the proximity of, but not within, the Project Area. Because this feature is located outside of the Project Area, it will not be analyzed further below.

Other Sensitive Biological Communities

The Project Area was evaluated for the presence of other sensitive biological communities, including riparian areas, or sensitive plant communities recognized by the CDFW or CNDDDB. These communities are described in Section 4.2 below.

3.2 Special-Status Species

3.2.1 Literature Review

The potential for special-status species to occur in the Project Area and immediately adjacent land was evaluated by first determining which special-status species have been documented previously in the Project Area and in the 5-mile vicinity of the Project Area through a literature and database search. Database searches for known occurrences of special-status species focused on the La Costa Valley USGS 7.5-minute quadrangle and eight surrounding quadrangles (USGS 2015a-i). The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur within and in the vicinity of the Project Area:

- CNDDDB records (CDFW 2018b)
- CNPS Inventory (CNPS 2018b)
- EACCS (ICF 2010)
- Alameda County Breeding Bird Atlas (Richmond et al. 2011)
- USFWS Information for Planning and Conservation Species Lists (USFWS 2018b)
- California Department of Fish and Game publication “California’s Wildlife, Volumes I-III” (Zeiner et al. 1990)
- California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- California Bird Species of Special Concern (Shuford and Gardali 2008)
- USFWS Environmental Conservation Online System (USFWS 2018c)
- Western Bat Working Group, species accounts (WBWG 2017)
- Maps for the California Essential Habitat Connectivity Project (Spencer et al. 2010).

3.2.2 Site Assessment

Habitat conditions were assessed and were used to evaluate the potential for presence of special-status species. The potential for each special-status species to occur in the Project Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

The site assessment was intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity to determine its potential to occur in the Project Area. The BRA does not constitute protocol-level surveys and is not intended to determine the actual presence or absence of a species. If little information was known about specific species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats.

An assessment of the potential for special-status species that may occur within the Project Area is provided below in Section 4.3 and in Appendix B. For species with a moderate or high potential to occur within the Project Area, but which were not observed in the Project Area, the site assessment conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present for the purposes of the LARPD's environmental review under CEQA, but further protocol-level special-status species surveys may ultimately be necessary.

4.0 RESULTS

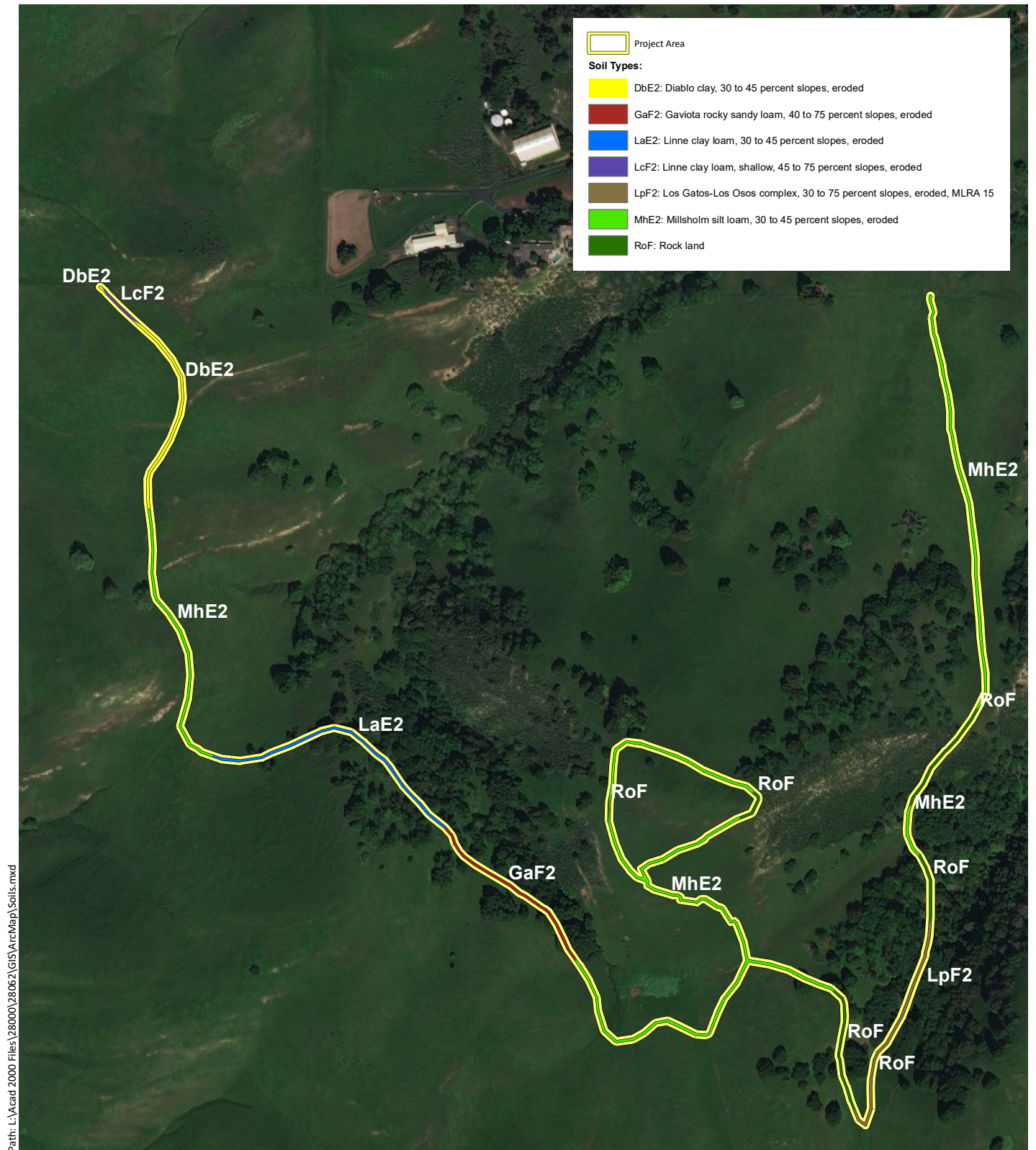
4.1 Soils

The online soil survey of the Project Area (CSRL 2018) indicates that there are seven native soil mapping units. Constituents of the dominant soil mapping units within the Project Area (Figure 2) are described in detail below.

Diablo Clay: The Diablo series consists of well-drained, slow permeability soils with slow runoff when dry and medium to rapid when soils are moist. A typical Diablo series soil has dark gray, neutral and mildly alkaline, silty clay upper A horizons, gray and olive gray, calcareous, silty clay lower A horizons, and light olive gray, silty clay AC and C horizons that rest on shale. Diablo soils occur on complex undulating, rolling to steep uplands with slopes of 5 to 50 percent. These soils are used for grazing and for production of dry farmed grain. Within the Project Area, Diablo clay occurs on 30 to 45 percent slopes.

Gaviota Rocky Sandy Loam: The Gaviota series consists of very shallow or shallow, well-drained soils that formed in material weathered from hard sandstone or meta-sandstone. Gaviota soils occur on hills and mountains, and have slopes of 2 to 100 percent. A typical pedon has 3 horizons (A₁, A₂, and R) and is colored 7.5YR 5/4 for the top 10 inches. This soil is well or excessively

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Sources: 2017 DigitalGlobe Aerial, SSURGO USGS, WRA | Prepared By: smortensen, 10/4/2018

Figure 2. Soils in the Project Area

Zone 7 Trail Project
Livermore, Alameda County, California

0 250 500 1,000
Feet



well-drained with very low to very high runoff. It has moderately rapid permeability. Within the Project Area, Gaviota rocky sandy loam occurs on slopes of 40 to 75 percent.

Linne Clay Loam: The Linne series consists of moderately deep, well-drained soils on hills with slopes of 5 to 75 percent. They formed in material weathered from fairly soft shale and sandstone and have medium to very rapid runoff and moderately slow permeability. In a typical profile, the surface layer is composed of black (10YR 2/1), moderately alkaline clay loam to 9 inches in depth.

This is underlain by black to very dark gray (10YR 3/1), moderately alkaline clay loam to 29 inches. From 29 to 32 inches, the soil is composed of gray and light brownish gray (10YR 5/1 and 6/2), moderately alkaline sandy clay loam. From 32 to 36 inches, the soil is composed of very pale brown and white (10YR 7/2 and 8/2) moderately alkaline fine sandy loam. Between 36 and 51 inches, the soil is comprised of light gray and pale yellow (2.5Y 7/2 and 8/4) moderately alkaline mudstone. Within the Project Area, Linne clay loam occurs on slopes between 45 and 75 percent.

Los Gatos – Los Osos Complex. The Los Osos series consists of moderately deep, well-drained soils on uplands with slopes of 5 to 75 percent. They formed in material weathered from firm to hard sandstone and shale. These soils have very high runoff and slow permeability. A typical profile includes five soil horizons: A, Btss1, Btss2, C, and Cr. The Los Gatos series is a member of the fine-loamy, mixed, mesic family of Typic Argixerolls. Typically, Los Gatos soils have brown, light clay loam, granular, slightly acid A1 horizons, brown and yellowish red, slightly and medium acid clay loam and gravelly clay loam Bt horizons over sandstone bedrock at a depth of 36 inches. The coloration of a typical pedon is 7.5YR 5/4 to approximately 25 inches deep. It is well-drained and has moderate permeability, producing rapid to very rapid runoff. Los Gatos-Los Osos complex soils are found within the Project Area at eroded slopes between 30 and 75 percent, with portions falling within MLRA 15.

Millsholm Silt Loam. The Millsholm series consists of shallow, well-drained soils that formed in material weathered from sandstone, mudstone, and shale. Millsholm soils are located on hills and mountains, and have slopes of 5 to 75 percent. A typical profile be brown in color (10YR 5/4) clay loam up to 16 inches deep, with moderate coarse subangular blocky structure. These soils are well-drained, with low to very high runoff and moderate permeability. Millsholm silt loam is found within the Project Area on 30 to 45 percent slopes.

Rockland Soil Series. The Rockland series consists of well-drained soils formed in loamy colluvium from rotational landslides on slopes of stream valleys and dissections of ground moraines. Saturated hydraulic conductivity is moderate in the upper part of the profile and moderately slow in the lower part. Slopes range from 18 to 70 percent. A typical profile has 6 horizons and contains buried twigs and other plant material as far down as 70 inches.

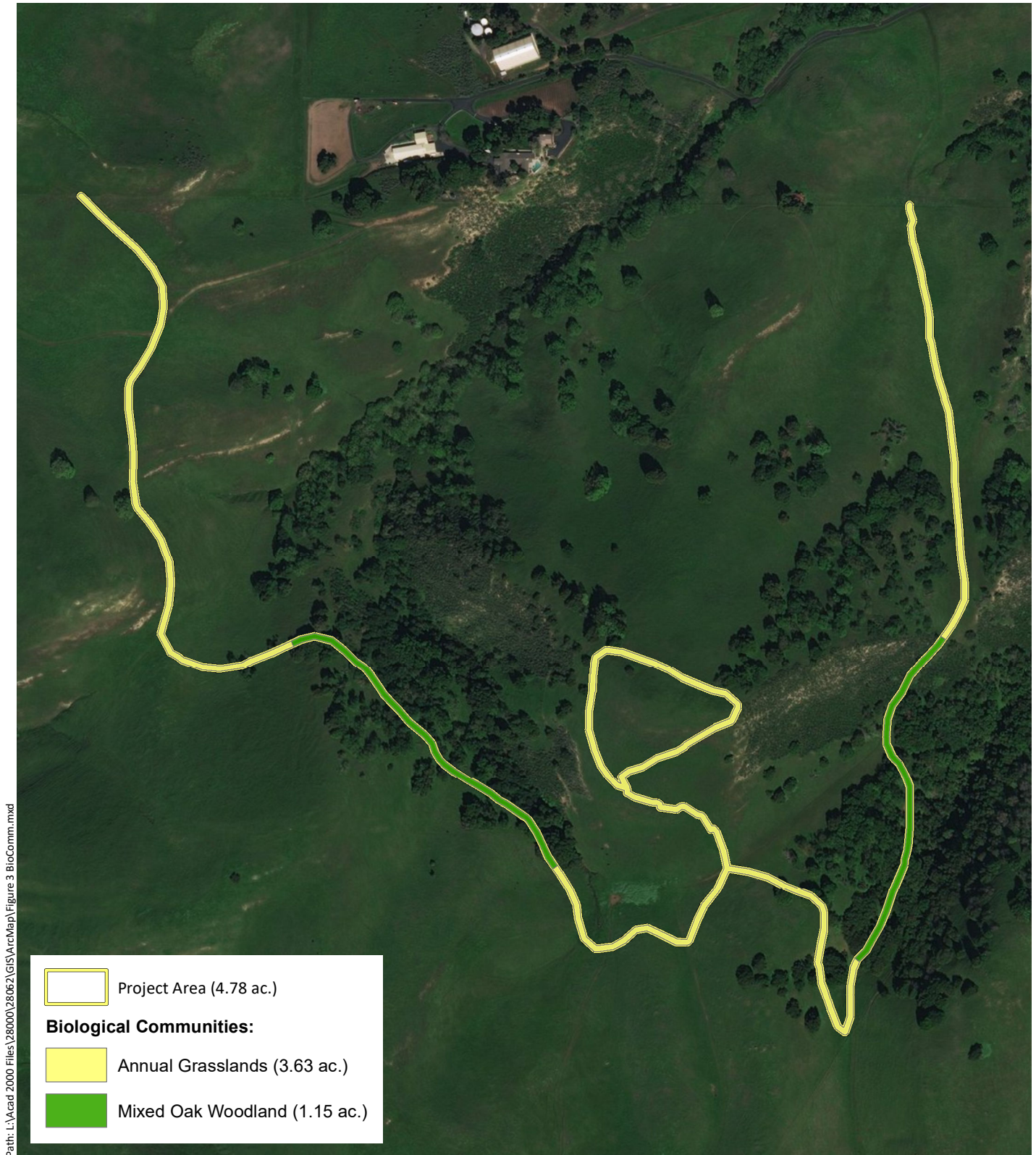
4.2 Biological Communities

The Project Area contains one non-sensitive biological community, annual grassland (3.63 acres), and one locally sensitive biological community, coast live oak woodland (1.15 acres) (Figure 3).

4.2.1 Non-sensitive Biological Communities

Non-native Annual Grassland

Non-native annual grasslands are common throughout California on all aspects and topographic positions underlain by a variety of substrates. In the Project Area, annual grasslands are dominated by non-native annual grass species, including wild oat grass (*Avena barbata*,



Sources: 2017 DigitalGlobe Aerial, WRA | Prepared By: smortensen, 10/4/2018

Figure 3. Biological Communities Located within the Project Area

Zone 7 Trail Project
Livermore, Alameda County, California

0 250 500 1,000
Feet



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California Invasive Plant Council [Cal-IPC; 2018] moderate), ripgut brome (*Bromus diandrus*, Cal-IPC Moderate), foxtail brome (*Bromus madritensis*, Cal-IPC High), and Medusa head (*Elymus caput-medusae*, Cal-IPC High).

Very low densities (less than 5 percent cover) of native grasses, including Purple needlegrass (*Stipa pulchra*) and blue wild-rye (*Elymus glaucus*), were found within this community. Forbs within this community included yellow star thistle (*Centaurea solstitialis* Cal-IPC High), black mustard (*Brassica nigra*, Cal-IPC Moderate), vinegar weed (*Trichostema lanceolatum*), and wild mustard (*Hirschfeldia incana*, Cal-IPC Moderate). These annual grasslands are located on all aspects and topographic positions, and are underlain by all nearly all mapped soil units in the Project Area. Disturbance in this community was primarily caused by erosion and grazing, and a network of cattle trails exists throughout the grasslands. Within the Project Area, annual grasslands intergrade with oak woodlands.

4.2.2 Locally Sensitive Biological Communities

Coast live oak woodland

Coast live oak woodlands are known from the outer and inner Coast Ranges, Transverse Ranges, and Southern Coast from northern Mendocino County to San Diego County. This community is typically located on terraces, canyon bottoms, slopes, and flats underlain by deep, well-drained sandy or loam substrates with high organic content (CNPS 2018a). Within the Project Area, coast live oak woodlands occupy approximately 1.15 acres, and intergrade with annual grasslands. These woodlands are most extensive on west-facing slopes from the ridgeline to mid-elevation. The underlying substrate is primarily composed of well-drained loam with high organic content and a thin, scattered duff layer of leaves and thatch from annual forbs and grasses. Disturbance in this community appears to be relatively low, and primarily from cattle grazing, with no fire scarring or excessive wood-cutting observed.

Dominant species in the tree layer include coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), and California buckeye (*Aesculus californica*), with coast live oak comprising greater than 50 percent of the relative cover in this stratum. This community contains a relatively dense and well-developed tree canopy, which reduces the density of the shrub layer to scattered individuals. Shrub species observed in the coast live oak woodland include poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), and toyon (*Heteromeles arbutifolia*). The herbaceous layer is dominated by a mix of shade-tolerant invasive forbs, including Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*, Cal-IPC Moderate). Though not considered globally or state sensitive (as it is a G5/S4 community), coast live oak woodland qualifies as an EACCS CZ-12 conservation priority community, thus it is locally sensitive (see Section 2.1.4).

4.3 Special-status Species

4.3.1 Special-status Plant Species

Based on a review of the resource databases listed in Section 3.2.1, 60 CNPS special-status plant species have been documented in the vicinity of the Project Area, which was defined to include the La Costa Valley USGS 7.5-minute quadrangle and the eight surrounding quadrangles, an area encompassing approximately 335,757 acres and extending up to 33 miles from the Project Area boundary. Special-status plant species that have been documented within a 5-mile radius of the Study Area are shown on Figure 4. Potential for occurrence of these species are analyzed in Appendix B.

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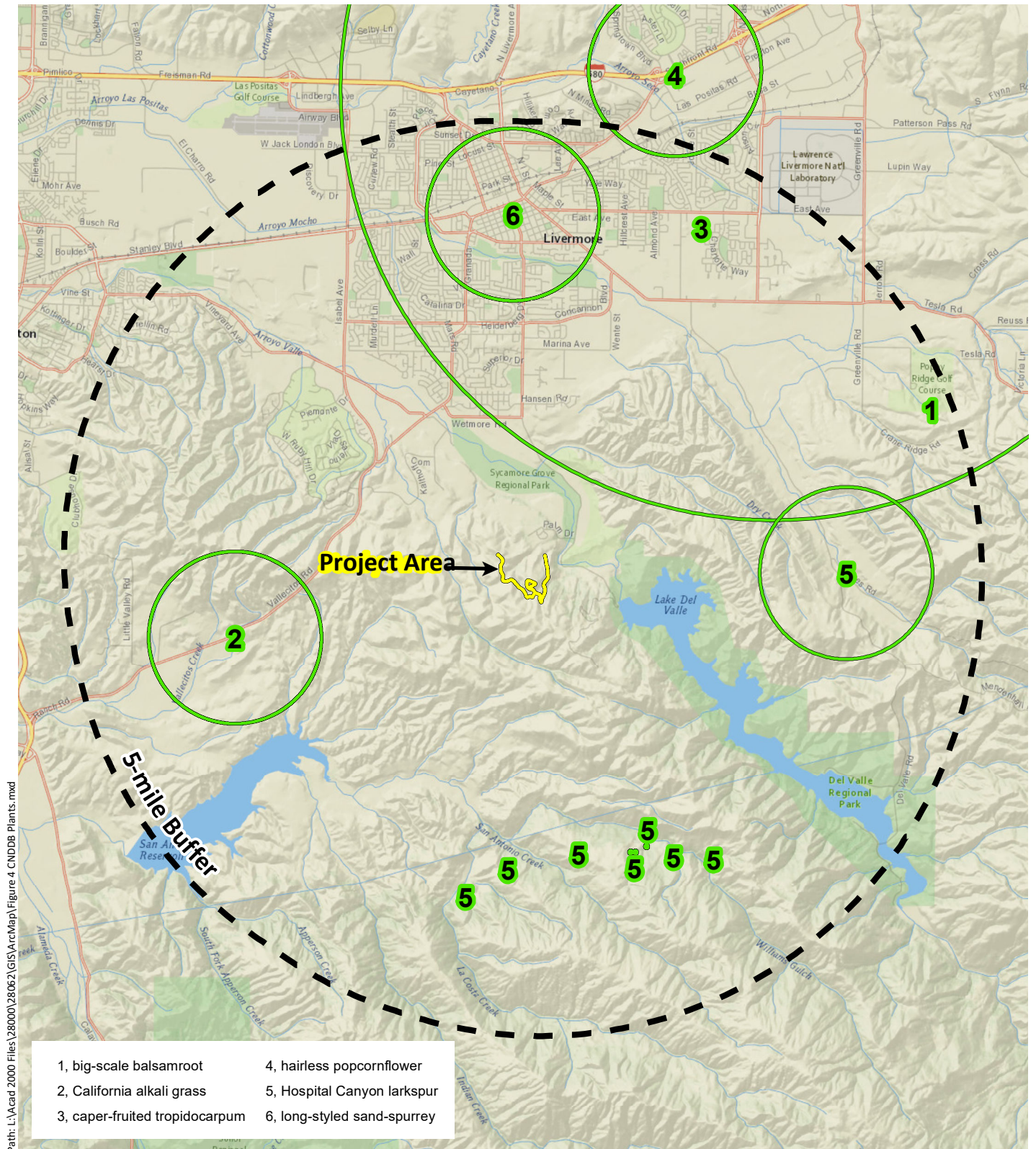


Figure 4. Special-Status Plant Species Documented within 5-miles of the Project Area

Zone 7 Trail Project
Livermore, Alameda County, California

0 1 2
Miles



Based on the conditions on site, twenty-two species were determined to have moderate to high potential to occur in the Project Area. The following species have moderate to high potential to occur within the Project Area.

Bent-flowered fiddleneck (*Amsinckia lunaris*). Rank 1B.2. Moderate potential. This March through June blooming species occurs in coastal bluff, cismontane woodland, valley and foothill grasslands. The species is known to occur in Alameda County (CNPS 2018b) and has a moderate potential to occur in the Study Area.

California Androsace (*Androsace elongata* ssp *acuta*). Rank 4.2. High Potential. This species occupies chaparral, cismontane woodland, scrub, grasslands, seeps, and pinyon and juniper woodlands at elevations between 490 and 4,280 feet. This species blooms between March and June. The species is known to occur near the headwaters of nearby Arroyo de Valley Stream, which flows west of the Project Area (CDFW 2018b).

Alkali milkvetch (*Astragalus tener* var. *tener*). Rank 1B.2. Moderate potential. This species occurs in grasslands, particularly with adobe clay soils, at elevations up to 195 feet. It blooms between March and June. The species is known to be sensitive to non-native plant invasion, trampling, and agricultural conversion (CNPS 2018b). Though the grasslands in the Project Area are disturbed by on-going cattle grazing, there is moderate potential for this species to occur in the Project Area

Crownscale, (*Atriplex coronata* var. *coronata*). Rank 4.2. Moderate potential. This species occurs in valley and foothill grasslands with clay or alkaline soils at elevations up to 1,935 feet and blooms between March and October (CNPS 2018b). This species has moderate potential to occur within the Project Area.

Brittlescale (*Atriplex depressa*). Rank 1B.2. Moderate potential. This species occurs in valley and foothill grasslands and seeps at elevations up to 1050 feet. It can occupy clay in meadows or annual grasslands. Though grazing and trampling present known threats in the Project Area, the species has moderate potential to occur in the Project Area. The species blooms from April through October (CNPS 2018b).

Big-scale balsamroot (*Balsamorhiza macrolepis*). Rank 1B.2. High potential. This species can occur in cismontane woodland and valley and foothill grasslands at elevations between 145 and 5,100 feet. The open grassy slopes and cismontane woodland provide potential habitat, and the species was documented approximately five miles away in 1993, but was determined to be extirpated in 2010 after installation of a golf course. The open grassy slopes and woodlands habitats have high potential to support this species. It blooms between March and June.

Big tarplant (*Blepharizonia plumosa*). Rank 1B.1. High potential. This species occurs in grasslands, including annual grasslands, between 95 and 1,655 feet with clay to clay-loam soils. It has high potential to occur within the Project Area, and blooms between July and October (CNPS 2018b).

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Rank 1B.1. Moderate potential. Congdon's tarplant is an annual herb in the composite family (Asteraceae) that blooms from May to October. It typically occurs on alkaline soils, sometimes described as heavy white clay in valley and foothill grassland habitats ranging from 0 to 755 feet (CDFW 2018b, CNPS 2018b). The

Project Area supports grassland habitat with alkaline clay loam and silt loam, and has moderate potential to support the species.

Santa Clara red ribbons (*Clarkia concinna* ssp. *automixa*). Rank 4.3. High potential. Santa Clara red ribbons occurs in chaparral and cismontane woodlands at elevations between 295 and 4,920 feet, typically on slopes and near drainages (CNPS 2018b). Several observations of the species exist roughly 15 miles south of the Project Area (CDFW 2018b). Because the Project Area's oak woodlands provide suitable habitat for the species, Santa Clara red ribbons have a high potential to occur in the Project Area.

Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*). Rank 1B.2. High potential. Hospital Canyon larkspur is a perennial herb in the buttercup family (Ranunculaceae) that blooms from April to June. It typically occurs on slopes of open woodlands, mesic, boggy meadows, and openings in chaparral at elevations ranging from 900 to 3,300 feet (CDFW 2018, Koontz 2014). Hospital Canyon larkspur is known from 15 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Merced, Monterey, San Benito, San Joaquin, Santa Clara, and Stanislaus counties, and is endemic to California (CNPS 2015). Hospital Canyon larkspur has been documented from the La Costa Valley USGS 7.5-minute quadrangle (CDFW 2018b) with occurrences approximately three miles east of the Project Area. Hospital Canyon larkspur was determined to have a high potential to occur in the Project Area due to the presence of cismontane woodland.

Stinkbells (*Fritillaria agrestis*). Rank 4.2. High potential. This species occurs in cismontane woodlands and grasslands, including those dominated by non-native grasses and on clay soils. The species is threatened by grazing and non-native plant invasion, both of which occur in the Project Area. It blooms between March and June (CNPS 2018b). Based on suitable habitat at the site, this species has a high potential of occurrence.

Fragrant fritillary (*Fritillaria liliacea*). Rank 1B.2. Moderate potential. This species occurs in cismontane woodlands and grasslands at elevations up to 1,345 feet, occasionally on serpentine though usually on clay soils. It blooms between February and April, and is threatened by grazing and foot traffic, which are present in the Project Area (CNPS 2018b). The species has moderate potential to occur within the Project Area.

Diablo helianthella (*Helianthella castanea*). Rank 1B.2. High potential. This species occurs in broad-leaved upland forest, cismontane woodland, and grasslands at elevations between 195 and 4,265 feet. It typically occurs in chaparral and oak woodland interface in rocky soils and partial shade. The species blooms between March and June, and is threatened by grazing and non-native plant invasion, both of which occur in the Project Area (CNPS 2018b). This species has high potential to occur within the Project Area in areas with rocky soils.

Bristly leptosiphon (*Leptosiphon acicularis*). Rank 4.2. High potential. This species inhabits cismontane woodland, grasslands, and chaparral at elevations between 180 and 4,290 feet (CNPS 2018). The nearest occurrence records are over a century old (CDFW 2018b), though this species has high potential to occur in the Project Area based on habitat suitability.

Serpentine leptosiphon (*Leptosiphon ambiguus*). Rank 4.2. Moderate potential. Serpentine leptosiphon occurs in cismontane woodlands and grasslands, typically on serpentine

soils. The species blooms March through June, and is found at elevations between 390 and 3,705 feet (CNPS 2018). Though the Project Area does not support serpentine, the grasslands and woodlands within the Project Area have moderate potential to support the species.

Woolly-headed lessingia (*Lessingia hololeuca*). Rank 3. Moderate potential. Woolly-headed lessingia occurs in broad-leafed upland forest, scrub, lower montane coniferous forest, and grasslands at elevations between 45 and 1,000 feet. The species blooms between June and October. It has been observed on clay and serpentine, and along roadsides and in fields (CNPS 2018b). This species has moderate potential to occur within the Project Area, though it was not observed during the August 23rd site visit, which is inside the species blooming period.

Arcuate bush-mallow (*Malacothamnus arcuatus*). Rank 1B.2. Moderate potential. This species occurs in chaparral and cismontane woodland at elevations between 45 and 1,165 feet, typically in gravelly alluvium. It blooms between April and September, and was not observed during the August 23 site visit (CNPS 2018b). The closest observation of the species is located approximately 20 miles away and was made more than 50 years ago (CDFW 2018b). The Project Area has moderate potential to support this species.

San Antonio Hills Monardella (*Monardella antonina* ssp. *antonina*). Rank 3. High potential. This species occurs in chaparral and cismontane woodlands at elevations between 1,045 and 3,280 feet. This species blooms between June and August, and is commonly confused with *Monardella villosa* ssp. *villosa*, which was observed during the August 23rd site visit (CNPS 2018b). Given the habitat suitability, there is high potential for the species to occur in the Project Area.

Little mousetail (*Myosurus minimus* ssp. *apus*). Rank 3.1. Moderate potential. Little mousetail occurs in grasslands and alkaline vernal pools at elevations between 65 and 2,100 feet. It blooms between March and June, and is threatened by agriculture (CNPS 2018b). There is moderate potential for the species to occur in the Project Area.

Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*). Rank 4.2. Moderate potential. Adobe navarretia occurs in vernal mesic grasslands and vernal pools at elevations between 325 and 3,280 feet. The species blooms April and June (CNPS 2018b). There are no known records of this species occurring near the Project Area (CDFW 2018b), but grassland habitat and clay soils are present, providing suitable habitat for the species. It has moderate potential to occur in the Project Area.

Saline clover (*Trifolium hydrophilum*). Rank 1B.2. Moderate potential. Saline clover occurs in marshes, swamps, vernal pools, and mesic and alkaline grasslands. The species occurs at elevations up to 985 feet and blooms between April and June. It is threatened by trampling and many known sites are likely extirpated (CNPS 2018b). The Project Area supports limited mesic patches in dry grasslands and clay soil. This habitat provides moderate potential for occurrence at the Project Area.

Caper-fruited *Tropidocarpum* (*Tropidocarpum capparideum*). Rank 1B.1. Moderate potential. This species occurs in hilly alkaline grasslands with clay soils at elevations up to 1,495 feet. The species blooms between March and April, and is threatened by trampling and non-

native plant invasion (CNPS 2018b). The species has moderate potential to occur in the Project Area.

4.3.2 *Special-status Wildlife Species*

Based upon a review of the resources databases listed in Section 3.2.1, 61 special-status wildlife species have been documented in the vicinity of the Project Area (i.e., within the nine USGS 7.5-minute quadrangles). Of these, 23 species have also been documented in the CNDDDB (CDFW 2018b) as occurring within a 5-mile radius of the Project Area. The locations of these public records are depicted in Figure 5. This figure excludes CNDDDB suppressed data points, which represent AWS, prairie falcon, and pallid bat. Appendix B summarizes the potential for each of these species to occur within the Project Area. Twelve special-status wildlife species with moderate to high potential to occur in the Project Area and are discussed below. The remaining 49 species are considered unlikely, or have no potential to occur in the Project Area for one or more of the following reasons:

- The Project Area is outside of the known or historical range of the species;
- The Project Area lacks suitable aquatic habitat (e.g. rivers, streams, vernal pools);
- The Project Area lacks suitable soil for den development;
- The Project Area lacks mine shafts, caves or abandoned buildings are present;

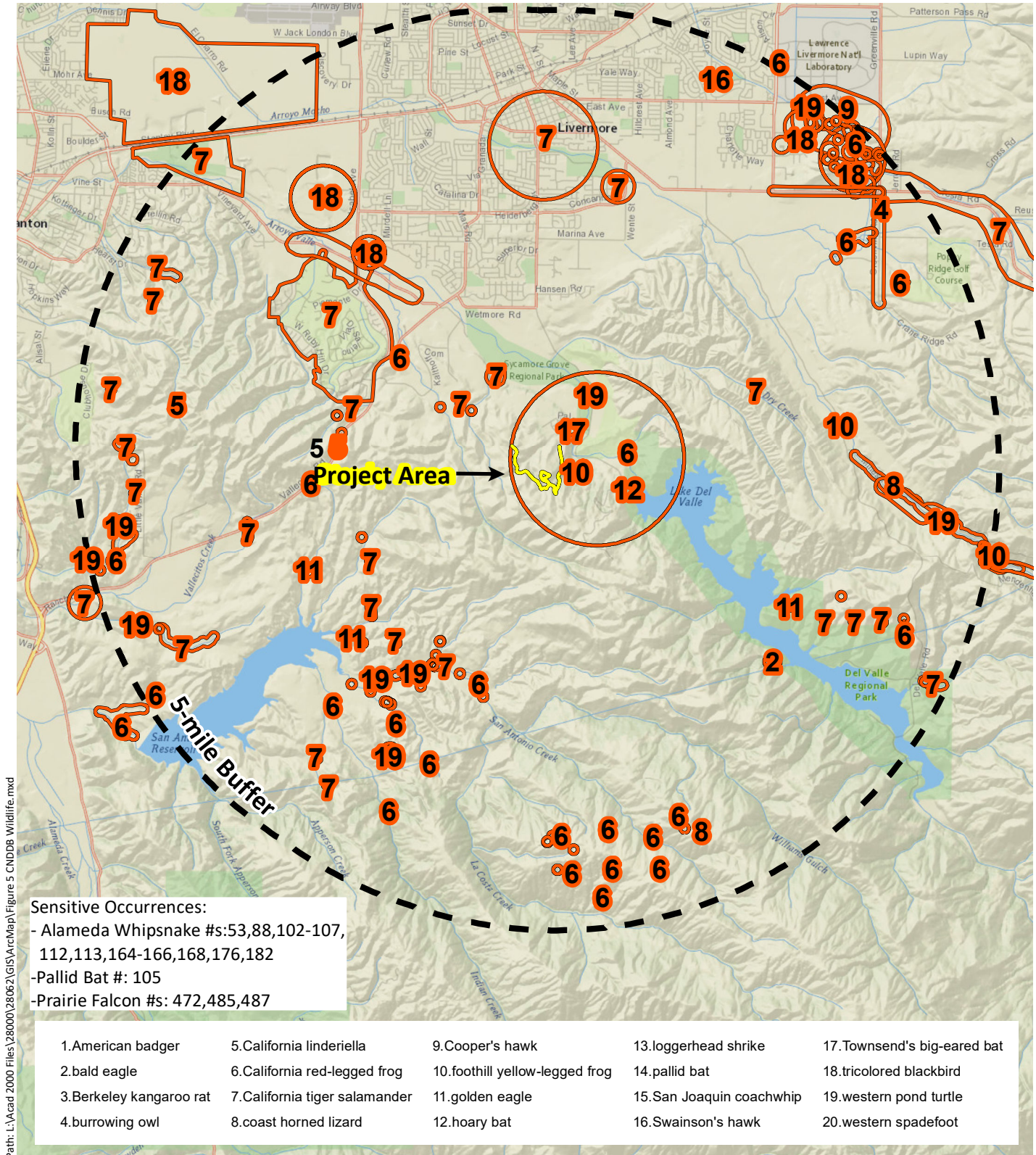
While the aforementioned factors contribute to the absence of many special-status wildlife species from the Project Area, fourteen species were determined to have adequate conditions and locality to warrant a moderate or high potential to occur and are detailed below.

Pallid bat (*Antrozous pallidus*), CDFW Species of Special Concern, Western Bat Working Group (WBWG) High Priority. Moderate Potential. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in a number of habitats ranging from rocky arid deserts to grasslands, and into higher elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet, but have been found up to 10,000 feet in the Sierra Nevada. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings (WBWG 2018).

Tree roosting has been documented in bole cavities of large oak trees like those found within, and adjacent to the Project Area. Such trees rarely support maternity colonies, but may provide suitable day or night roosts for the species. Additionally, the Project Area provides suitable open foraging habitat, as well as a source of water for the species. Considering the proximity of these factors, this species has a moderate potential to occur within the Project Area.

Hoary bat (*Lasiurus cinereus*), WBWG Medium Priority. Moderate Potential. Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, though this behavior is not typical. Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats probably mate in the fall, with delayed implantation leading to

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Sources: National Geographic, CNDDB Oct 2018, WRA | Prepared By: smortensen, 10/4/2018

Figure 5. Special-Status Wildlife Species Documented within 5-miles of the Project Area

Zone 7 Trail Project
Livermore, Alameda County, California

0 1 2
Miles



birth in May through July. They usually emerge late in the evening to forage, typically from just over one hour after sunset to after midnight. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2018).

The Project Area provides suitable open foraging habitat, a nearby source of water, and potential roost sites in the form of tree cavities. Considering these factors, this species has a moderate potential to occur within the Project Area.

Western red bat (*Lasiurus blossevillei*), CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. This species is highly migratory and broadly distributed, ranging from southern Canada through much of the western United States. Western red bats are believed to make seasonal shifts in their distribution, although there is no evidence of mass migrations (Pierson et al. 2006). They are typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas possibly in association with riparian habitat (particularly willows, cottonwoods, and sycamores (Pierson et al. 2006). Males and females maintain different distributions during pupping, where females take advantage of warmer inland areas and males occur in cooler areas along the coast (WBWG 2018).

The Project Area contains broad-leaved tree species, which this species can utilize for roosting (e.g. oaks). The Project Area also includes edge habitat for foraging, and water sources for drinking. Considering the proximity of all of these factors, the species has a moderate potential to roost within the Project Area.

Fringed myotis (*Myotis thysanodes*), WBWG High Priority. Moderate Potential. The fringed myotis ranges through much of western North America from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota. This species is found in desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. The fringed myotis roosts in colonies from 10 to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2018).

The Project Area includes trees with suitable hollows to provide day or night roosts for the species as well as edge habitat for foraging, and water sources for drinking. Considering the proximity of all of these factors, the species has a moderate potential to roost within the Project Area.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates.

The Project Area provides open foraging habitat, and trees within the Project Area may support nesting. With the presence of both nesting and foraging habitat, this species has a moderate potential to nest within the Project Area.

Nuttall's woodpecker (*Picoides nuttalli*). **USFWS Bird of Conservation Concern. High Potential.** Nuttall's woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). This species forages on a variety of arboreal invertebrates. Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. The Project Area provides mixed oak woodland with tree cavities potentially suitable for nesting. The species has also been observed frequently in the immediate vicinity of the Project Area (eBird 2018). Considering the commonality of this species and the presence of both foraging and nesting habitat, this species has a high potential to nest within the Project Area.

Loggerhead shrike (*Lanius ludovicianus*). **CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential.** Loggerhead shrike is a year-round resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled for storage purposes on suitable substrates, including thorns or spikes on vegetation, and barbed wire fences. Loggerhead shrike nests in trees and large shrubs with nests usually placed three to ten feet off the ground (Shuford and Gardali 2008).

Open grassland foraging habitat is available within the Project Area and suitable small trees area present. With the presence of adjacent foraging habitat and nesting habitat, the species has a high potential to nest in the Project Area.

Yellow-billed magpie (*Pica nuttalli*), **USFWS Bird of Conservation Concern. Moderate Potential.** The yellow-billed magpie is endemic to California, occurring year-round in the Central Valley and associated foothills, and the central-southern Coast Ranges. This species inhabits oak savanna, open oak woodland and similar park-like areas including the margins of stream courses and some agricultural areas. Breeding typically occurs in loose colonies. The large, dome-shaped nests are placed high in trees, usually oaks, and often in clumps of mistletoe (Koenig and Reynolds 2009). This species is an omnivore and an opportunistic feeder.

This species is known to inhabit the Livermore area (Richmond et al. 2011). The Project Area also contains trees with spreading canopies which typically support nesting as well as nearby open grassland to support foraging. With the nearby presence of the species as well as suitable nesting and foraging habitat, this species has a moderate potential to nest within the Project Area.

Oak titmouse (*Baeolophus inornatus*), **USFWS Bird of Conservation Concern. High Potential.** This relatively common species is year-round resident throughout much of California including most of the coastal range, the Central Valley and the western Sierra Nevada foothills. Seeds and arboreal invertebrates make up the birds' diet. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas (Cicero 2000). The oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own (Cicero 2000). The Project Area provides oak woodland habitat with cavities suitable for nesting. The species has also been observed frequently in the immediate vicinity of the Project Area (eBird 2018). Considering the commonality of this species and the presence of both foraging and nesting habitat, this species has a high potential to nest within the Project Area.

California red-legged frog (*Rana draytonii*), Federal-Threatened, CDFW Species of Special Concern. Moderate Potential. The current distribution of this species includes only isolated localities in the Sierra Nevada, northern Coast and Northern Traverse Ranges. It is still common in the San Francisco Bay Area and along the central coast (USFWS 2002). This species requires four habitat components: aquatic breeding, upland, aquatic non-breeding, and dispersal habitats. Aquatic breeding habitat consists of low-gradient freshwater bodies, including natural and manmade ponds, backwaters within streams and streams, and marshes. Upland habitats include areas within 300 feet of aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. These upland features provide feeding and sheltering habitat for juvenile and adult frogs (e.g. shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat can include structural features such as boulders, rocks, and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010). Aquatic non-breeding habitat may or may not hold water long enough for this species to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLF. Dispersal habitat includes upland or riparian habitats within 2 miles of breeding habitat that allow for movement between these sites. Dispersal habitat includes various natural and altered habitats, such as agricultural fields, which do not contain barriers to dispersal. Moderate to high density urban or industrial developments, large reservoirs, and heavily traveled roads without bridges or culverts are considered barriers to dispersal (USFWS 2010).

Breeding has been documented within 1 mile of the Project Area, and twenty-two adult or juvenile observations are documented in CNDDDB within a 5-mile radius of the Project Area. The Project Area does not provide aquatic features for breeding but may provide upland refugia for the species during dispersal. The nearest documented observation of breeding activity is located 0.75 mile from the Project Area (CNDDDB 2018). The Project Area is inside mapped CRLF critical habitat (USFWS 2010). CRLF require still, deep ponds that hold water until at least July to be able to support breeding (Ford et al. 2013). The nearest potential breeding habitat is 0.3 mile from the Project Area. No burrows are present in the Project Area. Based on the lack of underground refugia and distance from breeding habitat, CRLF only has a moderate potential to occur in or disperse through the Project Area during rainy or humid nights. CRLF is unlikely to occur in other conditions.

California Tiger Salamander (*Ambystoma californiense*), Federal Threatened, State Threatened. Moderate Potential. CTS is a California endemic species that historically occurred in grassland habitats throughout much of the state. This species inhabits valley and foothill grasslands and the grassy understory of open woodlands, usually within one mile of water (Jennings and Hayes 1994). CTS requires two primary habitat components: aquatic breeding sites and upland terrestrial refuge sites. Adult CTS spend most of their time underground in upland subterranean refugia. Underground retreats usually consist of ground-squirrel burrows but may also be beneath logs and piles of lumber (Holland et al. 1990, Trenham 2001). CTS emerge from underground to breed and lay eggs primarily in vernal pools and other ephemeral water bodies. These sites must remain inundated for at least 10 weeks, the minimum time needed for larvae to complete metamorphosis. Adults migrate from upland habitats to aquatic breeding sites during the first major rainfall events, between November and February (Shaffer and Fisher 1991, Barry and Shaffer 1994), and return to upland habitats after breeding. This species has been known to disperse up to 1.3 miles from a breeding site (Orloff 2007).

In 2003, breeding was documented within half of a mile of the Project Area (CNDDDB 2018), and other potential breeding habitat is 0.3 mile from the Project Area. Open grassland is contiguous

between potential breeding habitat and the Project Area. No aquatic habitat and no burrows or underground refugia are present in the Project Area. Though the Project Area lacks suitable aquatic features and upland refugia, the Project Area is dispersal habitat. The Project Area is outside of the mapped critical habitat zone for CTS (USFWS 2005). Given this information, CTS is moderately likely to occur within the Project Area only during dispersal events such as rainy or humid nights, and unlikely to occur in other conditions.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*). Federal Threatened Species, State Threatened Species, EACCS. Moderate Potential. The range of the AWS is restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties (USFWS 2000). AWS is associated with scrub communities, including mixed chaparral, chamise-redshank chaparral, coastal scrub, and annual grassland and oak woodlands that lie adjacent to scrub habitats and contain areas of rock outcroppings. Rock outcroppings are important as they are a favored location for lizard prey. Whipsnakes frequently venture into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland. This species is now known to be more common, especially for corridor movement. Thus, habitat adjacent to scrub (including grassland and riparian communities) are considered essential to AWS conservation (USFWS 2006). Four individuals have been observed within one mile of the Project Area. These observations are not shown in Figure 5.

The Project Area and surrounding biological communities includes a mosaic of grass, chaparral, and oak woodlands which may provide suitable foraging and dispersal habitat for whipsnake. This species is known in the vicinity and scrub habitat is proximate to the Project Area. As such, this species has moderate potential to occur within the Project Area. The Project Area falls within mapped AWS critical habitat (USFWS 2006).

4.4 Special-status Wildlife Species Unlikely to Occur within the Project Area

One federally-listed wildlife species (San Joaquin kit fox [*Vulpes macrotis*], has been documented in the vicinity, but is unlikely to inhabit the Project Area. This species is discussed in more detail below.

San Joaquin kit fox (*Vulpes macrotis*). Federally Endangered. State Threatened. Unlikely. The San Joaquin kit fox is an uncommon to rare, permanent resident of arid regions of the southern half of the state. It generally lives in annual grasslands or open stages of vegetation with scattered shrubby vegetation. They are primarily carnivorous, choosing to feed on prey including black-tailed jackrabbits and desert cottontails, rodents, insects, reptiles, and some birds, bird eggs and vegetation. The kit fox digs dens in open, level areas with loose-textures soils to provide cover and a place to birth pups. Furthermore, cultivation has eliminated much of the kit fox habitat. This species is also vulnerable to many human activities, such as hunting, use of rodenticides and other poisons, off-road vehicles and trapping (Gerrard et al. 2001).

The Project Area is located within a working landscape with cattle and anthropogenic disturbances to support grazing. There are two documented observations of San Joaquin kit fox, but both are more than 7 miles away and are at least 29 years old. The observation locations and Project Area are separated by an urbanized area and heavily trafficked roads, preventing connectivity to other suitable occupied habitats. This species is extremely rare in the region including east of the Altamont Pass, and the steep hillsides are not typical habitat for San Joaquin kit fox. The EACCS (ICF 2010) does not identify recent occurrences of SJKF in the vicinity of the Project Area. Designated critical habitat is not present.

5.0 POTENTIAL IMPACTS AND MITIGATION

5.1 Significance Threshold Criteria

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
- f) Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

This report uses these thresholds in the analysis of impacts and determination of the significance of those impacts. The assessment of impacts under CEQA is based on the change caused by the Project relative to the CEQA baseline, which in this case are the existing conditions at the site. In applying CEQA Appendix G, the terms “substantial” and “substantially” are used as the basis for significance determinations in many of the thresholds but are not defined qualitatively or quantitatively in CEQA or in technical literature. In some cases, the determination of a substantial adverse effect (i.e., significant impact) may be relatively straightforward. For instance, “take” or other direct adverse impacts to special-status species listed under the CESA or ESA or their habitat without implementation of appropriate mitigation is considered a significant impact. In other cases, the determination of a substantial adverse effect (i.e., significant impact) requires application of best professional judgment based on knowledge of site conditions as well as the ecology and physiology of biological resources present in a given area and the type of effect that would be caused by a project. Determinations of whether or not Project activities will result in a substantial adverse effect to biological resources are discussed in the following sections for sensitive biological communities, special-status plant species, and special-status wildlife species.

Regarding items b and c, above, the Project would not impact any sensitive communities protected by the CDFW, the USFWS, or Section 404 of the CWA. Though coast live oak woodland is located in the Project Area, this community is only considered sensitive in the context of the EACCS, which is not binding. Moreover, the Project would not remove trees, thus this community would be largely unaffected by Project activities, particularly since the Project would only affect narrow bands of grassland understory within this community.

Regarding item d, above, due the nature of the Project and its minimal impact on the landscape, the proposed trail would not substantially impact movement of wildlife or use of nursery sites.

Regarding item e, above, this BRA addresses potential impacts on special-status plant and wildlife species. This Project does not conflict with any local policies or ordinances. The Project Area is located in unincorporated Alameda County, and trees outside of the County's right-of-way have no specific protections.

Regarding item f, above, no habitat conservation plans are applicable within the Project Area. The EACCS serves to standardize conservation goals throughout the region, and the proposed Project is consistent with those guidelines.

5.2 Avoidance and Minimization Measures

Avoidance and minimization measures that would be implemented to minimize potential impacts to sensitive species and habitats are discussed below.

- Areas of disturbance will be limited to the construction area, including access routes and staging areas.
- Work will only occur in the dry season.
- All equipment (i.e., hand tools) will be cleaned and free of debris prior to entering the Project Area.
- Volunteer managers will participate in a worker environmental awareness program. Under this program, volunteer managers will be informed about the potential presence of listed species and will be instructed that unlawful take of the special-status species or destruction of associated habitat is a violation of the ESA. The program will also include species identification, life history, habitat requirements of these species during various life stages, the importance of their associated habitats, and a list of measures being taken to reduce impacts on these species during construction. A fact sheet conveying this information will be available to volunteers at their request.
- If take of any federally protected species occurs during project implementation, the USFWS will be notified by telephone and electronic mail within one (1) working day.

5.3 Potential Impacts and Recommended Mitigation Measures

Impact BIO-1: Potential Impacts on Special-Status Plants

The presence of special-status plant species within the Project Area is currently unknown, as protocol-level rare plant surveys were not conducted and no special-status species were encountered during the August 2018 survey. If the trail were to be installed where special-status plants occur, the Project could result in impacts to special-status plant populations, which could be considered significant under CEQA. However, through the adoption of Mitigation Measure BIO-1, Project activities would reduce the potential impacts special-status plant species to less than significant.

Level of Significance before Mitigation: Potentially Significant

Mitigation Measure BIO-1: Avoidance of Special-Status Plants Within Project Area

Impacts to special-status plant species will be avoided to the maximum extent possible.. A pre-construction survey for potentially present special-status plant species will be performed within the Project Area prior to Project activities. If special-status plant species are observed during the

survey, individuals will be flagged and avoided by the trail alignment to the maximum extent possible.

Level of Significance after Mitigation: Less than Significant

Impact BIO-2: Project Activities Could Potentially Impact Alameda whipsnake.

AWS occur on parcels adjacent to the Project Area and has moderate potential to occur within the Project Area. No burrows or underground refugia is present. Project actions are low impact and have a short duration (one day per year). Project activities will be limited to the use of hand tools and will be performed by supervised volunteers with no significant ground vibration or major vegetation removal. However, the Project Area has potential to support this species, and impacts to individuals through project activities may result in a potentially significant impact under CEQA. Implementation of Mitigation Measure BIO-2 will reduce this potential impact to less than significant.

Level of Significance before Mitigation: Potentially Significant

Mitigation Measure BIO-2: Alameda whipsnake Avoidance and Minimization Measures

The following recommendations are provided to avoid and minimization potential impacts to AWS during proposed Project Activities:

- *Biological monitoring:* A qualified biologist shall be required to inspect the work area daily prior to start of work and be present during all ground disturbing activities. If an AWS is observed, all work will stop and the individual will be allowed to leave the area on its own. No harassment of the individuals to leave the area is allowed. Once the biologist has determined the individual is out of harm's way, work may resume. If an AWS does not or cannot move out of the work area or if an AWS is injured, work will be halted and project managers and the USFWS and the CDFW will be contacted immediately for next steps.
- *Erosion Control Materials:* Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure reptile species do not get trapped. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.
-

Impact BIO-3: Project Activities Could Potentially Impact California Red-legged Frog and California Tiger Salamander.

Both CRLF and CTS are known in the vicinity of the Project Area and have a moderate potential to occur within the Project Area during dispersal. No aquatic habitat, burrows or other underground refugia are present. Project actions are low impact and have a short duration (one day per year). Project activities will be limited to the use of hand tools and will be performed by supervised volunteers with no significant ground vibration or major vegetation removal. However, the Project Area has potential to support these species, and impacts to individuals through project activities may result in a potentially significant impact under CEQA. Implementation of Mitigation Measure BIO-3 will reduce this potential impact to less than significant.

Level of Significance before Mitigation: Potentially Significant

Mitigation Measure BIO-3: California Red-legged Frog and California Tiger Salamander Avoidance and Minimization Measures

The following recommendations are provided to avoid and minimization potential impacts to CRLF and CTS during proposed Project Activities:

- Work only during dry weather: No work shall take place during rain events. A rain event is defined as accumulation greater than or equal to 0.25 inch in a 24-hour period. A dry out period shall occur following a rain event, and no work shall occur 48 hours after a rain event.
- Biological monitoring: A qualified biologist shall be required to inspect the work area daily prior to start of work and be present during all ground disturbing activities. If a CRLF or CTS is observed, all work will stop and the individual will be allowed to leave the area on its own. No harassment of the individuals to leave the area is allowed. Once the biologist has determined the individual is out of harm's way, work may resume. If a CRLF or CTS does not or cannot move out of the work area or if a CRLF or CTS are is injured, work will be halted and project managers and the USFWS and the CDFW will be contacted immediately for next steps.
- Erosion Control Materials: Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure amphibian species do not get trapped. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.

Level of Significance after Mitigation: Less than Significant

Impact BIO-4: Project Activities Could Potentially Impact Nesting Birds

The Project has the potential to impact special-status and non-special-status native nesting birds protected by California Fish and Game Code and guidelines for protection provided by the MBTA. Project activities such as vegetation removal and ground disturbance associated with Project activities would have the potential to affect these species by causing direct mortality of eggs or young, or by causing auditory, vibratory, and/ or visual disturbance of a sufficient level to cause abandonment of an active nest. If Project Activities occur during the bird nesting season, which generally extends from February 1 through August 31, nests of both special-status and non-special-status native birds could be impacted by construction and other ground disturbing activities. Impacts to nesting birds would be considered significant under CEQA. Implementation of Mitigation Measure BIO-4 will reduce this potential impact to less than significant.

Level of Significance before Mitigation: Potentially Significant

Mitigation Measure BIO-4: Nesting Bird Avoidance Measures

Project Activities such as vegetation removal and grading shall be conducted between September 1 and January 31 (outside of the February 1 to August 31 nesting season) to the extent feasible. If such activities must be conducted during the nesting season, a pre-construction nesting-bird survey shall be conducted by a qualified biologist no more than 14 days prior to vegetation removal or initial ground disturbance. The survey shall include the disturbance area and surrounding 250 feet to identify the location and status of any nests that could potentially be affected either directly or indirectly by Project activities.

If active nests of protected species are found within the survey area, a work exclusion zone shall be established around each nest by the qualified biologist. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes shall be determined by a qualified

biologist and vary dependent upon the species, nest location, existing visual buffers, noise levels, and other factors. An exclusion zone radius may be as small as 50 feet for common, disturbance-adapted species or as large as 250 feet or more for raptors. Exclusion zone size may be reduced from established levels if supported with nest monitoring findings by a qualified biologist indicating that work activities outside the reduced radius are not adversely impacting the nest and that a reduced exclusion zone would not adversely affect the subject nest.

Level of Significance after Mitigation: Less than Significant

6.0 REFERENCES

- Baldwin B. G, D. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti. 2012. The Jepson Manual of Vascular Plants of California. University of California Press.
- Barry, S. J. and H. B. Shaffer. 1994. The status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: a 50-year update. Journal of Herpetology 28:159-164.
- [Cal-IPC] California Invasive Plant Council. 2018. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: <http://www.cal-ipc.org/paf/>. Accessed: August 2018.
- [CDFG] California Department of Fish and Game. 1994a. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code. Environmental Services Division, Sacramento, CA.
- [CDFW] California Department of Fish and Wildlife. 2018a. Natural Communities – Background Information. Biogeographic Data Branch. Available online at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities> ; Accessed: September 1 2018.
- [CDFW] California Department of Fish and Wildlife. 2018b. California Natural Diversity Database. California Department of Fish and Wildlife. Biogeographic Data Branch, Vegetation Classification and Mapping Program, Sacramento, California. Available online at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>; Accessed: August 2018.
- [CNPS] California Native Plant Society. 2018a. A Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, CA. Available at: <http://www.cnps.org/cnps/vegetation/>. Accessed: August 2018.
- [CNPS] California Native Plant Society. 2018b. Inventory of Rare and Endangered Plants. California Native Plant Society, Sacramento, California. Available at: www.cnps.org/inventory. Accessed: August 2018.
- [CSRL] California Soil Resources Lab. 2018. Online Soil Survey. Online at: <http://casoilresource.lawr.ucdavis.edu/drupal>. Accessed: August 2018.
- Cicero, C. 2000. The Birds of North America, No. 485.
- Dunk, J. R. 1995 White-tailed Kite (*Elanus leucurus*). In The Birds of North America, No. 178 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- Federal Register. November 13, 1986. Department of Defense, Corps of Engineers, Department of the Army, 33 CFR Parts 320 through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Vol. 51, No. 219; page 41217.
- Ford, L.D., P.A. Van Hoorn, D.R. Rao, N.J. Scott, P.C. Trenham, and J.W. Bartolome. 2013. Managing Rangelands to Benefit California Red-legged Frogs and California Tiger Salamanders. Livermore, California: Alameda County Resource Conservation District.

- Gerrard, R., Stine, P., Church, R. and Gilpin, M., 2001. Habitat evaluation using GIS: A case study applied to the San Joaquin Kit Fox. *Landscape and Urban Planning*, 52(4), pp.239-255.
- Google Earth. 2018. Aerial Imagery 1993-2016. Accessed: August 2018.
- Holland, D. C., M. P. Hayes, and E. McMillan. 1990. Late summer movement and mass mortality in the California Tiger Salamander (*Ambystoma californiense*). *Southwestern Naturalist* 35:217-220.
- ICF International (ICF). 2010. Final Draft East Alameda County Conservation Strategy. Prepared for East Alameda County Conservation Strategy Steering Committee. October. Online at: <http://www.eastalco-conservation.org/documents.html>.
- Jennings, M. R. and M. P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. Contract No. 8023.
- Jepson Flora Project (eds.). 2018. Jepson eFlora. Online at: <http://ucjeps.berkeley.edu/IJM.html>. Accessed: August 2018.
- Koenig W, Reynolds MD. 2009. Yellow-billed Magpie (*Pica nuttalli*). Page in A. Poole and F. Gill, editors. The Birds of North America Online. Cornell Lab of Ornithology, Ithaca, NY. Available online at: <http://bna.birds.cornell.edu/bna/species/180>. Most recently accessed September 2018.
- Lake, D. 2010. Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties, 8th Edition. California Native Plant Society, East Bay Chapter. Accessed: August 2018.
- Lowther, P.E. 2000. Nuttall's Woodpecker (*Picoides nuttallii*), no. 555. The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Available online at: <https://birdsna.org/Species-Account/bna/species/nutwoo/introduction>. Most recently accessed September 2018.
- Orloff, S. 2007. Migratory movements of California tiger salamander in upland habitat – a five-year study (Pittsburg, California). Prepared for Bailey Estates LLC, Walnut Creek, California. 47 pp. + append.
- Pierson, ED, WE Rainey and C Corben. 2006. Distribution and status of Western red bats (*Lasiurus blossevillii*) in California. Calif. Dept. Fish and Game, Habitat Conservation Planning Branch, Species Conservation and Recovery Program Report 2006-04, Sacramento, CA 45 pp.
- Richmond, B., H. Green, and D.C. Rice. 2011. Alameda County Breeding Bird Atlas. Golden Gate Audubon Society and Ohlone Audubon Society. Dakota Press, San Leandro, CA. 219 pp.
- Shaffer, H. B., and R. Fisher. 1991. Final report to the California Department of Fish and Game; California Tiger Salamander surveys, 1990-Contract (FG 9422). California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.

- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration. Available online at: http://www.wildcalifornia.org/wp-content/uploads/2014/04/CEHC_Plan_MASTER_030210_3-reduced.pdf. Accessed: September 2018.
- Thomson, Robert C., Amber N. Wright, H. Bradley Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. University of California Press. 408 pages.
- Trenham, P. C. 2001. Terrestrial habitat use by adult California Tiger Salamanders. Journal of Herpetology 35:343-346.
- [USDA] U.S. Department of Agriculture, Natural Resources Conservation Service. 2018a. WETS Station Livermore NCDC #4997, 1971-2000 analysis. <http://agacis.rcc-acis.org/06111/wets/results>. Accessed: August 2018.
- [USFWS] U.S. Fish and Wildlife Service. 2005. Endangered and threatened wildlife and plants; final determination of critical habitat for the California Tiger Salamander, Central Population, Final rule. Federal Register, Vol. 70, No. 162. 49380-49458.
- [USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register, Vol. 75, No. 51. 12815-12959.
- [USFWS] U.S. Fish and Wildlife Service. 2018a. National Wetlands Inventory website. U.S. Department of the Interior, Washington, D.C. Online at: <http://www.fws.gov/nwi/>; most recently accessed: August 2018.
- [USFWS] U.S. Fish and Wildlife Service. 2018b. IPaC - Information for Planning and Conservation Trust Resource Report. Sacramento Fish and Wildlife Office. Available online: <http://ecos.fws.gov/ipac/>. Accessed August 2018.
- [USFWS] U.S. Fish and Wildlife Service. 2018c. ECOS – Environmental Conservation Online System. U.S. FWS Threatened & Endangered Species Active Critical Habitat Report. Sacramento Fish and Wildlife Office. Available online at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>. Accessed August 2018.
- [USGS] United States Geological Survey. 2015a. Altamont 7.5-minute Quadrangle map.
- [USGS] United States Geological Survey. 2015b. Byron Hot Springs 7.5-minute Quadrangle map.
- [USGS] United States Geological Survey. 2015c. Diablo 7.5-minute Quadrangle map

- [USGS] United States Geological Survey. 2015d. Dublin 7.5-minute Quadrangle map
- [USGS] United States Geological Survey. 2015e. La Costa Valley 7.5-minute Quadrangle map.
- [USGS] United States Geological Survey. 2015f. Livermore 7.5-minute Quadrangle map.
- [USGS] United States Geological Survey. 2015g. Mendenhall Springs 7.5-minute Quadrangle
- [USGS] United States Geological Survey. 2015h. Tassajara 7.5-minute Quadrangle map
- [USGS] United States Geological Survey. 2015i. Niles 7.5-minute Quadrangle map.
- [WBWG] Western Bat Working Group. 2018. Species accounts. Prepared by: Betsy C. Bolster.
Available online at: <http://wbwg.org/western-bat-species/>. Accessed August 2018.
- [WRA] WRA, Inc. 2018. Delineation of Potential Jurisdictional Wetlands. Prepared for the Zone 7 Trail Project. October 2018.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento.

Appendix A

List of Observed Plant and Wildlife Species in the Project Area

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Appendix A. Plant and animal species observed during the August 23, 2018 site visit. CAL-IPC status refers to California Invasive Plant Council's Invasive Plant Inventory and includes low, moderate, or high designations.

Scientific Name	Common Name	Origin	Rarity Status	CAL-IPC Status
<i>Achillea millefolium</i>	Yarrow	native	-	-
<i>Aesculus californica</i>	Buckeye	native	-	-
<i>Amaranthus albus</i>	Tumbleweed	non-native	-	-
<i>Artemisia californica</i>	Coastal sage brush	native	-	-
<i>Artemisia douglasiana</i>	California mugwort	native	-	-
<i>Avena fatua</i>	Wild oats	non-native (invasive)	-	Moderate
<i>Avena barbata</i>	Slender wild oat	non-native	-	Moderate
<i>Avena sp.</i>	-	-	-	-
<i>Brassica nigra</i>	Black mustard	non-native (invasive)	-	Moderate
<i>Brassica sp.</i>	-	-	-	-
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	-	Moderate
<i>Bromus madritensis</i>	Foxtail chess, foxtail brome	non-native	-	High
<i>Buteo jaimaicensis</i>	Red-tail hawk	native	-	-
<i>Canis latrans</i>	Coyote	native	-	-
<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle	non-native	-	Moderate
<i>Callipepla californica</i>	California quail	native	-	
<i>Centaurea solstitialis</i>	Yellow starthistle	non-native (invasive)	-	High
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	-	Moderate
<i>Clarkia sp.</i>	-	-	-	-
<i>Croton setiger</i>	Turkey-mullein	native	-	-
<i>Eleocharis macrostachya</i>	Spike rush	native	-	-
<i>Elymus caput-medusae</i>	Medusa head	non-native	-	High
<i>Elymus glaucus</i>	Blue wildrye	native	-	-
<i>Epilobium brachycarpum</i>	Willow herb	native	-	-
<i>Eriogonum sp.</i>	-	-	-	-

<i>Eschscholzia californica</i>	California poppy	native	-	-
<i>Festuca perennis</i>	Italian rye grass	non-native	-	Moderate
<i>Grindelia camporum</i>	Gumweed	native	-	-
<i>Heteromeles arbutifolia</i>	Toyon	native	-	-
<i>Heterotheca sessiliflora</i>	Golden aster	native	-	-
<i>Hirschfeldia incana</i>	Mustard	non-native (invasive)	-	Moderate
<i>Holocarpha virgata</i>	Narrow tarplant	native	-	-
<i>Hordeum brachyantherum</i>	Meadow barley	native	-	-
<i>Juncus xiphioides</i>	Iris leaved rush	native	-	-
<i>Lactuca serriola</i>	Prickly lettuce	non-native (invasive)	-	-
<i>Lotus sp.</i>	-	-	-	-
<i>Meleagris gallopavo</i>	Wild turkey	native	-	-
<i>Mimulus aurantiacus</i>	Sticky monkeyflower	native	-	-
<i>Monardella villosa</i>	Coyote mint	native	-	-
<i>Nasturtium officinale</i>	Watercress	native	-	-
<i>Penstemon sp.</i>	-	-	-	-
<i>Polygonum aviculare</i>	Prostrate knotweed	non-native	-	-
<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	-	Limited
<i>Quercus agrifolia</i>	Coast live oak	native	-	-
<i>Quercus douglasii</i>	Blue oak	native	-	-
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	-	Limited
<i>Salvia mellifera</i>	Black sage	native	-	-
<i>Sambucus nigra ssp. caerulea</i>	Blue elderberry	native	-	-
<i>Sceloporus occidentalis</i>	Western fence lizard	native	-	-
<i>Silybum marianum</i>	Milk thistle	non-native (invasive)	-	Limited
<i>Sisyrinchium bellum</i>	Blue eyed grass	native	-	-
<i>Sturnella neglecta</i>	Western meadowlark	native	-	-
<i>Stipa miliacea var. miliacea</i>	Smilo grass	non-native	-	Limited
<i>Stipa pulchra</i>	Purple needle grass	native	-	-

<i>Torilis arvensis</i>	Field hedge parsley	non-native (invasive)	-	Moderate
<i>Toxicodendron diversilobum</i>	Poison oak	native	-	-
<i>Trichostema lanceolatum</i>	Vinegarweed	native	-	-
<i>Trifolium hirtum</i>	Rose clover	non-native (invasive)	-	Limited
<i>Trifolium sp.</i>	-	-	-	-

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Appendix B

Potential for Occurrence of Special-Status Species in the Project Area

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Appendix B. Potential for special-status plant and wildlife species to occur in the Project Area. List compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CDFW 2018), U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory search of the Diablo, Tassajara, Altamont, Mendenhall Springs, Byron Hot Springs, Dublin, Livermore, Niles, and La Costa Valley USGS 7.5' quadrangles.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Plants				
Santa Clara thorn-mint <i>Acanthomintha lanceolata</i>	Rank 4.2	Chaparral (often serpentine), cismontane woodland, coastal scrub. Elevation ranges from 260 to 3935 feet (80 to 1200 meters). Blooms Mar-Jun.	No Potential. The Project Area does not contain shale scree or serpentine substrate.	No further actions are recommended for this species.
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	Moderate Potential. The Project Area contains cismontane woodland and grassland habitat. Woodland and grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site; as a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California androsace <i>Androsace elongata</i> ssp. <i>acuta</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	High Potential. Dry grassy slopes are present in the Project Area, and this species has been collected further south in valleys near the headwaters of the Arroyo del Valle stream (CCH 2018), which flows west of the Project Area. However, grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has resulted in some vegetation trampling and altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 0 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	Moderate potential. The Project Area does contain grassland habitat with alkaline clay loam and silt loam soils. However, grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has resulted in some vegetation trampling and altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy). Elevation ranges from 0 to 1835 feet (0 to 560 meters). Blooms Apr-Oct.	Unlikely. The Project Area does not contain alkali flats or scalds, flooded lands, or vernal pools. While some grassland habitat occurs on either alkaline soil or sandy loam, these two soil characteristics do not overlap within the Project Area. The Project Area is heavily impacted by grazing, which could also reduce habitat suitability for this species.	Assumed Absent. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
crownscale <i>Atriplex coronata</i> var. <i>coronata</i>	Rank 4.2	Chenopod scrub, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1935 feet (1 to 590 meters). Blooms Mar-Oct.	Moderate potential. The Project Area does contain grassland habitat on clay loam and silt loam soils. Potentially suitable habitat in the Project Area is heavily impacted by grazing, which could also reduce habitat suitability for this species. This species was not encountered during a site visit performed in late August 2018.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
brittlescale <i>Atriplex depressa</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1050 feet (1 to 320 meters). Blooms Apr-Oct.	Moderate potential. The Project Area contains annual grasslands with alkaline clay loam and silt loam soils. The Project Area is heavily impacted by grazing, which could also reduce habitat suitability for this species.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
lesser saltscale <i>Atriplex minuscula</i>	Rank 1B.1	Chenopod scrub, playas, valley and foothill grassland. Elevation ranges from 45 to 655 feet (15 to 200 meters). Blooms May-Oct.	Unlikely. The Project Area does not contain chenopod scrub, playas, or alkali sinks. While some areas of alkaline soil and sandy soil are present, these two soil characteristics do not overlap within the Project Area. Potentially suitable habitat in the Project Area is heavily impacted by grazing, which could also reduce habitat suitability for this species.	Assumed Absent. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	High potential. Open grassy slopes are common in the Project Area. This species has been documented west of the Project Area near Mocho Creek; however these occurrence records are from 1903 and may not reflect the current distribution of this species. Grazing has altered the vegetation at the Project, and potentially suitable habitat is characterized by dense, non-native annual grass species. Therefore, potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
big tarplant <i>Blepharizonia plumosa</i>	Rank 1B.1	Valley and foothill grassland. Elevation ranges from 95 to 1655 feet (30 to 505 meters). Blooms Jul-Oct.	High potential. Dry slopes dominated by annual grasses on clay loam soil are common within the Project Area. A nearby occurrence record exists from 1996 about five miles northeast of the Project Area. Potentially suitable habitat in the Project Area is heavily impacted by grazing, which could reduce habitat suitability for this species, however.	This species was not observed during a site visit in late August 2018. Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Mt. Day rockcress <i>Boechera rubicundula</i>	Rank 1B.1	Chaparral. Elevation ranges from 3935 to 3935 feet (1200 to 1200 meters). Blooms Apr-May.	No potential. The Project Area is below the species elevation range, and all known species occurrences are more than 10 miles south of the Project Area.	No further actions are recommended for this species.
Oakland star-tulip <i>Calochortus umbellatus</i>	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 325 to 2295 feet (100 to 700 meters). Blooms Mar-May.	Low Potential. The Project Area does contain cismontane woodland and grassland habitat; however there are no serpentine soils in the Project Area. This species has some affinity for serpentine soils but is not restricted to them.	No further actions are recommended for this species.
Santa Cruz Mountains pussypaws <i>Calyptridium parryi</i> var. <i>hesseae</i>	Rank 1B.1	Chaparral, cismontane woodland. Elevation ranges from 1000 to 5020 feet (305 to 1530 meters). Blooms May-Aug.	Low potential. The Project Area has cismontane woodland on gravelly loam, however there are no sandy soils in the Project Area. There are some nearby areas with sandy loam and gravelly sandy loam nearby the Project Area to the north and south. Potentially suitable habitat in and around the Project Area has been colonized by annual invasive grasses, which could also pose a threat to this species.	Assumed Absent. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
chaparral harebell <i>Campanula exigua</i>	Rank 1B.2	Chaparral (rocky, usually serpentine). Elevation ranges from 900 to 4100 feet (275 to 1250 meters). Blooms May-Jun.	Unlikely. Appropriate habitat conditions are not present. The Project Area does contain some woodland rocky sites adjacent to chaparral; however there is no serpentine substrate in the Project Area.	Assumed Absent. No further recommendations.
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 755 feet (0 to 230 meters). Blooms May-Oct(Nov).	Moderate Potential. The Project Area does contain grassland habitat with alkaline clay loam and silt loam. However, the Project Area has been heavily impacted by grazing and is dominated by annual invasive grasses, which could pose a threat to this species.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Point Reyes bird's-beak <i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	No potential. The Project Area does not contain any coastal salt marsh or swamps.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
hispid bird's-beak <i>Chloropyron molle</i> ssp. <i>hispidum</i>	Rank 1B.1	Meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 0 to 510 feet (1 to 155 meters). Blooms Jun-Sep.	Unlikely. The Project Area does not contain perennially damp, alkaline soils, as grasslands and alkali soils in the Project Area are found at drier, sloped sites. Woodland and grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site; as a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Assumed Absent. No further recommendations.
palmate-bracted bird's-beak <i>Chloropyron palmatum</i>	FE, SE, Rank 1B.1	Chenopod scrub, valley and foothill grassland. Elevation ranges from 15 to 510 feet (5 to 155 meters). Blooms May-Oct.	Unlikely. The Project Area does not contain chenopod scrub, alkaline flats, or Pescadero clay habitat or microhabitat conditions.	Assumed Absent. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Brewer's clarkia <i>Clarkia breweri</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 705 to 3660 feet (215 to 1115 meters). Blooms Apr-Jun.	Unlikely. The Project Area does contain cismontane woodland; however there is no serpentine substrate in the Project Area. Potentially suitable habitat in the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site; as a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Assumed Absent. No further recommendations.
Santa Clara red ribbons <i>Clarkia concinna</i> ssp. <i>automixa</i>	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 295 to 4920 feet (90 to 1500 meters). Blooms (Apr)May-Jun(Jul).	High potential. Cismontane woodland occur on slopes in Project Area. While no perennial drainages exist in the Project Area, ephemeral drainages and channels occur in several locations. Several recent occurrence records for this species exist south of the Project Area.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Livermore tarplant <i>Deinandra bacigalupii</i>	SE, Rank 1B.1	Meadows and seeps (alkaline). Elevation ranges from 490 to 605 feet (150 to 185 meters). Blooms Jun-Oct.	No potential. The Project Area does not contain any alkaline meadows or seeps.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Hospital Canyon larkspur <i>Delphinium californicum</i> ssp. <i>interius</i>	Rank 1B.2	Chaparral (openings), cismontane woodland (mesic), coastal scrub. Elevation ranges from 635 to 3595 feet (195 to 1095 meters). Blooms Apr-Jun.	High potential. The Project contains cismontane woodland and is adjacent to chaparral openings, although these areas tend to be dry for most of the year. The topography of the Project Area supports ephemeral drainages, channels, and canyons. Several occurrence records for this species have been documented less than three miles south and east of the Project Area.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Jepson's woolly sunflower <i>Eriophyllum jepsonii</i>	Rank 4.3	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 655 to 3365 feet (200 to 1025 meters). Blooms Apr-Jun.	Unlikely. The Project Area contains dry oak woodland; however there is no serpentine substrate in the Project Area.	Assumed Absent. No further recommendations.
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	Rank 1B.1	Vernal pools. Elevation ranges from 5 to 150 feet (3 to 45 meters). Blooms (Jun)Jul(Aug).	Unlikely. No vernal pools or alkaline conditions were observed in the Project Area. Many historical occurrences have been extirpated due to overgrazing, and the Project Area experiences heavy grazing by cattle.	Assumed Absent. No further recommendations.
San Joaquin spearscale <i>Extriplex joaquinana</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 0 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	No potential. The Project Area does not contain seasonal alkali wetlands or alkali sink scrub.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
stinkbells <i>Fritillaria agrestis</i>	Rank 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 30 to 5100 feet (10 to 1555 meters). Blooms Mar-Jun.	High potential. Nonnative grassland with clay loam and silt loam substrates are common in the Project Area, and several recent occurrence records for this species have been documented to the north, south, and southeast. However, there is no serpentine substrate in the Project Area. Furthermore, grazing has altered the vegetation at the Project Area, and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
fragrant fritillary <i>Fritillaria liliacea</i>	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	Moderate potential. Clay soils and grassland habitat are common in the Project Area; however there is no serpentine substrate in the Project Area. Grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site; as a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Diablo helianthella <i>Helianthella castanea</i>	Rank 1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 195 to 4265 feet (60 to 1300 meters). Blooms Mar-Jun.	High potential. Grassy areas and oak woodland interface are common in the Project Area. Some rocky areas are scattered in areas adjacent to the Project Area. Occurrences of this species have been recently documented within five miles south of the Project Area. However, the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	Unlikely. No vernal pools or alkaline playas occur in the Project Area. While cismontane woodlands and grasslands are common in the Project Area, they are mostly in sloped drier areas.	Assumed Absent. No further recommendations.
legenere <i>Legenere limosa</i>	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	No potential. The Project Area does not contain any vernal pools.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
bristly leptosiphon <i>Leptosiphon acicularis</i>	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	High potential. Grassy areas are common in the Project Area; however, the nearest occurrence records are from over a century old and may not reflect the current distribution of this species.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
serpentine leptosiphon <i>Leptosiphon ambiguus</i>	Rank 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 390 to 3705 feet (120 to 1130 meters). Blooms Mar-Jun.	Moderate potential. The Project Area does contain cismontane woodland and grasslands; however, no serpentine substrate is present in the Project Area.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Mt. Hamilton coreopsis <i>Leptosyne hamiltonii</i>	Rank 1B.2	Cismontane woodland (rocky). Elevation ranges from 1800 to 4265 feet (550 to 1300 meters). Blooms Mar-May.	No potential. No steep shale talus is present in the Project Area, and the Project Area is below the species elevation range.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
woolly-headed lessingia <i>Lessingia hololeuca</i>	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 45 to 1000 feet (15 to 305 meters). Blooms Jun-Oct.	Moderate potential. Grasslands with clay loam to silt loam soils are common in the Project Area; however no serpentine substrate is present in the Project Area. Potentially suitable habitat in the Project Area has been impacted by grazing and invading nonnative annual grasses, though this species does appear to be somewhat tolerant to disturbance. No <i>Lessingia hololeuca</i> was observed blooming during a site visit in late August 2018.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
arcuate bush-mallow <i>Malacothamnus arcuatus</i>	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 45 to 1165 feet (15 to 355 meters). Blooms Apr-Sep.	Moderate potential. The Project Area contains cismontane woodland on gravelly loam. However, there are no occurrence records within 20 miles of the Project Area for this species.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Hall's bush-mallow <i>Malacothamnus hallii</i>	Rank 1B.2	Chaparral, coastal scrub. Elevation ranges from 30 to 2495 feet (10 to 760 meters). Blooms (Apr)May-Sep(Oct).	Low potential. The area surrounding the Project Area contains some chaparral habitat, though none exists in the Project Area. There is low potential for this species to occur in the Project Area.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
elongate copper moss <i>Mielichhoferia elongata</i>	Rank 4.3	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, subalpine coniferous forest. Elevation ranges from 0 to 6430 feet (0 to 1960 meters).	No potential. No highly acidic soils, metamorphic rock, or fens are present in the Project Area.	No further actions are recommended for this species.
San Antonio Hills Monardella <i>Monardella antonina</i> ssp. <i>antonina</i>	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1045 to 3280 feet (320 to 1000 meters). Blooms Jun-Aug.	High potential. The Project Area does contain cismontane woodland. However, this species is commonly confused with the more common <i>Monardella villosa</i> ssp. <i>villosa</i> , and occurrences in Alameda County may have been misidentified. A species of <i>Monardella</i> (identified as <i>M. villosa</i>) was observed in the area adjacent to the Project Area.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
little mouselink <i>Myosurus minimus</i> ssp. <i>apus</i>	Rank 3.1	Valley and foothill grassland, vernal pools (alkaline). Elevation ranges from 65 to 2100 feet (20 to 640 meters). Blooms Mar-Jun.	Moderate potential. Grassland habitat is common in the Project Area, and areas of alkaline soil also occur in the Project Area. However, grassland habitat in the Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
adobe navarretia <i>Navarretia nigelliformis</i> ssp. <i>nigelliformis</i>	Rank 4.2	Valley and foothill grassland vernal pools, vernal pools sometimes. Elevation ranges from 325 to 3280 feet (100 to 1000 meters). Blooms Apr-Jun.	Moderate potential. Grassland habitat is common in the Project Area, and areas of clay soil also occur in the Project Area. However, grassland habitat in Project Area tends to occur on drier slopes and is highly disturbed by historic and current grazing, which has altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded. Similarly, potentially suitable wetland habitat in the Project Area is heavily degraded by cow punch and grazing.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
prostrate vernal pool navarretia <i>Navarretia prostrata</i>	Rank 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools. Elevation ranges from 5 to 3970 feet (3 to 1210 meters). Blooms Apr-Jul.	Unlikely. The Project Area does not contain coastal scrub, meadows, or vernal pools. The Project Area does contain areas of alkaline soils in grasslands, although these areas are drier and on slopes rather than flat areas.	Assumed Absent. No further recommendations.
hairless popcornflower <i>Plagiobothrys glaber</i>	Rank 1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt). Elevation ranges from 45 to 590 feet (15 to 180 meters). Blooms Mar-May.	No potential. This species is presumed to be extirpated from the region.	No further actions are recommended for this species.
Oregon polemonium <i>Polemonium carneum</i>	Rank 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation ranges from 0 to 6005 feet (0 to 1830 meters). Blooms Apr-Sep.	No potential. No coastal prairie, coastal scrub, or coniferous forest habitat is present in the Project Area.	No further actions are recommended for this species.
California alkali grass <i>Puccinellia simplex</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 3050 feet (2 to 930 meters). Blooms Mar-May.	Unlikely. While alkaline soils and grasslands are present, no suitable microhabitat conditions for this species exist in the Project Area. There are no seasonally or perennially wet, alkaline soils present in the Project Area.	Assumed Absent. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
maple-leaved checkerbloom <i>Sidalcea malachroides</i>	Rank 4.2	Broadleafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian woodland. Elevation ranges from 0 to 2395 feet (0 to 730 meters). Blooms (Mar)Apr-Aug.	No potential. The Project Area does not contain coastal prairie, coastal scrub, north coast coniferous forest, or riparian woodland habitat. All nearby records are closer to the coast.	No further actions are recommended for this species.
most beautiful jewelflower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 310 to 3280 feet (95 to 1000 meters). Blooms (Mar)Apr-Sep(Oct).	No potential. The Project Area does not contain serpentine outcrops.	No further actions are recommended for this species.
slender-leaved pondweed <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	Rank 2B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	No potential. The Project Area does not contain perennial standing water.	No further actions are recommended for this species.
California seablite <i>Suaeda californica</i>	FE, Rank 1B.1	Marshes and swamps (coastal salt). Elevation ranges from 0 to 50 feet (0 to 15 meters). Blooms Jul-Oct.	No potential. The Project Area does not contain coastal salt marshes or swamps.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
saline clover <i>Trifolium hydrophilum</i>	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	Moderate potential. The Project Area does not contain marshes, swamps, or vernal pools. While the Project Area does contain some mesic, alkaline foothill grasslands, these sites occur on slopes and are dry for most of the year. Grassland habitat in Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded. Similarly, potentially suitable wetland habitat in the Project Area has been heavily degraded by cow punch and grazing.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	Rank 1B.1	Valley and foothill grassland (alkaline hills). Elevation ranges from 0 to 1495 feet (1 to 455 meters). Blooms Mar-Apr.	Moderate potential. The Project Area does contain grasslands on alkali clay soils. However, grassland habitat in Project Area is highly disturbed by historic and current grazing, which has altered the vegetation of the site. As a result, it is characterized by dense, non-native annual grass species and potential habitat for this species may be degraded. The nearest occurrence record, which is about six miles northeast of the Project Area, is over a century old; therefore, this record may not reflect the current distribution of this species.	Conduct a pre-construction survey prior to vegetation removal and/or ground disturbance within the Project Area.
Mammals				
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE, ST, RP, EACCS	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Unlikely. This species is generally considered to be absent west of the Altamont Hills (Sproul and Flett 1993). The Project Area contains some grassland habitat, but no suitably-sized burrows were found within the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
American badger <i>Taxidea taxus</i>	SSC, EACCS	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. The nearest CNDDDB occurrence for this species is located 4.5 miles northeast of the Project Area and dates to 2016 (CDFW 2016). The Project Area largely contains open grasslands and oak woodlands. No signs of badger were observed during the site visit.	No further actions are recommended for this species.
ringtail <i>Bassariscus astutus</i>	CFP	Is widely distributed throughout most of California, but absent from some portions of the Central Valley and northeastern California. The species is nocturnal, primarily carnivorous and is associated with a mixture of dry forest and shrubland in close association with rocky areas and riparian habitat, using hollow trees and cavities for shelter. Usually not found more than 1 km (0.6 mi) from permanent water.	Unlikely. The Project Area does not contain suitable permanent water and riparian habitat to support the species.	No further actions are recommended for this species.
salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE, CFP, SSC	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat, but may use other thick wetland vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	No Potential. The Project Area is outside of this species' known range which is limited to wetland habitats around San Francisco Bay.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SSC	Found in both chaparral and forest habitats with a moderate canopy and moderate to dense understory. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Unlikely. The Project Area does not contain the typical dense understory associated with this species. No woodrat nests were observed during the site visit.	No further actions are recommended for this species.
pallid bat <i>Antrozous pallidus</i>	SSC, WBWG	Occupies a variety of habitats at low elevation including grassland, shrubland, woodland, and forest. Most common in open, dry habitats and commonly roosts in fissures in cliffs, abandoned buildings, and under bridges.	Moderate Potential. Large trees within the areas surrounding the Project Area contain cavities and exfoliating bark which may be suitable for roosting.	The Project will not impact tree trunks or large branches. No further actions are necessary to avoid roosting habitat.
hoary bat <i>Lasiurus cinereus</i>	WBWG	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Moderate Potential. Large trees within the area surrounding the Project Area contain cavities and exfoliating bark which may be suitable for roosting.	The Project will not impact tree trunks or large branches. No further actions are necessary to avoid roosting habitat.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SC, SSC, WBWG	Primarily found in rural settings in a wide variety of habitats including oak woodland and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Building roost sites must be cave like. Very sensitive to human disturbance.	No Potential. Typical undisturbed cavernous roost or suitable building sites are not present in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western mastiff bat <i>Eumops perotis californicus</i>	SSC, WBWG	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	No Potential. The Project Area does not contain large rock structures typically associated with roosts used by this species.	No further actions are recommended for this species.
western red bat <i>Lasiurus blossevillii</i>	SSC, WBWG	This species is highly migratory and is typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Moderate Potential. The Project Area contains oak woodland, which includes very limited broadleaved tree species. The Project Area does not support riparian habitat, though edge habitats adjacent to open fields is present.	The Project will not impact tree trunks or large branches. No further actions are necessary to avoid roosting habitat.
long-legged myotis <i>Myotis volans</i>	WBWG	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	Unlikely. The Project Area does not contain the coniferous forest this species typically inhabits. This species may occasionally forage within the open portions of the Project y Area, but it is unlikely to roost there.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
long-eared myotis <i>Myotis evotis</i>	WBWG	Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests from seal level to 9000 feet. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges.	Unlikely. The Project Area does not contain the coniferous forest habitat typically associated with this species. This species may occasionally forage or pass through the Project Area during migration but it is unlikely to roost there.	No further actions are recommended for this species.
fringed myotis <i>Myotis thysanodes</i>	WBWG	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	Moderate Potential. Oak trees adjacent to the Project Area may contain cavities and exfoliating bark suitable for roosting.	The Project will not impact tree trunks or large branches. No further actions are necessary to avoid roosting habitat.
Birds				
golden eagle <i>Aquila chrysaetos</i>	CFP, EPA, BCC, EACCS	Resident in rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees in open areas.	Unlikely. The Project Area does not contain tall cliffs or large snags typically used as nesting structures by this species. More suitable habitat occurs southwest of the Project Area around San Antonio Reservoir where the species has been recorded nesting (CDFW 2016). The species may pass through the area, but is unlikely to nest there.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
bald eagle <i>Haliaeetus leucocephalus</i>	FD, SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	Unlikely. This species typically nests adjacent to large waterbodies which can support foraging. The species has been recorded near Del Valle reservoir and as such, may occasionally fly over the Project Area (CDFW 2018). The lack of tall snags in the Project Area typically used for nesting means this species is unlikely to nest within the Project Area.	No further actions are recommended for this species.
ferruginous hawk <i>Buteo regalis</i>	BCC	Winter visitor. Frequents open habitats including grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats. Preys on rodents and other vertebrates.	Unlikely. The Project Area provides foraging habitat for wintering birds; however this species does not breed in the region.	No further actions are recommended for this species.
Swainson's hawk <i>Buteo swainsonii</i>	ST, BCC	Summer resident in the region. Forages in grasslands and nests in the immediate vicinity, often in relatively isolated, trees or tree groves. Most of the California population breeds in the Central Valley. Forages on insects and rodents, also other vertebrates.	Unlikely. The Project Area is not located within large stretches of flat land that this species typically uses for breeding. The Project Area is also west of this species' typical breeding range in the Central Valley. This species may occasionally pass through the Project Area during migration.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
northern harrier <i>Circus cyaneus</i>	SSC	Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. May also occur in alkali desert sinks.	Unlikely. The species has been observed in the immediate vicinity of the Project Area (eBird 2018). However, the Project Area does not contain significant freshwater marsh habitat, which would serve as suitable nesting habitat. The species may forage within or fly over the Project Area, but is unlikely to nest there.	No further actions are recommended for this species.
white-tailed kite <i>Elanus leucurus</i>	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	Moderate Potential. Areas immediately adjacent to the Project Area provide open foraging habitat, and trees within the Project Area may support nesting.	Recommendations for this species are provided in Section 5.3.
prairie falcon <i>Falco mexicanus</i>	BCC	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Unlikely. The Project Area and surrounding areas do not provide typical cliff nesting habitat. This species may forage within the vicinity of the Project Area, but has not been found to nest in the east bay hills, and nests only in southern Alameda County (Richmond et al. 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
American peregrine falcon <i>Falco peregrinus anatum</i>	FD, SD, CFP, BCC	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	Unlikely. The Project Area and surrounding areas do not provide tall habitats near water to support nesting. This species may occasionally fly over or forage in the Project Area, but it is unlikely to nest.	No further actions are recommended for this species.
burrowing owl <i>Athene cunicularia</i>	BCC, SSC, EACCS	Inhabits, dry annual or perennial grassland, desert and scrubland characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably California ground squirrel.	Low Potential. Large numbers of tall trees, rolling terrain occurring throughout the Project Area and tall and thick annual grasslands limit the view of owls. Trees provide perches for predators, further diminishing the likelihood of the species occurring within the Project Area.	No further actions are recommended for this species.
long-eared owl <i>Asio otus</i>	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	Unlikely. Although this species was more common historically in the region, there are few records of it and the majority of recent nesting records are from southeast Alameda County in the Diablo hills (eBird 2016, Richmond et al. 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California Ridgway's (clapper) rail <i>Rallus obsoletus obsoletus</i>	FE, SE, CFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on molluscs and crustaceans.	No Potential. Project Area is outside of this species' known range.	No further actions are recommended for this species.
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	No Potential. The Project Area is outside of this species' known range.	No further actions are recommended for this species.
California least tern <i>Sternula antillarum browni</i>	FE, SE, CFP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	No Potential. The Project Area is not along the coast, and is outside of the species known breeding range (Richmond et al. 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California horned lark <i>Eremophila alpestris actia</i>	CDFW_WL -Watch List IUCN_LC- Least Concern	Non-migrant resident of northern (north of Santa Rosa) and southern California (south of San Luis Obispo), typically breeding in on the ground next to a grass tuft or clod of earth or manure. Eats mainly seeds, and, in warm season, insects.	No potential. The Project Area is outside the known range for this species.	No further actions are recommended for this species.
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT, SE, BCC	Summer resident, breeding in dense riparian forests and jungles, typically with early successional vegetation present. Utilizes densely-foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very restricted.	No Potential. The Project Area is outside of the known range for this species.	No further actions are recommended for this species.
Allen's hummingbird <i>Selasphorus sasin</i>	BCC	Summer resident along the California coast, breeding in a variety of woodland and forest habitats, including parks and gardens with abundant nectar sources. Nest in shrubs and trees with dense vegetation.	Unlikely. This species may occasionally pass through the Project Area to migrate or forage but the Project Area does not contain the dense forest or woodland vegetation this species uses for nesting. Additionally, this species is less common in the eastern portion of the East Bay Hills (eBird 2016, Richmond et al. 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
olive-sided flycatcher <i>Contopus cooperi</i>	SSC, BCC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	Unlikely. This species may occasionally pass through the Project Area to migrate or forage but the Project Area does not contain the coniferous forest habitats that typically support this species. Additionally, this species has been rarely recorded on the east side of the East Bay Hills (eBird 2016).	No further actions are recommended for this species.
American white pelican <i>Pelecanus erythrorhynchos</i>	SSC	Non-breeding visitor in most of California. Nests colonially on large interior lakes or rivers; breeding restricted to portions of eastern California. Winters on sheltered inland and estuarine waters with abundant small fishes for forage.	Unlikely. The Project Area does not contain large lakes or rivers that would serve as suitable nesting or foraging habitat for this species. While the species has been documented in the immediate vicinity (eBird 2016), the Project Area does not support nesting or foraging.	No further actions are recommended for this species.
Lewis's woodpecker <i>Melanerpes lewis</i>	BCC	Uncommon resident in California occurring on open oak savannahs, broken deciduous and coniferous habitats. Breeds primarily in ponderosa pine forests, riparian woodlands and disturbed pine forests but is also known to nest in orchards and oak woodlands. Rare nester in the San Francisco Bay Area.	Unlikely. This species is uncommon in the region and is primarily a winter visitor. There are no confirmed nest sites near Livermore (Richmond et al 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Nuttall's woodpecker <i>Picoides nuttallii</i>	BCC	Resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks.	High Potential. The Project Area provides oak habitat and adjacent areas support trees with cavities suitable for nesting. The species has been observed frequently in the immediate area (eBird 2016).	Recommendations for this species are provided in Section 5.3.
loggerhead shrike <i>Lanius ludovicianus</i>	BCC, SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, and desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Moderate Potential. Open grassland foraging habitat and oaks that may support nesting occur within the Project Area.	Recommendations for this species are provided in Section 5.3.
tricolored blackbird <i>Agelaius tricolor</i>	SC, BCC, SSC, RP	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Nesting area must be large enough to support about 50 pairs.	No potential. The species requires large freshwater ponds with dense thickets of cattails to support a nesting colony. No cattails are present in the Project Area.	No further actions are recommended for this species.
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	Unlikely. This species is very uncommon in the region, and is only known to have nested once in Alameda County in recent times (eBird 2018; Richmond et al 2011).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
grasshopper sparrow <i>Ammodramus savannarum</i>	SSC	Summer resident in the region. Breeds in open grassland habitats, generally with low- to moderate-height grasses and scattered shrubs.	Unlikely. This species is not known to occur in the Livermore-Amador Valley (eBird 2016; Richmond et al. 2011).	No further actions are recommended for this species.
black-chinned sparrow <i>Spizella atrogularis</i>	BCC	Prefers sloping ground in mixed chaparral, chamise-redshank chaparral, sagebrush, and similar brushy habitats. Often on arid, south-facing slopes with ceanothus, manzanita, sagebrush, and chamise.	Low potential. This species is uncommon in the region, and is only known to nest in southeastern Alameda County (eBird 2018; Richmond et al 2011). Though the surrounding area supports scrub/chaparral habitats to support this species, none falls within the Project Area.	No further actions are recommended for this species.
Bryant's savannah sparrow <i>Passerculus sandwichensis alaudinus</i>	SSC	Year-round resident associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats and adjacent areas; often found where wetland communities merge into grassland. May also occur in drier grasslands. Nests near the ground in taller vegetation, including along roads, levees, and canals.	No Potential. The Project Area is not within this subspecies' known range in tidally influenced portions of the California coast.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Alameda song sparrow <i>Melospiza melodia pusillula</i>	BCC, SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits <i>Salicornia</i> marshes; nests low in <i>Grindelia</i> bushes (high enough to escape high tides) and in <i>Salicornia</i> .	No Potential. The Project Area is outside of this subspecies' range in wetlands in eastern San Francisco Bay.	No further actions are recommended for this species.
yellow-breasted chat <i>Icteria virens</i>	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	Unlikely. This species is not known to occur or breed near the Livermore area (Richmond et al, 2011; eBird 2018) and the site does not provide riparian habitat.	No further actions are recommended for this species.
yellow warbler <i>Setophaga (Dendroica) petechia brewsteri</i>	BCC, SSC	Frequents riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.	Unlikely. The Project Area does not provide riparian habitat for nesting or foraging. There has not been confirmed breeding in the vicinity (Richmond et al. 2011).	No further actions are recommended for this species.
yellow-billed magpie <i>Pica nuttalli</i>	BCC	Oak savanna with large trees and large expanses of open ground. The Central Valley floor, gentle slopes, and open park-like areas including along stream courses. Grasslands, pasture, or cultivated fields are needed for foraging.	Moderate Potential. This species is known to inhabit the Livermore area, including the adjacent Wente Windery, and the Project Area contains oaks interspersed with open areas to support nesting and foraging (eBird 2018).	Recommendations for this species are provided in Section 5.3.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
oak titmouse <i>Baeolophus inornatus</i>	BCC	Oak woodland and savannah, open broad-leaved evergreen forests containing oaks, and riparian woodlands. Associated with oak and pine-oak woodland and arborescent chaparral.	High Potential. The Project Area provides oak habitat with cavities suitable for nesting.	Recommendations for this species are provided in Section 5.3.
Lawrence's goldfinch <i>Spinus (= Carduelis) lawrencei</i>	BCC	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Unlikely. This species may fly through and occasionally forage in the Project Area. However, this species is not known to frequently nest in the Livermore area (Richmond et al 2011).	No further actions are recommended for this species.
great blue heron <i>Ardea herodias</i>		Year-round resident. Nests colonially or semi-colonially in tall trees and on cliffs, also sequestered terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	Unlikely. This species may fly through the Project Area; however, the Project Area does not contain cliffs for rookery habitat or significant water bodies to provide aquatic prey.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Reptiles and Amphibians				
California red-legged frog <i>Rana draytonii</i>	FT, SSC, RP, EACCS	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	Moderate Potential. The species has been documented within 5 miles of Project Area within Arroyo del Valle (CDFW 2016) and has shown evidence of breeding less than 1 mile away. The grasslands and oak woodland may act as upland dispersal habitat for this species, though no suitable breeding habitat occurs within the Project Area.	Recommendations for this species are provided in Section 5.3.
foothill yellow-legged frog <i>Rana boylei</i>	SSC, EACCS	Found in or near rocky streams in a variety of habitats. Feeds on both aquatic and terrestrial invertebrates.	Unlikely. While the species was known to occur in Arroyo del Valle as recently as 1960, it has not been documented since construction of the Del Valle reservoir. The species was documented approximately 2.5 miles south west of the site in the 2005. The documented presence of introduced predators in adjacent watersheds, such as carp and bullfrog make the Project Area unlikely to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western spadefoot <i>Spea (=Scaphiopus) hammondi</i>	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	Unlikely. The nearest CNDDB occurrence for this species is approximately 4.7 miles northeast of the Project Area, and is dated 2004 (CDFW 2018). The Project Area is not known to contain shallow temporary pools that could support breeding. The Project Area is also just west of the species known range in eastern Alameda County near the Altamont pass (UC Davis 2015).	No further actions are recommended for this species.
California tiger salamander <i>Ambystoma californiense</i>	FE/FT, ST, RP, EACCS	Populations in Santa Barbara and Sonoma Counties are currently listed as endangered, and the Central Valley populations are listed as threatened. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Seasonal ponds and vernal pools are crucial to breeding. Adults utilize mammal burrows as estivation habitat.	Moderate. The closest breeding habitat is 1.3 miles away from the Project Area, with dry grasslands and oak woodlands between the two areas. No ponds are present within the Project Area to support breeding. Ground squirrel burrows may provide estivation habitat in annual grasslands in the Project Area, though the dry grasslands and steep slopes negatively impact habitat suitability. The species is unlikely to occur in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Pacific pond turtle <i>Actinemys marmorata</i>	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	No potential. No suitable habitat exists in the Project Area.	No further actions are necessary for this species.
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT, ST, RP EACCS	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses.	Moderate Potential. This species typically requires dry expanses of oak woodland, grasslands, and basking sites, all of which occur at the site. This species is known to occur in the surrounding area and may utilize the grasslands in the Project Area and adjacent chaparral. Given the known observations and habitat suitability, there the species has moderate potential to occur in the Project Area.	Recommendations for this species are provided in Section 5.3.
San Joaquin whipsnake <i>Masticophis flagellum ruddocki</i>	SSC	Found in valley grassland and saltbush scrub in the San Joaquin Valley in open, dry habitats with little or no tree cover. Requires mammal burrows for refuge and breeding sites.	Unlikely. The only CNDDDB occurrence for this species in the 9-quad search area is approximately 5 miles northeast of the Project Area and occurred in 2000. The Project Area provides dry habitats with scattered tree cover and potential burrow refugia. Given the very low frequency of observations in the area, the species is unlikely to be found in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
silvery legless lizard <i>Anniella pulchra pulchra</i>	SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Unlikely. This species is only known to eastern Alameda County (UC Davis 2015). Additionally, the Project Area does not contain sandy or loamy soils to support this species.	No further actions are recommended for this species.
Blainville's (coast) horned lizard <i>Phrynosoma blainvillii (coronatum)</i>	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Prefers friable, rocky, or shallow sandy soils for burial; open areas for sunning; bushes for cover; and an abundant supply of ants and other insects.	Unlikely. While the Project Area historically was within the species' range and contains some shrubs and small amounts of friable, undisturbed soils, the Project Area is outside of this' species current range (Zeiner et al. 1990).	No further actions are recommended for this species.
Fish				
steelhead - central CA coast DPS <i>Oncorhynchus mykiss irideus</i>	FT, NMFS, EACCS	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	No Potential. No suitable habitat exists in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
longfin smelt <i>Spirinchus thaleichthys</i>	FC, ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	No Potential. The Project Area does not contain suitable habitat.	No further actions are recommended for this species.
Invertebrates				
conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE, SSI, RP	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	No Potential. The Project Area does not contain vernal pool habitat and the species has not been recorded in the vicinity (CDFW 2016).	No further actions are recommended for this species.
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT, SSI, RP, EACCS	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	No Potential. The Project Area does not contain vernal pool habitat and the nearest documented occurrence is 6.8 miles north of the Project Area (CDFW 20162018).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
vernal pool tadpole shrimp <i>Lepidurus packardi</i>	FE, SSI, RP	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	No Potential. The Project Area does not contain vernal pool habitat and the species has not been recorded in the vicinity (CDFW 20162018).	No further actions are recommended for this species.
longhorn fairy shrimp <i>Branchinecta longiantenna</i>	FE, SSI, RP, EACCS	Endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	No Potential. The Project Area does not contain vernal pool habitat and this species is only known in Alameda County at the Brushy Creek Regional Preserve, over nine miles north of the Project Area (USFWS 2007).	No further actions are recommended for this species.
California linderiella <i>Linderiella occidentalis</i>	SSI	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS	No Potential. The Project Area does not contain vernal pool habitat and the nearest documented occurrences of this species are 2.7 miles to the west of the Project Area (CDFW 20162018).	No further actions are recommended for this species.
midvalley fairy shrimp <i>Branchinecta mesoavallensis</i>	SSI	Vernal pools in the Central Valley in Sacramento, Solano, Merced, Madera, San Joaquin, Fresno, and Contra Costa counties.	No Potential. The Project Area does not contain vernal pool habitat and the nearest documented occurrence is over 15 miles northeast of the Project Area (CDFW 2016).	No further actions are recommended for this species.

Note:

List compiled from the U.S. Fish and Wildlife Service (USFWS) Information for Conservation and Planning Database (USFWS 2018), the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CDFW 2018), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2018) for the Livermore, Diablo, Tassajara, Altamont, Mendenhall Springs, Byron Hot Springs, Dublin, Niles, and La Costa Valley USGS 7.5-minute quadrangles. Other resources consulted include the Alameda County Breeding Bird Atlas (Richmond et al. 2011), eBird occurrence data (eBird 2018), California amphibian and reptile species of special concern (UC Davis 2015), vernal pool crustacean distribution (Erikson and Belk 1999), and other CDFW lists and publications (e.g. Zeiner et al. 1990.).

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
BCC	USFWS Birds of Conservation Concern
SE	State Endangered
ST	State Threatened
SC	State Candidate
SSC	CDFW Species of Special Concern
SSI	CDFW Special-Status Invertebrate
CFP	CDFW Fully Protected Animal
WBWG	Western Bat Working Group (High or Medium) Priority species
RP	Species included in a USFWS Recovery Plan or Draft Recovery Plan
EACCS	Final East Alameda County Conservation Strategy (2010) Proposed Focal Species

California Rare Plant Ranks:

Rank 1A	California Rare Plant Rank 1A: Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	California Rare Plant Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2B	California Rare Plant Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	California Rare Plant Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4	California Rare Plant Rank 4: Plants of limited distribution (a watch list)

Threat Ranks for California Rare Plant Rank Plant Species

0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

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Appendix C

Representative Photographs of the Project Area

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Photograph 1. A nonnative annual grassland dominated by *Avena barbata*. Photograph taken August 23, 2018.



Photograph 2. A rocky outcrop surrounded by nonnative annual grassland. All rocky outcrops observed were outside the Project Area. Photograph taken August 23, 2018.



Photograph 3. Areas adjacent to the Project Area supported diverse biological communities, such as black sage (*Salvia mellifera*) scrub. Photograph taken August 23, 2018



Photograph 4. Outside of the Project Area, stands of low-density purple needlegrass (*Stipa pulchra*) grassland with dense annual grasses and scattered vinegarweed (*Trichostemma lanceolata*) were present. Photograph taken August 23, 2018.



Photograph 5. Coast live oak woodland with annual grass and Italian thistle (*Carduus pycnocephalus*) understory. Photograph taken August 23, 2018.



Photograph 6. Freshwater emergent wetland surrounded by nonnative annual grassland. Dominant species include *Eleocharis macrostachya*, *Nasturtium officinale*, and *Polypogon monspeliensis*. This wetland feature is outside the Project Area. Photograph taken August 23, 2018.

APPENDIX B

Delineation of Potential Jurisdictional Wetlands, WRA 2018

Delineation of Potential Jurisdictional Wetlands

ZONE 7 TRAIL PROJECT

ALAMEDA COUNTY, CALIFORNIA

Prepared For:

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Date:
September 2018



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LIST OF ACRONYMS

APN	Assessor's Parcel Number
CFR	Code of Federal Regulations
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative plant species
FACU	Facultative Upland plant species
FACW	Facultative Wetland plant species
LARPD	Livermore Area Recreation and Parks District
NL	Not Listed
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWPL	National Wetland Plant List
OBL	Obligate plant species
OHWM	Ordinary High Water Mark
PI	Prevalence Index
RWQCB	Regional Water Quality Control Board
UPL	Upland plant species
USFWS	United States Fish and Wildlife Service
WRA	WRA, Inc.

1.0 INTRODUCTION

1.1 Study Background

On behalf of the Livermore Area Recreation and Parks District (LARPD), this report presents the results of a delineation of Waters of the U.S. (“waters”) under Section 404 of the Clean Water Act (CWA), as well as Waters of the State under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. The Study Area is within the proposed trail alignment traversing the Zone 7 Property (Study Area), and is located on a parcel owned and managed by Zone 7 Water District (Assessor’s Parcel Number [APN] 99-550-2-3) in unincorporated Alameda County, CA, in the hills south of Livermore (Figure 1). The approximately 24-acre Study Area is surrounded by undeveloped open grassland used for cattle grazing and lies adjacent to properties owned by LARPD and Zone 7.

On August 23, 2018, WRA conducted a routine wetland delineation in the Study Area to determine the presence of potential wetlands and other waters subject to federal jurisdiction under Section 404 of the Clean Water Act, as well as Waters of the State under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. This report presents the results of this delineation.

1.2 Regulatory Background

1.2.1 Clean Water Act Section 404

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States”. Section 502(7) of the Clean Water Act defines navigable waters as “waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term “waters of the United States” as it applies to the jurisdictional limits of the authority of the Corps under the Clean Water Act. A summary of this definition of “waters of the U.S.” in 33 CFR 328.3 includes (1) waters used for commerce; (2) interstate waters and wetlands; (3) “other waters” such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of the determining Corps jurisdiction under the Clean Water Act, “navigable waters” as defined in the Clean Water Act are the same as “waters of the U.S.” defined in the Code of Federal Regulations above.

The limits of Corps jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas*: 3 nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.*: high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.*: ordinary high water mark or to the limit of adjacent wetlands; (d) *Wetlands*: to the limit of the wetland. A discussion of the methodology used to delineate wetlands and waters is presented in Section 3.1.

1.2.2 Section 401 of the Clean Water Act – Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act defines the term “waters of the State” as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Waters of the State are regulated by the Regional Water Quality Control Board (RWQCB) under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and under the Porter-Cologne Act. The RWQCB protects all waters of the State within its regulatory scope and has special responsibility for wetlands, riparian areas,

and headwaters. These waterbodies have high resource value, are vulnerable to filling, and may not be systematically protected by other programs. Regional Water Quality Control Board jurisdiction includes “isolated” wetlands and non-wetland waters that may not be regulated by the Corps under Section 404 of the CWA. Projects that require a Corps permit, or that fall under other federal jurisdiction, and have the potential to impact waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its State authority in the form of Waste Discharge Requirements.

2.0 SUMMARY OF POTENTIAL JURISDICTIONAL AREAS

The extent of Corps and RWQCB jurisdiction within the Study Area was based on a wetland delineation conducted by WRA on August 23, 2018. Appendix A depicts the extent of Corps and RWQCB jurisdiction in the Study Area. The acreage and length of potential jurisdictional areas are summarized below in Table 1.

Table 1. Summary of Potential Jurisdictional Features within the Study Area.

Feature Type (Cowardin et al. 1979)	Acres
Seasonal Wetland (PEM1B)	0.08
TOTAL	0.08

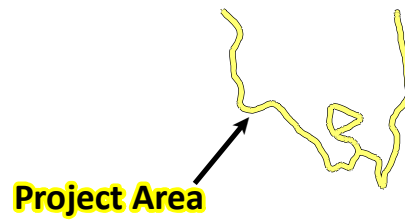
The Study Area contains approximately 0.08 acres that meet the criteria to be potential wetlands. The potential wetland delineated within the Study Area is likely to be considered a potential jurisdictional feature under CWA Section 404, CWA Section 401, and the Porter-Cologne Water Quality Control Act.

3.0 METHODS

Prior to conducting field surveys, available reference materials were reviewed, including online soil survey data for the Study Area (CSRL 2018), the U.S. Geological Survey 7.5-minute quadrangle map for La Costa Valley (USGS 2012), the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data (USFWS 2018), rainfall data (NOAA 2018), WETS precipitation data (USDA 2018a), and available aerial photographs of the site (Google Earth 2018). Following the background data search, WRA biologists performed a focused evaluation of indicators of wetlands and waters at the Study Area on August 23, 2018.

The methods used in this study to delineate jurisdictional wetlands and non-wetland waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (“Corps Manual”; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (“Arid West Supplement”; Corps 2008a), and *A Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (“OHWM Guide;” Corps 2008b). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area.

Path: L:\Acad 2000 Files\28000\28062\GIS\ArcMap\Figure 1 Location.mxd



Sources: National Geographic, WRA | Prepared By: smortensen, 10/4/2018

Figure 1. Project Area Location

Zone 7 Trail Project
Livermore, Alameda County, California

0 0.5 1 Miles



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A general description of the Study Area, including the on-site vegetation communities, topography, and land use, was also generated during the site visit. The methods for evaluating the presence of wetlands and non-wetland waters employed during the delineation are described in detail below.

3.1 Potential Section 404 Waters of the U.S.

3.1.1 Wetlands

The Study Area was evaluated for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and the Arid West Supplement (Corps 2008a).

Section 328.3 of the Federal Code of Regulations defines wetlands as:

"Those 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. Wetlands generally include swamps, marshes, bogs, and similar areas."

EPA, 40 CFR 230.3 and CE, 33 CFR 328.3 (b)

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

"...[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visits were reported on Arid West Supplement data forms. Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using GPS equipment and mapped on a topographic map. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Indicators described in the Arid West Supplement were used to make wetland determinations at each sample point in the Study Area and are summarized below.

Vegetation

Plant nomenclature follows the Jepson Flora Project (2017). Plant species identified on the Study Area were assigned a wetland status according to the USFWS list of plant species that occur in wetlands (Lichvar et al. 2016). This wetland classification system is based on the expected frequency of occurrence in wetlands as follows:

OBL:	Obligate species	Almost always a hydrophyte, rarely in uplands
FACW:	Facultative Wetland species	Usually a hydrophyte, but occasionally found in uplands
FAC:	Facultative species	Commonly either a hydrophyte or non-hydrophyte
FACU:	Facultative Upland species	Occasionally a hydrophyte, but usually found in uplands
NL/UPL:	Upland/Not Listed species	Rarely a hydrophyte, almost always in uplands

The presence of hydrophytic vegetation was then determined based on indicator tests described in the Arid West Supplement. The Arid West Supplement requires that a three-step process be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the “50/20 rule” (Indicator 1; Dominance Test) described in the manual. To apply the “50/20 rule”, dominant species are chosen independently from each stratum of the community. Dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total vegetative cover. If greater than 50 percent of the dominant species has an OBL, FACW, or FAC status, ignoring + and - qualifiers, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails Indicator 1 and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 2.

Indicator 2 is known as the Prevalence Index (PI). The Prevalence Index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 2 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. The delineator must then organize all species into groups according to their wetland indicator status and calculate the Prevalence Index using the following formula, where A equals total percent cover:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal to or less than 3, the sample point meets the hydrophytic vegetation criterion.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

“A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”

Federal Register July 13, 1994,
U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color, generally designated 0, 1, or 2, used to identify them as hydric, presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to determine whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the U.S.* (USDA 2016). The Arid West Supplement provides a list of 23 of these hydric soil indicators which are known to occur in the Arid West region. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (Munsell Color 2009).

Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the Arid West Supplement.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

The presence or absence of the primary or secondary indicators described in the Arid West Supplement was utilized to determine if sample points within the Study Area met the wetland hydrology criterion.

3.1.2 Non-wetland Waters

This study also evaluated the presence of “waters of the U.S.” other than wetlands potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers and streams (including intermittent streams) in addition to all areas below the HTL in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHWM) defined as:

“...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

Federal Register Vol. 51, No. 219,
Part 328.3 (e). November 13, 1986

Identification of the ordinary high water mark followed the OHWM Guide (Corps 2008b).

3.2 Problem Areas and Difficult Wetland Situations in the Arid West

The Arid West Supplement (Corps 2008) includes recommended procedures for completing wetland delineations in areas of “difficult wetland situations.” The Corps’ Manual describes “problem areas,” defined as naturally occurring wetland types that periodically lack wetland indicators due to normal seasonal or annual variability.

The list of difficult wetland situations provided in the Arid West Supplement includes wetlands with problematic hydrophytic vegetation, problematic hydric soils, and wetlands that periodically lack indicators of wetland hydrology. Although the Corps Manual and Arid West Supplement were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. Thus, it is important to use best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of wetland delineation data for problematic sites.

4.0 SITE DESCRIPTION

4.1 Location

The approximately 24-acre Study Area is located outside the City of Livermore, Alameda County, California. The Study Area is bordered to the north by Sycamore Grove Park (managed by LARPD) and to the east, and south by open space and grazed agricultural areas. The Study Area is grazed agricultural undeveloped land, with a barbed-wire perimeter fence.

4.2 Vegetation

Vegetation within the upland portions of the Study Area consists of a mixture of non-native annual grasses and mixed oak woodland. In general, the non-native grasslands are dominated by wild oat grass (*Avena* sp.), ripgut brome (*Bromus diandrus*, NL), foxtail brome (*Bromus madritensis*, UPL). Forbs in these areas included yellow starthistle (*Centaurea solstitialis*, NL) and mustard (*Hirschfeldia incana*, NL). Isolated patches within the annual grasslands supported a greater diversity of grasses and forbs, including purple needle grass (*Stipa pulchra*, NL), turkey-mullein (*Croton setiger*, NL), gumweed (*Grindelia camporum*, FACW), and narrow tarplant (*Holocarpha virgata*, NL). The mixed-oak woodlands supported species such as California buckeye (*Aesculus californica*, NL), live oak (*Quercus agrifolia*, NL) blue oak (*Quercus douglasii*, NL); field hedge parsley (*Torilis arvensis*, NL), and Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*, NL).

Wetlands within the Study Area generally contained sparse vegetation cover. The wetland area was dominated by spike rush (*Eleocharis macrostachya*, OBL) and annual beard grass (*Polypogon monspeliensis*, FACW). Patches of watercress (*Nasturium officinale*, OBL), iris leaved rush (*Juncus xiphioides*, OBL), and meadow barley (*Hordeum brachyantherum*, FACW) were also present within the mapped feature.

Seasonal wetlands are discussed in further detail in Section 5.1. A list of all plant species observed within the Study Area during the field survey is provided in Appendix D.

4.3 Soils

Online soil survey of the Study Area (CSRL 2018) indicate that the Study Area has seven native soil mapping units (Figure 2). Each soil mapping series is described in detail below.

Diablo Clay: The Diablo series consists of well drained, slow permeability soils with slow runoff when dry and medium to rapid when soils are moist. A typical Diablo series soil has dark gray, neutral and mildly alkaline, silty clay upper A horizons, gray and olive gray, calcareous, silty clay lower A horizons, and light olive gray, silty clay AC and C horizons that rest on shale. Diablo soils are on complex undulating, rolling to steep uplands with slopes of 5 to 50 percent. These soils are used for grazing and for production of dry farmed grain. Within the Study Area, Diablo clay creates slopes of two different inclines 30 to 45%.

Gaviota Rocky Sandy Loam: The Gaviota series consists of very shallow or shallow, well drained soils that formed in material weathered from hard sandstone or meta-sandstone. Gaviota soils are on hills and mountains and have slopes of 2 to 100 percent. The average annual precipitation is about 20 inches and the mean annual temperature is about 60 degrees F. A typical pedon has 3 horizons (A₁, A₂, and R) and is colored 7.5YR 5/4 for the top 10 inches. It is well or excessively well drained with very low to very high runoff. It has moderately rapid permeability. Within the Project Area, Gaviota rocky sandy loam occurs in slopes with 40 to 75% inclines.

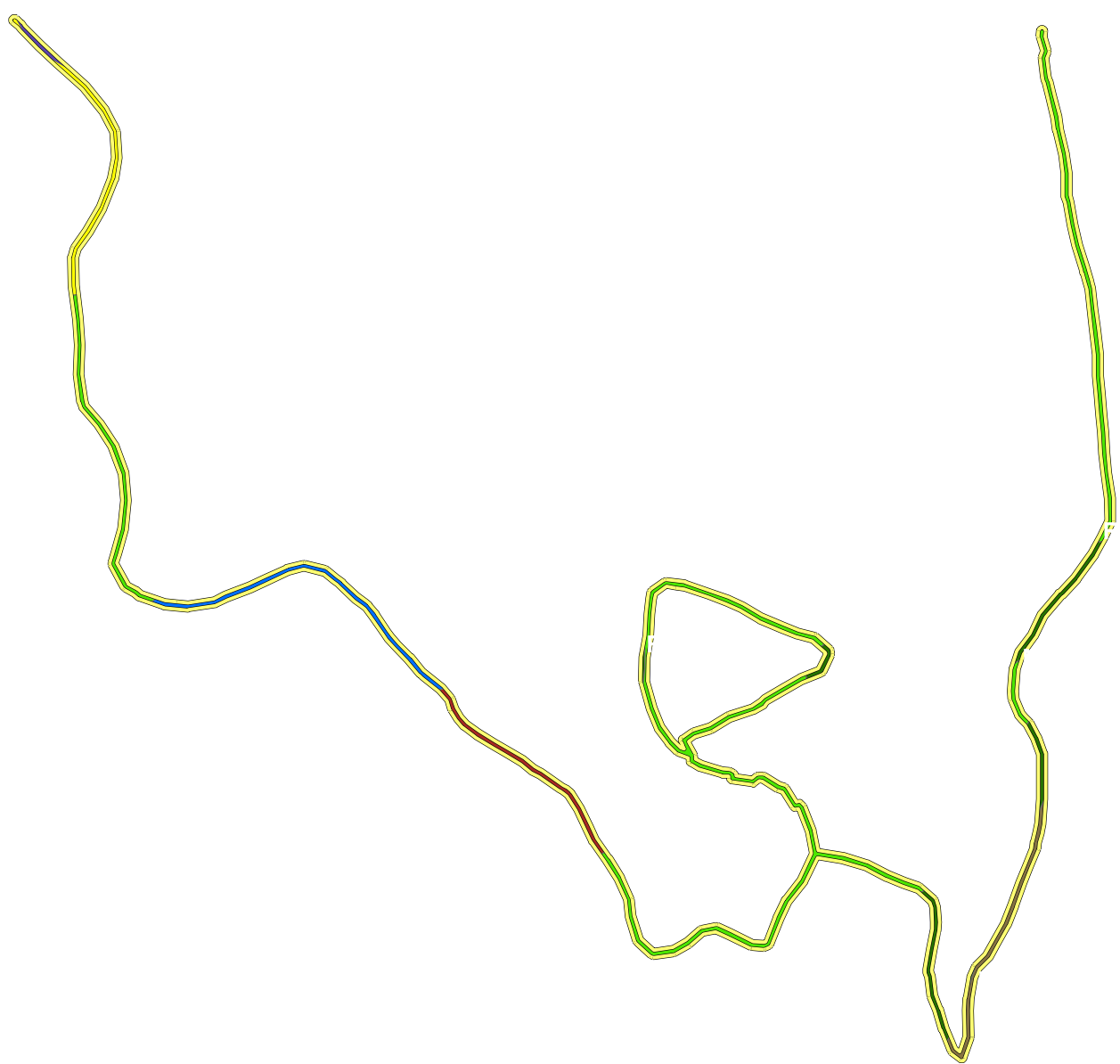
Linne Clay Loam: The Linne series consists of moderately deep, well drained soils on hills with slopes of 5 to 75 percent. They formed in material weathered from fairly soft shale and sandstone and have medium to very rapid runoff and moderately slow permeability. In a typical profile, the surface layer is composed of black (10YR 2/1), moderately alkaline clay loam to 9 inches in depth. This is underlain by black to very dark gray (10YR 3/1), moderately alkaline clay loam to 29 inches. From 29 to 32 inches, the soil is composed of gray and light brownish gray (10YR 5/1 and 6/2), moderately alkaline sandy clay loam. From 32 to 36 inches, the soil is composed of very pale brown and white (10YR 7/2 and 8/2) moderately alkaline fine sandy loam. Between 36 and 51 inches, the soil is comprised of light gray and pale yellow (2.5Y 7/2 and 8/4) moderately alkaline mudstone. Within the Study Area, Linne clay loam is found at inclines between 45 and 75%.

Los Gatos – Los Osos Complex. The Los Osos series consists of moderately deep, well-drained soils on uplands with slopes of 5 to 75 percent. They formed in material weathered from firm to hard sandstone and shale. These soils have very high runoff and slow permeability. A typical profile includes five soil horizons: A, Btss1, Btss2, C, and Cr.

The Los Gatos series is a member of the fine-loamy, mixed, mesic family of Typic Argixerolls. Typically, Los Gatos soils have brown, light clay loam, granular, slightly acid A1 horizons, brown and yellowish red, slightly and medium acid clay loam and gravelly clay loam Bt horizons over sandstone bedrock at a depth of 36 inches. The coloration of a typical pedon is 7.5YR 5/4 to approximately 25 inches deep. It is well-drained and has moderate permeability, producing rapid

Path: L:\Acad 2000 Files\28000\28062\GIS\ArcMap\Soils.mxd

- Project Area
- Soil Types:**
- DbE2: Diablo clay, 30 to 45 percent slopes, eroded
 - GaF2: Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded
 - LaE2: Linne clay loam, 30 to 45 percent slopes, eroded
 - LcF2: Linne clay loam, shallow, 45 to 75 percent slopes, eroded
 - LpF2: Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15
 - MhE2: Millsholm silt loam, 30 to 45 percent slopes, eroded
 - RoF: Rock land

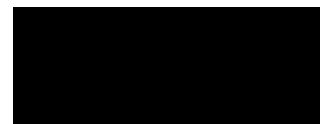


Sources: 2017 DigitalGlobe Aerial, SSURGO USGS, WRA | Prepared By: smortensen, 10/4/2018

Figure 2. Soils in the Project Area

Zone 7 Trail Project
Livermore, Alameda County, California

0 250 500 1,000
Feet



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to very rapid runoff. Los Gatos-Los Osos complex soils are found within the Study Area at eroded slopes between 30 and 75% grade, with portions falling within MLRA 15.

Millsholm Silt Loam. The Millsholm series consists of shallow, well drained soils that formed in material weathered from sandstone, mudstone and shale. Millsholm soils are on hills and mountains and have slopes of 5 to 75 percent. The mean annual precipitation is about 25 inches and the mean annual temperature is about 60 degrees F. A typical profile be brown in color (10YR 5/4) clay loam up to 16 inches deep, with moderate coarse subangular blocky structure. These soils are well-drained, with low to very high runoff and moderate permeability. Millsholm silt loam is found within the Study Area at 30 to 45% eroded slopes.

Rockland Soil Series. The Rockland series consists of well-drained soils formed in loamy colluvium from rotational landslides on slopes of stream valleys and dissections of ground moraines. Saturated hydraulic conductivity is moderate in the upper part of the profile and moderately slow in the lower part. Slopes range from 18 to 70 percent. Mean annual precipitation is about 810 millimeters and mean annual air temperature is about 5 degrees C. A typical profile has 6 horizons and contains buried twigs and other plant material as far down as 70 inches.

4.4 Hydrology

Seasonally, rainwater provides the dominant water source to the Study Area and surrounding area, which is surrounded by grassy hillsides. The main water source for the wetland present in the Study Area is a naturally occurring groundwater seep, which provides a perennial water source to the wetland. Up to three inches of standing water was observed on the soil surface within the wetland; however, depths may have been exaggerated by uneven microtopography caused by cattle walking through the wetland to access the nearby trough fed by a spring box at the origination of the seep.

The annual average rainfall for the Livermore climate station (NCDC #044997), approximately 5.3 miles north of the Study Area, is 14.64 inches (USDA 2018b). A WETS analysis for Livermore was performed prior to the field investigation. The three-month period preceding the field investigations was considered normal; July was wet, June was normal, and May was dry. The water year-to-date (October 1, 2017 through April 8, 2018) has been close to normal, with 14.06 inches of rain recorded, approximately 96 percent of normal for the entire water year (October 1 through September 30) (NOAA 2018).

5.0 RESULTS

Potential Section 404 and 401 jurisdictional areas are summarized in Table 1 and depicted in Appendix A. Vegetation, soils, and hydrology data collected during the delineation site visit are reported on standard Corps Arid West wetland delineation data forms and included in Appendix B. Photographs of representative portions of the Study Area and sample points are shown in Appendix C. A list of all plant species observed during the site visit is included in Appendix D.

5.1 Potential Section 404 Waters of the U.S.

5.1.1 Wetlands

The Study Area contains one wetland feature totaling approximately 0.08 acres. The wetland within the Study Area comprises a single wetland category, perennial emergent wetland, as illustrated in Appendix A.

Freshwater emergent wetland (PEM1B)

An approximately 0.08-acre perennial emergent wetland is present within the Study Area. The wetland was a linear feature that drained downslope from a perennial seep located at the base of the hills down to an ephemeral drainage feature. Ponded surface water was observed during the late August site visit, which is considered a wetland hydrology indicator according to the Corps Manual. A spring box was present at the top of the seep, which directed flow to an adjacent cattle trough. Cattle trails were present outside of the feature, and cattle hoof imprints were apparent along portions of the seep. Vegetation cover within the wetland feature is somewhat sparse and is dominated by a hydrophytic vegetation including a mixture of spikerush (OBL) and annual beard grass (FACW). Native plants including watercress (OBL), iris leaved rush (OBL), and wet meadow barley (FACW) were also present within the wetland.

The emergent wetland at the Study Area is situated on clay soils. Soils were typically brownish-black (10YR 2/1) with distinct to prominent lighter brown (10YR 3/6) and redder (7.5YR 6/3) redoximorphic mottles in the matrix at densities totaling 5 percent. Wetland soils qualified as hydric soils under criteria (F6) Redox Dark Surface (Corps 2008, USDA 2016). The boundary of the wetland was mapped primarily based on distinct changes in soil saturation and vegetation composition.

6.0 SUMMARY OF POTENTIAL JURISDICTIONAL AREAS

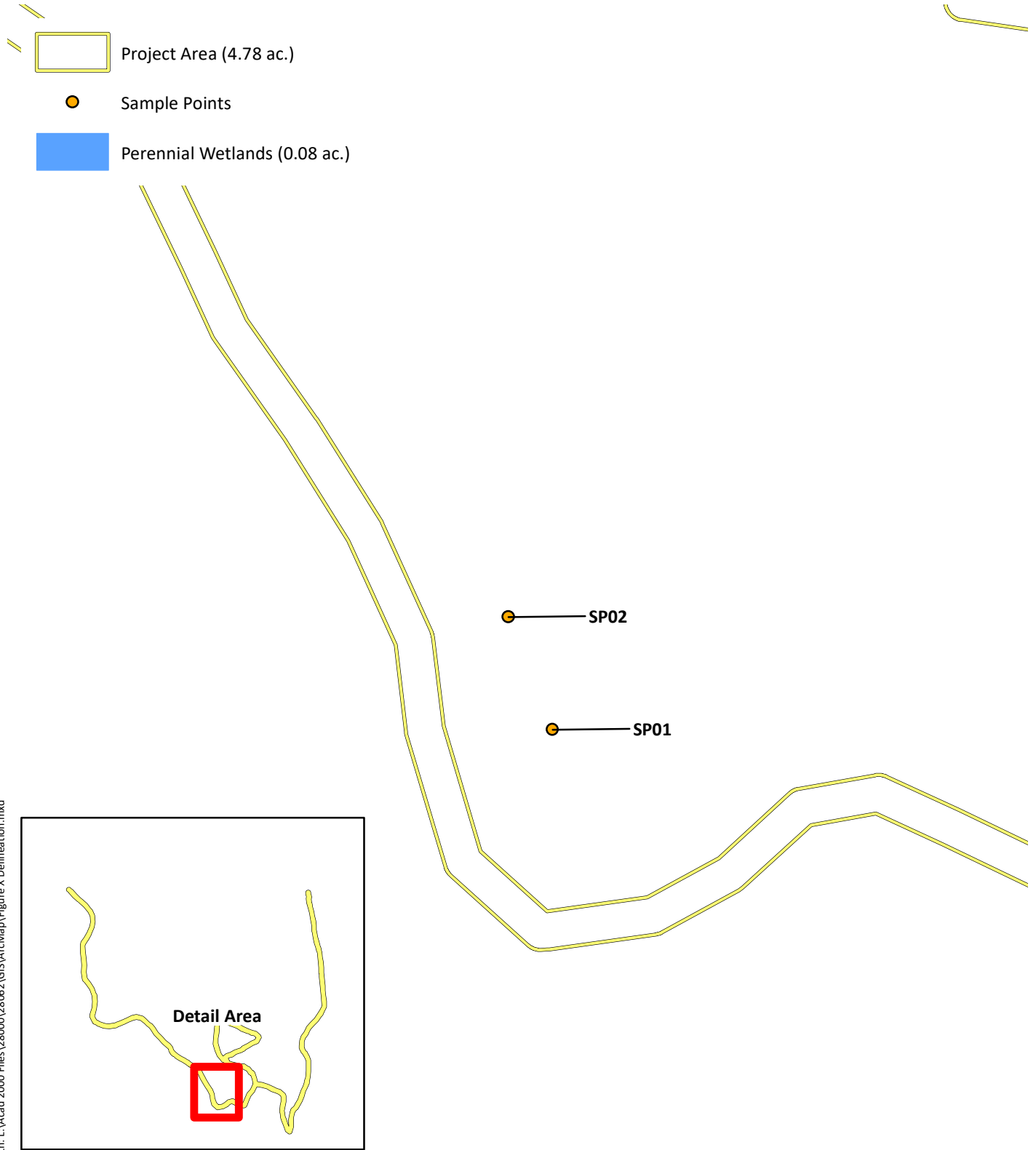
The conclusions of this report are based on conditions observed at the time of the field delineation conducted August 23, 2018. Based on the findings of the wetland delineation, the Study Area contains one approximately 0.08-acre perennial emergent wetland that is potentially jurisdictional by the Corps under Section 404 of the CWA, and by the RWQCB under Section 401 of the CWA and the Porter-Cologne Act. The area mapped as wetland was dominated by hydrophytic vegetation, with FAC, FACW, and OBL classified plants, and contained hydric soil and wetland hydrology indicators.

7.0 REFERENCES

- [CSRL] California Soil Resources Lab. 2017. UC Davis Soils Laboratory. Available at: <http://casoilresource.lawr.ucdavis.edu/drupal/>. Accessed: August 2018.
- [Corps] U.S. Army Corps of Engineers (Corps). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.
- [Corps] U.S. Army Corps of Engineers (Corps). 2008b. A Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States. August.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish & Wildlife Service, Washington, D.C. 131 pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- Google Earth. 2016. Aerial Imagery 1993-2018. Accessed: August 2018.
- Jepson Flora Project (eds.). 2017. Jepson eFlora. Online at: <http://ucjeps.berkeley.edu/IJM.html>; Accessed: August 2018.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Munsell Color. 2009. Munsell Soil Color Charts. Grand Rapids, MI.
- [NOAA] National Oceanic and Atmospheric Administration. 2018. National Climate Data Center: Climate Data Online. Climate station: Livermore Municipal Airport. Available online at: <http://www.ncdc.noaa.gov/cdo-web/>. Accessed August 2018.
- [USDA] U.S. Department of Agriculture. Natural Resources Conservation Service. 1995. WETS Table Documentation. NRCS, Water and Climate Center, Portland, OR. May 15, 1995.
- [USDA] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2016. Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.0, 2016.
- [USDA] United States Department of Agriculture. 2018a. National List of Hydric Soils. Natural Resources Conservation Service. December. Available online at: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>
- [USDA] U.S. Department of Agriculture, Natural Resources Conservation Service. 2018b. WETS Station Livermore NCDC #044997, 1971-2000 analysis. <http://agacis.rcc-acis.org/06111/wets/results>. Accessed: August 2018.
- [USFWS] U.S. Fish and Wildlife Service. 2017. National Wetlands Inventory website. U.S. Department of the Interior, USFWS, Washington, D.C. <http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed: August 2018.

[USGS] U.S. Geological Survey. 2012. La Costa Valley, California. 7.5-minute quadrangle topographic map.

APPENDIX A -- Preliminary Section 404 Jurisdiction Map

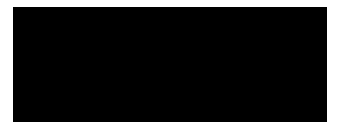


Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: smortensen, 10/4/2018

Appendix A. Preliminary Army Corps of Engineers Section 404 Jurisdiction Map

Zone 7 Trail Project
Livermore, Alameda County, California

0 50 100
Feet



APPENDIX B -- Arid West Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 28062/Zone 7 Trail Project City/County: Livermore/Alameda County Sampling Date: 08/23/2018
 Applicant/Owner: Zone 7 State: CA Sampling Point: SP1
 Investigator(s): S. Bennett, R. Scampavia, G. Sproull Section, Township, Range: Valle de San Jose - Sunol & Bernal Colonial Land
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alameda Area, California NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		
Remarks: The site consists of a wet seep emanating from a natural spring. The seep feeds into an ephemeral channel downhill. Patchy vegetation, dominated by Eleocharis macrostachya, is significantly disturbed by cow punch. Saturated clay soils exhibit redox features.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>none</u>	<u>0</u>			
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>none</u>	<u>0</u>			
2. _____				
3. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5'x5'</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Eleocharis macrostachya</u>	<u>27</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Nasturtium officinale</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. <u>Polypogon monspeliensis</u>	<u>1</u>	<u>N</u>	<u>FACW</u>	
4. <u>Hordeum brachyantherum</u>	<u>1</u>	<u>N</u>	<u>FACW</u>	
5. <u>unknown sp.</u>	<u>trace</u>	<u>N</u>		
6. _____				
7. _____				
8. _____				
<u>34</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. <u>none</u>	<u>0</u>			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>56</u> % Cover of Biotic Crust <u>10</u>				

Remarks:

Vegetation is dominated by Eleocharis macrostachya. Bare ground is mostly the result of cow punch. Patches of algal mat are present in undisturbed areas. Juncus xiphioides grows downstream of the sample point by an ephemeral creek.

SOIL

Sampling Point: SP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	95	10YR 4/6	5	C	M	clay	Roots present
2-14	10YR 2/1	95	10YR 3/6	3	C	M	clay	Few roots present
			7.5YR 6/3	2	C	M	clay	

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

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

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5) (**LRR C**)
☐ 1 cm Muck (A9) (**LRR D**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: none
 Depth (inches): n/a

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Clay soil exhibits redox concentrations in both layers. No hydrogen sulfide odor is detectable.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☒ Surface Water (A1)
☐ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1) (**Nonriverine**)
☐ Sediment Deposits (B2) (**Nonriverine**)
☐ Drift Deposits (B3) (**Nonriverine**)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
☒ Biotic Crust (B12)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 0
 Water Table Present? Yes ☐ No ☒ Depth (inches): n/a
 Saturation Present? Yes ☒ No ☐ Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Water source is a natural spring.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 28062/Zone 7 Trail Project City/County: Livermore/Alameda County Sampling Date: 08/23/2018
 Applicant/Owner: Zone 7 State: CA Sampling Point: SP2
 Investigator(s): S. Bennett, R. Scampavia, G. Sproull Section, Township, Range: Valle de San Jose - Sunol & Bernal Colonial Land
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alameda Area, California NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: The site is on a dry hillslope, dominated by annual grasses, which is adjacent to a wet seep described at SP1. Grasses and soil have been heavily trampled by cattle. No hydric soil or wetland hydrology indicators are present.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>none</u>	<u>0</u>			
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>none</u>	<u>0</u>			
2. _____				
3. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5'x5'</u>)				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus madritensis</u>	<u>33</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Bromus hordeaceus</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Hirschfeldia incana</u>	<u>5</u>	<u>N</u>	<u>NI</u>	
4. <u>Carduus pycnocephalus</u>	<u>2</u>	<u>N</u>	<u>NI</u>	
5. _____				
6. _____				
7. _____				
8. _____				
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. <u>none</u>	<u>0</u>			
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>30</u> % Cover of Biotic Crust <u>0</u>				

Remarks:

Annual grasses have been heavily trampled by cattle.

SOIL

Sampling Point: SP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	98	2.5YR 4/6	2	C	M	loam	Contains roots
2-12	10YR 2/1	95	2.5YR 4/6	5	C	M	loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: none
Depth (inches): n/a

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators were present. No hydrogen sulfide odor was detected.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No wetland hydrology indicators were present.

APPENDIX C -- Representative Site Photographs



Photograph 1. Image of Sample Point 01 showing hydrology, soil, and vegetation characteristics of the perennial wetland. Photograph taken August 23, 2018.



Photograph 2. Image of Sample Point 02, the upland sample point, did not have wetland hydrology, soil, or vegetation characteristics. Photograph taken August 23, 2018.



Photograph 3. The perennial wetland is located downhill of the seep box. Photograph was taken from south of the cattle trough, facing southwest. Photograph taken August 23, 2018.



Photograph 4. A cattle trough has been erected east of the mapped wetland. Photograph was taken south of the seep box, facing west. Photograph taken August 23, 2018.



Photograph 5. The wetland feature terminated in an oak woodland at the base of the hill. Photograph was taken facing uphill (south) towards the box seep. Photograph taken August 23, 2018.



Photograph 6. The soil profile at the mapped feature meets wetland requirements. Photograph taken August 23, 2018.

APPENDIX D -- List of All Plant Species Observed within the Study Area

Appendix D. List of All Plant Species Observed within the Study Area

Scientific Name	Common Name	Origin	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
<i>Achillea millefolium</i>	Yarrow	native	-	-	FACU
<i>Aesculus californica</i>	Buckeye	native	-	-	-
<i>Amaranthus albus</i>	Tumbleweed	non-native	-	-	FACU
<i>Artemisia californica</i>	Coastal sage brush	native	-	-	-
<i>Artemisia douglasiana</i>	California mugwort	native	-	-	FAC
<i>Avena fatua</i>	Wildoats	non-native (invasive)	-	Moderate	-
<i>Avena sativa</i>	Wild oat	non-native	-	-	UPL
<i>Avena sp.</i>	-	-	-	-	-
<i>Brassica nigra</i>	Black mustard	non-native (invasive)	-	Moderate	-
<i>Brassica sp.</i>	-	-	-	-	-
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	-	Moderate	-
<i>Bromus madritensis</i>	Foxtail chess, foxtail brome	non-native	-	-	UPL
<i>Carduus pycnocephalus ssp. pycnocephalus</i>	Italian thistle	non-native	-	-	-
<i>Centaurea solstitialis</i>	Yellow starthistle	non-native (invasive)	-	High	-
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	-	Moderate	FACU
<i>Clarkia sp.</i>	-	-	-	-	-
<i>Croton setiger</i>	Turkey-mullein	native	-	-	-
<i>Eleocharis macrostachya</i>	Spike rush	native	-	-	OBL
<i>Elymus caput-medusae</i>	Medusa head	non-native	-	-	-
<i>Elymus glaucus</i>	Blue wildrye	native	-	-	FACU
<i>Epilobium brachycarpum</i>	Willow herb	native	-	-	-
<i>Eriogonum sp.</i>	-	-	-	-	-
<i>Eschscholzia californica</i>	California poppy	native	-	-	-
<i>Festuca perennis</i>	Italian rye grass	non-native	-	-	FAC
<i>Grindelia camporum</i>	Gumweed	native	-	-	FACW
<i>Heteromeles arbutifolia</i>	Toyon	native	-	-	-
<i>Heterotheca sessiliflora</i>	Golden aster	native	-	-	-
<i>Hirschfeldia incana</i>	Mustard	non-native (invasive)	-	Moderate	-

<i>Holocarpha virgata</i>	Narrow tarplant	native	-	-	-
<i>Hordeum brachyantherum</i>	Meadow barley	native	-	-	FACW
<i>Juncus xiphioides</i>	Iris leaved rush	native	-	-	OBL
<i>Lactuca serriola</i>	Prickly lettuce	non-native (invasive)	-	-	FACU
<i>Lotus sp.</i>	-	-	-	-	-
<i>Mimulus aurantiacus</i>	Sticky monkeyflower	native	-	-	FACU
<i>Monardella villosa</i>	Coyote mint	native	-	-	-
<i>Nasturtium officinale</i>	Watercress	native	-	-	OBL
<i>Penstemon sp.</i>	-	-	-	-	-
<i>Polygonum aviculare</i>	Prostrate knotweed	non-native	-	-	FAC
<i>Polypogon monspeliensis</i>	Annual beard grass	non-native (invasive)	-	Limited	FACW
<i>Quercus agrifolia</i>	Coast live oak	native	-	-	-
<i>Quercus douglasii</i>	Blue oak	native	-	-	-
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	-	Limited	FAC
<i>Salvia mellifera</i>	Black sage	native	-	-	-
<i>Sambucus nigra ssp. caerulea</i>	Blue elderberry	native	-	-	FAC
<i>Silybum marianum</i>	Milk thistle	non-native (invasive)	-	Limited	-
<i>Sisyrinchium sp.</i>		native	-	-	-
<i>Stipa miliacea var. miliacea</i>	Smilo grass	non-native	-	-	-
<i>Stipa pulchra</i>	Purple needle grass	native	-	-	-
<i>Torilis arvensis</i>	Field hedge parsley	non-native (invasive)	-	Moderate	-
<i>Toxicodendron diversilobum</i>	Poison oak	native	-	-	FACU
<i>Trichostema lanceolatum</i>	Vinegarweed	native	-	-	FACU
<i>Trifolium hirtum</i>	Rose clover	non-native (invasive)	-	Limited	-
<i>Trifolium sp.</i>	-	-	-	-	-

APPENDIX C

Cultural Resource Report, Basin 2019



February 12, 2019



Jonathan Hidalgo, AICP
Senior Associate Environmental Planner
WRA, Inc.
4225 Hollis Street
Emeryville, CA 94608

RE: Cultural Resources Records Search and Field Review
Zone 7 Trail Project - Vicinity of U.S. Veteran's Administration Hospital and
Sycamore Grove Park, South Livermore, Alameda County

Dear Mr. Hidalgo,

Please let this letter stand as Basin Research Associates' (BASIN) cultural review of the Zone 7 Trail Project located in south Livermore in the immediate vicinity of the U.S. Veteran's Administration Hospital and the Livermore Area Recreation and Park District (LARPD) Sycamore Grove Park. The document was completed to comply with the requirements of the California Environmental Quality Act (CEQA) in regard to cultural resources.

The report was prepared to identify potentially significant cultural resources including archaeological, architectural or Native American, resources within or adjacent to the proposed trail alignment. The identification effort included: (1) a records search conducted by the California Historical Resources Information System, Northwest Information Center (CHRIS/NWIC) of the trail alignment and 0.25 mile area buffer; (2) a limited literature review; (3) an archaeological field inventory; (4) a review of the Native American Heritage Commission (NAHC) Sacred Lands File search and contact with locally knowledgeable Native Americans; (5) a field inventory of the trail alignment; and, (6) management recommendations.

PROJECT DESCRIPTION AND LOCATION

The project consists of minor trail maintenance of an informal trail used by wildlife and recreational hiking associated with Sycamore Grove Park. The area is bounded on the north by the LARPD Sycamore Grove Park and Veteran's Administration Hospital and on the east by Arroyo Road and the Wente Winery and Golf Course.

The very roughly "U" shaped trail starts approximately 2,000 feet west of a residential/maintenance area located to the southwest of the main Veteran's Administration hospital complex. The trail alignment continues roughly southeastward for 4,000 feet where it

heads north and then loops back to the main trail and continues south and then north to a termination point along a boundary fence and fire break approximately 1,000 feet west of Arroyo Road (vicinity of Wente Winery and Golf Course) (United States Geological Survey [hereafter USGS], La Costa Valley, CA [California] 7.5' quadrangle topographic maps, 1980, Township 4 South, Range 2 East, unsectioned) [Figs. 1-3].

REGULATORY BACKGROUND

Cultural resources include prehistoric and historic archaeological sites, districts, and objects; standing historic structures, buildings, districts, and objects; and locations of important historic events or sites of traditional and/or cultural importance to various groups. Cultural resources may be determined significant or potentially significant in terms of national, state, or local criteria either individually or in combination. Resource evaluation criteria are determined by the compliance requirements of a specific project.

Public agencies and private parties under CEQA must consider the effects of their actions on both “historical resources” and “unique archaeological resources.” Pursuant to California Public Resources Code (PRC) Section 21084.1, a “project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” PRC 21083.2 requires agencies to determine whether a proposed project would have an effect on “unique” archaeological resources. The project proponent as the lead state agency, is required to determine the potential impacts of the proposed construction on both historical and unique archaeological resources and mitigate impacts on any significant resources that may be affected by the project to a less than significant effect. The SHPO is the reviewing party.

RESEARCH PROTOCOLS

An archival record and literature search was conducted by the CHRIS/NWIC, Sonoma State University, Rohnert Park (File No. 18-0922 by Hagel dated 11/14/2018). Limited reference material available on the internet, the Bancroft Library at the University of California, Berkeley, and Basin Research Associates, San Leandro was also consulted. Sources included:

Historic Properties Directory for Alameda County (CAL/OHP 2012a);

National Register of Historic Places listings for Alameda County, California (USNPS 2018a-c);

Listed California Historical Resources (CAL/OHP 2018) with the most recent updates of the National Register of Historic Places; California Historical Landmarks; and, California Points of Historical Interest as well as other evaluations of properties reviewed by the State of California Office of Historic Preservation;

California History Plan (CAL/OHP 1973);

California Inventory of Historic Resources (CAL/OHP 1976);

Five Views: An Ethnic Sites Survey for California (CAL/OHP 1988);

Archaeological Determinations of Eligibility (CAL/OHP 2012b); and,

Various lists (Bazar 1993; Tri-Valley History Council 2011) and local planning documents including: *City of Livermore Community General Plan 1976-2000* (Livermore

1976-1992), *Livermore Draft General Plan* (LSA Associates 2003), *City of Livermore General Plan 2003-2025* (Livermore 2004/2014); *Alameda County General Plan Conservation Element* (1994), *Alameda County East County Area Plan* (2002) and *South Livermore Valley Area Plan* (Gates and Associates n.d.).¹

Selected historic maps (Goddard 1857; Higley 1857; Healy 1863; Thompson and West 1878; Oakland Tribune 1880; Hendry and Bowman 1940; USGS v.d.; US War Dept 1941).

RECORDS SEARCH RESULTS

No prehistoric, combined prehistoric/historic sites or historic era archaeological resources have been recorded or reported in or adjacent to the Zone 7 Trail Alignment or within 0.25 miles.

One built environment resource, P-01-010893, the Livermore Veterans Administration Hospital, 4951 Arroyo Road is within 0.25 mile of the Zone 7 Trail Alignment (Supernowicz 2001/form).

None of cultural resource reports on file at the CHRIS/NWIC include the project alignment. One report is mapped adjacent to the proposed project alignment.

Cultural Resources Reconnaissance of Sycamore Grove Regional park, Livermore, Alameda County, California (Wiberg and Reynolds 2001/S-23945).

LISTED RESOURCES IN/ADJACENT TO THE PROJECT

No local, state or federal historic properties, landmarks, etc. have been identified within or immediately adjacent to the Zone 7 Trail Alignment.

INDIVIDUALS, AGENCIES AND GROUPS CONSULTED

The Native American Heritage Commission (NAHC) was contacted for a search of the *Sacred Lands Inventory* on file with the Commission (Busby 2018) with negative results (Totton 2018). Queries via email soliciting additional information were sent to the eight Native Americans individuals/groups listed by the NAHC (Canzonieri 2019a-h) [see Attachments].

Four responses were received. One Native American (Ketchum) noted that the project area was outside of his tribal territory. One Native American (Perez) recommended monitoring by a qualified archaeologist and Native American. One Native American (Zwierlein) requested information on cultural resources in the area and was informed that another Native American had family based information on the area. Mr. Andrew Galvan (The Ohlone Tribe) indicated that the area along the arroyo was known as “camp comfort” based on family information and that proper protocols should be followed in the event of a discovery. He also recommended cultural sensitivity training for the construction crew in areas with a potential for prehistoric cultural materials. Furthermore, Mr. Galvan recommended that the archaeologists have experience with

1. The review determined that the project is to the south of the various Livermore plans.

northern and central California archaeology and that only a Native American monitor who can prove genealogical relationship to the Greater San Francisco Bay Area be used for monitoring.

SUMMARY BACKGROUND CONTEXT

NATIVE AMERICAN RESOURCES - *Prehistoric*

In northern California, human occupation extends back in time for at least 9,000-11,500 years BP with Native American occupation and use of the Bay Area extending over 5,000-8,000 years and possibly longer. Evidence for early occupation along the bayshores has been hidden by rising sea levels from about 15,000 to 7,000 years BP, or was buried under sediments caused by bay marshland infilling along estuary margins from about 7,000 years onward.

Prehistoric use of the general area was heavily influenced by the presence of springs, creeks and rugged terrain. Archaeological information suggests a slow steady increase in the prehistoric population within Central California over time with an increasing focus on permanent settlements with large populations in later periods. This change from hunter-collectors to an increased sedentary lifestyle is due both to more efficient resource procurement as well as a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasing complex social and political systems including long-distance trade networks.

NATIVE AMERICAN RESOURCES - *Ethnographic*

The project area was occupied by aboriginal inhabitants of the group known as the *Chochenyo* or the "Costanoan." Costanoan is derived from the Spanish word *Costanos* ("coast people" or "coastal dwellers") who occupied the central California coast as far east as the Diablo Range (Kroeber 1925; Hart 1987). Descendants of the Costanoans currently reside in the greater San Francisco Bay Area and now prefer to be referred to as *Ohlone* (Galvan 1967/68; A. Galvan, personal communication 1990).

The *Ohlone* were subdivided into tribelets. In 1770, these tribelets were politically autonomous groups containing some 50-500 individuals, with an average population of 200. Tribelet territories, defined by physiographic features, usually had one or more permanent villages surrounded by a number of temporary camps. The camps were used to exploit seasonally available floral and faunal resources (Levy 1978:485, 487).

The closest *Ohlone* tribelet was the *Sewnen* (El Valle) centered near Livermore (Bennyhoff 1977:Map 2 [*Seunen*]; Levy 1978:485, Fig. 1, #7). Milliken (1995) notes a number of *Ohlone* groups in the general project vicinity with the *Souyen* were the closest to the project area. The *Souyen* held the north side of the marsh that once existed in the western Livermore Valley and area north up the Tassajara Creek drainage into the southern foothills of Mount Diablo. Hall (n.d.:Map 1) places the *Ssouyen* [*sic*] between Las Positas Creek and the *Arroyo Mocho*.²

2. Their main or only village may have been located at archaeological site CA-ALA-28 along the *Arroyo Mocho* at the south edge of the valley or alternatively near the springs of Las Positas Creek (Hall n.d.:19).

No known Native American villages, traditional use areas or contemporary use areas have been identified in, adjacent or near the project (e.g., CAL/OHP 1988; Totton 2019).

HISTORIC ERA RESOURCES - Hispanic Period

The history of the general area can be divided into the Hispanic Period (Spanish Era 1769-1821 and the Mexican Era 1822-1846) followed by the American Period (1848-onward). During the Hispanic Period, Spanish government policy in northwestern New Spain was directed at the founding of presidios (forts), missions, and *pueblos* (secular towns) with the land held by the Crown while the later Mexican policy (1822-1846) stressed individual ownership of the land with grants of vast tracts of land to individual citizens (Hart 1987).

Spanish exploration lasted from 1769 to 1776. Early travelers through the general Livermore area included the expeditions of Pedro Fages and Father Crespi in 1772 and Anza and Font in 1776 (Beck and Haase 1974:#17, 20; Milliken 1995:33, Map. 3).

Milliken (2008:28) noted that the Native American villages observed by Fages in the Livermore Valley “probably belonged to the *Seunens*, *Pelnens*, or *Caburans*, all of whom lived in the present-day Dublin-Pleasanton vicinity.” Part of Fage’s route skirted the western edge of the Livermore Valley along the *Arroyo de la Laguna*, trending up the Amador and San Ramon valleys to the site of Concord, then on to the San Joaquin Valley and the other more traveled route crossed the Livermore Valley and passed through the hills into the San Joaquin Valley (Hoover et al. 1966:5-6).

The Second Expedition of Juan Bautista de Anza [1775-1776] (including Lt. Jose Moraga and Fray Pedro Font) followed the earlier route mapped by Fages in 1772 which skirted the foothills around the present-day Veterans Administration Hospital complex north of the proposed project (USNPS 1995:Sheet 46).

The favorable reports of the various exploring expeditions between 1769 to 1776 resulted in the founding of several missions in the Bay Area whose locations were selected with the purpose of conducting expeditions against “hostile Indians” as well as a serving as a place to convert them. The specific tribelet or village affiliation of converts was of minor consequence to the Mission fathers who, until 1803, identified their “new souls” simply by cardinal direction (Beck and Haase 1974; Hart 1987). Mission San Jose in the City of Fremont had the greatest effect on the Native Americans of the Livermore area and surrounding valleys which were primarily used for grazing land until the secularization of the California missions from 1834-1837.

The proposed trail alignment was within the *Rancho El Valle de San Jose* (Sunol & Bernal). *Rancho El Valle de San Jose* (N.D. #121) was granted to Antonio Maria Pico, Agustin Bernal and M.D. Bernal on February 23 and April 10, 1839 by Governor Juan B. Alvarado.³ The rancho was later confirmed to Antonio Sunol, Juan Bernal, and Agustin Bernal on March 15, 1856. None of the Hispanic Period known dwellings or features were located within or adjacent to the project alignment (Healy 1863; Hendry and Bowman 1940:630-639; Hoover et al.

3. Hoover et al. (1966:16) differs: granted to Antonio Maria Pico, brothers-in-law Agustin Bernal and Juan Pablo Bernal and sister-in-law Maria Dolores Bernal de Sunol.

1966:16-17). The *Rancho Del Valle de San Jose* is listed as a Cultural Resource in the *City of Livermore General Plan Update* (LSA Associates, Inc. 2003:186, Table 8-4).

HISTORIC ERA RESOURCES – American Period

The proposed project is located south of the City of Livermore, a railroad town, named in honor of early settler, Robert Livermore, a naturalized Mexican citizen of English birth who established viticulture and horticulture in the Amador Valley. William M. Mendenhall is credited with the developing the town plat around the “new” Central Pacific Railroad station. Though the post office was established as “Nottingham” in January 1869, it was renamed Livermore, the name officially adopted upon the town’s incorporation in 1876 (Mosier and Mosier 1986; Patera 1991).

A limited review of historic maps indicates no development in or adjacent to the proposed trail alignment (Thompson and West 1878; Oakland Tribune 1880; USGS v.d.; US War Dept 1941; Mosier and Mosier 1986:51). Goddard’s 1857 *Map of the State of California* shows “Livermore’s”, at the time as a rancho on the route to the Sierra Nevada gold mines through the Livermore Valley.

Livermore is the easternmost city in the greater San Francisco Bay Area with a residential, agricultural and technological/industrial/commercial base. It is a bedroom community for both the East Bay and San Francisco as well as an active agricultural area noted for its wineries, farm lands and ranches. Science and technology centers include the Lawrence Livermore National Laboratory and Sandia National Laboratories. Smaller industrial and commercial facilities’ are present serving both the general Bay Area and the global economy.

Livermore Veterans Administration Hospital Complex

A portion of the Livermore Veterans Administration Hospital complex (4951 Arroyo Road) is within the 0.25 mile records search buffer. The 221-acre facility, now part of the United States Department of Veterans Affairs (US/VA) Palo Alto Health Care System, opened in 1925 to treat tubercular patients. The original buildings constructed in the 1920s were demolished due to severe earthquake damage prior to World War II. The new hospital (Building #62) was completed in 1947 with a number of additions in the late 1970s and 1980. The complex now includes a Community Living Center (CLC) and administrative support building, but is to be decommissioned upon the completion of construction of facilities in Fremont, Stockton, and Palo Alto (Billat and Supernowicz 2008/S-34922a; Supernowicz 2008/form; Tri-Valley History Council 2011:133; US/VA 2018). The resource is recorded as P-01-010893 and appears eligible for the National Register of Historic Places (NRHP) under criteria a, b and c with a period of significance from 1847-1960.

FIELD REVIEW

An archaeological field inventory of the proposed trail alignment was conducted by Mr. Stuart A. Guedon (M.A.), Basin Research Associates on January 29, 2019. He was guided and accompanied by Mr. Eric Whiteside, Park Ranger, Livermore Area Recreation and Park District (LARPD).

The pedestrian field survey utilized 10 ± meter wide transects to visually inspect the trail alignment. Several minor rock outcrops were inspected, but had no evidence of cultural modification. Topography is rolling hills with several deep valleys. The northwest end of the trail is 1025± feet above sea level (ASL), the highest point in the trail is 1253± feet ASL, and the lowest part of the trail is 550± feet ASL at the LARPD Ranger Office adjacent to the Veteran's Administration Hospital complex at 4951 Arroyo Road. Approximately 75 percent of the trail is located in Grasslands with the remainder in Mixed Oak Woodland. At the time of the inventory, the area was in dense winter/spring grasses and weeds.

Visibility was very poor with little native soil available for inspection. None of the valleys near the trail had flowing water. An improved spring is located near the mid-point and highest point of the proposed trail.

No evidence of prehistoric and historic materials and/or culturally modified sediments was observed during the field review. No buildings/structures are within or adjacent to the proposed trail.

ARCHAEOLOGICAL SENSITIVITY / POTENTIAL

The project is located within an area of "moderate" sensitivity for archaeological resources (Quaternary Research Group 1976). This study used site records and reports on file with the CHRIS/NWIC for Alameda County to develop an archaeological sensitivity model for use by county planners in 1975 based on the presence/absence of resources as well as the perceived potential for resources. The model has not been updated for over 43 years to reflect the current data but is useful as an initial review of archaeological sensitivity.

The potential for inadvertent discoveries of buried archaeological deposits during subsurface construction appears very low based on the proposed project impacts, the local terrain and the lack of reported archaeological resources within, adjacent to or within 0.25 miles of alignment.

MANAGEMENT RECOMMENDATIONS

It is recommended, based on the review of current pertinent records, maps and other documents and the results of a field inventory, that the proposed project can proceed as planned in regard to prehistoric and historic archaeological resources.

- No subsurface testing for buried archaeological resources appears warranted.
- Archaeological sensitivity training for the construction crew does not appear warranted due to the low potential for the presence of intact subsurface prehistoric and/or historic deposits within the project alignment.
- If any significant cultural materials⁴ are exposed or discovered during either site

4. Prehistoric cultural materials may include:

- a. Human bone - either isolated or intact burials.
- b. Habitation (occupation or ceremonial structures as interpreted from rock rings/features, distinct ground depressions, differences in compaction (e.g., house floors).
- c. Artifacts including chipped stone objects such as projectile points and bifaces;

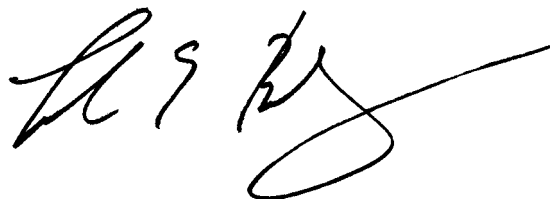
preparation or subsurface construction activities within the project alignment, operations should stop within 25 feet of the discovery and a qualified professional archaeologist contacted for further review, evaluation and recommendations.

- Monitoring by both a Professional Archaeologist and Native American may be required during further ground disturbing construction after an unexpected discovery.
- State law shall be followed in regard to Native American burials (Chapter 1492, Section 7050.5 to the Health and Safety Code, Sections 5097.94, 5097.98 and 5097.99 of the Public Resources Code).

CLOSING REMARKS

If I can provide any additional information or be of further service please don't hesitate to contact me.

Sincerely yours,
BASIN RESEARCH ASSOCIATES, INC.,



Colin I. Busby, Ph.D., RPA
Principal

CIB/dg

-
- d. groundstone artifacts such as manos, metates, mortars, pestles, grinding stones, pitted hammerstones; and, shell and bone artifacts including ornaments and beads.
 - d. Various features and samples including hearths (fire-cracked rock; baked and vitrified clay), artifact caches, faunal and shellfish remains (which permit dietary reconstruction), distinctive changes in soil stratigraphy indicative of prehistoric activities.
 - e. Isolated artifacts

Historic cultural materials may include finds from the late 19th through early 20th centuries. Objects and features associated with the Historic Period can include:

- a. Structural remains or portions of foundations (bricks, cobbles/boulders, stacked field stone, postholes, etc.).
- b. Trash pits, privies, wells and associated artifacts.
- c. Isolated artifacts or isolated clusters of manufactured artifacts (e.g., glass bottles, metal cans, manufactured wood items, etc.).
- d. Historic human remains.

In addition, cultural materials including both artifacts and structures that can be attributed to Hispanic, Asian and other ethnic or racial groups are potentially significant. Such features or clusters of artifacts and samples include remains of structures, trash pits, and privies.

REFERENCES CITED AND CONSULTED

- Alameda County Community Development Agency, Planning Department (**ALACoCDA/PD**)
 1994 County General Plan. Conservation Element. Adopted November 23, 1976 by the Alameda County Board of Supervisors. Amended May 5, 1994 by Board Resolution 94-272.
- 2002 East County Area Plan. A Portion of the Alameda County General Plan. May 2002 (date of last major revision).
- Bartlett, W.P. (editor, *Livermore Herald*)
 1889 Panoramic map key. Livermore Valley, California. January 1889, Looking Southeast. In Newton 1988 [inside of back cover].
- Bazar, Chris
 1993 Preliminary Inventory of Historical Resources: Eastern Alameda County. Prepared for the Alameda County Planning Department. December 1993. Copy on file, Basin Research Associates, San Leandro.
- Beck, W.A. and Y.D. Haase
 1974 Historical Atlas of California (Third printing). University of Oklahoma Press, Norman.
- Bennyhoff, J.A.
 1977 Ethnogeography of the Plains Miwok. Center for Archaeological Research at Davis Publication 5.
- Billat, Lorna and Dana E. Supernowicz (Historic Resource Associates)
 2008 Cultural Resources Study of the VA [Livermore Veterans Administration] Hospital Project Metro PCS, Inc. Site No. 15200B 4951 Arroyo Road, Livermore, Alameda County, California 94550. MS on file, S-34922a, CHRIS/NWIC, Sonoma State University, Rohnert Park.
- Busby, Colin I. (Basin Research Associates)
 2018 Native American Heritage Commission Sacred Lands File & Native American Contacts List Request: Zone 7 Trail, Livermore, Alameda County. Via email nahc@nahc.ca.gov on November 21, 2018.
- California (State of), Department of Parks and Recreation, Office of Historic Preservation (**CAL/OHP**)
 1973 The California History Plan. Volume One - Comprehensive Preservation Program. Volume Two - Inventory of Historic Features.
- 1976 California Inventory of Historic Resources.
- 1988 Five Views: An Ethnic Sites Survey for California.
- 2003 California Historical Resource Status Codes.

- 2012a [Historic Properties Directory] Directory of Properties in the Historic Property Data file for Alameda County. Dated 04/05/2012 [most recent as of 11/14/2018].
- 2012b Archeological Determinations of Eligibility for Alameda County. Dated 04/05/2012 2012 [most recent as of 11/14/2018 viewed by Hagel, CHRIS/NWIC].
- 2018 Listed California Historical Resources - Alameda County [including National Register, State Landmark, California Register, and Point of Interest]. <<http://ohp.parks.ca.gov/ListedResources/?view=county&criteria=1>> accessed 11/09/2018.
- Canzonieri, Christopher (Basin Research Associates)
- 2019a-h Email communications: Valentin Lopez, Chairperson, Amah/Mutsun Tribal Band, Galt; Edward Ketchum, Amah/Mutsun Tribal Band, Davis; Irenne Zwierlein, Chairperson, Amah/Mutsun Tribal Band of Mission San Juan Bautista, Woodside; Tony Cerda, Chairperson, Coastanoan Rumsen Carmel Tribe, Pomona; Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan, Hollister; Charlene Nijmeh, Chairperson, Muwekma Ohlone Tribe of the SF Bay Area, Castro Valley; Katherine Erolinda Perez, Chairperson, North Valley Yokuts Tribe, Linden; and, Andrew Galvan, The Ohlone Indian Tribe, Fremont. Regarding: Request for Information - Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road [Livermore] Alameda County.. Dated February 1, 2019.
- Galvan, P.M.
- 1967/68 People of the West: The Ohlone Story. Indian Historian 1(2):9-13.
- Gates & Associates
- n.d. South Livermore Valley Area Plan. Web, accessed 11/21/2018.
- Goddard, George
- 1857 Britton & Rey's Map of the State of California. Britton and Rey, San Francisco. Reprinted by The Friends of the Bancroft, University of California, Berkeley.
- Hagel, Lisa C. (CHRIS/NWIC staff)
- 2018 Records Search for [WRA-] Zone 7 Trail [south of Livermore, Alameda County]. CHRIS/NWIC File. No. 18-0922. Dated 11/14/2018. On file, Basin Research Associates, San Leandro.
- Hall, Alice L.
- n.d. An Ethnohistory of the Livermore Valley Ohlone: 1770-1900. MS on file, Basin Research Associates, San Leandro.
- Hart, J.D.
- 1987 A Companion to California (New edition, revised and expanded). University of California Press, Berkeley.

Healy, Charles T.

- 1863 Plat of the *Rancho Valle de San Jose* finally confirmed to Antonio Sunol, Juan Bernal and Augustin Bernal. Surveyed under instructions from the U.S. Surveyor General by Charles T. Healy, Dep[uty] Sur[veyor] March 1863. Containing 48,435 92/100 acres. On file, #121, United States California State Office, Department of Land Management, Sacramento.

Hendry, G.W. and J.N. Bowman

- 1940 The Spanish and Mexican Adobe and Other Buildings in the Nine San Francisco Bay Counties, 1776 to about 1850 [with map of Alameda County]. MS on file, Bancroft Library, University of California, Berkeley.

Higley, H.A.

- 1857 Official Map of the County of Alameda California. Surveyed and compiled by Order of the Board of Supervisors. Horace A. Higley. Britton and Rey, San Francisco.

Hoover, M.B., H.E. Rensch, E.G. Rensch and W.N. Abeloe

- 1966 Historic Spots in California (Third edition). Revised by William N. Abeloe. Stanford University Press, Palo Alto.

Kroeber, A.L.

- 1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Government Printing Office, Washington, D.C.

Kyle, Douglas E.

- 1990 Historic Spots in California (Fourth edition of M.B. Hoover, H.E. Rensch and E.G. Rensch). Stanford University Press, Stanford.

Levy, R.

- 1978 Costanoan. In *California*, edited by R.F. Heizer, Volume 8. Handbook of North American Indians, W.G. Sturtevant, general editor, pp. 485-497. Smithsonian Institution, Washington, D.C.

Livermore Area Recreation & Park District (**LARPD**)

- 2017 [Information regarding] Sycamore Grove Park. <
http://www.larpd.org/open_space/sycamore.html> accessed 6/23/2017.

Livermore, City of

- 1976-1992 City of Livermore Community General Plan 1976 - 2000 and amended by the City Council 1976 (and revised thorough December 1992) [Including Part IV, f. Archaeological Resources and g. Historical Resources and Table IV-2 Heritage Sites and Buildings, pages 119-124 and Fig. IV-1, pages 128-131.]
- 2004/2014 City of Livermore General Plan 2003-2025. Adopted February 9, 2004, amended thru December 2014. Web accessed 6/23/2017.

LSA Associates, Inc.

- 2003 Livermore Draft General Plan and Downtown Specific Plan Environmental Impact Report. Vol. I: Master Environmental Assessment (including Table 8-4 Cultural Resources within the Planning Areas and Fig. 8-2 Culturally Sensitive Areas). SCH No. #2003032038. June.

Milliken, Randall Theodore

- 1995 A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810. Ballena Press Anthropological Papers No. 43.
- 2006 The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area. Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways. MS on file, S-32596, CHRIS/NWIC, Sonoma State University, Rohnert Park.
- 2008 Native Americans at Mission San Jose. Malki-Ballena Press Publication, Banning.

Mosier, Page and Dan Mosier

- 1986 Alameda County Place Names. Mines Road Books, Fremont, California.

Newton, Janet

- 1987 Stories of the Vineyards and Wineries of the Livermore Valley (second edition, revised). Janet Newton, Livermore.

Newton, Janet with Larry and Treva Mauch

- 1988 The Livermore Valley, 1878, 1889 (second edition; including 1889 W.P. Bartlett panoramic map key of Livermore Valley). Janet Newton, n.p. Livermore History Center, Livermore.

Oakland Tribune [The]

- 1880 Oakland Daily & Weekly Tribune Map of Alameda County. Compiled from the most reliable surveys, and corrected to date. Tribune Publishing Company, Oakland.

Patera, Edward L. (editor)

- 1991 History of California Post Offices 1849-1990 (Second edition). The Depot, n.p. (Salley, H.E. and E.L. Patera, researchers).

Quaternary Research Group

- 1976 Archaeology in Alameda County: A Handbook for Planners (written and designed by D.P. Miller). Alameda County Planning Department, Hayward.

Supernowicz, Dana E. (Historic Resource Associates)

- 2001 Primary Record and Building, Structure, and Object Record forms, P-01-010893 (Livermore Veterans Administration Hospital, 4951 Arroyo Road, Livermore). On file, CHRIS/NWIC, Sonoma State University, Rohnert Park.

Thompson and West

- 1878 Official Historical Atlas Map of Alameda County, California. Thompson and West, Oakland (reprinted by Valley Publishers, Fresno, 1976).

Totton, Gayle (Native American Heritage Commission) (**NAHC**)

- 2018 RE: Proposed Zone 7 Trail, Livermore, Alameda County. Dated November 26, 2018.

Tri-Valley History Council

- 2011 Tri-Valley Directory of Historical Resources and Places of Interest [Alamo, Danville, Dublin, Livermore, Pleasanton, San Ramon, and Sunol]. September.

United States [Department of Interior] Geological Survey (**USGS**)

- 1906 Pleasanton Quadrangle. Topographic map, 15-minute series (surveyed 1904).
 1961 Livermore, Calif. [Quadrangle]. Topographic map, 15-minute series.
 1980 Livermore, Calif. (Quadrangle). Topographic map, 7.5-minute series (1961, photorevised 1980).
 1978 La Costa Valley, Calif. (Quadrangle). Topographic map, 7.5-minute series (1968, photoinspected 1978).
 1996 La Costa Valley, Calif. (Quadrangle). Topographic map, 7.5-minute series (photorevised 1996).

United States Department of the Interior, National Register of Historic Places, National Park Service (**USNPS**)

- 1995 Map Supplement for the Comprehensive Management and Use Plan Juan Bautista de Anza National Historic Trail Arizona California. Pacific Great Basin Support Office, National Park Service. [San Francisco].
 2018a-c National Register of Historic Places Database and Research – Data Downloads. Spreadsheets: Multiple Property Cover Documents (to 10/19/2018); National Historic Landmarks and National Register Listed (to 10/17/2018). Web accessed 11/09/2018.

United States Department of Veterans Affairs (**US/VA**)

- 2018 VA Palo Alto Health Care System. Livermore.
https://www.paloalto.va.gov/construction_livermore.asp accessed 11/14/2018.

United States War Department, Corps of Engineers (**US War Dept**)

- 1941 Pleasanton, Calif. [quadrangle]. Topographic map, 15 minute series (aerial photography 1937, map prepared 1941)]. United States Geological Survey, Menlo Park.

Wiberg, Randy S. and Alisa Reynolds (Holman & Associates)

- 2001 Cultural Resources Reconnaissance of Sycamore Grove Regional park, Livermore, Alameda County, California. MS on file, S-23945, CHRIS/NWIC, Sonoma State University, Rohnert Park.

Wood, M.W.
1883 History of Alameda County, California. M.W. Wood, Oakland.

Abbreviations

n.d. no date v.d. various dates N.P. no publisher noted
n.p. no place of publisher noted

CHRIS/NWIC, Sonoma State University, Rohnert Park is used for material on file at the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park.

ATTACHMENTS

FIGURES

FIGURE 1	General Project Location (ESRI World Street Map)
FIGURE 2	Proposed Trail T 4S R 2E Unsectioned (USGS Livermore, Calif. 1980 and La Costa Valley, CA 1996)
FIGURE 3	Trail Alignment with Photo View Locations
FIGURE 4	View south along the west side of the project area from the northwest end of the proposed trail
FIGURE 5	View southeast along the west side of the proposed trail
FIGURE 6	View southwest towards the proposed trail and improved spring
FIGURE 7	View southwest towards the proposed trail from trail loop
FIGURE 8	View south towards the southeast corner of the proposed trail
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FIGURE 10	View south along the proposed trail on the east side of the project
FIGURE 11	View south along the east side of the project, from the northeast end of the proposed trail

CORRESPONDENCE

LETTER	Letter to Native American Heritage Commission
LETTER2	Response from Native American Heritage Commission
EMAILS	Emails to Native American Recommended by the Native American Heritage Commission
MEMO	Native American Responses

SEARCH

Search	CHRIS/NWIC File No. 18-0922 dated November 14, 2018 (No Confidential Information)
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Figure 1: General Project Location (ESRI World Street Map)

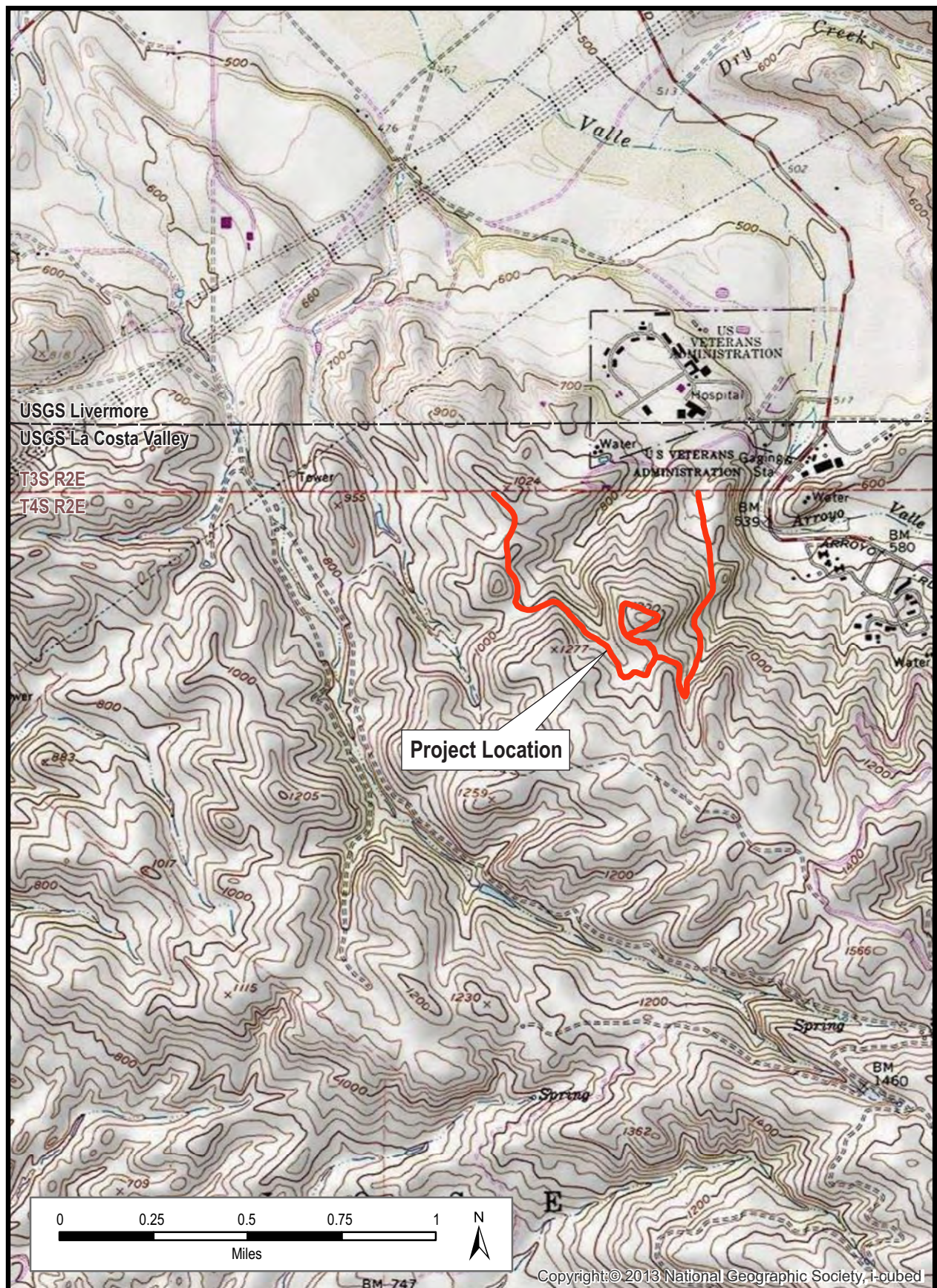
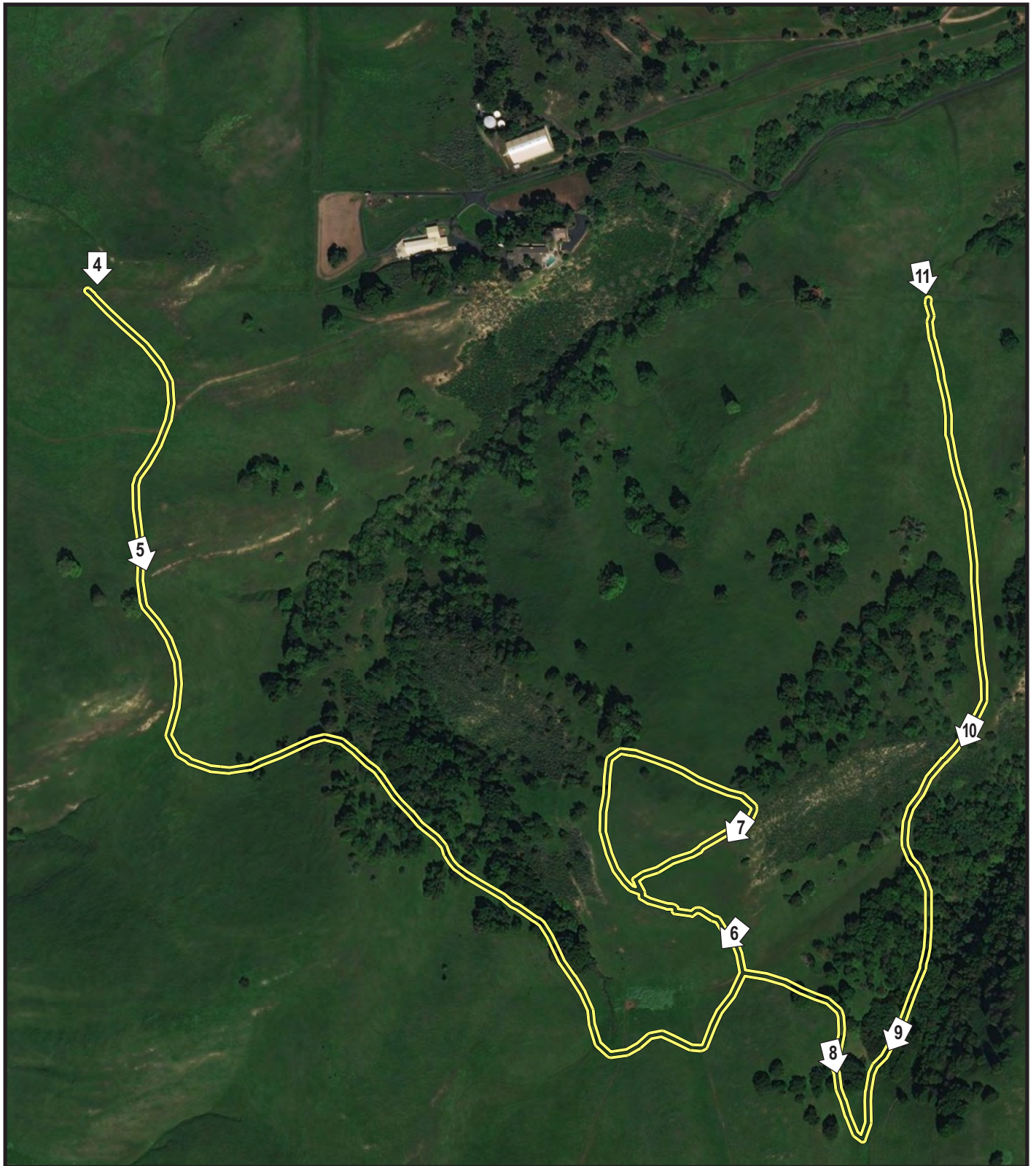


Figure 2: Proposed Trail T4S R2E Unsectioned (USGS Livermore, Calif. 1980 and La Costa Valley, CA 1996)



Sources: 2017 DigitalGlobe Aerial, SSURGO USGS, WRA | Prepared By: smortensen, 10/4/2018

Zone 7 Trail Project
Livermore, Alameda County, California

0 250 500 1,000
Feet



Figure 3: Project Alignment with Photo View Locations



Figure 4: View south along the west side of the project area from the northwest end of the proposed trail



Figure 5: View southeast along the west side of the proposed trail



Figure 6: View southwest towards the proposed trail and improved spring



Figure 7: View southwest towards the proposed trail from trail loop



Figure 8: View south towards the southeast corner of the proposed trail



Figure 9: View southwest along the southernmost stretch of the proposed trail



Figure 10: View south along the proposed trail on the east side of the project



Figure 11: View south along the east side of the project, from the northeast end of the proposed trail

Sacred Lands File & Native American Contacts List Request
NATIVE AMERICAN HERITAGE COMMISSION

1556 Harbor Boulevard, STE 100

West Sacramento, CA 95691

(916) 373-3710

(916) 373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Zone 7 Trail, Livermore

County: Alameda County

USGS Quadrangle Name: USGS La Costa Valley, CA 1996

Address: South of US Veterans Hospital, Livermore - 4951 Arroyo Road,
Livermore

Township: 3S, **Range:** 2E, unsectioned

Company/Firm/Agency: Basin Research Associates

Contact Person: Colin I. Busby, PhD, RPA

Street Address: 1933 Davis Street, STE 210

City/Zip: San Leandro, CA 94577

Phone: (510) 430-8441 x202

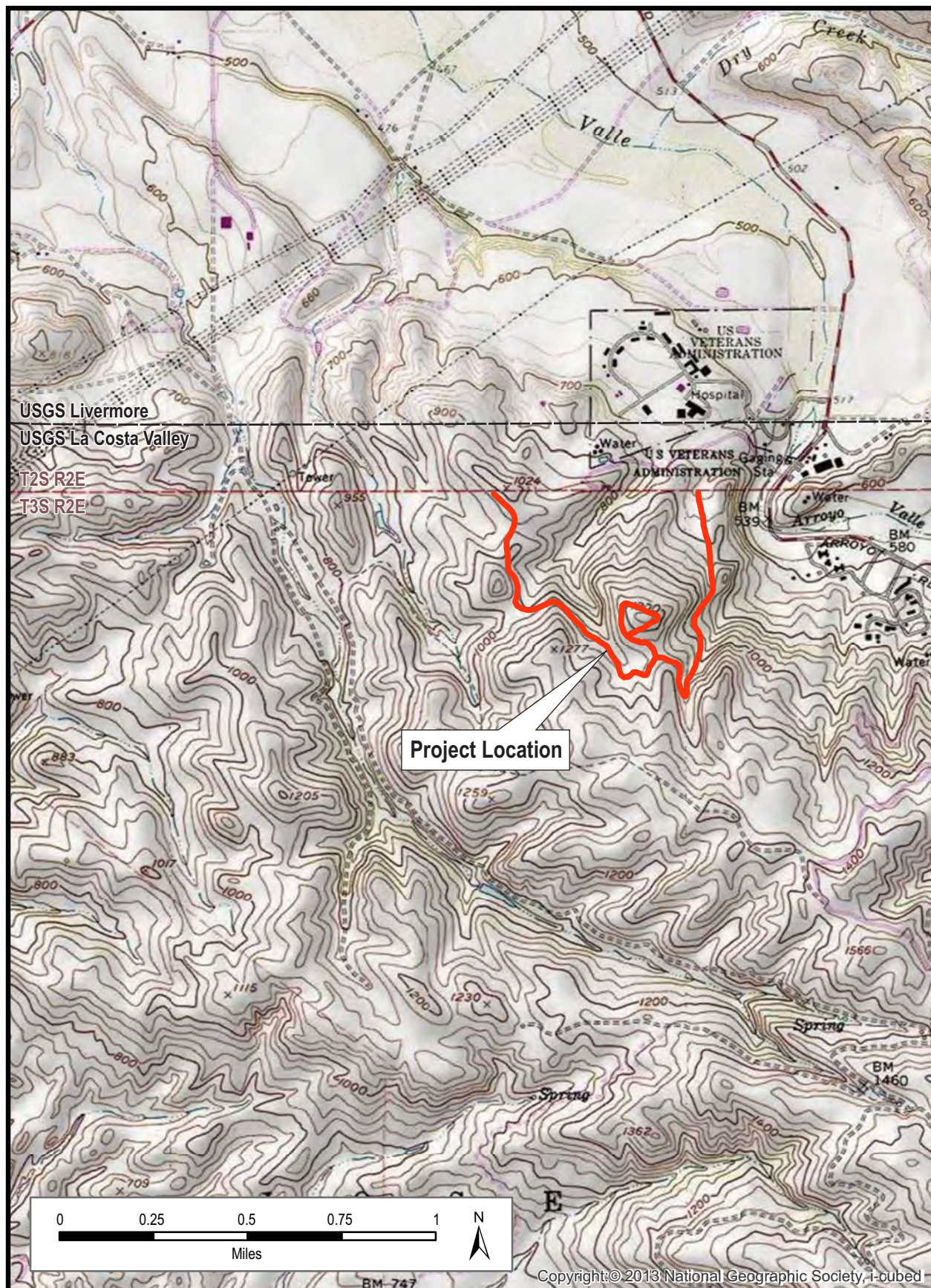
Fax: (510) 430-8443

Email: basinres1@gmail.com

Project Description:

Minor trail maintenance to rehab informal hiking and wildlife trail for use.

11/21/18



Proposed Trail T3S R2E Unsectioned (USGS Livermore, Calif. 1980 and La Costa Valley, CA 1996)

NATIVE AMERICAN HERITAGE COMMISSION

Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710



November 26, 2018

Dr. Colin I. Busby
Basin Research Associates

Sent by E-mail: basinres1@gmail.com

RE: Proposed Zone 7 Trail Project, City of Livermore; La Costa Valley USGS Quadrangle,
Alameda County, California

Dear Dr. Busby:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

A handwritten signature in cursive script that reads "Gayle Totton".

Gayle Totton, M.A., Ph.D.
Associate Governmental Program Analyst
(916) 373-3714

CONFIDENTIALITY NOTICE: This communication with its contents may contain confidential and/or legally privileged information. It is solely for the use of the intended recipient(s). Unauthorized interception, review, use or disclosure is prohibited and may violate applicable laws including the Electronic Communications Privacy Act. If you are not the intended recipient, please contact the sender and destroy all copies of the communication.

**Native American Heritage Commission
Native American Contact List
Alameda County
11/26/2018**

Amah Mutsun Tribal Band

Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916) 743 - 5833
vlopez@amahmutsun.org

Costanoan
Northern Valley
Yokut

North Valley Yokuts Tribe

Katherine Erolinda Perez,
Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net

Costanoan
Northern Valley
Yokut

Amah Mutsun Tribal Band

Edward Ketchum,
35867 Yosemite Ave
Davis, CA, 95616
aerieways@aol.com

Costanoan
Northern Valley
Yokut

The Ohlone Indian Tribe

Andrew Galvan,
P.O. Box 3152
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com

Bay Miwok
Costanoan
Patwin
Plains Miwok

***Amah Mutsun Tribal Band of
Mission San Juan Bautista***

Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA, 94062
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com

Costanoan

***Costanoan Rumsen Carmel
Tribe***

Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com

Costanoan

***Indian Canyon Mutsun Band of
Costanoan***

Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org

Costanoan

***Muwekma Ohlone Indian Tribe
of the SF Bay Area***

Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 464 - 2892
cnijmeh@muwekma.org

Costanoan

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Zone 7 Trail Project, Alameda County.

**Native American Heritage Commission
Native American Contact List
Alameda County
11/26/2018**

*** Amah Mutsun Tribal Band**

Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916) 743 - 5833
vlopez@amahmutsun.org

Costanoan
Northern Valley
Yokut

*** North Valley Yokuts Tribe**

Katherine Erolinda Perez,
Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net

Costanoan
Northern Valley
Yokut

*** Amah Mutsun Tribal Band**

Edward Ketchum,
35867 Yosemite Ave
Davis, CA, 95616
aerieways@aol.com

Costanoan
Northern Valley
Yokut

*** The Ohlone Indian Tribe**

Andrew Galvan,
P.O. Box 3152
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com

Bay Miwok
Costanoan
Patwin
Plains Miwok

*** Amah Mutsun Tribal Band of Mission San Juan Bautista**

Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA, 94062
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com

Costanoan

*** Costanoan Rumsen Carmel Tribe**

Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com

Costanoan

Canz emailed on 2/1/2019
from 11:53 AM to 12:04 PM

*** Indian Canyon Mutsun Band of Costanoan**

Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org

Costanoan

*** Muwekma Ohlone Indian Tribe of the SF Bay Area**

Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 464 - 2892
cnijmeh@muwekma.org

Costanoan

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Zone 7 Trail Project, Alameda County.

Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

The project consists of minor maintenance to rehabilitate an informal hiking and wildlife trail for continuing use.

No archaeological or historic resources have been recorded and a field inventory of the trail did not observe any resources.

Could you please let us know if you have any additional information or concerns regarding the proposed project. Please send an email to Christopher Canzonieri at Basin Research Associates (canz@basinresearch.com).

Thanking you in advance for your assistance.

Christopher Canzonieri

Subject: Re: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
From: Aerieways <aerieways@aol.com>
Date: 2/4/2019, 12:18 AM
To: canz@basinresearch.com

Hello Chris,

The lands of the South Veterans Hospital is on lands once controlled by Chocheyo speakers, These people, by agreement, are now represented by Muwekma Tribal Band. I suggest you speak with their representative, Alan Leventhal.

Ed Ketchum
Amah Mutsun Tribal Band
Historian

-----Original Message-----

From: Chris Canzonieri <basinres1@gmail.com>
To: Ed Ketchum <aerieways@aol.com>
Cc: Christopher Canzonieri <canz@basinresearch.com>; Colin Busby <colinbusby@basinresearch.com>
Sent: Fri, Feb 1, 2019 11:53 am
Subject: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County

Mr. Ketchum,

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

The project consists of minor maintenance to rehabilitate an informal hiking and wildlife trail for continuing use.

No archaeological or historic resources have been recorded and a field inventory of the trail did not observe any resources.

Could you please let us know if you have any additional information or concerns regarding the proposed project. Please send an email to Christopher Canzonieri at Basin Research Associates (canz@basinresearch.com).

Thanking you in advance for your assistance.

Christopher Canzonieri

--

Christopher Canzonieri, M.A., RPA
Lead Physical Anthropologist and Project Archaeologist
Basin Research Associates, Inc.
1933 Davis Street, Suite 215
San Leandro, CA 94577-1258
Office: (510) 430-8441 ext 107
Fax: (510) 430-8443
Primary Cell: (925) 548-1002
Cell: (510) 220-1822
canz@basinresearch.com
www.basinresearch.com

Subject: Re: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
From: Irenne Zwierlein <irenezwierlein@gmail.com>
Date: 2/1/2019, 5:09 PM
To: Chris Canzonieri <canz@basinresearch.com>
CC: Colin Busby <colinbusby@basinresearch.com>

Thank you for the information.
Is there any sites in the area
same old infor if there is not

On Fri, Feb 1, 2019 at 11:57 AM Chris Canzonieri <basinres1@gmail.com> wrote:

Dear Irenne,

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

The project consists of minor maintenance to rehabilitate an informal hiking and wildlife trail for continuing use.

No archaeological or historic resources have been recorded and a field inventory of the trail did not observe any resources.

Could you please let us know if you have any additional information or concerns regarding the proposed project. Please send an email to Christopher Canzonieri at Basin Research Associates (canz@basinresearch.com).

Thanking you in advance for your assistance.

Christopher Canzonieri

--

Christopher Canzonieri, M.A., RPA
Lead Physical Anthropologist and Project Archaeologist
Basin Research Associates, Inc.
1933 Davis Street, Suite 215
San Leandro, CA 94577-1258
Office: (510) 430-8441 ext 107
Fax: (510) 430-8443
Primary Cell: (925) 548-1002
Cell: (510) 220-1822
canz@basinresearch.com
www.basinresearch.com

Virus-free. www.avast.com

—
Irenne Zwierlein

The contents of this message, together with any attachments, are intended only for the use of the individual or entity to which they are addressed and may contain information that is legally privileged, confidential and exempt from disclosure. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this message, or any attachment, is strictly prohibited. If you have received this message in error, please notify the original sender.

Subject: Re: Contact Info For Munoz Sisters
From: Chris Canzonieri <canz@basinresearch.com>
Date: 2/6/2019, 12:49 PM
To: Desiree Munoz <desireemunoz.dm92@gmail.com>
CC: Carla Munoz <Carlamarieohlone@gmail.com>

Hi Desiree and Carla,

I have been working with Andy Galvan for close to 20 years, and he speaks very highly of you. He informed me that the two of you are now handling Tony Cerda's correspondences. I recently sent an email out for a project in Livermore (see attached map) to Mr. Cerda. I will continue to send email correspondences to him in the future for projects (unless you direct me otherwise), but I will also cc the two of you.

Basin Research completed a field survey and literature search at the clearing house in Sonoma and we also contacted the NAHC. There is no record of any sites within the project area. However, Andy Galvan did note that the area around the arroyo did serve as a prehistoric village and was historically occupied during the mission and rancho periods. The email sent to Mr. Cerda is as follows:

Dear Mr. Cerda,

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

The project consists of minor maintenance to rehabilitate an informal hiking and wildlife trail for continuing use.

No archaeological or historic resources have been recorded and a field inventory of the trail did not observe any resources.

Could you please let us know if you have any additional information or concerns regarding the proposed project. Please send an email to Christopher Canzonieri at Basin Research Associates (canz@basinresearch.com).

Thanking you in advance for your assistance.

Christopher Canzonieri

On 2/6/2019 12:36 PM, Desiree Munoz wrote:

Hey Christopher,

It's very nice to meet you. I can be reached at this email: desireemunoz.dm92@gmail.com and cell is 1(909)491-8254 and my sister Carla Marie can be reached at Carlamarieohlone@gmail.com or 1(415)690-3110. I look forward to your email.

Best,
Desiree

On Wed, Feb 6, 2019 at 10:03 AM Andrew Galvan <chochenyo@aol.com> wrote:
Hi Christopher,

Tony Cerda's granddaughters can be reached via email as below:

Desiree Munoz: desireemunoz.dm92@gmail.com

And, Carla Munoz:
Carlamarieohlone@gmail.com

Carla and Desiree, let me introduce you to Archaeologist Christopher Canzonieri. Chris works for BASIN Research Associates in San Leandro.

Hopefully, he will be able to obtain cultural resources information from either of you.

Andy

Sent from my iPhone

On Feb 6, 2019, at 9:35 AM, Chris Canzonieri <basinres1@gmail.com> wrote:

Andy,

Need contact to Munoz sisters

--

Christopher Canzonieri, M.A., RPA
Lead Physical Anthropologist and Project Archaeologist
Basin Research Associates, Inc.
[1933 Davis Street, Suite 215](#)
[San Leandro, CA 94577-1258](#)
[Office: \(510\) 430-8441 ext 107](#)
[Fax: \(510\) 430-8443](#)
[Primary Cell: \(925\) 548-1002](#)

Cell: (510) 220-1822
canz@basinresearch.com
www.basinresearch.com

Virus-free. www.avast.com

--

Desiree Munoz
Costanoan Rumsen Carmel Tribe (Ohlone)
Tribal Representative/Program Organizer

--

Christopher Canzonieri, M.A., RPA
Lead Physical Anthropologist and Project Archaeologist
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canz@basinresearch.com
www.basinresearch.com

— Attachments: —

Map - Zone 7 Trail Livermore Feb 2019-1.pdf

598 KB

Subject: Read: RE: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
From: Charlene Nijmeh <cnijmeh@muwekma.org>
Date: 2/1/2019, 12:46 PM
To: Chris Canzonieri <canz@basinresearch.com>

Your message

To: Charlene Nijmeh
Subject: RE: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
Sent: Friday, February 1, 2019 12:02:30 PM (UTC-08:00) Pacific Time (US & Canada)

was read on Friday, February 1, 2019 12:46:58 PM (UTC-08:00) Pacific Time (US & Canada).

Final-recipient: RFC822; cnijmeh@muwekma.org
Disposition: automatic-action/MDN-sent-automatically; displayed
X-MSEch-Correlation-Key: UigjSneIwEGDzQwxWusI7A==
Original-Message-ID: <45fdfebf-2709-1af3-90b0-c8f700137f14@basinresearch.com>
X-Display-Name: Charlene Nijmeh

Subject: Re: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
From: Katherine Perez <canutes@verizon.net>
Date: 2/6/2019, 10:51 AM
To: canz@basinresearch.com

Chris,
Thanks
Katherine Perez

Sent from my iPhone

On Feb 6, 2019, at 9:29 AM, Chris Canzonieri <basinres1@gmail.com> wrote:

Kathy,

Thank you, we will include your recommendations. The project consents mostly of trail maintenance on the existing trail alignment.

Chris

On 2/6/2019 9:05 AM, canutes@verizon.net wrote:

Hi Chris,

We received your email regarding the Veteran Hospital. Although the report for cultural sensitives and your survey was negative. The Tribe is recommending that the proposed project be monitored by both a qualified archaeological firm and a Native American Monitor as there is a potential for in-advert discovery.

Nototomne Cultural Preservation
Northern Valley Yokut / Ohlone / Bay Miwuk
Katherine Perez
P.O Box 717
Linden, CA 95236
Cell: 209.649.8972
Email: canutes@verizon.net

-----Original Message-----

From: Chris Canzonieri <basinres1@gmail.com>
To: Katherine Perez <canutes@verizon.net>
Cc: Christopher Canzonieri <canz@basinresearch.com>; Colin Busby <colinbusby@basinresearch.com>
Sent: Fri, Feb 1, 2019 12:03 pm
Subject: RE: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County

Dear Kathy,

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

The project consists of minor maintenance to rehabilitate an informal hiking and wildlife trail for continuing use.

No archaeological or historic resources have been recorded and a field inventory of the trail did not observe any resources.

Could you please let us know if you have any additional information or concerns regarding the proposed project. Please send an email to Christopher Canzonieri at Basin Research Associates (canz@basinresearch.com).

Thanking you in advance for your assistance.

Christopher Canzonieri

--

Christopher Canzonieri, M.A., RPA
Lead Physical Anthropologist and Project Archaeologist
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Cell: (510) 220-1822
canz@basinresearch.com
www.basinresearch.com

Subject: Re: Project: Zone 7 Trail Maintenance – South of Veterans Hospital, Arroyo Road, Livermore, Alameda County
From: Andrew Galvan <chochenyo@aol.com>
Date: 2/1/2019, 1:25 PM
To: canz@basinresearch.com
CC: Colin Busby <colinbusby@basinresearch.com>

My father's uncle Dario Marin identified the area along the arroyo as "camp comfort"

It is a pre contact, contact and post mission/ranch period site

Andy

Sent from my iPhone

On Feb 1, 2019, at 12:04 PM, Chris Canzonieri <basinres1@gmail.com> wrote:

Dear Andy,

The Native American Heritage Commission has provided your name as a person who may have additional information on Native American resources for a trail south of the US Veterans Administration Hospital located at 4951 Arroyo Road, Livermore, Alameda County. A map is attached.

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Thanking you in advance for your assistance.

Christopher Canzonieri

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canz@basinresearch.com
www.basinresearch.com

Virus-free. www.avast.com

<Map - Zone 7 Trail Livermore Feb 2019.pdf>

Record of Native American Contacts
Zone 7 Trail South of the U.S. Veterans Administration Hospital
4951 Arroyo Road, Livermore, Alameda County

- 11/21/18 Letter to Native American Heritage Commission (NAHC), Sacramento. Regarding: Request for Review of Sacred Lands Inventory for project.
- 11/26/18 Letter response by Gayle Totton, M.A., Ph.D., NAHC (2nd email response received 2/1/19)
- 02/02/19 Email communications to all parties recommended by NAHC

Letters to Valentin Lopez, Chairperson, Amah Mutsun Tribal Band, Galt; Edward Ketchum, Amah Mutsun Tribal Band, Davis; Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista, Woodside; Tony Cerda, Chairperson, Coastanoan Rumsen Carmel Tribe, Pomona; Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan, Hollister; Charlene Nijmeh, Chairperson, Muwekma Ohlone Indian Tribe of the SF Bay Area, Castro Valley; Katherine Perez, Chairperson, North Valley Yokuts Tribe, Linden; and Andrew Galvan, The Ohlone Indian Tribe, Mission San Jose.

- 02/06/19 Telephone calls and/or emails made by Basin Research Associates (Christopher Canzonieri) in the afternoon to non-responding parties.

Valentin Lopez - No response as of 2/8/19. Through previous conversation with Mr. Lopez, Livermore is outside of his tribal territories and he would recommend that the Muwekma Ohlone Indian Tribe be contacted. Both Mr. Lopez and Mr. Edward Ketchum represent the Amah Mutsun Tribal Band of SF Bay Area.

Edward Ketchum - email response on 2/1/19; recommended contacting Muwekma Indian Tribal Band of SF Bay Area

Irenne Zwierlein – email response on 2/1/19 asking if any known sites are in the area. Responded that known sites are present within the project area, but that Andrew Galvan noted the area along the arroyo is a pre-contact, contact, and mission/ranch period site.

Tony Cerda – No response as of 2/5/19; called on 2/6/19 no answer. BASIN was previously informed by Andrew Galvan that Mr. Cerda’s granddaughters are now acting on his behalf and that this known to the NAHC. BASIN contacted Desiree Munoz and Carala Marie Munoz and sent requests on 2/6/19. No response as of 2/8/19.

Ann Marie Sayers – No response as of 2/5/19, called on 2/8/19 at 3:00 PM, left a detailed message. In previous responses, Ms. Sayers recommends that all construction crew receive cultural sensitivity training in areas with the potential for prehistoric cultural materials and any archaeologists on the project have experience with northern and central California archaeology. The retention of a qualified and trained Native American Monitor is recommended in the event of a discovery of Native American cultural materials.

Charlene Nijmeh – email was received and read, a return receipt was generated on 2/1/19. No additional comments as of 2/5/19

Katherine Erolinda Perez – email response on 2/6/19; recommends monitoring by a qualified archaeologist and Native American.

Andrew Galvan – email response on 2/1/19; Mr. Galvan noted that his “father’s uncle Dario Marin identified the area along the arroyo as “camp comfort.” It is a pre contact, contact and

post mission/ranch period site.” Additionally, Mr. Galvan, recommended that proper protocols be followed in the event of a discovery. He also recommended cultural sensitivity training, in areas with the potential of prehistoric cultural materials, for the construction crew. Furthermore, Mr. Galvan recommends that the archaeologists have experience with northern and central California archaeology and that only a Native American monitor who can prove genealogical relationship to the Greater San Francisco Bay Area be used for monitoring.

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11/14/2018

NWIC File No.: 18-0922

Donna Garaventa
Basin Research Associates, Inc.
1933 Davis Street, Suite 210
San Leandro, CA 94577

re: Zone 7 Trail

The Northwest Information Center received your record search request for the project area referenced above, located on the La Costa Valley & Livermore USGS 7.5' quad). The following reflects the results of the records search for the project area and a 0.25 mile radius:

Resources within project area:	None
Resources within 0.25 mile radius:	P-01-010893.
Reports within project area:	None
Reports within 0.25 mile radius:	S-23945, 34922, & 15031.

Resource Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details):

☒ enclosed ☐ not requested ☐ nothing listed

Resource Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed

Report Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details):

☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed

Resource Record Copies:

☐ enclosed ☐ not requested ☐ nothing listed

Report Copies:

☐ enclosed ☐ not requested ☐ nothing listed

OHP Historic Properties Directory:

☒ enclosed ☐ not requested ☐ nothing listed

Archaeological Determinations of Eligibility:

☐ enclosed ☐ not requested ☒ nothing listed

CA Inventory of Historic Resources (1976):

☐ enclosed ☒ not requested ☐ nothing listed

Caltrans Bridge Survey:

☐ enclosed ☒ not requested ☐ nothing listed

Ethnographic Information:

☐ enclosed ☒ not requested ☐ nothing listed

Historical Literature:

☐ enclosed ☒ not requested ☐ nothing listed

Historical Maps:☐ enclosed ☒ not requested ☐ nothing listed**Local Inventories:**☐ enclosed ☒ not requested ☐ nothing listed**GLO and/or Rancho Plat Maps:**☐ enclosed ☒ not requested ☐ nothing listed**Shipwreck Inventory:**☐ enclosed ☒ not requested ☐ nothing listed***Notes:**

****** Current versions of these resources are available on-line:

Caltrans Bridge Survey: <http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>

Soil Survey: <http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA>

Shipwreck Inventory: <http://www.slc.ca.gov/Info/Shipwrecks.html>

Let us know if you need copies of any documents. The invoice will be kept open until 11/21/18.

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Lisa C. Hagel
Researcher