

Biological Resources Technical Report
Fugazi Brothers Pump Turnout Project
San Joaquin County, California



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Table of Contents

Summary	1
1. Introduction	2
1.1 Project Description	2
2. Study Methods	7
2.1 Regulatory Requirements	7
2.2 Studies Required	9
2.3 Limitations That May Influence Results	10
3. Results: Environmental Setting	11
3.1 Description of the Existing Biological and Physical Conditions Study Area	11
3.2 Regional Species and Habitats and Natural Communities of Concern	17
4. Results: Biological Resources, Discussion of Impacts, and Mitigation	29
4.1 Habitats and Natural Communities of Special Concern	29
4.2 Special Status Plant Species	33
4.3 Special Status Wildlife Species	33
5. Conclusions and Regulatory Determinations	39
5.1 Federal Endangered Species Act Consultation Summary	39
5.2 Essential Fish Habitat Consultation Summary	39
5.3 California Endangered Species Act Consultation Summary	39
5.4 Wetlands and Other Waters Coordination Summary	39
5.5 Invasive Species	40
5.6 Other	40
6. References	43

List of Figures

Figure 1. Project Vicinity	3
Figure 2. Project Location	4
Figure 3. Project Features	5
Figure 4. Land Cover Types within the Biological Study Area	12
Figure 5. Project Impacts	30

List of Tables

Table 1. Species Observed	16
Table 2. Special Status Species with Potential to Occur in the Project Vicinity	19
Table 3. Impacts to Sensitive Natural Habitats	29

List of Appendices

Appendix A: USFWS Species List	
Appendix B: CNDDDB Species List	
Appendix C: CNPS Species List	
Appendix D: NMFS Species List	
Appendix E: NRCS Soil Report	
Appendix F: Representative Photographs	

List of Abbreviations

°F	Fahrenheit
BMPs	Best Management Practices
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
CCV	California Central Valley
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRHCP	Calaveras River Habitat Conservation Plan
CWA	Clean Water Act
EFH	Essential Fish Habitat
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
IPaC	Information for Planning and Consultation
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
OHWM	Ordinary high-water mark
Project	Fugazi Brothers Pump Turnout Project
RWQCB	Regional Water Quality Control Board
SEWD	Stockton East Water District
SSC	Species of Special Concern
Sq. ft	Square Feet
U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	Valley elderberry longhorn beetle

Summary

The Stockton East Water District (SEWD) proposes to install a new turnout and associated slant pump facilities in Mormon Slough as part of the Fugazi Brothers Pump Turnout Project (Project). This Project would supply surface water for almond production to a local property near Linden, California.

This Biological Resources Technical Report (BRTR) is a review and evaluation of the potential impacts to threatened, endangered, proposed listed, or sensitive species and protected habitat resources as a result of the proposed Project. General biological surveys were conducted within the proposed Project's Biological Study Area (BSA), which is approximately 1.10 acres and encompasses the 0.60-acre Project area with an approximate 25-foot buffer.

Literature research, habitat assessments, and field surveys were conducted to determine the potential for special status species to occur within the BSA. Special status species include any plant or animal species listed by a State or Federal agency or by one or more special interest groups, such as the California Native Plant Society (CNPS). Based on literature review, biological surveys, and habitat assessments, three special status species have the potential to occur within the BSA – California tiger salamander (*Ambystoma californiense* pop. 1), California Central Valley (CCV) steelhead Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus* pop. 11), and the valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). Consultation with the United States (U.S.) Fish and Wildlife Service (USFWS) regarding potential project impacts to CTS and VELB is required. Consultation with the California Department of Fish and Wildlife will also be required for CTS. SEWD currently holds an Incidental Take Permit through the Calaveras River Habitat Conservation Plan (CRHCP) for CCV steelhead, also benefitting chinook salmon. The Project would comply with the provisions under this ITP and additional consultation for federally listed fish species under FESA would not be required. Essential Fish Habitat (EFH) is present within the Project area; however, Project impacts to EFH are minor and will not adversely affect EFH. EFH consultation is not proposed.

An analysis was conducted to assess the biological resources within the BSA that potentially could be impacted by the Project's activities. Mormon Slough is considered a Waters of the United States and State of California. The channel is thus subject to regulation under Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code. The Project would result in approximately 0.01 acres (457 square feet [sq. ft]) of temporary impacts and 0.002 acres (92 sq. ft) of permanent impacts to Mormon Slough. Appropriate mitigation for all impacts will be determined during the permitting phase of the Project.

A §1602 Streambed Alteration Agreement from CDFW and a CWA §401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) will be required to be obtained prior to construction. The Project is considered a normal farming activity and is exempt from obtaining a CWA §404 Nationwide Permit from USACE.

1. Introduction

The SEWD proposes to install a new turnout and associated slant pump facilities in Mormon Slough that would supply surface water for almond production to a local property near Linden, California. The Project is located on the southern bank of Mormon Slough along North Fine Road in Linden, California (Figure 1. Project Vicinity; Figure 2. Project Location). The Project is situated in the southern extent of the United States Geological Survey (USGS) Linden quadrangle (3812111).

1.1 Project Description

The Project proposes to install a new pump turnout in Mormon Slough at 5503 N Fine Road, in Linden CA. The new turnout would supply water for 43.85 acres of almond orchard. The pump will include an 8" pipeline with a flowrate of 500 gallons per minute. A 6" concrete slab would also be poured near an existing well to allow for the installation of a two-tank sand media filter. The SEWD is the CEQA lead agency.

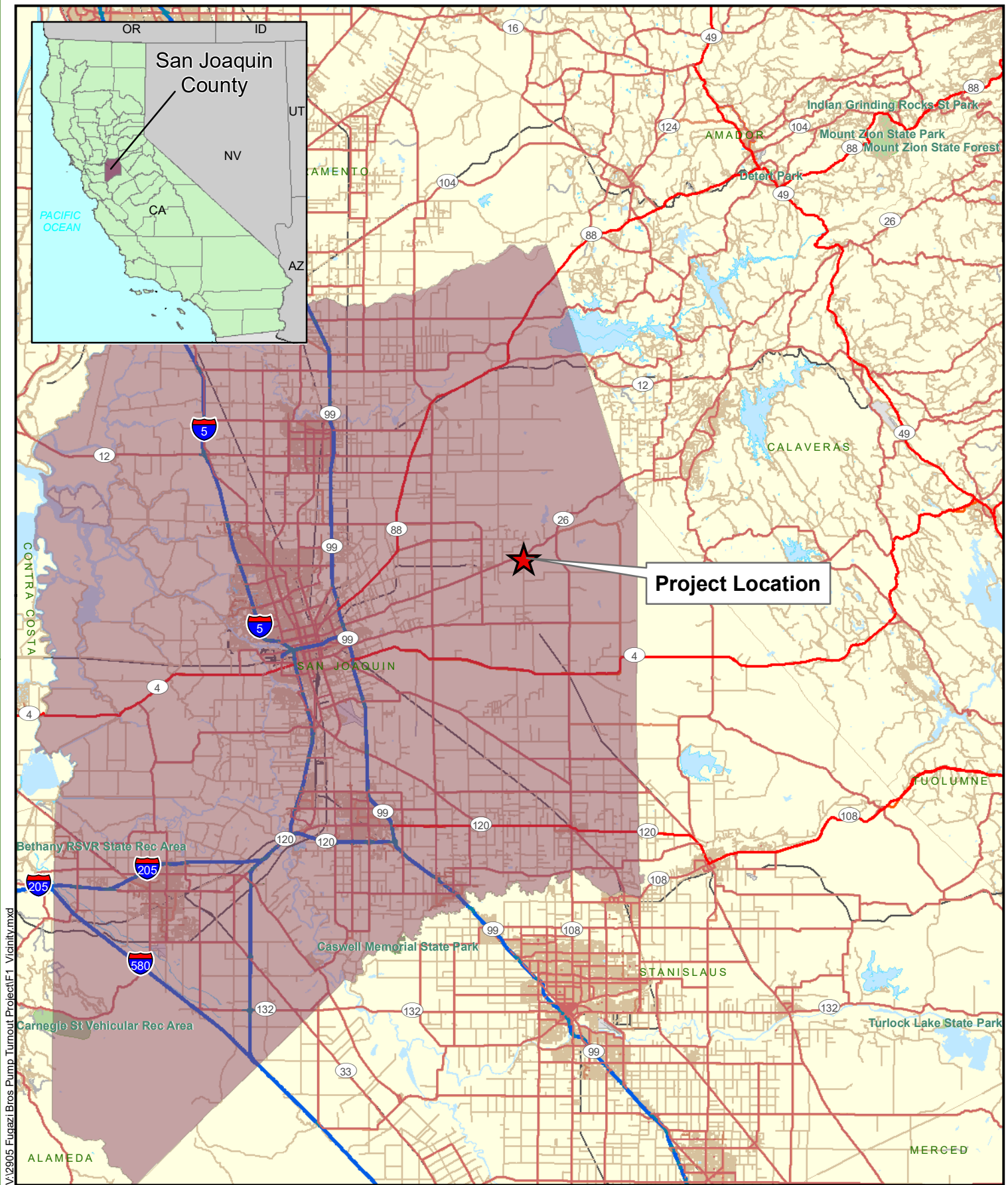


Figure 1
Project Vicinity

Fugazi Brothers Pump Turnout Project
Linden, San Joaquin County, California

Document Path: V:\2905 Fugazi Bros Pump Turnout Project\F2_Location.mxd



Source: ESRI World Street Maps Online; Dokken Engineering 3/31/2022; Created By: vchevreuil



1 in = 2,000 feet

0 2,000 4,000 6,000 8,000 Feet

Figure 2
Project Location

Fugazi Brothers Pump Turnout Project
Linden, San Joaquin County, California



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Source: ESRI Maps Online; Dokken Engineering 4/11/2022; Created By: vchevreuil



Figure 3
Project Features

Fugazi Brothers Pump Turnout Project
Linden, San Joaquin County, California

2. Study Methods

2.1 Regulatory Requirements

This section describes the general Federal, State, and local plans, policies, and laws that are relevant to biological resources within the BSA. Applicable approvals that could be required before construction of the Project are provided in Chapter 5.

2.1.1 Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 [16 United States Code (U.S.C.) section 1531 et seq.] provides for the conservation of endangered and threatened species listed pursuant to Section 4 of the Act (16 U.S.C. section 1533) and the ecosystems upon which they depend. Three federally listed species are presumed to have potential of occurring within the Project area and are discussed in detail in Chapter 4.

Clean Water Act

The CWA was enacted as an amendment to the Federal Water Pollutant Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to Waters of the U.S. The CWA serves as the primary Federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA empowers the EPA to set national water quality standards and effluent limitations, and includes programs addressing both point-source and non-point-source pollution. Point-source pollution originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or routine maintenance site. Non-point-source pollution originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless they are specifically authorized by a permit; permit review is CWA's primary regulatory tool.

The Regional Water Quality Control Board (RWQCB) has jurisdiction under Section 401 of CWA and regulates any activity which may result in a discharge to surface waters. Typically, the areas subject to jurisdiction of the RWQCB coincide with those of the USACE (i.e., waters of the U.S. including any wetlands). The RWQCB also asserts authority over "waters of the State" under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act. A CWA §401 Water Quality Certification will be required to be obtained from the Regional Water Quality Control Board prior to construction. The Project is considered a normal farming activity and is exempt from obtaining a CWA §404 Nationwide Permit from USACE.

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order (EO) 13112 (signed February 3, 1999) directs all Federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The EO requires consideration of invasive species in the National Environmental Policy Act (NEPA) analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them. Avoidance and minimization measures will be implemented throughout the Project to prevent the spread of invasive species.

Executive Order 13186: Migratory Bird Treaty Act

EO 13186 (signed January 10, 2001) directs each Federal agency taking actions that could adversely affect migratory bird populations, to work with USFWS to develop a Memorandum of Understanding that will promote the conservation of migratory bird populations. Protocols developed under the Memorandum of Understanding will include the following agency responsibilities:

- Avoid and minimize, to the maximum extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- Restore and enhance habitat of migratory birds, as practicable; and
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist Federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA) [50 Code of Federal Regulations (CFR) 10 and 21] and does not constitute any legal authorization to take migratory birds. Take is defined under the MBTA as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take that results from, but is not the purpose of, the activity in question). Avoidance and minimization measures will be implemented throughout the Project to avoid potential impacts to migratory birds and no take of migratory bird species is anticipated as a result of this Project.

2.1.2 State Regulations

California Environmental Quality Act

The CEQA is a state law created to inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities and to work to reduce these negative environmental impacts. Proposals for physical development in California are subject to the provisions of CEQA, as are many governmental decisions which do not immediately result in physical development (such as adoption of a general or community plan). Development project which requires a discretionary governmental approval will require at least some environmental review pursuant to CEQA, unless an exemption applies. The environmental review required imposes both procedural and substantive requirements. A project may not be approved as submitted if feasible alternatives or mitigation measures are able to substantially lessen the significant environmental effects of the project. The SEWD is the CEQA lead agency for the proposed Project.

California Endangered Species Act

The California Endangered Species Act (CESA) [California Fish and Game (CFG) Code Section 2050 et seq.] requires the CDFW to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental taking of any such listed species except as allowed by the Act (Sections 2080-2089). In addition, CESA prohibits take of candidate species (under consideration for listing).

CESA also requires CDFW to comply with CEQA (Pub. Resources Code Section 21000 et seq.) when evaluating Incidental Take Permit (ITP) applications [CFG Code Section 2081(b) and California Code Regulations, Title 14, section 783.0 et seq.], and the potential impacts the project or activity, for which the application was submitted, may have on the environment. CDFW's CEQA obligations include consultation with other public agencies which have jurisdiction over the project or activity [California Code Regulations, Title 14, Section 783.5(d)(3)]. CDFW cannot issue an ITP if issuance would jeopardize the continued existence of the species [CFG Code Section 2081(c); California Code Regulations, Title 14, Section 783.4(b)]. One state listed species is presumed to have a low to moderate potential of occurring within the Project area and is discussed in detail in Chapter 4.

Section 1602: Streambed Alteration Agreement

Under CFG Code 1602, public agencies are required to notify CDFW before undertaking any project that will divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project. Due to the Project's proposed impacts to stream channel habitat, a Streambed Alteration Agreement will be required for this Project.

Section 3503 and 3503.5: Bird and Raptors

CFG Code Section 3503 prohibits the destruction of bird nests and Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests.

Section 3513: Migratory Birds

CFG Code Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

2.2 Studies Required

2.2.1 Literature Search

Prior to field work, literature research was conducted through the USFWS Information for Planning and Consultation (IPaC) official species list generator (Appendix B. USFWS Species List), the CDFW California Natural Diversity Database (CNDDB) (Appendix C. CNDDB Species List), the CNPS Electronic Inventory of Rare and Endangered Plants (Appendix D. CNPS Species List), and the NMFS West Coast Region Species List (Appendix E. NMFS Species List) to identify habitats and special status species having the potential to occur within the BSA. Section 3.2 of this report provides a comprehensive list of the species generated from the online database searches and presents specific characteristics, habitat requirements, and potential for occurrence for each species.

2.2.2 Survey Methods

Prior to field surveys, the BSA was defined as the Project impact area plus an approximate 25-foot buffer to facilitate construction access and capture potential biological resources adjacent to Project limits (Figure 3). Habitat assessment and analysis of historic occurrences were conducted to determine the potential for each of these species to occur within the BSA.

Biological surveys and habitat assessment methods included walking meandering transects through the entire BSA, observing vegetation communities, compiling notes on observed flora and fauna, and assessing the potential for existing habitat to support sensitive plants and wildlife. All plant and wildlife observations were recorded and are discussed in Chapter 3.

2.2.3 Personnel and Survey Dates

A biological field survey was conducted on March 17, 2022 by Dokken Engineering biologist Vincent Chevreuil. Habitat assessments were conducted within the BSA to assess the vegetative communities present, identify biological resources which may be impacted by the Project, and evaluate the potential for special status species to occur on-site.

2.3 Limitations That May Influence Results

Sensitive wildlife species with the potential to occur in the BSA may be cryptic (difficult to detect) or transient, migratory species. The population size and locations of sensitive species may fluctuate through time. Because of this, the data collected for this BRTR represents a “snap shot” in time and may not reflect actual future conditions.

The collection of biological field data is normally subject to environmental factors that cannot be controlled or reliably predicted. Consequently, the interpretation of field data must be conservative and consider the uncertainties and limitations imposed by the environment. However, due to the experience and qualifications of the consulting biologists involved in the surveys, this limitation is not expected to severely influence the results or substantially alter the findings.

Biological surveys were conducted in March, which falls within the typical blooming season for most local plant species and within the usual nesting bird season; therefore, no temporal limitations are anticipated to substantially influence results.

All surveys were conducted during appropriate weather and temperature conditions and no additional limitations are anticipated to influence the result of biological investigations.

3. Results: Environmental Setting

3.1 Description of the Existing Biological and Physical Conditions Study Area

3.1.1 Study Area

Prior to field surveys, the BSA was defined as the area required for Project activities, plus an approximate 25-foot buffer to account for staging, access, and potential changes in Project design. The BSA measures approximately 300 feet from east to west and measures approximately 270 feet from north to south. The total area of the BSA is approximately 1.10 acres (Figure 3).

3.1.2 Physical Conditions

Regionally, the BSA is located on the southern bank of Mormon Slough along North Fine Road in Linden, California, within the San Joaquin Valley Floristic Province (Jepson 2022). Linden experiences Mediterranean conditions including warm, dry summers and cool, wet winters. The average annual high temperature is approximately 76 degrees Fahrenheit (°F), and the average annual low temperature reaches approximately 48°F, with up to 17.7 inches of precipitation annually (U.S. Climate Data 2022). The elevation of the BSA is approximately 95-115 feet above mean sea level. The soil types within the BSA include the following (Natural Resource Conservation Service [NRCS] 2022; Appendix F. NRCS Soil Report).

- Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17 (46.6% of BSA)
- Redding gravelly loam, 0 to 8 percent slopes, dry (17.8% of BSA)
- Water (35.6% of BSA)

3.1.3 Biological Conditions in the Study Area

Land cover types within the BSA include barren land, paved roadway, almond orchard, annual grassland, and a non-native vegetation corridor. In addition, Mormon Slough provides stream channel habitat within the BSA (Figure 4. Land Cover Types within the Biological Study Area; Appendix G. Representative Photographs). Plant and wildlife species observed within the BSA during the March 2022 biological survey efforts were used to define habitat types based on composition, abundance, and cover (Table 1. Species Observed).

Barren

The BSA is bisected by an unnamed dirt road that provides access to the almond orchard. The access road is barren, compacted, and frequently disturbed by vehicular travel. The BSA contains approximately 0.08 acres (~8%) of barren land.

Paved Roadway

The BSA includes a portion of North Fine Road, a paved roadway that runs north to south along the eastern edge of the Project. The roadway is paved, compacted, and devoid of any natural communities. Paved roadway comprises approximately 11% of the BSA.

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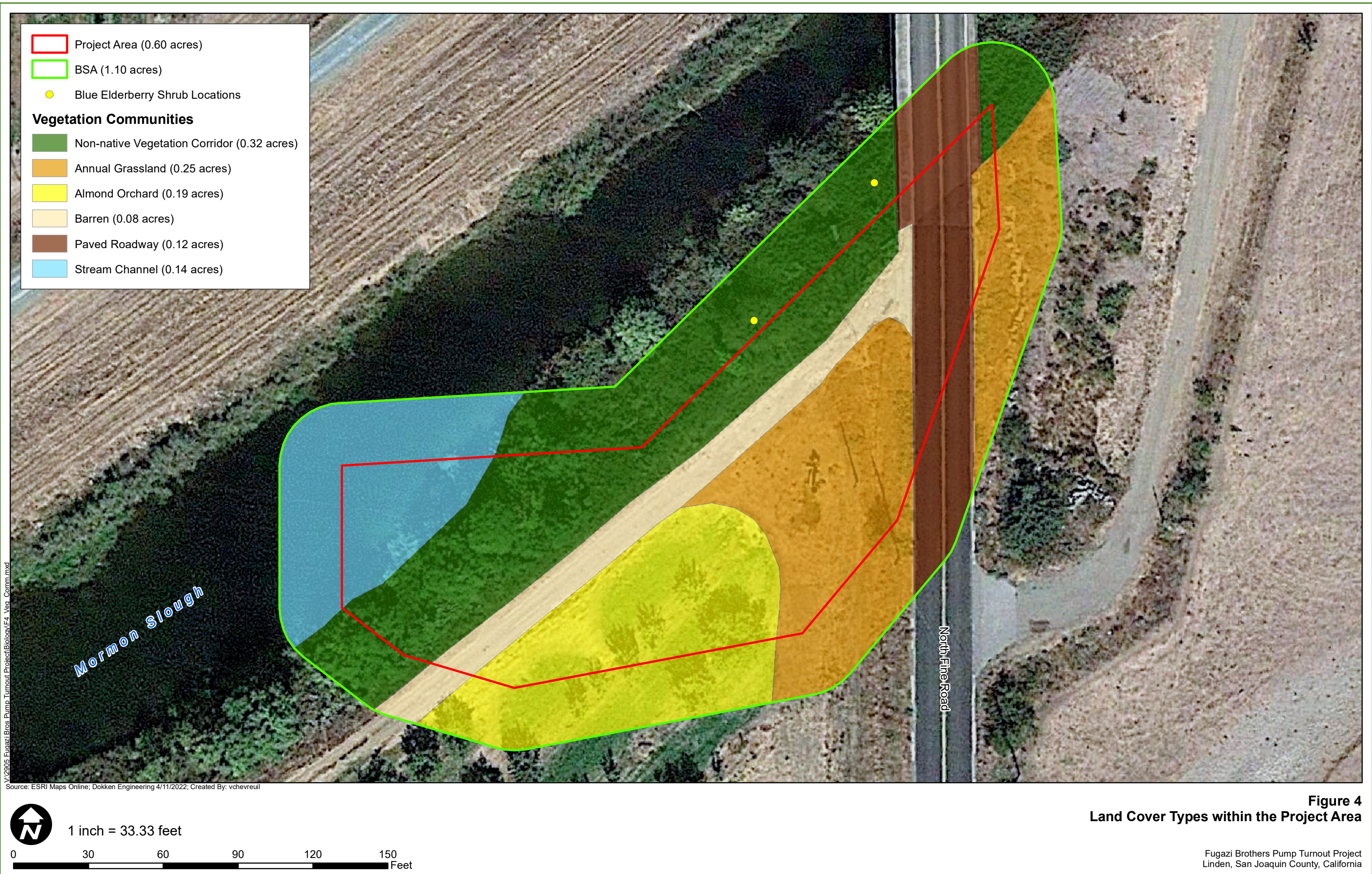


Figure 4
Land Cover Types within the Project Area

Almond Orchard

The southern extent of the BSA encompasses part of an almond orchard. The orchard includes several rows of almond trees (*Prunus dulcis*), as well as plant species such as white stemmed filaree (*Erodium moschatum*), annual meadow-grass (*Poa annua*), and foxtail barley (*Hordeum murinum*). This area is regularly disturbed by agricultural activities such as harvesting and weed suppression. The almond orchard covers approximately 0.19 acres (18%) of the BSA.

Annual Grassland

Within the BSA, annual grassland habitat primarily occurs south of the barren access road and east of North Fine Road. This habitat type is comprised of native and non-native forb and grass species such as white stemmed filaree, ripgut brome (*Bromus diandrus*), foxtail barley, and wild oat (*Avena fatua*). Other species that occur within this habitat include cheeseweed (*Malva parviflora*) and blessed milk thistle (*Silybum marianum*). Annual grassland habitat comprises approximately 0.25 acres (24%) of the BSA.

Non-native Vegetation Corridor

A non-native vegetation corridor occurs throughout the northwestern extent of the BSA, both east and west of North Fine Road. This habitat community occurs within the rock slope protection that comprises the southern bank of Mormon Slough; however, the corridor is comprised almost exclusively of non-native invasive species. Dominant species within this habitat type include Himalayan blackberry (*Rubus armeniacus*), tree of heaven (*Ailanthus altissima*), white whorlweed (*Marrubium vulgare*), and valley oak trees (*Quercus lobata*).

In addition, two blue elderberry bushes (*Sambucus nigra* L. ssp. *caerulea*) were observed within the non-native vegetation corridor and occur just outside of the Project area. These bushes provide potentially suitable VELB habitat and are discussed further in Chapter 4. Non-native vegetation corridor comprises approximately 0.31 acres (30%) of the BSA.

Stream Channel

The BSA contains approximately 85 linear feet of Mormon Slough. Mormon Slough is a natural perennial tributary that branches from the Calaveras River approximately 2.75 miles northeast of the Project area. Mormon Slough has been artificially channelized in order to provide irrigation to agricultural communities throughout San Joaquin County, and measures approximately 80-85 feet wide in the vicinity of the Project. The channel includes defined rocky banks, and the streambed is comprised of rocks, pebbles, and unconsolidated substrate such as sand and mud. Vegetation within this habitat includes broadleaf cattails (*Typha latifolia*) in proximity to the water's edge. The BSA contains approximately 0.10 acres (~10%) of stream channel habitat.

3.1.4 Wildlife

Wildlife observed within the BSA consists of locally common bird species such as the black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), and mourning dove (*Zenaidura macroura*), among others. Cliff swallows (*Petrochelidon pyrrhonota*) were observed nesting below North Fine Road as it passes over

Mormon Slough. In addition, the non-native vegetation corridor provides adequate cover and nesting habitat for a variety of birds (Table 1. Species Observed).

Table 1. Species Observed

Common Name	Scientific Name	Native (N)/ Non-Native (X)
Plant Species		
Almond	<i>Prunus dulcis</i>	X
Annual meadow-grass	<i>Poa annua</i>	X
Blessed milk thistle	<i>Silybum marianum</i>	X [Limited]
Blue elderberry	<i>Sambucus nigra</i> L. ssp. <i>caerulea</i>	N
Boxelder	<i>Acer negundo</i>	N
Broadleaf cattail	<i>Typha latifolia</i>	N
Bur clover	<i>Medicago polymorpha</i>	X [Limited]
Cheeseweed	<i>Malva parviflora</i>	X
Curly dock	<i>Rumex crispus</i>	X [Limited]
Fennel	<i>Foeniculum vulgare</i>	X [Moderate]
Foxtail barley	<i>Hordeum murinum</i>	X [Moderate]
Foxtail fescue	<i>Vulpia myuros</i>	X
Himalayan blackberry	<i>Rubus armeniacus</i>	X [High]
Northern California black walnut	<i>Juglans hindsii</i>	N
Poison hemlock	<i>Conium maculatum</i>	X [Moderate]
Ripgut brome	<i>Bromus diandrus</i>	X [Moderate]
Tree of heaven	<i>Ailanthus altissima</i>	X [Moderate]
Valley oak	<i>Quercus lobata</i>	N
White horehound	<i>Marrubium vulgare</i>	X [Limited]
White stemmed filaree	<i>Erodium moschatum</i>	X
Wild oat	<i>Avena sativa</i>	X
Wildlife Species		
Acorn woodpecker	<i>Melanerpes formicivorus</i>	N
American crow	<i>Corvus brachyrhynchos</i>	N
Anna's hummingbird	<i>Calypte anna</i>	N
Black phoebe	<i>Sayornis nigricans</i>	N
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	
European starling	<i>Sturnus vulgaris</i>	X
Great egret	<i>Ardea alba</i>	N
Mourning dove	<i>Zenaida macroura</i>	N
Red-tailed hawk	<i>Buteo jamaicensis</i>	N
Red-winged blackbird	<i>Agelaius phoeniceus</i>	N

¹California Invasive Plant Council invasive rating

3.1.5 Habitat Connectivity

The CDFW Biogeographic Information & Observation System (CDFW 2021a) was reviewed to determine if the BSA is located within an Essential Connectivity Area. The BSA is within an area of Terrestrial Connectivity Rank 1 – Limited Connectivity Opportunity. This ranking indicates that land use within the area – in this case, agricultural development – may limit or eliminate connectivity opportunities within the region. Because of the low connectivity importance of the area as well as the limited scope of the Project, the Project is not anticipated to fragment any existing natural habitats; therefore, the Project would not impact any existing habitat connectivity networks.

3.2 Regional Species and Habitats and Natural Communities of Concern

Plant and animal species have special status if they have been listed as such by Federal or State agencies or by one or more special interest groups, such as CNPS. Prior to the field survey, literature searches were conducted using USFWS IPaC, CDFW CNDDDB, CNPS, and NMFS databases to identify regionally sensitive species with potential to occur within the BSA. Table 2. Special Status Species with Potential to Occur in the Project Vicinity provides the list of regional special status species returned by the database searches, describes the habitat requirements for each species, and states if the species was determined to have potential to occur within the BSA. There were 7 plant species and 14 wildlife species with the potential to occur in the Project vicinity returned by the database searches. Three species were determined to have the potential to occur within the BSA: California tiger salamander, CCV steelhead, and the VELB.

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Table 2. Special Status Species with Potential to Occur in the Project Vicinity

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Amphibian Species						
California red-legged frog	Rana draytonii	Fed: State: CDFW:	T -- SSC	The species is endemic to California and northern Baja California. Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Associated with humid forests, woodlands, grasslands, coastal scrub, and streamsides. The species requires 11-20 weeks of permanent water for larval development and must have access to estivation habitat; estivation occurs from late summer to early winter. If wetlands are dry, requires animal burrows or other moist refuges. Occurs close to permanent and quiet stream pools, marshes, and ponds. Breeds from March to July in northern regions and January to July in southern regions. Occurs from elevations near sea level to 5,200 feet.	A	Presumed Absent: There are no CNDDDB occurrences of this species within 10 miles of the Project area. In addition, the Project area does not occur in the foothills and lacks suitable riparian pool, marsh, or pond habitat. Due to the absence of potentially suitable habitat features and with no recent local occurrences, the species is presumed to be absent from the Project area.
California tiger salamander	Ambystoma californiense pop. 1	Fed: State: CDFW:	T T WL	Inhabits annual grasslands, oak savanna, mixed woodland edges, and lower elevation coniferous forest. Requires underground refuges, especially ground squirrel burrows, vernal pools, or other seasonal water sources for breeding. Breeding occurs December through February in fish-free ephemeral ponds.	A	Low to Moderate Potential: A 2011 CNDDDB occurrence indicates that several larvae of this species were observed in vernal pool habitat located approximately 200 feet east of the Project area, across North Fine Road. The Project area lacks vernal pool habitat and other seasonal water sources, and local grassland habitat is highly disturbed by agricultural activity; however, the proximity of confirmed breeding habitat directly east of the Project area indicates that this species may be transient through the Project

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						area. The species is presumed to have a low to moderate potential to occur within the Project area despite a lack of potentially suitable habitat features. <i>Effects Determination: May Affect, Not Likely to Adversely Affect</i>
Western spadefoot	<i>Spea hammondi</i>	Fed: State: CDFW:	-- -- SSC	Inhabits open areas with sandy or gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Burrows underground from most of the year and is active above ground during rainfall. Requires vernal, shallow, temporary pools formed by heavy winter rains for reproduction. These pools must be free of bullfrogs, fish, and crayfish. Breeds from late winter to March.	A	Presumed Absent: There is a historic (1923) CNDDDB occurrence of this species located approximately 1.5 miles northeast of the Project area; however, the Project area does not contain habitat features suitable for this species. Local grassland habitat is highly disturbed by agricultural activity and the Project area does not encompass any vernal pool habitat. The species is presumed to be absent from the Project area due to a lack of potentially suitable habitat features.
Bird Species						
Burrowing owl	<i>Athene cunicularia</i>	Fed: State: CDFW:	-- -- SSC	The species inhabits arid, open areas with sparse vegetation cover such as deserts, abandoned agricultural areas, grasslands, and disturbed open habitats. Can be associated with open shrub stages of pinyon-juniper and ponderosa pine habitats. Nests in old small mammal burrows but may dig own burrow in soft soil. Nests are lined with excrement, pellets, debris, grass, and feathers. The species may use pipes, culverts, and nest boxes, and even buildings where burrows are scarce. Breeding occurs March through August (below 5,300 feet).	A	Presumed Absent: There are no CNDDDB occurrences of this species within 10 miles of the Project area. The Project area does contain grassland habitat; however, this habitat does not occur in a large, open space and occurs in areas that are regularly disturbed by agricultural activity. In addition, no burrowing owl burrows were observed during the survey conducted on March 17, 2022. Due to the lack of recent local occurrences as well as the absence of potentially suitable habitat features, the species is presumed to be absent from the Project area.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Swainson's hawk	<i>Buteo swainsonii</i>	Fed: State: CDFW:	-- T --	Inhabits grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields that support a stable rodent prey base. Breeds March to late August.	A	Presumed Absent: There is a historic (1923) CNDDDB occurrence of this species located approximately 1.5 miles northeast of the Project area. In addition, there is a recent (2021) research-grade eBird siting of this species located approximately 2.2 miles northeast of the Project area. The Project area does not contain suitable riparian habitat, nesting trees, or adequate foraging habitat for this species. Despite recent local occurrences, the species is presumed to be absent from the Project area due to the lack of potentially suitable habitat features.
Tricolored blackbird	<i>Agelaius tricolor</i>	Fed: State: CDFW:	-- T SSC	Inhabits freshwater marsh, swamp and wetland communities, but may utilize agricultural or upland habitats that can support large colonies, often in the Central Valley area. Requires dense nesting habitat that is protected from predators, is within 3-5 miles from a suitable foraging area containing insect prey and is within 0.3 miles of open water. Suitable foraging includes wetland, pastureland, rangeland, at dairy farms, and some irrigated croplands (silage, alfalfa, etc.). Nests in dense cattails, tules, willow, blackberry, wild rose, or tall herbs. Nests mid-March to early August, but may extend until October or November in the Sacramento Valley region.	HP	Presumed Absent: There is a 1997 CNDDDB occurrence of this species located approximately 2.3 miles northwest of the Project area. A recent (2020) research-grade eBird siting concurs with this siting. The Project area does not include any riparian, freshwater marshes, or swamp habitat. In addition, this species was not observed during the biological survey conducted on March 17, 2022. Due to the absence of potentially suitable habitat features, the species is presumed to be absent from the Project area.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Fish Species						
Delta smelt	<i>Hypomesus transpacificus</i>	Fed: State: CDFW:	T E --	This species is endemic to California and can tolerate a wide range of salinity and temperatures but is most commonly found in brackish waters. Juveniles require shallow waters with food rich sources. Adults require adequate flow and suitable water quality for spawning in winter and spring. Occurs within the Sacramento-San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay. Most often occurs in partially saline waters.	A	Presumed Absent: There are no CNDDDB occurrences of this species within 10 miles of the Project area. In addition, this species is known to occur within brackish waters in proximity to the Sacramento – San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Steelhead – Central Valley DPS	<i>Oncorhynchus mykiss irideus pop. 11</i>	Fed: State: CDFW:	T -- --	This species is known to occur along most of the California coast line and inhabits freshwater streams and tributaries in northern and central California. The preferred habitat consists of estuaries, freshwater streams and near shore habitat with productive coastal oceans. Spawning occurs in small freshwater streams and tributaries occurs from January through March and could extend into spring. Spawning occurs where cool, well oxygenated water is available year-round. Approximately 550-1,300 eggs are deposited in an area with good intergravel flow. The fry emerge from the gravel about 4-6 six weeks after hatching and remain in shallow protected areas associated with stream margin. Juveniles may remain in freshwater for the rest of their life cycle or return to the ocean. The principal remaining wild populations spawn annually in Deer and Mill	CH	Low to Moderate Potential: According to CNDDDB, the species is presumed extant within the Calaveras River in 2010 and Mormon Slough in 2002. In addition, the Project area is located in Critical Habitat (CH) for this species. However, the principal remaining wild populations spawn annually in Deer and Mill Creeks in Tehama County, in the lower Yuba River, and a small population in the lower Stanislaus River. Due to recent CNDDDB occurrences, the species is presumed to have a low to moderate potential to occur within the Project area. <i>Effects Determination: May Affect, Not Likely to Adversely Affect</i>

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				Creeks in Tehama County, in the lower Yuba River, and a small population in the lower Stanislaus River.		
Invertebrate Species						
Conservancy fairy shrimp	<i>Branchinecta conservation</i>	Fed: State: CDFW:	E -- --	Inhabits relatively large and turbid clay bottomed playa vernal pools. Species requires pools to continuously hold water for a minimum of 19 days and must remain inundated into the summer months. Occupied playa pools typically are 1 to 88 acres in size, but species may utilize smaller, less turbid pools.	A	Presumed Absent: There are no CNDDDB occurrences of this species within 10 miles of the Project area. In addition, the Project area does not contain vernal pool habitat. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Fed: State: CDFW:	T -- --	Species requires red or blue elderberry (<i>Sambucus</i> sp.) as host plants. Typically occurs in moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages. Adults are active, feeding, and breeding from March until June (sea level-3,000 feet).	HP	Low to Moderate Potential: There is a 1984 CNDDDB occurrence of this species located approximately 1.5 miles northeast of the Project area, as well as a 1991 occurrence located approximately 2 miles northwest. Blue elderberry bush (<i>Sambucus nigra</i> L. ssp. <i>caerulea</i>), the host plant for this species, was observed in two patches within the Project area. However, no exit holes were observed on the elderberry bush stems. Due to the presence of potentially suitable habitat features as well as proximal occurrences, the species is presumed to have a low to moderate potential of occurring within the Project area. <i>Effects Determination: May Affect, Not Likely to Adversely Affect</i>
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Fed: State: CDFW:	T -- --	In California, species inhabits portions of Tehama county, south through the Central Valley, and scattered locations in Riverside County and the Coast Ranges. Species is associated with	A	Presumed Absent: There is a recent (2011) CNDDDB occurrence of this species located approximately 3.3 miles southeast of the Project area. However, the Project area does not contain vernal

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				smaller and shallower cool-water vernal pools approximately 6 inches deep and short periods of inundation. In the southernmost extremes of the range, the species occurs in large, deep cool-water pools. Inhabited pools have low to moderate levels of alkalinity and total dissolved solids. The shrimp are temperature sensitive, requiring pools below 50 F to hatch and dying within pools reaching 75 F. Young emerge during cold-weather winter storms.		pool habitat. The species is presumed absent due to the absence of potentially suitable habitat.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Fed: State: CDFW:	E -- --	Inhabits vernal pools and swales containing clear to highly turbid waters such as pools located in grass bottomed swales of unplowed grasslands, old alluvial soils underlain by hardpan, and mud-bottomed pools with highly turbid water.	A	Presumed Absent: There is a 1990 CNDDDB occurrence of this species in a large general area located approximately 9.6 miles northwest of the Project area, near Lodi. However, the Project area does not contain vernal pool habitat. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Mammal Species						
Pallid bat	<i>Antrozous pallidus</i>	Fed: State: CDFW:	-- -- SSC	Inhabits low elevations of deserts, grasslands, shrub lands, woodlands and forests year round. Most common in open, dry habitats with rocky areas for roosting. Forages over open ground within 1-3 miles of day roosts. Prefers caves, crevices, and mines for day roosts, but may utilize hollow trees, bridges and buildings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. Maternity colonies form early April and young are born April-July (below 10,000 feet).	A	Presumed Absent: There is a historic (1952) CNDDDB occurrence of this species located approximately 6.6 miles southeast of the Project area, near Farmington. In addition, the Project area does not contain any caves, crevices, or mines suitable for maternal roosting. The Project area does include part of a bridge that crosses over Mormon Slough; however, the bridge is small and is highly disturbed by adjacent agricultural activities. The species is presumed absent from the Project area due to a lack of potentially suitable habitat features.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Reptile Species					
Giant gartersnake	<i>Thamnophis gigas</i>	Fed: T State: T CDFW: --	A highly aquatic species that inhabits marsh, swamp, wetland (including agricultural wetlands), sloughs, ponds, rice fields, low gradient streams and irrigation/drainage canals adjacent to uplands. Ideal habitat contains both shallow and deep water with variations in topography. Species requires adequate water during the active season (April-November), emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat and mammal burrows estivation. Requires grassy banks and openings in waterside vegetation for basking and higher elevation uplands for cover and refuge from flood waters during winter dormant season.	A	Presumed Absent: There is a 1987 CNDDDB occurrence of this species located 6.5 miles south of the Project area, near East Highway 4. The Project area includes surface water; however, the aquatic habitat present within the Project area does not provide suitable emergent riparian vegetative cover or adequate upland basking habitat. Due to a lack of potentially suitable habitat features, the species is presumed to be absent from the Project area.
Plant Species					
Ahart's dwarf rush	<i>Juncus leiospermus var. ahartii</i>	Fed: -- State: -- CDFW: 1B.2	An annual herb inhabiting grassland swales, gopher mounds, and vernal pool margins of mesic valley and foothill grassland communities. Flowers March-May (100-750 feet).	A	Presumed Absent: The nearest (1987) CNDDDB occurrence of this species is located approximately 9.2 miles northwest of the Project area. In addition, the Project area does not contain grassland swale or vernal pool habitat. The species is presumed to be absent from the Project area due to a lack of potentially suitable habitat.
Delta button-celery	<i>Eryngium racemosum</i>	Fed: -- State: E CDFW: 1B.1	An annual or perennial herb inhabiting seasonally flooded clay depressions in floodplains and riparian scrub within vernal mesic clay depressions. Flowers June-August (10-100 feet)	A	Presumed Absent: There is a historic (1939) CNDDDB occurrence of this species located approximately 4.8 miles southwest of the Project area. In addition, the Project area does not contain mesic or flooded clay depressions. The species is presumed absent due to a lack of local occurrences

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						as well as the absence of potentially suitable habitat.
Fleshy owl's-clover	<i>Castilleja campestris ssp. succulenta</i>	Fed: State: CDFW:	T -- --	An annual hemiparasitic herb inhabiting acidic soils in vernal pool communities. Flowers April-May (150-2,640 feet).	A	Presumed Absent: There are no CNDDDB occurrences of this species within 10 miles of the Project area. In addition, the Project area does not include vernal pool habitat. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Greene's tuctoria	<i>Tuctoria greenei</i>	Fed: State: CDFW:	E R 1B.1	An annual grass endemic to California, inhabiting vernal pools in open grassland on the eastern side of the Sacramento and San Joaquin Valleys. It is only found in these seasonally wet areas. Blooms from May-September (100-3,500 feet).	A	Presumed Absent: There is a historic (1934) CNDDDB occurrence of this species located approximately 6.4 miles southeast of the Project area. In addition, the Project area does not contain any vernal pools or seasonally wet depressions. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Pincushion navarretia	<i>Navarretia myersii ssp. Myersii</i>	Fed: State: CDFW:	-- -- 1B.1	An annual herb native to California inhabiting vernal pool communities, often in acidic soil conditions. Flowers April-May (65-1,080 feet).	A	Presumed Absent: There is a historic (1954) CNDDDB occurrence of this species located approximately 8.2 miles northwest of the Project area. In addition, the Project area does not include vernal pool habitat. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.
Recurved larkspur	<i>Delphinium recurvatum</i>	Fed: State: CDFW:	-- -- 1B.2	A perennial herb inhabiting poorly drained, fine, alkaline soils in chenopod scrub, Atriplex scrub, cismontane woodland, and valley and foothill grassland communities. Flowers March-June (10-2,600 feet).	A	Presumed Absent: There is a historic (1937) CNDDDB occurrence of this species located approximately 9.3 miles southwest of the Project area. In addition, the Project area does not contain poorly drained alkaline soils. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	Fed: State: CDFW:	-- -- 1B.2	A perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds, and ditches. Flowers May-October (0-2,130 feet).	A	Presumed Absent: There is a historic (1940) CNDDDB occurrence of this species located approximately 8.6 miles northwest of the Project area. In addition, the Project area lacks freshwater marsh, pond, or ditch habitat. The species is presumed absent due to a lack of local occurrences as well as the absence of potentially suitable habitat.

Federal Designations (Fed): (FESA, USFWS) E: Federally listed, endangered T: Federally listed, threatened DL: Federally listed, delisted	State Designations (CA): (CESA, CDFW) E: State-listed, endangered T: State-listed, threatened
Other Designations CDFW_SSC: CDFW Species of Special Concern CDFW_FP: CDFW Fully Protected California Native Plant Society (CNPS) Designations: <i>*Note: according to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.</i> 1A: Plants presumed extinct in California. 1B: Plants rare and endangered in California and throughout their range. 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range. 3: Plants about which need more information; a review list. Plants 1B, 2, and 4 extension meanings: _.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) _.2 Fairly endangered in California (20-80% occurrences threatened) _.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)	
Habitat Potential Absent [A] - No habitat present and no further work needed. Habitat Present [HP] - Habitat is or may be present. The species may be present. Critical Habitat [CH] - Project is within designated Critical Habitat.	
Potential for Occurrence Criteria: Present: Species was observed on site during a site visit or focused survey. High: Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within 5 miles of the site. Low-Moderate: Either low quality habitat (including soils and elevation factors) for the species occurs on site and a known occurrence exists within 5 miles of the site; or suitable habitat strongly associated with the species occurs on site, but no records were found within the database search. Presumed Absent: Focused surveys were conducted, and the species was not found, or species was found within the database search but habitat (including soils and elevation factors) do not exist on site, or the known geographic range of the species does not include the survey area.	
Source: (CDFW 2022b), (CNPS 2022), (Calflora 2022), (Jepson 2022), (USFWS 2022).	

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

4.1 Habitats and Natural Communities of Special Concern

Within the BSA, Mormon Slough has been identified as natural community of special concern and is discussed in this section. Table 3. Impacts to Sensitive Natural Habitats and Figure 5. Project Impacts outline the impacts to these communities. Avoidance, minimization, and mitigation measures for the Mormon Slough are discussed in detail in this section.

Table 3. Impacts to Sensitive Natural Habitats

Impact Type (acres)	Sensitive Natural Habitat
	Mormon Slough (Stream Channel)
Temporary	0.01 acres (457 sq ft)
Permanent	0.002 acres (92 sq. ft)
Total	0.012 acres (549 sq ft)

4.1.1 Mormon Slough (Stream Channel)

The BSA contains approximately 0.14 acres (80 linear feet) of Mormon Slough. Mormon Slough is an excavated channel that branches off the Calaveras River approximately 2.6 miles northeast of the Project area. Mormon Slough provides irrigation to agricultural communities east of Stockton and south of Linden. Within the Project area, the Channel has well defined banks that consist of rock slope protection along its southern border, adjacent to Project activities. The channel is perennial and consists of an unconsolidated bottom of sand and mud. Surface water was present during the survey conducted on March 17, 2022. The BSA contains approximately 0.14 acres of stream channel habitat.

Project Impacts to Mormon Slough (Stream Channel)

The Project is anticipated to temporarily impact approximately 0.01 acres (457 sq. ft) and permanently impact 0.002 acres (92 sq. ft) of Mormon Slough (Table 3; Figure 5). Permanent impacts to the stream channel habitat would result from the permanent installation of an 8" irrigation pipeline within the Ordinary High-Water Mark (OHWM) of the channel; temporary impacts would result from the construction associated with this activity. No other impacts to this habitat community are anticipated to result from this Project.

Avoidance and Minimization Efforts for Mormon Slough (Stream Channel)

The following avoidance, minimization, and mitigation measures will be incorporated into the Project design and Project management to reduce potential impacts to Mormon Slough:

BIO-1: Every individual working on the Project must attend a biological awareness training session. This training program shall include information regarding the sensitive habitats, special status species occurring or potentially occurring within the Project area, and the importance of avoiding impacts to these species and their habitat.

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V:\2905 Fugazi Bros Pump Turnout Project\Biology\F5 Project Impacts.mxd

Source: ESRI Maps Online; Dokken Engineering 4/11/2022; Created By: vchevreuil

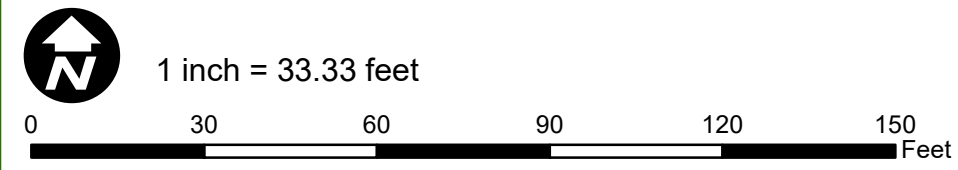


Figure 5
Project Impacts

Fugazi Brothers Pump Turnout Project
Linden, San Joaquin County, California

BIO-2: Prior to the start of construction activities, the Project limits in proximity to Mormon Slough will be marked with high visibility Environmentally Sensitive Area (ESA) fencing or staking to ensure construction will not encroach into sensitive habitat resources.

BIO-3: Best Management Practices (BMPs) will be incorporated into Project design and Project management to minimize impacts on the environment including erosion and the release of pollutants (e.g. oils, fuels):

- Exposed soils and material stockpiles would be stabilized, through watering or other measures, to prevent the movement of dust at the Project site caused by wind and construction activities such as traffic and grading activities;
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution;
- All vehicle and equipment fueling/maintenance would be conducted outside of any surface waters and must be free of dripping or leaking contaminants;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life shall be prevented from contaminating the soil or entering jurisdictional waters;
- All erosion control measures and storm water control measures would be properly maintained until the site has returned to a pre-construction state;
- All construction materials would be hauled off-site after completion of construction;
- The Project will be compliant with SEWD's Erosion and Sediment Control Ordinances and Improvement Standards.

BIO-4: Net permanent impacts to Mormon Slough will be appropriately mitigated for through purchase of credits at an approved mitigation bank, or other approved methods, to be determined during the permitting phase for the Project.

4.2 Special Status Plant Species

Prior to field surveys, a list of regional special status plant species with potential to occur within the Project vicinity was compiled from database searches. The potential for each species to occur within the BSA was determined by analyzing the habitat requirements of each species and comparing the habitat requirements to available habitat within the BSA. After a careful comparison between habitat requirements and the habitat available within the BSA, it was determined that no special status plants have potential to be present within the project area and no Project-related impacts to special status plant species are anticipated. In addition, no special status plants were identified during the March 17, 2022 biological surveys.

4.3 Special Status Wildlife Species

Prior to field surveys, a list of regional special status wildlife species with potential to occur within the Project vicinity was compiled from database searches. The potential for each species to occur within the BSA was determined by analyzing the habitat requirements of each species and comparing the habitat requirements to available habitat within the BSA. After a careful comparison between habitat requirements and the habitat available within the BSA, four special status wildlife species – three federally listed and one state listed - were determined to have potential to occur

within the BSA. Each species with potential to occur within the BSA is discussed in more detail below.

4.3.1 Discussion of California Tiger Salamander

The CTS is federally and state listed as threatened. The species range spans from Yolo County to its southern extent in Santa Barbara County, and it is commonly found in annual grasslands within the Central Valley. Adult salamanders spend much of their existence in subterranean refuges such as mammal burrows, which lessens species deaths due to predation. Instead, CTS are heavily impacted by habitat loss due to the important role vernal pools play in their breeding season. Their breeding season lasts between the months of December and February, where a female salamander may lay over 1,000 eggs.

A 2011 CNDDDB occurrence indicates that several larvae of this species were observed in vernal pool habitat located approximately 200 feet east of the Project area, across North Fine Road. The Project area lacks vernal pool habitat and other seasonal water sources, and local grassland habitat is highly disturbed by agricultural activity; however, the proximity of confirmed breeding habitat directly east of the Project area indicates that this species may be transient through the Project area. The species is presumed to have a low to moderate potential to occur within the Project area despite a lack of potentially suitable habitat features.

Project Impacts to California Tiger Salamander

The BSA includes annual grassland habitat; however, the habitat community present in proximity to Project activities is spatially limited and highly disturbed by local agricultural activities. Project impacts within annual grassland habitat include minor temporary impacts due to construction-related activities such as staging and access, as well as permanent impacts associated with the installation of the 8" pipeline and the construction of a 6" concrete slab at the proposed slant pump location. With the inclusion of appropriate avoidance and minimization measures, the project is not expected to have take of the species. Due to the proximity of confirmed breeding pools to the Project site, the District will need to seek concurrence from USFWS prior to construction that the proposed avoidance and minimization measures are sufficient to protect the species.

Avoidance and Minimization Efforts for California Tiger Salamander

The implementation of BIO-1 will reduce the potential impacts to this species. In addition, the following avoidance, minimization, and mitigation measures BIO-5 through BIO-7 are recommended:

- BIO-5:** Plastic mono-filament netting (erosion control matting) or similar material that could trap CTS or other wildlife must not be used. Acceptable substitutes include jute, coconut coir matting or tackified hydroseeding compounds.
- BIO-6:** The Project Biologist, approved by USFWS, will conduct a visual encounter preconstruction survey of the Project area for CTS no more than 14 days prior to the start of groundbreaking or other general construction activities that could affect the species. The surveys will pay particular attention to detecting burrows and other crevices and cover sites that could be used as refugia by the species. If construction stops for a

period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to restarting work.

BIO-7: Prior to construction, a Relocation Plan will be submitted to USFWS for approval. If a live CTS is encountered at any point during preconstruction or construction activities, the Designated Biologist(s) will exercise stop work authority in the vicinity of the individual and will not resume until the Designated Biologist(s) either has monitored the individual and allowed it to move away unharmed or has relocated it in accordance with the Relocation Plan. The Project Biologist will notify USFWS of any such encounter (live or dead) as soon as possible and provide a summary of the date(s), location(s), description of the habitat in which it was found, and any other pertinent information.

4.3.2 Discussion of Valley Elderberry Longhorn Beetle

The VELB is federally listed as threatened. The VELB goes through four life stages – egg, larva, pupa, and adult (USFWS 2017). The adults are active from March to June. The VELB requires elderberry shrubs (*Sambucus sp.*) within riparian habitat as a host plant. VELB's usage of elderberry shrubs can be detected by the presence of exit holes created by the beetle's larval stage in the stem of the shrubs. The VELB is threatened by habitat loss of California's Central Valley riparian areas, which is occurring due to agriculture and urban development.

There are two CNDDDB occurrences of this species located approximately 1.5 miles northeast (1987) and 2 miles northwest (1991) of the Project area. During the March 17, 2022 biological survey, two blue elderberry shrubs were identified within the non-native vegetation corridor, the closest occurring approximately 70 feet north of the proposed pipeline location; however, no exit holes were observed on the elderberry bush stems and no evidence of beetles was observed on the shrub. Due to the presence of potentially suitable habitat features as well as proximal occurrences, the species is presumed to have a low to moderate potential of occurring within the Project area.

Project Impacts to Valley Elderberry Longhorn Beetle

Direct impacts are not expected for this species. The two elderberry shrubs identified within the Project area respectively occur approximately 70 feet north and 120 feet northwest of the proposed pipeline installation. Vegetation trimming to install the pipeline along the southern bank of Mormon Slough is anticipated to occur approximately 80 feet downstream of the closest elderberry bush and direct impacts to elderberry bush habitat are not anticipated. However, in accordance with the Figure 2. Decision Tree to Determine the likelihood of VELB occupation included in the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*), the Service must be consulted to determine potential impacts to the species (USFWS 2017).

Avoidance and Minimization Efforts for Valley Elderberry Longhorn Beetle

The implementation of BIO-1 and BIO-11 will ensure that there are no potential impacts to this species. No project impacts are expected for this species and take of this species is not anticipated; however, due to the Project's proximity to VELB habitat, the following avoidance, minimization, and mitigation measure BIO-8 is recommended.

BIO-8: A 50-ft designated buffer will be established in the vicinity of the valley elderberry shrubs present within the Project's BSA. This designated area will prevent potential encroachment of the Project's construction activities on VELB habitat.

4.3.3 Discussion of California Central Valley Steelhead DPS

CCV Steelhead is federally listed as threatened and is under the jurisdiction of NMFS. This DPS consists of steelhead in the Sacramento and San Joaquin River basins in the Central Valley. Steelhead are anadromous fish that spend part of their life cycle in freshwater and part in salt water. The species was once abundant in California coastal and central valley drainages. However, population numbers have declined significantly, especially in the tributaries of the Sacramento River (NMFS 2014). The species spawns in small, freshwater streams where the young remain from one to several years before migrating to the ocean to feed and grow. Adults return to their natal streams to spawn and complete their life cycle). Juvenile steelhead typically migrate to marine waters after spending two years in cool, clear, fast-flowing permanent streams and rivers where they reside for two or three years prior to returning to their natal stream to spawn at four- or five-years old. Upon entering freshwater, they hold until flows are high enough in tributaries to enter for spawning.

Anadromous fish in this area are restricted to the Lower Calaveras River below New Hogan Dam, which encompasses Mormon Slough and the Stockton Diverting Canal. Similarly, Bellota Weir, which occurs approximately 2.7 miles upstream of the Project area, impedes steelhead migration during low flows. Recently, the weir has been taken down annually to allow for this seasonal fish migration. According to CNDDDB, the species is presumed extant within the Calaveras River in 2010 and Mormon Slough in 2002. In addition, the BSA is within Critical Habitat for the CCV steelhead and EFH for chinook salmon (*Oncorhynchus tshawytscha*). Due to the confirmed observations of this species within the channel as well as the presence of aquatic habitat within the Project area, this species is presumed to have a low to moderate potential of occurring within the Project area.

Project Impacts to Special Status Fish Species

The Project would have minimal impacts to CCV steelhead habitat within Mormon Slough. Impacts are anticipated to include 0.002 acres (92 sq. ft) of permanent impacts to the stream channel due to the installation of an 8" pipeline below the OHWM. Approximately 0.01 acres (457 sq. ft) will be temporarily impacted due to the construction associated with the installation of the proposed pipeline (Table 3; Figure 5). Temporary project impacts are not anticipated to directly impact fish species or substantially alter their habitat and permanent impacts are anticipated to be minimal. With the inclusion of the appropriate avoidance and minimization measures, the Project may affect but is not likely to adversely affect federally listed fish species. Take of this species is not anticipated; however, SEWD has obtained a 50-year ITP for the CCV steelhead under the Calaveras River Habitat Conservation Plan (CHCP). Consultation with NMFS regarding federally listed fish species is not required.

Within the BSA, Mormon Slough is classified as Critical Habitat for the CCV steelhead and EFH for Chinook salmon. The Project would temporarily impact approximately 0.01 acres (457 sq. ft) and permanently impact 0.002 acres (92 sq. ft) of Mormon Slough due to the installation of the proposed pipeline; however, these impacts would be minor and would not substantially change

the value or characteristics of chinook salmon EFH. Due to the minor effects to EFH, consultation with NMFS concerning EFH is not recommended at this time.

Avoidance and Minimization Efforts for Special Status Fish Species

The Project is not anticipated to cause take of special status fish species, nor is it anticipated to permanently substantially impact Critical Habitat and EFH of these species. Avoidance and minimization measures BIO-1 through BIO-3 and BIO-9 would ensure that potential impacts are avoided to the greatest extent feasible and that no take of these special status species occurs. In addition, mitigation measure BIO-4 would compensate for the temporary impacts to Mormon Slough aquatic habitat.

BIO-9: In-water work activities shall be restricted to June 15 through October 31, when special status fish (CCV steelhead, Chinook salmon) are unlikely to be active and there is lower potential for an individual to enter the work area. Should construction activities occur outside of the June 15 through October 31 work window, a biologist shall conduct weekly monitoring of the Project area to ensure that no impacts to special status species occur.

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5. Conclusions and Regulatory Determinations

5.1 Federal Endangered Species Act Consultation Summary

10 federally listed species that were returned via database searches and three have the potential to occur within the BSA (CTS, CCV steelhead, and VELB). The potential for project effects to these species and required FESA consultation efforts are described below:

5.1.1 California Tiger Salamander

The proposed project is located near a known CTS breeding pool; however, the project area does not provide potentially suitable habitat for the species. The species may move through the project area to find new. Considering the small footprint of the project and the inclusion of avoidance and minimization measures **BIO-5** through **BIO-7**, the project will avoid take of the species. Consultation with USFWS is not anticipated; however, if potentially suitable underground refugia sites are identified during preconstruction surveys consultation will be necessary.

5.1.2 California Central Valley Steelhead

The Mormon slough is known to support populations of migrating CCV Steelhead; however, the project is consistent with existing programmatic consultation between the District and NMFS. Further consultation is not required.

5.1.3 Valley Elderberry Longhorn Beetle

Elderberry shrubs will not be impacted by the proposed project; however, per the Decision Tree to Determine the likelihood of VELB occupation included in the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*), the Service must be consulted to determine potential impacts to the species.

5.2 Essential Fish Habitat Consultation Summary

The BSA is within EFH for chinook salmon. The Project anticipates 0.002 acres (92 sq. ft) of permanent impacts to EFH and temporary impacts would be returned to pre-construction conditions following the completion of the Project. Project actions would be minor and would not substantially change the value or characteristics of chinook salmon EFH; as such, no consultation for EFH is required.

5.3 California Endangered Species Act Consultation Summary

CTS is the only state-listed species with the potential to occur within the BSA. The Project is anticipated to have minor impacts to annual grassland habitat; however, with the inclusion of avoidance, minimization, and mitigation measures, take of the species is not anticipated. Consultation with CDFW is not required but may be requested by CDFW during the §1600 permit process.

5.4 Wetlands and Other Waters Coordination Summary

The Project is anticipated to have approximately 0.01 acres (457 sq. ft) of temporary impacts and 0.002 acres (92 sq. ft) of permanent impacts to the Mormon Slough. The following permits, related to waters, will be obtained for the Project: a §401 Water Quality Certification from RWQCB, National Pollutant Discharge Elimination System Permit from RWQCB and §1602 Streambed

Alteration Agreement from the CDFW. The Project is considered a normal farming activity and is exempt from obtaining a CWA §404 Nationwide Permit from USACE.

5.5 Invasive Species

In February 1999, EO 13112 was signed, requiring Federal agencies to work on preventing and controlling the introduction and spread of invasive species. Measure BIO-10 will be incorporated into the Project plans to ensure that invasive species are not introduced or spread.

BIO-10: Prior to arrival at the Project site and prior to leaving the Project site, construction equipment that may contain invasive plants and/or seeds will be cleaned to reduce the spreading of noxious weeds.

5.6 Other

5.6.1 General Wildlife

To minimize and avoid potential effects to local wildlife, the following measures BIO-11 through BIO-14 have been incorporated into the Project design.

BIO-11: Vegetation removal will be avoided to the greatest extent practicable. Where feasible, trees and shrubs will be trimmed rather than removed.

BIO-12: All food-related trash must be disposed into closed containers and must be removed from the Project area daily. Construction personnel must not feed or otherwise attract wildlife to the Project area.

BIO-13: The contractor must not apply rodenticide or herbicide within the Project area during construction.

BIO-14: If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

5.6.2 Migratory Birds

Native birds are protected by the MBTA and CFG Code Section 3513. The implementation of measure BIO-15 would avoid all potential impacts to migratory birds.

BIO-15: Prior to vegetation removal or initial ground disturbance during the nesting bird season (February 1 – September 30) a pre-construction nesting bird survey must be conducted by a Project biologist prior to the start of work. The nesting bird survey must include the Project area plus a 300-foot buffer. Within 2 weeks of the nesting bird survey, all areas surveyed by the biologist must be cleared by the contractor or a supplemental nesting bird survey is required.

A minimum 100 foot no-disturbance buffer will be established around any active nest of migratory birds and a minimum 300 foot no-disturbance buffer will be established around any nesting raptor species. The contractor must immediately stop work in the buffer area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in coordination with

wildlife agencies) in the buffer area until a qualified biologist determines the young have fledged. A reduced buffer can be established if determined appropriate by the Project biologist and approved by CDFW.

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6. References

- Calflora 2021 Calflora. 2022. Plants of California. Available at: <<http://www.calflora.org/>> (accessed: April 4, 2021).
- CDFW 2022a California Department of Fish and Wildlife. 2022. Biogeographic Information and Observation System. Available at: <<https://wildlife.ca.gov/Data/BIOS>> (accessed: April 4, 2022).
- CDFW 2022b California Department of Fish and Wildlife. 2022. California Natural Diversity Database. Available at: <<http://www.dfg.ca.gov/biogeodata/cnddb/>> (accessed: April 4, 2022).
- CNPS 2022 California Native Plant Society. 2022. Inventory of Rare and Endangered Plants. Available at: <<http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi/BrowseAZ?name=quad>> (accessed: April 4, 2022).
- Jepson 2022 Jepson eFlora. 2022. Geographic Subdivisions of California. Available at: <<http://ucjeps.berkeley.edu/eflora/geography.html>> (accessed: March 25, 2022).
- NMFS 2022 National Marine Fisheries Service. 2022. NMFS Species List for Fugazi Brothers Pump Turnout Project (requested: April 6, 2022).
- NRCS 2022 Natural Resource Conservation Service. 2021. Custom Soil Resources Report for Sacramento County, California. Available at: <<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>> (accessed March 25, 2022).
- U.S. Climate Data 2021 U.S. Climate Data. 2022. Stockton Weather Averages. Available at: <<http://www.usclimatedata.com>> (accessed: March 25, 2022).
- USFWS 2017 U.S. Fish and Wildlife Service. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.
- USFWS 2022 United States Fish and Wildlife Service. 2022. Official Species List: U.S. Department of the Interior – Fish and Wildlife Service: Sacramento Fish and Wildlife Office. Project Code: 2022-0027784 (requested: April 4, 2022).

Appendix A: USFWS Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

Project Code: 2022-0027784

Project Name: Fugazi Turnout Project

April 04, 2022

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Project Code: 2022-0027784

Event Code: None

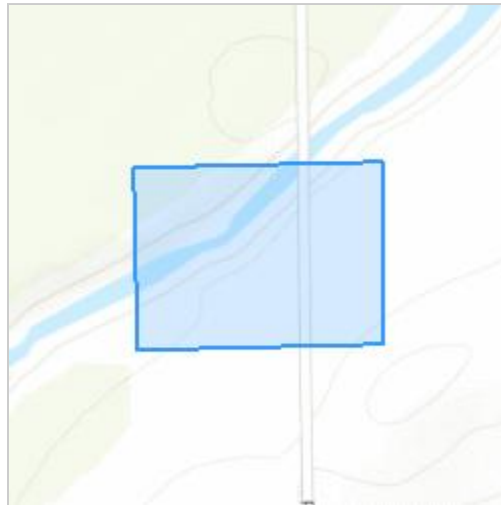
Project Name: Fugazi Turnout Project

Project Type: Irrigation

Project Description: Pipeline installation project for almond farm

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.0276743,-121.05063084301608,14z>



Counties: San Joaquin County, California

Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

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

Fishes

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

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8095	Threatened

Critical habitats

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

IPaC User Contact Information

Agency: Dokken Engineering

Name: Vincent Chevreuil

Address: 110 Blue Ravine Road #200

City: Folsom

State: CA

Zip: 95630

Email: vchevreuil@dokkenengineering.com

Phone: 9168580642

Appendix B: CNDDDB Species List



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (Linden (3812111) OR Waterloo (3812112) OR Valley Springs SW (3812018) OR Peters (3712181) OR Farmington (3712088) OR Stockton East (3712182))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	PMJUN011L1	None	None	G2T1	S1	1B.2
An andrenid bee <i>Andrena subapasta</i>	IIHYM35210	None	None	G1G2	S1S2	
Blennosperma vernal pool andrenid bee <i>Andrena blennospermatis</i>	IIHYM35030	None	None	G2	S2	
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS <i>Ambystoma californiense</i> pop. 1	AAAAA01181	Threatened	Threatened	G2G3	S3	WL
Delta button-celery <i>Eryngium racemosum</i>	PDAP10Z0S0	None	Endangered	G1	S1	1B.1
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
Greene's tuctoria <i>Tuctoria greenei</i>	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hardhead <i>Mylopharodon conocephalus</i>	AFCJB25010	None	None	G3	S3	SSC
midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	ICBRA03150	None	None	G2	S2S3	
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G4	S3	SSC
pincushion navarretia <i>Navarretia myersii</i> ssp. <i>myersii</i>	PDPLM0C0X1	None	None	G2T2	S2	1B.1
recurved larkspur <i>Delphinium recurvatum</i>	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	AFCHA0209K	Threatened	None	G5T2Q	S2	
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2	S3	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3S4	
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G2G3	S3	SSC



Record Count: 23


Appendix C: CNPS Species List

Search Results

10 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812111:3812112:3712182:3712181:3712088:3812018]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
<u><i>Brodiaea rosea</i></u> <u><i>ssp. vallicola</i></u>	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	 © 2011 Steven Perry
<u><i>Centromadia parryi</i></u> <u><i>ssp. rudis</i></u>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	No Photo Available
<u><i>Delphinium recurvatum</i></u>	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	No Photo Available
<u><i>Eryngium racemosum</i></u>	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	No Photo Available
<u><i>Hesperevax caulescens</i></u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	 © 2017 John Doyen
<u><i>Juncus leiospermus</i></u> var. <u><i>ahartii</i></u>	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	 © 2004 Carol W. Witham
<u><i>Lasthenia ferrisiae</i></u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	 © 2009 Zoya Akulova
<u><i>Navarretia myersii</i></u> <u><i>ssp. myersii</i></u>	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	 © 2020 Leigh Johnson
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	

Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May- Jul(Sep)	FE	CR	G1	S1	1B.1	
										©2008 F. Gauna

Showing 1 to 10 of 10 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website <https://www.rareplants.cnps.org> [accessed 4 April 2022].

CONTACT US

Send questions and comments to rareplants@cnps.org.



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- [Release Notes](#)
- [Advanced Search](#)
- [Glossary](#)

ABOUT CNPS

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- [CNPS Home Page](#)
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CONTRIBUTORS

- [The Calflora Database](#)
- [The California Lichen Society](#)
- [California Natural Diversity Database](#)
- [The Jepson Flora Project](#)
- [The Consortium of California Herbaria](#)
- [CalPhotos](#)

Appendix D: NMFS Species List

From: [Vincent Chevreuil](#)
To: nmfswhrcrca.specieslist@noaa.gov
Subject: Fugazi Turnout Project
Date: Wednesday, April 6, 2022 10:38:55 AM
Attachments: [image001.png](#)

Quad Name **Linden**

Quad Number **38121-A1**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

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

ESA Whales

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

ESA Pinnipeds

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

Essential Fish Habitat

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

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

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

MMPA Cetaceans -
MMPA Pinnipeds -



Vincent Chevreuil

Biologist/Environmental Planner |

Dokken Engineering

Phone: 916.858.0642

Email: vchevreuil@dokkenengineering.com

110 Blue Ravine Road, Suite 200 | Folsom, CA 95630

www.dokkenengineering.com

Appendix E: NRCS Soil Report List



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for San Joaquin County, California



March 25, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
Soil Map	5
Soil Map.....	6
Legend.....	7
Map Unit Legend.....	8
Map Unit Descriptions.....	8
San Joaquin County, California.....	10
130—Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17.....	10
220—Redding gravelly loam, 0 to 8 percent slopes, dry.....	12
W—Water.....	13
References	14

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Joaquin County, California
Survey Area Data: Version 15, Sep 9, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
130	Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17	0.5	46.6%
220	Redding gravelly loam, 0 to 8 percent slopes, dry	0.2	17.8%
W	Water	0.4	35.6%
Totals for Area of Interest		1.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Joaquin County, California

130—Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2xld1
Elevation: 10 to 130 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 318 to 328 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Columbia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbia

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 4 inches: fine sandy loam
A - 4 to 12 inches: fine sandy loam
C1 - 12 to 21 inches: silt loam
C2 - 21 to 26 inches: fine sandy loam
C3 - 26 to 34 inches: silt loam
C4 - 34 to 40 inches: loamy fine sand
C5 - 40 to 48 inches: fine sandy loam
C6 - 48 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s

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Hydrologic Soil Group: C

*Ecological site: R016XA002CA - Freshwater, Stratified, Fluventic Sites
(PROVISIONAL)*

Hydric soil rating: Yes

Minor Components

Guard

Percent of map unit: 3 percent

Landform: Rims

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Cogna

Percent of map unit: 2 percent

Landform: Terraces, alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R018XI999CA - Miscellaneous - Cannot Be Correlated

Hydric soil rating: No

Grangeville

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Columbia, fine-textured overwash

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Merritt

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Dello

Percent of map unit: 2 percent

Landform: Flood plains on sloughs

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

*Ecological site: R016XA001CA - Tidally-Influenced, Freshwater Sites
(PROVISIONAL)*

Hydric soil rating: Yes

Egbert

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R016XA001CA - Tidally-Influenced, Freshwater Sites
(PROVISIONAL)
Hydric soil rating: Yes

220—Redding gravelly loam, 0 to 8 percent slopes, dry

Map Unit Setting

National map unit symbol: 2w8bm
Elevation: 90 to 750 feet
Mean annual precipitation: 12 to 21 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 255 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Redding, gravelly loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Redding, Gravelly Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from igneous, metamorphic and sedimentary rock over clayey alluvium derived from igneous, metamorphic and sedimentary rock over cemented alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 5 inches: gravelly loam
BA - 5 to 17 inches: gravelly loam
2Bt - 17 to 22 inches: clay
2Btqm - 22 to 60 inches: cemented gravelly material

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches; 20 to 39 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 5 to 39 inches

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Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.5 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Keyes, fine sandy loam

Percent of map unit: 10 percent
Landform: Fan remnants
Hydric soil rating: No

Unnamed, ponded

Percent of map unit: 2 percent
Landform: Fan remnants
Microfeatures of landform position: Vernal pools
Hydric soil rating: Yes

Peters, clay

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Pentz, loam

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, backslope
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix F. Representative Photographs



Photo 1. Photograph of the existing site conditions (March 17, 2022).



Photo 2. Representative photograph of the non-native vegetation corridor located along Mormon Slough's southern bank, which is comprised primarily of non-native invasive species such as Himalayan blackberry, white horehound, and tree of heaven (March 17, 2022).



Photo 3. Photograph representative of Mormon Slough, which occurs in the northern extent of the Project area (March 17, 2022).



Photo 3. Photograph of existing pump facilities. The proposed slant pumps would be installed to the right (south) of the existing facilities (March 17, 2022).



Photo 4. Photo representative Mormon Slough and the non-native vegetation corridor, viewed from North Fine Road looking west. Notice the elderberry bushes (March 17, 2022).



Photo 4. Photo representative the elderberry bush located in proximity to the existing pump facilities (March 17, 2022).



Photo 3. Photograph of the second elderberry bush, located in proximity to North Fine Road. No VELB exit holes were observed on either bush (March 17, 2022).



Photo 4. Photo representative of the approach to the existing outfall from the American River Parkway Trail (March 17, 2022).



Photo 4. North Fine Road viewed facing south. CTS breeding activity was observed in vernal pools located directly east of North Fine Road as recently as 2011 (March 17, 2022).