Biological Resources Assessment

for the

Martinez Bay Trail Project Phase II

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List of Abbreviated Terms

ac	acre(s)
BCDC	Bay Conservation and Development Commission
BSA	biological survey area
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Martinez
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corp	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EBRPD	East Bay Regional Park District
FESA	Federal Endangered Species Act
ft	foot/feet
HCP	habitat conservation plan
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NOAA	National Oceanic and Atmospheric Administration
Porter-Cologne	Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
SBI	Swaim Biological, Inc.
SFBT	San Francisco Bay Trail
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SNC	sensitive natural community
SWRCB	State Water Resources Control Board
UPRR	Union Pacific Railroad
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1. Introduction

Swaim Biological Inc. (SBI) has prepared this technical report for the proposed Martinez Bay Trail Project Phase II project, a proposed segment of the San Francisco Bay Trail, located in the City of Martinez, in Contra Costa County (Figure 1). The purpose of this report is to describe the biological resources present within project area, to identify sensitive biological resources known to occur in the Project region, and to evaluate the potential for sensitive resources to occur within the Project area. The potential for the proposed Project to result in impacts on sensitive biological resources also is evaluated, and avoidance, minimization, and mitigation measures are recommended for impacts that could be considered significant per the California Environmental Quality Act (CEQA).

1.1 Project Background

In May 2003, an Initial Study/Mitigated Negative Declaration (City of Martinez 2003) was prepared and adopted by the City of Martinez (City) for approval of the Martinez Bay Trail Phase II Project (hereafter referred to as the Original Project). The Original Project was proposed as part of the larger San Francisco Bay Trail (SFBT) which is being developed by the Association of Bay Area Governments in conjunction with local agencies. The Original Project was intended to begin at the East Bay Regional Park District (EBRPD) Nejedly Staging area and to provide a link to the SFBT at the EBRPD Martinez Regional Shoreline parking lot. The Original Project was approved in 2003, a Joint Aquatic Resources Permit Application was completed, and permits were obtained for the Project in 2003-2004. Approximately 700 feet of the first phase of the trail from the Nejedly Stating Area to the Union Pacific Railroad (UPRR) right-of-way was subsequently built. The remainder of the Project was put on hold until an easement was granted by UPRR for the EBRPD to construct the remainder of the Phase II Project. The original Memorandum of Understanding (MOU) between UPRR and EBRPD was signed in 1993, and the Amended and Restated MOU was agreed to on May 3, 2016. This MOU provides recreational trail easements over railroad property, and grants the EBPRD a longitudinal, nonexclusive easement for trail along the UPRR right-of-way easterly to and then across Berrellesa Street.

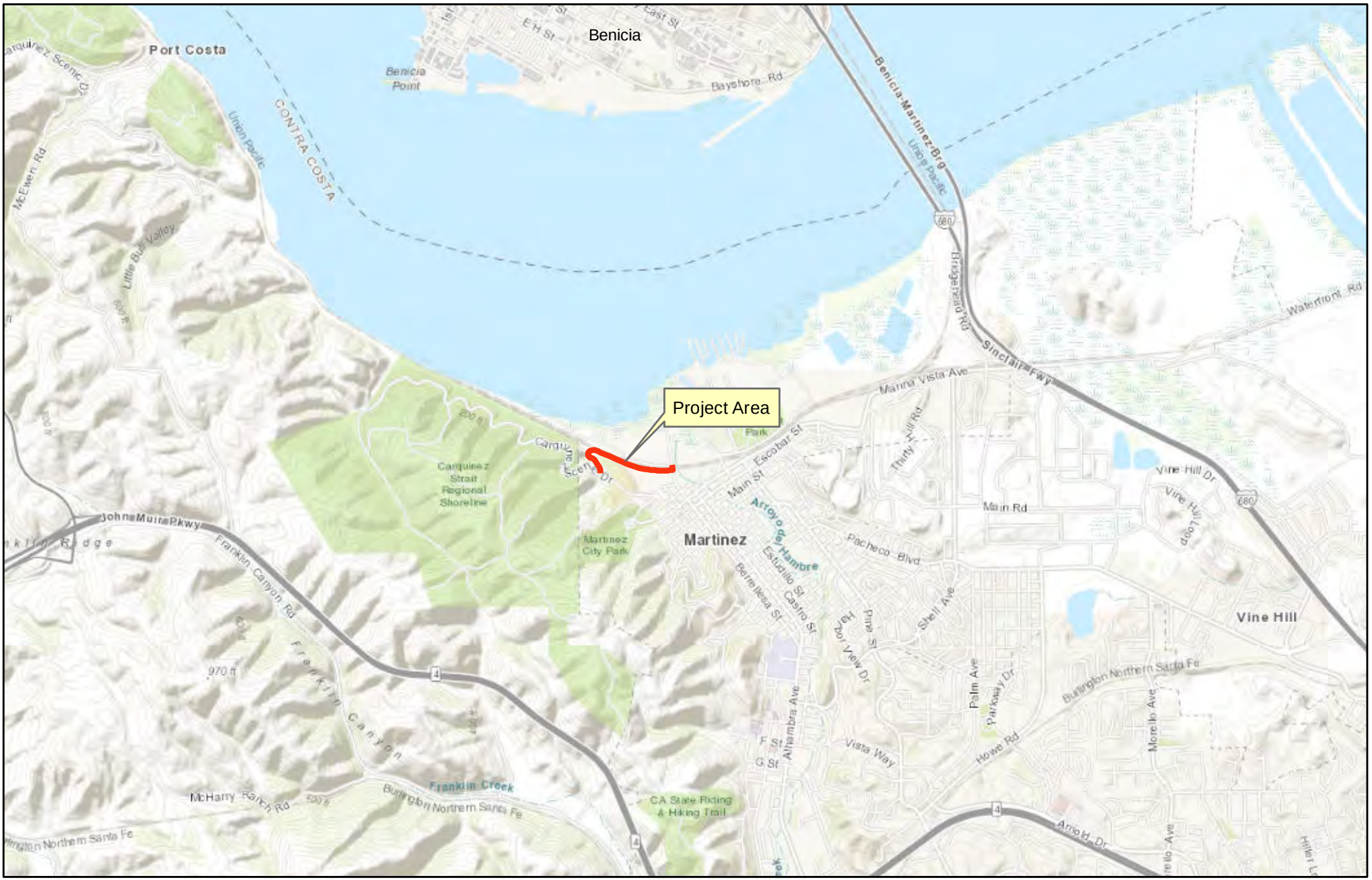
The Original Project was approved in 2003 with the City of Martinez as the Lead Agency. EBPRD has since assumed primary responsibility for the current Martinez Bay Trail Phase II Project (hereafter referred to as the proposed Project). EBRPD, in coordination with the City, is now finalizing Project design and updating previously obtained permits in order to construct the proposed Project. The proposed Project includes minor modifications and as the responsible agency, EBRPD is finalizing the design and providing funding for construction. As a result, EBRPD is filing an Addendum to the previously approved Mitigated Negative Declaration (MND) for review and approval by the EBRPD Board of Directors. The Addendum evaluates whether modifications/refinements to the proposed Project would result in any new or substantially more significant effects or require any new mitigation measures not identified in the 2003 MND.

As in the Original Project, the proposed Project includes improvements to construct approximately 3,100 feet of trail including the addition of a crossing of the UPRR alignment at Berrellesa Street. Due to the similarities in alignment, Project plans, needed work efforts, location, and environmental conditions, the elements of the currently proposed Project have been previously analyzed in the 2003 MND as they were needed to implement the Original Project. The proposed Project does include upgrades to the existing railroad crossing at Berrellesa street to meet current California Public Utilities Commission (CPUC) standards and UPRR requirements. This would include removal and replacement of existing gate arms, and enhanced signage, striping and safety improvements for the UPRR crossing. These enhancements have

been designed to preserve the functionality of the railroad. In addition, the proposed Project would result in paving of an approximately 700-foot portion of trail from the Nejedly Stating Area to the UPRR right-of-way. This section of trail was originally approved to be paved but was instead constructed with aggregate base and is now partly overgrown with upland ruderal vegetation. The Addendum also found that the mitigation that has already been implemented to offset impacts on wetlands was completed and is considered to be appropriate to offset the lost wetland habitat.

1.2 Project Location

The proposed Project is located in the City of Martinez in Contra Costa County, California. The proposed Project will occupy the same area as the Original Project. The proposed trail begins at EBRPD property at the Nedjedly Staging area, extends northerly toward the UPRR right-of-way, then proceeds easterly to Berrellesa Street. At Berrellesa Street the proposed trail crosses the UPRR right-of-way between milepost 31.10 and milepost 31.38 within UPRR's Martinez Subdivision. The balance of the trail then continues north following the easterly right-of-way of Berrellesa Street before terminating at the existing EBRPD Martinez Regional Shoreline parking lot at Granger's Wharf (Figure 1).



East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 1 - Vicinity Map
May 2020

1.3 Project Description

1.3.1 Overview

The proposed Project is located in the same area and follows the Original Project alignment. The proposed Project includes approximately 3,100 feet of paved trail that will provide connectivity between the Nejedly Staging area at Carquinez Scenic Drive and the SFBT at EBRPD Martinez Regional Shoreline parking lot and will complete a link planned for by the SFBT Plan. The SPBT Plan consists of a 400-mile regional network of bicycle and hiking trails along the shoreline areas of San Francisco and San Pablo Bays. Local cities, counties, and park districts along the trail network have worked closely with the Association of Bay Area Governments in developing the Bay Trail Plan.

The proposed Project is being developed and will be maintained by the EBRPD. A portion of the trail is located in an easement on the UPRR, and within jurisdictional areas of the San Francisco Bay Water Quality Control Board (SFBWQCB), Bay Conservation and Development Commission (BCDC), California Department of Fish and Wildlife (CDFW), and U.S. Army Corps of Engineers (Corps). The proposed Project will include an update to agreements and approvals from regulatory agencies previously obtained in 2003-2004.

1.3.2 Proposed Trail Segments and Project Changes

The proposed Project consists of a single trail, but it is defined by four segments. All segments of the proposed Project are in the same location and rights-of-way as the Original Project. Figure 2 shows the proposed Project location and segments.

Segment 1 was previously constructed with aggregate base. An asphalt concrete paved surface was approved in the MND of the Original Project but was not installed since the construction of Segment 2 would happen at an unknown future date and was dependent on obtaining a UPRR easement. Segment 1 begins at the Nejedly Staging area at Carquinez Scenic Drive and extends northwesterly for approximately 800 feet to its terminus approximately 100 feet south of the existing UPRR alignment. Proposed work in this segment includes removal of upland and ruderal vegetation covering the existing gravel trail and resurfacing the trail with asphalt. Vegetation clearing and maintenance will also be required to clear the existing rock lined ditches adjacent to the trail. Minor bridge maintenance will be performed to repair a gap between the existing trail and abutment. No work will occur within the creek or stream crossing to complete this bridge repair. The proposed trail dimensions are consistent with the Original Project and will be approximately 10 feet of pavement with 2-foot aggregate base shoulders. No expansion of any existing facilities is proposed, and work will be within the scope of the Original Project.

Segment 2 is approximately 1,900 feet in length and roughly parallel to the UPRR alignment. This portion of the proposed Project will include trail construction, grading, tree and vegetation removal, and fill of approximately 21,780 square feet (0.5 acres) of jurisdictional wetlands. The Original Project MND specified that mitigation for this loss would occur through the creation and enhancement of 34,380 square feet (0.79 acres) of wetland habitat. This mitigation effort was completed prior to October 2007 at the Martinez Regional Shoreline.

Segment 3 of the Original Project included the installation of a trail crossing, signage, and safety improvements at the UPRR alignment at Berrellesa street. The improvements under the proposed Project will be within the same area and be substantially the same as under the Original Project, but will include minor additional safety enhancements including enhanced signage and striping in order to meet current

CPUC standards and maintain consistency with UPRR requirements and easement conditions. Infrastructure improvements to meet current standards include removal and replacement of both gate arms, and installation of updated signage, striping, and landing pads to meet ADA requirements. The improvements to meet current standard will not change the existing road width and will not create additional motor vehicle travel lanes.

Segment 4 of the both the Original Project and the proposed Project was previously completed by the City and no additional work will occur there as part of the proposed Project. This segment extends northerly from the UPRR right-of-way, on the easterly side of Berrellesa Street. This extension terminates at the existing EBRPD Martinez Regional Shoreline parking lot and connects to a previously completed section of the SFBT.

2. Methods

2.1 Background Review

For purposes of this report, the Biological Study Area (BSA) includes the Project footprint as well as a surrounding 50-foot buffer. This buffer area was included in this analysis in order to show adjacent sensitive resources that are avoided but could be indirectly impacted by the proposed Project.

Prior to conducting field investigations, SBI biologists reviewed maps and aerial imagery of the BSA and vicinity obtained from the City, U. S. Geological Survey (USGS), National Wetlands Inventory (2020), and Google Earth Pro software (Google Inc. 2020). The background review also included database queries and desktop review of existing environmental documents and publications, including the Biological Assessment (Bobzien 2003) and MND completed for the Project (City 2003). Reports, scientific literature, and technical databases that were reviewed for information relevant to the proposed Project included the following:

- California Natural Diversity Database (CNDDB) (CDFW 2020);
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS 2020) for the Project region, which is defined as the *Benicia* USGS 7.5-minute quadrangle;
- CNPS Online Manual of California Vegetation (CNPS 2020);
- U.S. Fish and Wildlife Service (USFWS) IPaC Trust Resource Report (USFWS 2020a);
- USFWS National Wetlands Inventory (USFWS 2020b);
- eBird (2020).

This review included federal and state listed plant species, and species included on California Rare Plant Rank (CRPR) 1A, 1B, 2A, 2B, 3 and 4 lists. Biologists also reviewed records of birds reported in nearby areas, such as at the Martinez Regional Shoreline Park, Carquinez Strait Regional Shoreline, and on eBird (2020).

Special-status biological resources are defined as biological resources protected and/or regulated by federal, state, and/or local laws and policies, and include all species that are:

- listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA) or candidates for possible future listing;
- listed or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA);
- identified by CDFW as Species of Special Concern;
- listed as Fully Protected under the California Fish and Game Code;
- listed as rare under the California Native Plant Protection Act;
- considered jointly by CDFW and CNPS to be "rare, threatened, or endangered in California" and assigned a CRPR. The CDFW system includes six rarity ranks for categorizing plant species of concern, which are summarized as follows:
    - CRPR 1A - Plants presumed to be extinct in California;
    - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
    - CRPR 2A - Plants that are presumed extirpated in California, but more common elsewhere;
    - CRPR 2B - Plants that are rare threatened, or endangered in California, more common elsewhere;
    - CRPR 3 - Plants About Which More Information is Needed (review list)

- considered a locally significant species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G);
    - CRPR 4 plants are addressed here, if applicable;
- otherwise meet the definition of rare or endangered under CEQA §15380 (b) and (d).

Special-status biological resources also include Sensitive Natural Communities (SNC) that are identified by CDFW as having a state (S) rarity rank of 1, 2, or 3 (CDFW 2019a), where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable. SNCs have high potential to support special-status plant and animal species and can provide important ecological functions such as enhancing flood and erosion control and maintaining water quality. SNCs are described in a hierarchical fashion, with the most detailed describing the specific alliances and associations that determine rarity. For alliances with State ranks of S1-S3, all associations within them are also considered sensitive. Most types of wetlands and riparian communities are considered SNCs due to their limited distribution in California. Additionally, most of these communities are also subject to regulation by the Corps' jurisdiction under Section 404 of the Clean Water Act, by CDFW under Section 1602 of the California Fish and Game Code, and by the Regional Water Quality Control Board under the Porter-Cologne Water Quality Control Act.

2.2 Field Investigations

A reconnaissance-level field survey of the BSA was conducted by SBI biologists Bridget Sousa, Ph.D., and Natasha Dvorak, B.A., on May 12, 2020. The purpose of this survey was to characterize existing biological conditions in the BSA, including the presence and distribution of biotic habitats, potentially regulated habitats, and special-status species. Searches for evidence of current or past raptor or Ardeid (i.e., herons and egrets) nesting activity, bat roosting habitat, burrowing owl (*Athene cunicularia*) roosting and nesting habitat (i.e., burrows of California ground squirrels [*Otospermophilus beecheyi*]), suitable habitat for California red-legged frogs (*Rana draytonii*), and nests of the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, were also conducted during the field survey.

In addition, a formal wetland delineation was conducted by SBI biologists Ms. Dvorak and Ms. Sousa on May 12, 2020. The biotic habitats and jurisdictional features in the BSA were mapped using a combination of a Trimble R1 GNSS receiver with submeter accuracy, in addition to aerial imagery available from Google Earth Pro software (Google Inc. 2020) and ArcGIS® software (ESRI 2020), and topographic line data provided by Kimley-Horn and Associates, Inc.

3. Regulatory Setting

The following discussion identifies federal, state, and local agencies and laws that could be applicable to the proposed Project which pertain to biological resources. Wildlife and botanical resources are regulated at the federal level by the USFWS and at the state level by the CDFW. Waters and wetlands are regulated by multiple agencies and laws, with agencies differing in their wetland definitions and their corresponding jurisdictions. The Corps, CDFW, and Regional Water Quality Control Boards (RWQCB) have varying jurisdiction over aquatic features in the BSA.

3.1 Federal Regulations

3.1.1 Federal Endangered Species Act

The federal Endangered Species Act of 1973 (16 USC 1531–1544), as amended, protects plants, fish, and wildlife that are listed as endangered or threatened by the USFWS or National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). Section 9 of the FESA prohibits the "take" of listed fish and wildlife, where "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant under federal jurisdiction and removing, cutting, digging-up, damaging, or destroying any listed plant in knowing violation of state law (16 United States Code [USC] 1538). FESA does not protect plants growing on private property, unless state laws are violated in the course of harming the listed plant.

The FESA allows for issuance of incidental take permits to private parties either in conjunction with a Habitat Conservation Plan (HCP) or as part of a Section 7 consultation. Under Section 10 of the FESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the proposed Project area, identifying impacts to the covered species, and presenting the measures that will be undertaken to avoid, minimize, and mitigate such impacts. Under Section 7 of the FESA, federal agencies are required to consult with USFWS and/or NOAA Fisheries, as applicable, if their actions—including permit approvals or funding—may affect a federally listed species (including plants) or designated critical habitat. If the proposed Project is likely to adversely affect a species, the federal agency will initiate formal consultation with the USFWS and/or NOAA Fisheries and issue a Biological Opinion as to whether a proposed agency action(s) is likely to jeopardize the continued existence of a listed species (jeopardy) or adversely modify critical habitat (adverse modification). As part of the Biological Opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action will not jeopardize the continued existence of the species or adversely modify designated critical habitat.

3.1.2 Clean Water Act

The CWA establishes a permit program administered by the U.S. Army Corps of Engineers (Corps) that regulates discharge of dredged or fill materials into waters of the U.S., including wetlands. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, developed by the U.S. Environmental Protection Agency (EPA) in conjunction with the Corps (40 C.F.R. Part 230). The Corps requires a permit if a project proposes placement of structures within navigable waters and/or alterations of waters of the U.S. The EPA has the ultimate authority under the CWA and can veto the Corps' issuance of a permit to fill jurisdictional waters.

Several U.S. Supreme Court cases have challenged the scope and extent of the Corps' jurisdiction over waters of the U.S. and led to reinterpretations of that authority. The Solid Waste Agency of Northern Cook County v. Army Corps of Engineers (January 9, 2001) decision found that jurisdiction over non-navigable, isolated, intrastate waters could not be based solely on the use of such waters by migratory birds. This reasoning could be extended to suggest that waters need a demonstrable connection with a 'navigable water' to be protected under the CWA. The introduction of the term 'isolated' led to the consideration of the relative connectivity between waters and wetlands as a jurisdictionally relevant factor. Rapanos v. United States (June 2006) further questioned the definition of "waters of the U.S." and the scope of federal

regulatory jurisdiction over such waters; the case resulted in a split decision that agreed upon the need for a 'significant nexus' with traditional navigable waters.

EPA and the Corps have defined the significant nexus standard as follows:

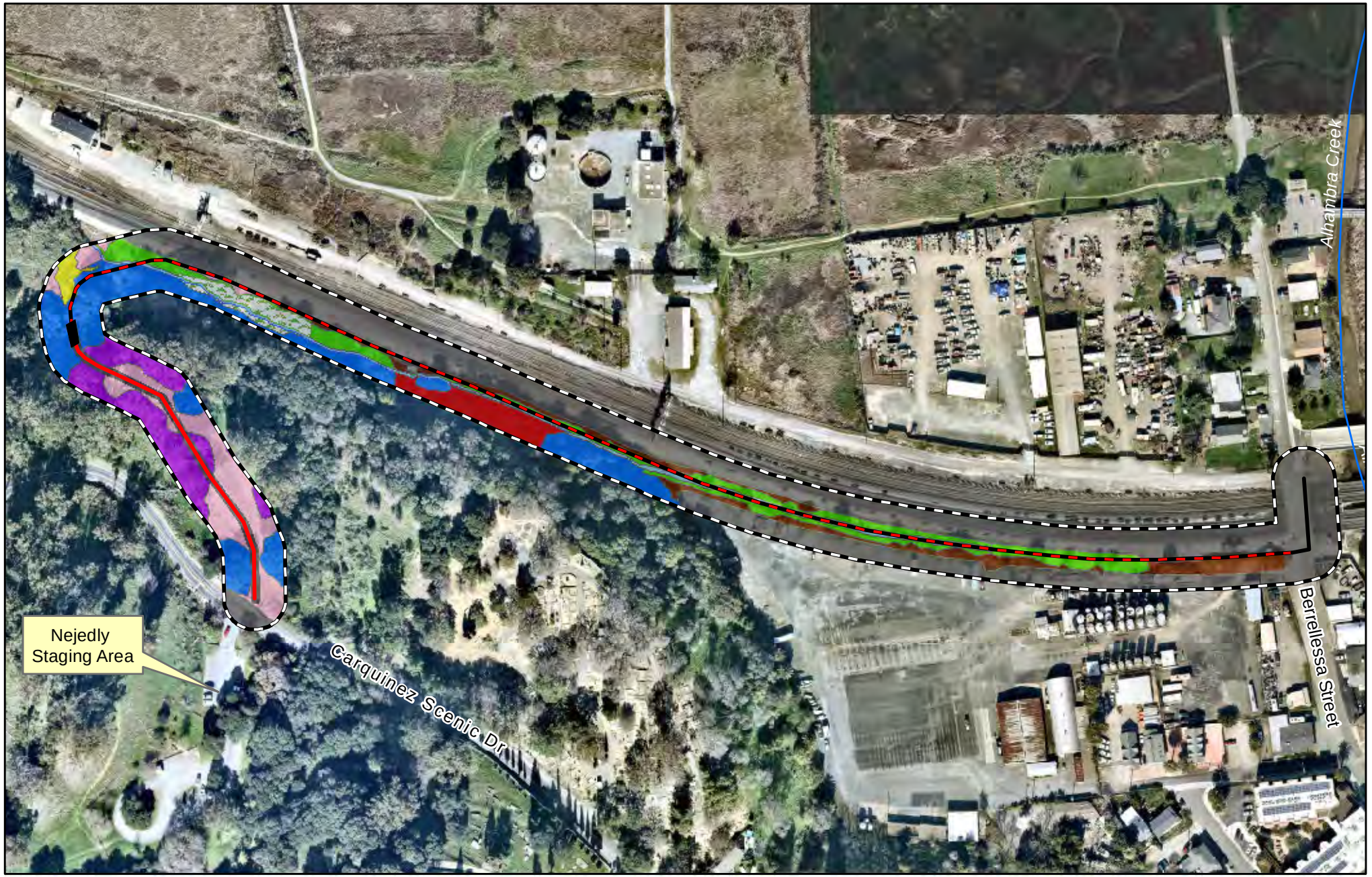
> A significant nexus analysis assesses the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters.

Significant nexus analysis includes consideration of hydrologic and ecologic factors including: volume, duration, and frequency of flow; proximity to a traditional navigable water; size of watershed; average annual rainfall; average annual winter snow peak; potential of tributaries to carry pollutants and flood waters to traditional navigable waters; provision of aquatic habitat that supports a traditional navigable water; potential of wetlands to trap and filter pollutants or store flood waters; and maintenance of water quality in traditional navigable waters.

The Corps released guidance in 2007 stating that they and the EPA will take jurisdiction over wetlands adjacent to traditional navigable waters even when they do not have a continuous surface connection to traditional navigable waters. However, they generally do not assert jurisdiction over swales or ditches that drain only uplands and do not carry a relatively permanent flow of water.

3.1.3 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.), administered by the Corps, requires permits for all structures (e.g., riprap) and activities (e.g., dredging) within navigable waters of the U.S. (those subject to the ebb and flow of the tide and susceptible to use as means of interstate transport or foreign commerce in their natural condition or by reasonable improvements). The Corps grants or denies permits based on the effects of navigation. Many activities covered under this act are also covered under Section 404 of the CWA.



Biological Survey Area
Pedestrian Bridge
Martinez Bay Trail
Segment 1
Segment 2
Segment 3
Creeks/Drainages (CDD)

Habitats
Arroyo Willow Thickets
California Sagebrush Scrub
Coast Live Oak Woodland and Forest
Creeping Ryegrass Turf
Developed
Eucalyptus Grove
Freshwater and Brackish Marshes
Low Flow Channel
Ruderal
Wild oats and Annual Brome Grassland

N

0 200 400 Feet

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 2 - Biotic Habitats Map
May 2020

SBI

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Martinez, CA
May 2020

Figure 3 - Impacts to Wetlands and Other Waters of the U.S. for the Martinez Bay Trail Project

SBI

Legend

- Map Reference Point
- Survey Area Boundary (6.68 acres)
- Permanent Impact Area
- Creeks/Drainages (Contra Costa County)
- Unmapped Drainages
- Stand alone swale
- Low Flow Channel

Wetlands (0.74 acres)

- Wetlands (0.14 acres)
- Adjacent Wetland (0.60 acres)

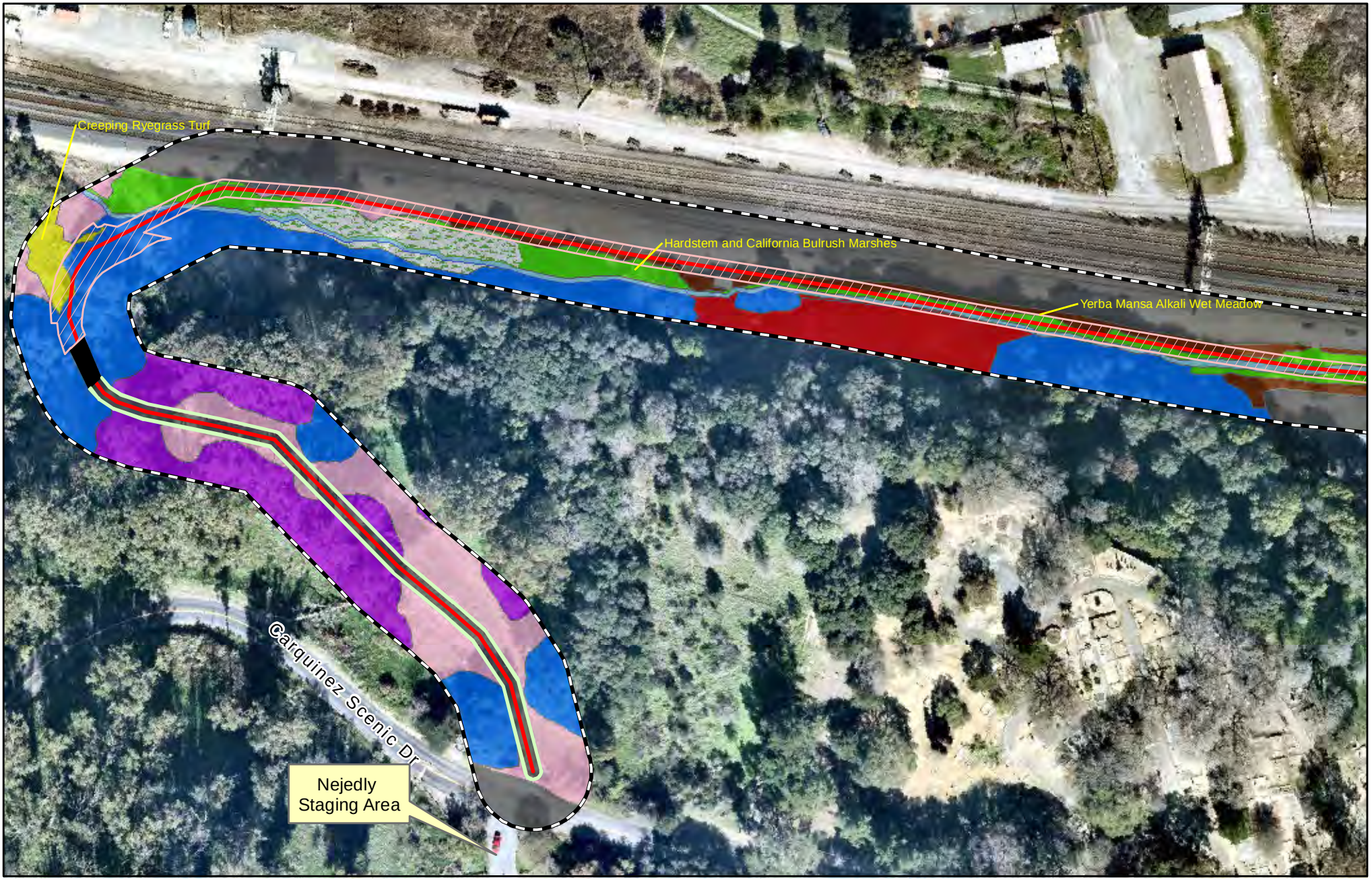
N

0 100 200 400 Feet

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet
1 in = 183 ft

Created on May 26, 2020

Delineators:Natasha Dvorak and Bridget Sousa
Delineation dates: May 12, 2020



Martinez Bay Trail
Biological Survey Area
Pedestrian Bridge

Habitats
- Arroyo Willow Thickets
- California Sagebrush Scrub
- Coast Live Oak Woodland and Forest
- Creeping Ryegrass Turf
- Developed
- Eucalyptus Grove
- Freshwater and Brackish Marshes
- Low Flow Channel
- Ruderal
- Wild oats and Annual Brome Grassland

Permanent Impacts
Temporary Impacts

N

0 100 200 Feet

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 4.1 - Impacts Map
Segment 1 & Segment 2 (West)
May 2020

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Martinez Bay Trail
Biological Survey Area

Habitats

Arroyo Willow Thickets
California Sagebrush Scrub
Coast Live Oak Woodland and Forest
Creeping Ryegrass Turf
Developed
Eucalyptus Grove
Freshwater and Brackish Marshes
Low Flow Channel
Ruderal
Wild oats and Annual Brome Grassland
Permanent Impacts

N

0 50 100 Feet

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 4.2 - Impacts Map
Segment 2 (East)
May 2020

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3.1.4 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

3.1.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, prohibits the import, export, take (which includes molest or disturb), sale, purchase or barter of any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), including their parts, nests, or eggs. Disturbance is defined as agitating or bothering a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

3.2 State Regulations

3.2.1 California Endangered Species Act

Sections 2050–2098 of the California Fish and Game Code (the California Endangered Species Act [CESA]) prohibit the take of state-listed endangered and threatened species unless specifically authorized by the CDFW. The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CESA and authorizes take through permits or memorandums of understanding issued under Section 2081 of CESA, or through a consistency determination issued under section 2080.1. Section 2090 of CESA requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

3.2.2 California Fish and Game Code

Certain wildlife species are protected by sections of the California Fish and Game Code. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

Fish and Game Code designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued for incidental take of these species.

Fish and Game Code Section 3503 et seq. states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of

Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected under this Section. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Section 4150 of the California Fish and Game Code protects bats and other non-game mammals. Take or possession of all non-game mammals or parts thereof is prohibited except as provided otherwise in the code or in accordance with regulations adopted by the commission. "Take" may include any activity resulting in mortality of non-game mammals, or disturbance sufficient to disrupt normal breeding activities, resulting in the death of young (e.g. destruction of a bat maternity colony or roost).

Certain plant species are also protected by sections of the California Fish and Game Code. The Native Plant Protection Act of 1973 (Fish and Game Code Sections 1900–1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act of 1973 and generally regards as rare many plant species included on CRPR 1A, 1B, 2A, and 2B of the CNPS Inventory of Rare and Endangered Vascular Plants of California. In addition, some CRPR 3 and 4 plants are considered if the population has local significance in the area and is subject to project impacts.

3.2.3 California Department of Fish and Wildlife Species of Concern

CDFW may confer the designation of "Species of Special Concern" on fish or wildlife species that meet the requirements for formal listing, but have not been formally listed under FESA or CESA, or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. Species of Special Concern is an administrative classification only, but these species should be considered "special-status" for the purposes of CEQA analyses.

3.2.4 Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of state waters. Their authority to regulate activities that could result in a discharge of dredged or fill material comes from the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne).

"Waters of the state" is broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state," and include isolated and non-navigable water and wetlands. Because the CWA applies to only certain waters, and Porter-Cologne applies to all waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S.

Projects that impact wetlands or waters of the state must meet RWQCB Waste Discharge Requirements. These requirements may be applied with or in addition to a CWA Section 401 water quality waiver or certification. Water Quality Certification may be required even if areas occur outside of Corps jurisdiction, because California's jurisdiction over its water resources is much broader than that of the federal government.

3.2.5 Regional Water Quality Control Board

The EPA delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System Program, to the State Water Resources Control Board. Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board and its regional boards as the principal agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the State board to adopt, review, and revise policies for all waters of the State (including both surface and groundwaters) and directs the regional boards to develop regional Basin Plans.

Waters of the State are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Water quality standards applicable to the proposed project are listed in the San Francisco Bay Basin (Region 2) Water Quality Control Plan (RWQCB 2017).

3.2.6 Lake and Streambed Alteration Program

Fish and Game Code Section 1602 requires any entity to notify CDFW before beginning any activity that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. If CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) would be required. A 1602 LSAA is also required for the removal of riparian vegetation.

Title 14, California Code of Regulations Section 1.72, defines stream as "a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." This definition includes ephemeral streams, canals, irrigation ditches, dry washes, aqueducts, and other water ways if they support aquatic life, riparian vegetation, or stream dependent terrestrial life (CDFW 1994). This definition also extends CDFW jurisdiction over streams to include riparian habitats that function as part of a watercourse. "Riparian" is defined as "on, or pertaining to, the banks of a stream." Riparian vegetation is defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFW 1994). At minimum, CDFW's jurisdiction includes any stream's bed and bank. Where riparian habitat is present, CDFW's jurisdiction extends to the outer edge of riparian vegetation.

3.2.7 Bay Conservation and Development Commission

The McAteer-Petris Act, first enacted in 1965, created the San Francisco Bay Conservation and Development Commission (BCDC) to protect the Bay and shoreline and provide for appropriate development and public access. The McAteer-Petris Act directs the Commission to oversee permit approvals for placing fill and extracting materials, including dredged material, or changing the use of any land, water, or structure within its jurisdiction. BCDC jurisdiction includes the Bay, shoreline band, saltponds, managed wetlands, and certain waterways. The shoreline development aspect of the Act

ensures that prime shoreline sites are reserved for priority uses, such as ports, water-related industry, airports, wildlife refuges, and water-related recreation. The Act also ensures that public access to the Bay is provided to the maximum extent feasible for each development project, and that shoreline development projects are designed in an attractive and safe manner.

Mean BCDC jurisdiction extends from the Carquinez Straits landward to encompass all marshlands above mean sea level and mean high tide, and farther inland to encompass a shoreline band 100 feet inland from mean high tide. Their jurisdiction includes marshes that are diked and have partial or total interruption from tidal influence. The Mean Higher High Water line for the Bay has been determined by the San Francisco Estuary Institute and is used by BCDC to delineate mean high tide.

3.2.8 Sensitive Natural Communities

Since 1999, CDFW has undertaken the classification and mapping of vegetation throughout the state as part of their Vegetation Classification and Mapping Program. Natural Communities are considered, along with plants and animals, part of the Natural Heritage Program's "conservation triad" of conservation significance. One purpose of the vegetation classification is to determine the level of rarity and imperilment of vegetation communities. Natural Communities have significance for conservation and CDFW directs that the presence of Sensitive Natural Communities be considered in the environmental review process along with occurrences of special-status plants and animals.

The CDFW ranks Sensitive Natural Communities based on their global (G) and state (S) rankings. Global rankings (G1–G5) reflect the overall rarity and endangerment of a habitat throughout its range. State rankings reflect a community's condition within California. If a Natural Community is ranked as a G1–G3, all of the vegetative associations within it would also be of high conservation priority. Sensitive Natural Communities are tracked in Rarefind (CDFW 2020) and the CDFW develops and maintains the Vegetation Classification and Mapping Program's classifications and rankings of all natural communities (CDFW 2019a).

3.2.9 California Oak Woodlands Conservation Act and Senate Bill 1334

The 2001 California Oak Woodlands Conservation Act and the 2004 Senate Bill 1334 protect oak woodlands. The Act recognizes the importance of California's oak woodlands in enhancing the natural and scenic beauty of the State, increasing the monetary and ecological value of property, and promoting ecological balance. The Senate Bill requires that impacts on oak woodlands be considered during CEQA review.

3.3 Local Regulations

3.3.1 City of Martinez Tree Ordinance

Chapter 8.12.020 of the Martinez Municipal Code states:

No person shall trench, grade or fill within the dripline of any protected tree (as defined below) or cut down, destroy, trim by topping or remove any protected tree on private property within the City without a tree permit, except as provided for in Section 8.12.050.

A protected tree is any one of the following:

1. On all properties within the City:

a. All oak trees and indigenous trees measuring 20 inches or larger in circumference (approximately 6.5 inches in diameter), measured 4 ½ feet from ground level. Oak trees include but are not limited to: *Quercus agrifolia* (California or Coast Live Oak), *Quercus douglasi* (Blue Oak), *Quercus kelloggii* (California Black Oak) or *Quercus lobata* (Valley Oak). Indigenous trees include but are not limited to: *Sequoia Sempervirens* (Coast Redwood), *Alnus Rhombifolia* (White Alder), *Alnus Oregona* (Red Alder), *Acer Macrophyllum* (Bigleaf Maple), *Aesculus Californica* (California Buckeye), *Arbutus Menziesii* (Madrone), *Umbellularia Californica* (California Bay or Laurel), *Juglans Hindsii* (California Black Walnut), *Platanus racemosa* (California Sycamore), or *Sambucus calliarpa* (Coast Red Elderberry).

b. Any tree shown to be preserved on an approved tentative map or development plan or required to be retained as a condition of approval.

c. Any tree required to be planted as a replacement for an unlawfully removed tree.

2. On any of the properties specified in Subsection 3 below:

a. Any tree measuring 20 inches or larger in circumference (approximately 6.5 inches diameter), measured 4 ½ feet from ground level including the oak trees listed above);

b. Any multi-stemmed tree with the sum of the circumferences measuring 40 inches or larger, measured 4 ½ feet from ground level;

c. and any significant grouping of trees, including groves of four or more trees.

3. Specified properties referred to in Subsection 2 above includes:

a. Any developed property within any commercial, professional office or industrial district.

b. Any undeveloped property within any district.

c. Any area designated on the General Plan for recreational purposes or open space.

d. Any area designated in the General Plan Open Space element as visually significant riparian or skyline vegetation and where the tree is adjacent to or part of a riparian, foothill woodland or oak savanna area, or cultivated orchard (within the Open space element) designated. Riparian trees include but are not limited to those listed as indigenous trees in subsection A.1.a. above.

B. Any person proposing to trench, grade or fill within the dripline of any protected tree or cut down, destroy, trim by topping or remove any protected tree shall apply to the City of Martinez Community Development Department for a tree permit, not less than ten days prior to the proposed tree removal or tree alterations.

4. Environmental Setting

4.1 General Study Area Description

The approximately 6.8-acre BSA is located in the Benicia, California USGS 7.5-minute quadrangle in Contra Costa County, California. Segment 1 of the BSA occurs predominantly within the oak (*Quercus* sp.) and eucalyptus (*Eucalyptus* sp.) woodlands of the Carquinez Strait Regional Shoreline. The northern terminus of Segment 1 is bordered to the north by UPRR tracks, and by coastal scrub habitat to the northwest. Segment 2 of the BSA is bordered to the north by a heavily trafficked 4-track railroad which includes the UPRR Ozol Terminal. Industrial, commercial, and residential development occur immediately north of the railroad tracks, interspersed with coastal tidal marsh and brackish marsh habitat along the western end. Coastal scrub habitat occurs to the west of Segment 2. To the south, the BSA is bordered by the lands of the Carquinez Regional Shoreline (western half) and by commercial development (eastern half). Habitats within the Carquinez Regional Shoreline south of Segment 2 include willow riparian and coastal scrub, backed by oak woodland. Segment 3 of the BSA occurs at the railroad crossing at Berrellesa Street, and is surrounded by industrial, commercial, and residential development. The Arroyo del Hambre, which connects Alhambra Creek to Suisun Bay, occurs approximately 96 feet east of Segment 3.

4.1.1 Climate and Subregion

The BSA is located within the California Floristic Province, San Francisco Bay Area Subregion. The province, which extends from Coos Bay in Oregon to northern Baja California, contains 25% of all plant species in the U.S. and Canada. Of these, 61% are found nowhere else in the world (California Academy of Sciences 2005). The subregion is well-defined physiographically by surrounding peaks and mountain ranges but is less well defined vegetationally because it encompasses a wide variety of vegetation types (Jepson Flora Project 2020). The climate is Mediterranean, characterized by brief wet winters and long dry summers. Coastal temperatures are lower than interior temperatures, and sometimes moderated by fog. Elevations in the BSA range from 9 feet to 64 feet above sea level. The BSA is located within the Suisun Bay Watershed. Headwaters originate within the Carquinez Strait Regional Shoreline and drain to Suisun Bay.

4.1.2 Soils

According to the U. S. Department of Agriculture Web Soil Survey (NRCS 2020), the BSA is comprised of *Omni silty clay*, *Los Gatos loam*, 50 to 75 percent slopes, and *Los Gatos loam*, 30 to 50 percent slopes. These soils are associated with upland slopes and flood plains. They derive from parent material of sedimentary rock residuum and alluvium. Los Gatos loam soils are not hydric; however, Omni silty clay is hydric. Surface soil textures are loam and silty clay.

4.2 Biotic Habitats

Reconnaissance-level surveys identified thirteen vegetation communities/land uses in the BSA: developed, ruderal, Eucalyptus grove, wild oats and annual brome grasslands, coast live oak woodland and forest, arroyo willow thickets, California sagebrush scrub, creeping ryegrass turfs, and freshwater and brackish marsh (including yerba mansa alkaline wet meadow, smartweed cocklebur patches, cattail marshes, hardstem and California bulrush marshes, and salt grass flats) (Table 1, Figure 3). Except for California sagebrush scrub, all these habitat types occur in the project footprint. These habitat types are described in

detail below, and representative photographs are presented in Appendix A. Plant species observed during the May 2020 surveys are listed in Appendix B, along with their wetland indicator status designated by the U.S. Army Corps of Engineers Research and Development Center Environmental Laboratory and their ecological impact rating designated by the California Invasive Plant Council (Cal-IPC) (2017).

Table 1. Biotic Habitats and Acreages

Biotic Habitats	Acreage
Developed	3.14
Ruderal	0.47
Eucalyptus Grove	0.45
Wild Oats and Annual Brome Grassland	0.49
Creeping Ryegrass Turf*	0.052
Coast Live Oak Woodland and Forest	0.94
California Sagebrush Scrub	0.23
Arroyo Willow Thicket	0.13
Freshwater and Brackish Marsh (includes Yerba Mansa Alkali Wet Meadow, Smartweed Cocklebur Patches, Cattail Marshes, Hardstem and California Bulrush Marshes, and Salt Grass Flats)	0.686
Low Flow Channel	0.187
Total	6.78

*Sensitive Natural Community

4.2.1 Developed

Vegetation. Developed land in the footprints of Segments 2 and 3 include paved portions of Berrellesa Street, UPRR tracks, and compacted gravel within the UPRR right-of-way (Figure 2, Photo 1). Developed land in the outer edges of the BSA includes asphalt-paved Berrellesa Street and Carquinez Scenic Drive. Areas within the UPRR right-of-way show signs of herbicide application, and vegetation in this area is largely absent.

Wildlife. Wildlife species associated with the developed portions of the BSA are those that are tolerant of high levels of human disturbance, including non-native species such as the European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), Eurasian collared dove (*Streptopelia decaocto*), Virginia opossum (*Didelphis virginiana*), and Norway rat (*Rattus norvegicus*). Common native species also utilize this habitat, including the western fence lizard (*Sceloporus occidentalis*), raccoon (*Procyon lotor*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferous*), and mourning dove (*Zenaida macroura*). The paved and gravel surfaces in the are not suitable breeding habitat for most species, and animals occurring in developed habitat in the BSA will be transient foragers and dispersers, rather than residents or breeders.

4.2.2 Ruderal

Vegetation. Ruderal vegetation occurs in Segment 2. Regular treatment of this area with herbicides to maintain the UPRR right-of-way has resulted a generally depauperate and weakly growing assemblage of plants interspersed with bare ground. Ruderal vegetation in the BSA is dominated by non-native grasses, including ripgut brome (*Bromus diandrus*) and foxtail brome (*Bromus madritensis*), with some native gumplant (*Grindelia stricta*).

Wildlife. Because of the limited extent and highly disturbed nature of ruderal habitat in the BSA, this habitat is not expected to support a unique assemblage of wildlife species. Wildlife species that occur in this habitat are similar to those described for the Developed habitat above.

4.2.3 Eucalyptus Grove

Vegetation. Eucalyptus grove habitat occurs in Segment 1 of the proposed Project (Figure 3, Photo 2). The Eucalyptus grove alliance is dominated by an overstory of Eucalyptus trees. The accumulation of leaf litter and allelopathic chemicals in these groves inhibit other plant growth, resulting in a sparse understory. Understory vegetation in the Eucalyptus grove in the BSA is similar to, and contiguous with the Wild Oats and Annual Brome Grassland described below. It is dominated by non-native grasses and forbs, including wild oats (*Avena* sp.), ripgut brome, bull thistle (*Cirsium vulgare*), and black mustard (*Brassica niger*). These species are ranked as moderately invasive (Cal-IPC 2020).

Wildlife. Mature eucalyptus groves may support a variety of wildlife. Birds in particular utilize these groves for foraging and nesting. Cavities and loose bark provide nesting opportunities for native and non-native birds, such as the European starling, Bewick's wren (*Thryomanes bewickii*), and house finch, while large branches can support nesting raptors. A red-shouldered hawk (*Buteo lineatus*) nest with young was observed in a eucalyptus tree just outside the BSA. No other raptor nests were observed in this habitat, but the mature eucalyptus trees throughout this area could provide nesting opportunities for other raptors, including Cooper's hawks (*Accipiter cooperii*), red-tailed hawks (*Buteo jamaicensis*). Eucalyptus flowers provide foraging opportunities for nectivorous birds and insects, including Anna's hummingbirds and honeybees (*Apis* sp.). Shedding bark also provides roosts for bats, such as the Mexican free-tailed bat (*Tadarida brasiliensis*) and California Myotis (*Myotis californicus*). Reptiles and small mammals associated with Wild Oats and Annual Brome Grasslands are also common in Eucalyptus groves.

4.2.4 Wild Oats and Annual Brome Grassland

Vegetation. Wild oats and annual brome grassland occurs within openings in Eucalyptus grove habitats in the northern portion of the BSA, in Segment 1 (Figure 3, Photo 3). This alliance also characterizes portions of the understory of the Eucalyptus grove and Coast Live Oak Woodland and Forest alliances. Non-native grasses dominate this alliance, including wild oats, ripgut brome, soft brome (*Bromus hordeaceus*), and foxtail brome. Other non-natives are also common in the herbaceous layer, such as black mustard, California burclover (*Medicago polymorpha*), cutleaf geranium (*Geranium dissectum*), and English plantain (*Plantago lanceolata*).

Wildlife. The non-native grassland in the BSA provides limited habitat for a relatively small number of species, due to the lack of structural complexity of the vegetation. Wildlife species associated with more extensive grassland habitats in the region, such as the loggerhead shrike (Lanius ludovicianus), western

meadowlark (*Sturnella neglecta*), and California ground squirrel (*Otospermophilus beecheyi*) are absent from this small patch of habitat. Most of the bird species occurring in this area nest in adjacent woodland habitats and utilize the grassland only for foraging. Such species include the black phoebe (*Sayornis nigricans*), morning dove, and American crow (*Corvus brachyrhynchos*). In the non-breeding season, a variety of bird species will utilize grassland habitats for foraging, including white-crowned sparrows (*Zonotrichia atricapilla*), savannah sparrows (*Passerculus sandwichensis*), and lesser goldfinch (*Carduelis psaltria*).

Small mammals may also be present in nonnative grassland habitat, including the California field mouse (*Peromyscus californicus*), house mouse (*Mus musculus*), and black rat (*Rattus rattus*). Larger mammals are also likely to occur here, including black-tailed hares (*Lepus californicus*) and striped skunks (*Mephitis mephitis*). Reptiles and amphibians likely to occur in Wild Oats and Annual Brome Grassland include western fence lizards, southern alligator lizards (*Elgaria multicarinata*), gopher snakes (*Pituophis catenifer*), and Sierran tree frogs (*Pseudacris sierra*).

4.2.5 Creeping Ryegrass Turf

Vegetation. Only one patch of creeping ryegrass turf occurs in the BSA. It is located immediately south of the pedestrian bridge in Segment 2 (Figure 3, Photo 4). This area is a mesic transitional zone situated between scrub habitat on the western hillside and coast live oak woodland and forest along the intermittent creek to the south and east. Creeping ryegrass turf is in the BSA is dominated by the native wild rye species *Leymus cinereus* and/or *Leymus triticoides*. Other native grasses and forbs also occur in the herbaceous layer, such as native brome (*Bromus* sp.), Italian ryegrass (*Festuca perennis*) rushes (*Juncus* sp.), Douglas' sagewort (*Artemesia douglasiana*). Non-natives also occur in the herbaceous layer, including wild oats (*Avena fatua*), poison hemlock (Conium maculatum) and teasel (*Dipsacus* sp.). Poison hemlock and teasel are both ranked as moderately invasive (Cal-IPC 2020). Relatively low cover of coyote brush (*Baccharis pilularis*) was also present in this habitat in the BSA.

Wildlife. Because of the limited extent of the Creeping ryegrass turf habitat in the BSA, this habitat is not expected to support a unique assemblage of wildlife species. Wildlife species that occur in this habitat are similar to those described for Wild Oats and Annual Brome Grassland above, and Coast Live Oak Woodland and Forest below.

4.2.6 Coast Live Oak Woodland and Forest

Vegetation. The overstory of the coast live oak woodland and Forest in the BSA is dominated by coast live oak (*Quercus agrifolia*), with co-occurring California bay (*Umbellularia californica*), California walnut (*Juglans californica*), and willow (*Salix* sp.) (Figure 3, Photo 5). The understory is sparsely vegetated to bare in Segment 1 and becomes lushly vegetated near the pedestrian bridge and east along Segment 2. In Segment 1, isolated stands of poison oak and Himalayan blackberry (*Rubus armeniacus*) occur within wild oats and brome grassland. The understory in Segment 2 supports woody shrubs and vines, including poison oak, California blackberry (*Rubus ursinus*), elderberry (*Sambucus* sp.), and plum (*Prunus* sp.). The herbaceous layer in Segment 2 includes open areas of non-native grasses and lushly vegetated areas supporting a variety of forbs, including fennel (*Foeniculum vulgare*), thimbleberry (*Rubus parviflorus*), soap plant (*Chlorogalum pomeridianum*), and snowberry (*Symphoricarpos* sp.). Fennel is ranked as moderately invasive by Cal-IPC, and Himalayan blackberry is ranked as highly invasive (Cal-IPC 2020). Evidence of

anthropogenic disturbance associated with transient populations and dump sites is also in evidence, with trash scattered beneath the trees in several areas along Segment 2 (Photo 6).

Wildlife. The wildlife community within the coast live oak woodland and forest in the BSA is influenced by the proximity of this habitat to the highly disturbed UPRR tracks and urban boundaries of the City. Wildlife occurring here are therefore those species that are tolerant of relatively high levels of anthropogenic noise and human disturbance. Oak dominated woodlands typically support diverse animal communities. Coast live oaks provide abundant food resources, in the form of nuts and invertebrates, and shelter, in the form of cavities, crevices, and branch complexes. A variety of common wildlife species is expected to utilize these woodlands. Leaf litter and woody debris may provide cover and foraging habitat for California slender salamanders (*Batrachoseps attenuatus*), western fence lizards, and other common reptiles. A number of common birds were observed in this habitat during reconnaissance surveys, including acorn woodpeckers (*Melanerpes formicivorus*), California scrub jays (*Aphelocoma californica*), oak titimice (*Baeolophus inornatus*), bushtits (*Psaltriparus minimus*), dark-eyed juncos (*Junco hyemalis*) and lesser goldfinches (*Spinus psaltria*). No raptor nests were observed in this habitat, but mature oaks may provide nesting opportunities for the same species that utilize the adjacent eucalyptus grove. Urban-adapted mammals, such as raccoons, striped skunks, fox squirrels (*Sciurus niger*), and black-tailed deer (*Odocoileus hemionus*) commonly forage in oak woodlands. In addition, small numbers of bats, such as the Mexican free-tailed bat, may roost in crevices and cavities in oak woodlands.

4.2.7 California Sagebrush Scrub

Vegetation. California sagebrush scrub habitat does not occur in the Project footprint but occurs on the hillside forming the western border of Segment 2 (Figure 3, Photo 7). Coyote brush and sagebrush (*Artemesia californica*) dominate the shrub layer in this location. Native grasses and forbs occur at this location, including golden yarrow (*Eriophyllum confertiflorum*), common yarrow (*Achillea millefolium*), native brome, Lonicera, toyon (*Heteromeles arbutifolia*), and coyote mint (*Monardella villosa*). Non-native grasses and forbs also occur in the herbaceous layer, including teasel, Smilo grass (*Stipa miliacea*), and honeysuckle (*Lonicera* sp.).

Wildlife. Because of the limited extent of the California sagebrush scrub habitat in the BSA, this habitat is not expected to support a unique suite of wildlife species. Wildlife species that occur in this habitat are similar to those described for Wild Oats and Annual Brome Grassland, and Coast Live Oak Woodland and Forest above.

4.2.8 Arroyo Willow Thicket

Vegetation. One patch of arroyo willow thicket occurs in the BSA, near the western end of Segment 2. This thicket is narrow in extent and is bordered by mature oak woodlands to the south and the UPRR right-of-way to the north. Mature willows are dominant in this habitat and occur intermixed with dense stands of California blackberry (Figure 3, Photo 8). Coyote brush, poison oak, fennel (*Foeniculum vulgare*) and plants associated with adjacent freshwater marsh habitat (described below) occur in the understory.

Wildlife. Willow riparian habitat is typically of high value to wildlife and supports a relatively diverse wildlife community. However, the limited extent of the willow thicket on site, and its location adjacent to the UPRR right-of-way limit the potential for wildlife species typically associated with larger, more mature willow stands to occur. Nevertheless, many common wildlife species that are attracted to the adjacent oak

woodlands will also occur here. Common amphibians and reptiles, such as the Sierran chorus frog, ring-necked snake (*Diadophis punctatus*), and western terrestrial garter snake (*Thamnophis elegans*), and California alligator lizard (*Elgaria multicarinata*) may occur here. Migrating birds, such as the orange-crowned warbler (*Oreothlypis celata*), ruby-crowned kinglet (*Regulus calendula*), and yellow-rumped warbler (*Setophaga coronata*) may forage in willows on site. Some bird species that nest in the adjacent oak woodlands may also nest in these willows; however, willow-associated nesters, like the yellow warbler (*Setophaga petechia*), are not expected to occur in such small stands. Urban adapted mammals are likely to traverse these willows, and common small mammals like field mice may also occur here.

4.2.9 Freshwater and Brackish Marsh

Vegetation. Freshwater and brackish marsh habitats were identified along Segment 2 in the BSA, and a formal wetland delineation survey was conducted by SBI in May 2020. Five suballiances of freshwater and brackish marsh were identified in the BSA: Yerba Mansa Alkaline Wet Meadow, Smartweed Cocklebur Patch, Cattail Marsh, Hardstem and California Bulrush Marsh, and Saltgrass Flats. Two of these suballiances are considered Sensitive Natural Communities: Yerba Mansa Alkaline Wet Meadow (s2), and Hardstem and California Bulrush Marshes (S3).

Yerba Mansa Alkaline Wet Meadow

This suballiance has rarity listing of S2 which indicates that it is fairly rare and threatened. This habitat type occurred in only one location in the BSA, in a ponded segment of the low flow channel. Early growth of *Anemopsis californica* at approximately 30% cover was observed in this location during the aquatic resources delineation, with the remaining cover composed of algal matting, mud, or water.

Smartweed Cocklebur Patches

CNPS describes the Smartweed Cocklebur Patches community as *Polygonum lapathifolium* and/or *Xanthium strumarium* or other knotweed species being dominant or co-dominant in the herbaceous layer with *Bidens frondosa, Cuscuta pentagona, Echinochloa spp., Eleocharis macrostachya, Euthamia occidentalis, Helianthus annuus, Phyla nodiflora* and *Polygonum* spp. Membership rules require greater than 50% relative cover in the herbaceous layer. It has a rarity listing of S5 which indicates it is a fairly secure vegetation community. Common cocklebur (*Xanthium strumarium)* occurs particularly in disturbed areas such as seasonally flooded streamsides and alluvial flats. Within the BSA, Smartweed Cocklebur Patches occur in the open herbaceous areas downstream as a stand-alone species or in conjunction with *Juncus, Carex, Cyperus, Elymus, Rumex, Distichlis,* and *Grindelia*, among others.

Cattail Marshes

CNPS describes the Cattail Marshes community as *Typha angustifolia, Typha domingensis* or *Typha latifolia* being dominant or co-dominant in the herbaceous layer with *Agrostis stolonifera, Argentina egedii, Cyperus spp., Distichlis spicata, Echinochloa crus-galli, Eleocharis macrostachya, Equisetum telmateia, Juncus spp., Lemna minuta, Lepidium latifolium, Oenanthe sarmentosa, Persicaria lapathifolia, Persicaria punctata, Phragmites australis, Schoenoplectus americanus, Schoenoplectus californicus, Typha ×glauca* and *Xanthium strumarium*. Emergent trees may be present at low cover, including *Salix* spp. It has a rarity listing of S5 which indicates it is a fairly secure vegetation community. Membership rules require greater than 50% relative cover in the herbaceous layer. Within the BSA this community is comprised of the non-native narrowleaf cattail (*Typha angustifolia*) and tends to occur in the open herbaceous areas downstream as exclusive patches.

Hardstem and California Bulrush Marsh

This suballiance is considered a Sensitive Natural Community and has a rarity listing of S3, which indicates it is moderately rare and threatened. It occurs primarily as an understory community beneath the arroyo willow thicket within the low flow channel, becoming most prominent at the downstream end.

Salt Grass Flats

CNPS describes the Salt Grass Flats community as *Distichlis spicata, Juncus acutus* and/or *Juncus cooperi* being dominant or co-dominant in the herbaceous layer with *Agrostis viridis, Ambrosia chamissonis, Anemopsis californica, Atriplex prostrata, Batis maritima, Bromus diandrus, Cotula coronopifolia, Eleocharis palustris, Frankenia salina, Hordeum brachyantherum, Hordeum murinum, Jaumea carnosa, Juncus acutus, Juncus arcticus, Juncus cooperi, Lepidium latifolium, Leymus triticoides, Limonium californicum, Muhlenbergia asperifolia, Parapholis strigosa, Pascopyrum smithii, Poa secunda, Puccinellia nuttalliana, Sarcocornia pacifica, Sporobolus airoides* or *Triglochin maritima*. Emergent shrubs may be present at low cover. It has a rarity listing of S4 which indicates it is not an at-risk vegetation community. Membership rules vary between requiring greater than 30% or 50% relative cover in the herbaceous layer. Within the BSA this community comprises the seasonal wetland at the downstream terminus of the low-flow channel.

Wildlife. Marsh habitats in the BSA are limited in extent and subject to high levels of anthropogenic disturbance. Most wildlife species associated with more extensive marshes, such as the Virginia rail (*Rallus limicola*) and marsh wren (*Cistothorus palustris*), are not expected to be present. Wildlife occurring in these wetlands are most likely to be those occurring in adjacent habitats, such as oak woodlands and willow thickets. However, common wildlife species that inhabit smaller wetlands and are tolerant of human disturbance may occur in this habitat. Sierran chorus frog tadpoles were observed in pools of standing water, and a ring-necked snake was observed in wetland habitats. Bird species occurring in adjacent habitats may use wetland waters for drinking and bathing, and wading birds like the great blue heron (*Ardea herodias*) and snowy egret (*Egretta thula*) may occasionally forage here. Common, urban adapted mammals may also hunt here, including domestic cats (*Felis domesticus*), raccoons and Virginia opossums.

4.3 Wildlife Movement

Wildlife movement in the BSA may take many forms, including short range movements within territories or home ranges, dispersal to new habitats, or migratory movements over longer distances. Drainages, creeks, and riparian zones are often used by wildlife as movement corridors because these features can provide access through a landscape and protective cover. Portions of the BSA are contiguous with undeveloped land to the south and west, and drainages within the BSA provide a linkage between coastal marsh habitat and upland grasslands and woodlands, although the value of this linkage is greatly diminished for most wildlife species by the presence of railroad tracks at the border between these habitats. Further, the location of the BSA in the northeastern corner of open space, limits its utility as a movement corridor. Most animals would not be able to continue through the BSA to additional suitable habitat due to the presence of dense urban development to the east and railroad tracks to the north.

Wetland and riparian habitats often serve as high quality movement pathways for a variety of wildlife. The wetlands in the BSA are limited in extent, provide minimal cover, and are subject to high levels of disturbance from railroad activity and transient human populations. They do not provide a connection to upstream aquatic habitats and lack any downstream connections. Their disturbed nature and limited

extent, especially in comparison to nearby marshes, make them of limited value to migrating birds, and dispersing mammals, reptiles, and amphibians. Animals utilizing the wetlands for movement are likely those tolerant of higher levels of disturbance and able to utilize the wooded edge and railroad tracks for movement, such as feral cats, raccoons, and Virginia opossums.

5. Special-Status Species and Sensitive Habitats

5.1 Special-status Plant Species

The CNPS (2020) and CNDDB (2020) identify 36 special-status plant species as potentially occurring in the project region for species in CRPR 1, 2, 3 and 4 species. The potential for these species to occur in the BSA is addressed in Table 2. Most of the potentially occurring special-status plant species were determined to be absent from the proposed Project due to the lack of suitable habitat types, lack of specific microhabitat or edaphic requirements (e.g., serpentine or alkaline soils), or the species' elevational range is outside the elevational range of the proposed Project. The CNDDB (2020) has identified five federally and/or state protected plant species within 5-miles of the BSA: Congdon's tarplant (*Centromadia parryi ssp. congdonii*), Santa Cruz tarplant (*Holocarpha macradenia*), soft bird's beak (*Chloropyron molle ssp. molle*), Carquinez goldbush (*Isocoma arguta*), pallid manzanita (*Arctostaphylos pallida*), and Mason's lilaeopsis (*Lilaeopsis masonii*). Pallid manzanita and soft bird's beak are not expected to occur in the BSA, as suitable habitat and soils are not present. There is a low potential Contra Costa goldfields and Santa Cruz tarplant to occur in the BSA, as minimal habitat is present to support these species. Suitable habitat for Congdon's tarplant and Mason's lilaeopsis occurs in the BSA, and these species have a low to moderate potential to occur in the BSA. Both species are discussed in greater detail below. Mount Diablo Helianthella and Mount Diablo Fairy Lantern have been observed in close proximity to the BSA and are also discussed below.

5.1.1 Mt. Diablo Helianthella (*Helianthella castanea*), CRPR 1B.2

Mt. Diablo helianthella is a perennial herb that is endemic to California. It has a CRPR rating of 1B.2, indicating it is rare and endangered. It has a blooming period between March and June. It occurs in a variety of vegetation communities, including the riparian woodland and valley and foothill grassland communities that occur within the BSA, and prefers a microhabitat of rocky axonal soils (young soils formed in recent floodplains, without well-developed subsoils) often in partial shade. Occurrences in Marin and San Francisco counties are believed extirpated, leaving extant populations only in Alameda, Contra Costa, and San Mateo counties. An extant occurrence is located south and uphill from the Nejedly Staging Area, just 100 feet west of the BSA.

The species was not observed during the reconnaissance survey nor during the Aquatic Resources Delineation. However, rare plant surveys that will be conducted for the project will document its presence if detected in the BSA.

5.1.2 Congdon's Tarplant (*Centromadia parryi* ssp. *congdonii*), CRPR 1B.1

Congdon's Tarplant is an annual herb that is endemic to California. It has a CRPR rating of 1B.1, indicating it is seriously endangered. It has a blooming period between May and November. It occurs only in alkaline soils within valley and foothill grassland. Occurrences are known from Alameda, Contra Costa, Monterey, Santa Clara, San Luis Obispo, and San Mateo counties. It is believed to be extirpated from Santa Cruz and Solano counties. Several extant occurrences are located in the Waterbird Regional Preserve, the nearest of which is 2.4 miles east of the BSA.

The species was not observed during the reconnaissance survey nor during the Aquatic Resources Delineation. However, rare plant surveys are in process and will document its presence if detected in the BSA.

5.1.3 Mt. Diablo Fairy Lantern (*Calochortus pulchellus*), CRPR 1B.2

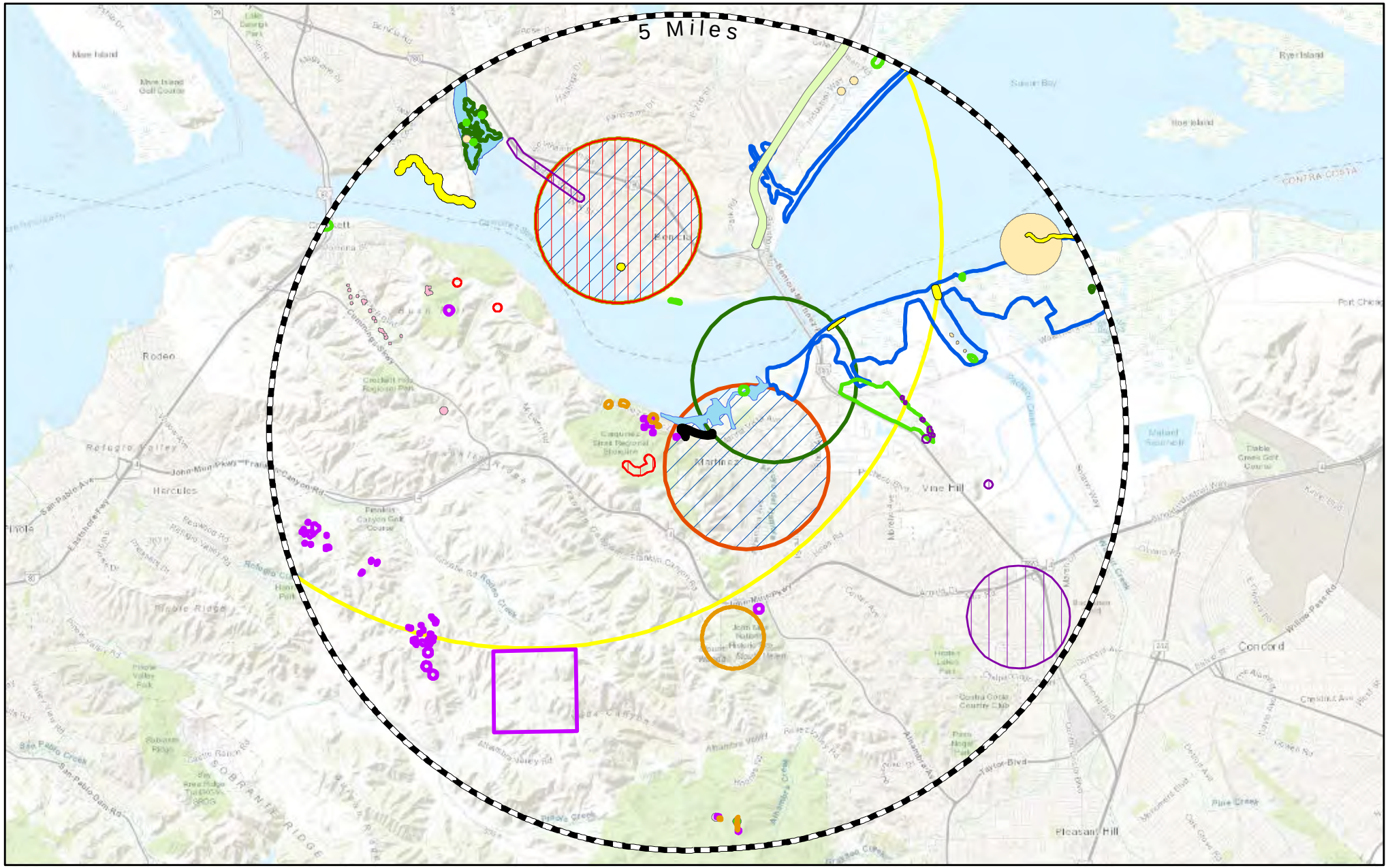
Mt. Diablo Fairy Lantern is a perennial bulbiferous herb that is endemic to California. It has a CRPR rating of 1B.2, indicating it is rare and endangered. It has a blooming period between April and June. It occurs in a variety of vegetation communities, including the riparian woodland and valley and foothill grassland communities that occur within the BSA. Occurrences are only known from Alameda, Contra Costa, and Solano counties. Several extant occurrences are located in the coastal hills of the Carquinez Strait Regional Shoreline Park, the nearest of which is just 0.3 miles west of the BSA.

The species was not observed during the reconnaissance survey nor during the Aquatic Resources Delineation. However, rare plant surveys are in process and will document its presence if detected in the BSA.

5.1.4 Mason's Lilaeopsis (*Lilaeopsis masonii*), State Rare, CRPR 1B.1

Mason's lilaeopsis is a perennial rhizomatous herb that is endemic to California. It is a California Rare plant and has a CRPR rating of 1B.1, indicating it is seriously endangered. It has a blooming period between April and November. It occurs in freshwater or brackish marshes and swamps and riparian scrub. Occurrences are known from Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties. Several extant occurrences are located in the marshes ringing San Pablo and Suisun Bays, the nearest of which is occurs 1.9 miles east of the BSA at Payton Slough.

The species was not observed during the reconnaissance survey. However, rare plant surveys will document its presence if detected in the BSA.



Biological Survey Area

CNDDB - Plant Occurrences

CDFW - May 2020

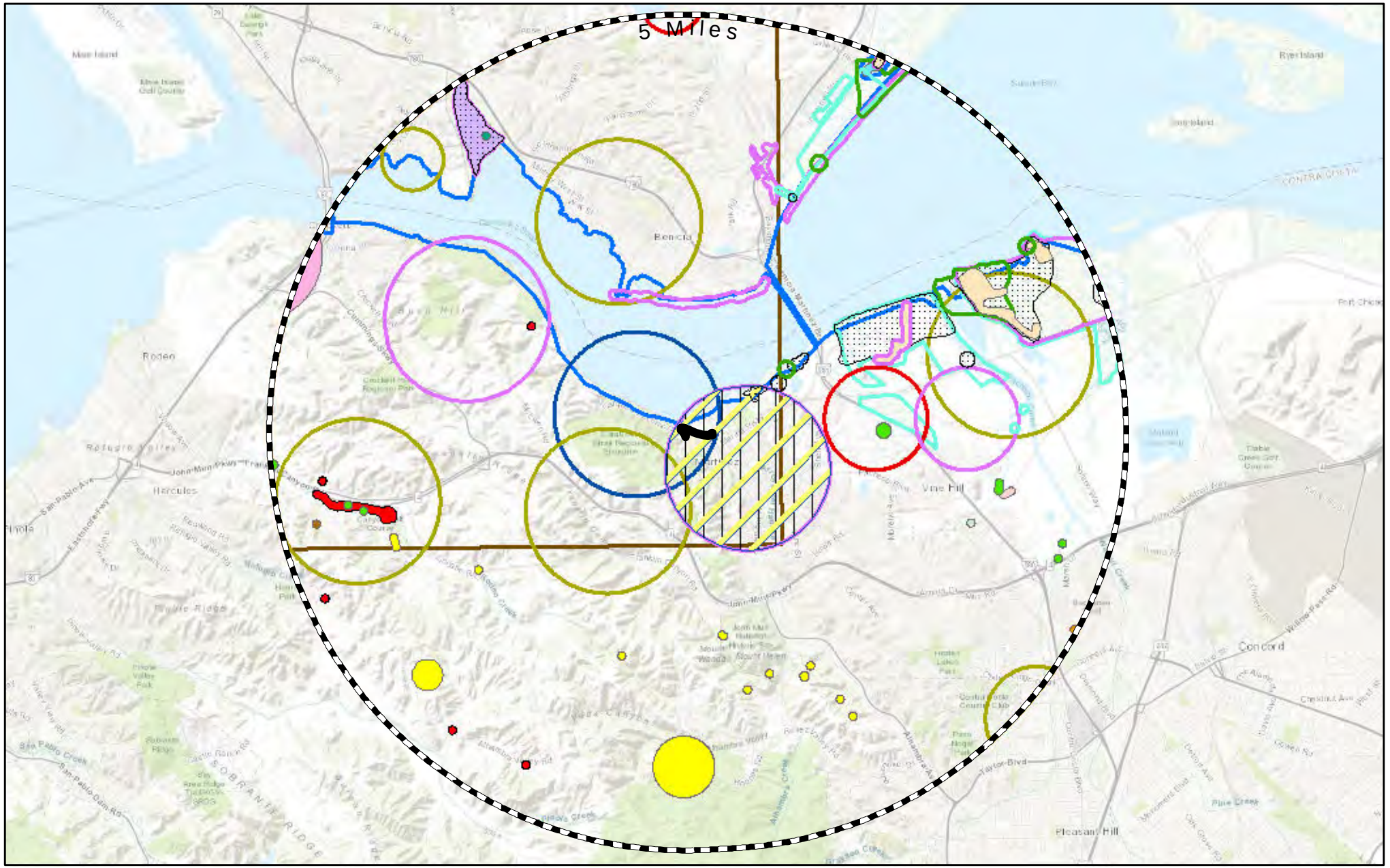
- Bolander's water-hemlock
- Carquinez goldenbush
- Coastal Brackish Marsh
- Congdon's tarplant
- Delta tule pea
- Diablo helianthella
- Jepson's coyote-thistle
- Marin knotweed
- Mason's lilaeopsis
- Mt. Diablo fairy-lantern
- Northern Coastal Salt Marsh
- Suisun Marsh aster
- bent-flowered fiddleneck
- big tarplant
- long-styled sand-spurrey
- oval-leaved viburnum
- saline clover
- soft salty bird's-beak
- western leatherwood

N

0 1 2 Miles

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 5 - CNDDB Plant Records
May 2020

SBI



Biological Survey Area

CNDDB - Wildlife Occurrences

CDFW - May 2020

- Alameda whipsnake
- American peregrine falcon
- Bridges' coast range shoulderband
- California Ridgway's rail
- California black rail
- California linderiella
- California red-legged frog
- Cooper's hawk
- Sacramento splittail
- San Pablo song sparrow
- Suisun shrew
- Suisun song sparrow
- big free-tailed bat
- burrowing owl
- longfin smelt
- northern harrier
- obscure bumble bee
- salt-marsh harvest mouse
- saltmarsh common yellowthroat
- tricolored blackbird
- western bumble bee
- western pond turtle
- yellow rail

N

0 1 2 Miles

East Bay Regional Park District
Martinez Bay Trail Project Phase II
Biological Resources Assessment
Figure 6 - CNDDB Wildlife Records
May 2020

SBI

5.2 Sensitive Natural Communities, Vegetation Alliances, and Habitats

Sensitive Natural Communities (SNCs) are vegetation Alliances that are ranked by CDFW as having a rarity value of S1-S3[1]. CDFW guidance states that SNCs should be evaluated during CEQA review. Non-rare Alliances that have rare Associations within them (Associations are a subset of Alliances) are also subject to CEQA review. CDFW updated their rare plant survey protocols in 2018 to include SNCs (CDFW, 2019d) and other associated guidance has been released as recently as August 2019 (Rapid Assessment and Relevé Protocol; CDFW 2019e); Survey of California Vegetation Classification and Mapping Standards (CDFW 2019f); Survey of California Vegetation Classification and Mapping Project Deliverables (CDFW 2019g)).

Two legacy[2] SNCs in the CNDDB were reported within 5-miles of the BSA-- Northern Coastal Salt Marsh and Coastal Brackish Marsh-- with Northern Coastal Salt Marsh identified as potentially occurring in the project region (CDFW 2020). Northern Coastal Salt Marsh is characterized by Holland (1986) as occurring along sheltered inland margins of bays, often co-dominated by pickleweed (*Salicornia* spp.), California cordgrass (*Spartina foliosa*), and sometimes saltgrass (*Distichlis spicata*). Pickleweed and cordgrass were not observed in the BSA, and further, the wetlands in Segment 2 receive only freshwater inputs from rainfall and the upstream watershed. Northern Coastal Salt Marsh does not occur in the BSA. Fragmented remnants of Coastal Brackish Marsh occur in lower reaches of the low-flow channel, characterized by *Carex* spp., *Schoenoplectus* sp., *Bolboschoenus* sp., narrowleaf cattail (*Typha angustifolia*), and *Juncus* spp.

SBI biologists observed three SNCs within the BSA that are not reported in the CNDDB: Creeping Ryegrass Turf (S3), Yerba Mansa Alkaline Wet Meadow (S2), and Hardstem and California Bulrush Marshes (S3). The following Alliance descriptions are sourced from the Manual of California Vegetation Online (CNPS 2019b). Sensitivity rankings for Alliances and Associations are sourced from CDFW's California Sensitive Natural Communities list (CDFW 2019b).

5.2.1 Creeping Ryegrass Turfs (S3)

CNPS describes the Creeping Ryegrass Turfs community as *Leymus cinereus* and/or *Leymus triticoides* (=*Elymus triticoides*) being dominant or co-dominant in the herbaceous layer with *Ambrosia psilostachya*, *Anemopsis californica*, Aristida *purpurea, Avena fatua, Bromus* spp., *Danthonia unispicata, Distichlis spicata, Elymus elymoides, Hordeum spp., Juncus arcticus, Lolium perenne* (=*Festuca perennis*)*, Poa secunda* or *Triglochin maritima*. Emergent trees and shrubs may be present at low cover. Membership rules vary from 30% to 50% relative cover in the herbaceous layer. It has a rarity listing of S3 which indicates it is moderately rare and threatened. In the BSA, there is a 0.052 acre stand where *Elymus triticoides* is dominant in the herbaceous layer at greater than 50% relative cover. Co-occurring species include *Avena* sp., *Bromus* sp., and *Festuca perennis*. A few scatted coyote brush shrubs are present. The Creeping

[1] S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/or more than 2,590-12,950 hectares; 0.1: Very threatened; 0.2: Threatened.

[2] CDFW stopped adding Natural Community occurrences to the CNDDB in the mid-1990s due to lack of funding, but those added up to that point remain in the database and are valid occurrence records.

Ryegrass Turfs community continues under the edge of the riparian canopy and stretches uphill toward the California sagebrush community just beyond the BSA, as shown in Figure 2.

5.2.2 Yerba Mansa Alkali Wet Meadow (S2)

CNPS describes the Yerba Mansa Alkali Wet Meadow community as *Anemopsis californica, Helianthus nuttallii, Solidago confinis and/or Solidago spectabilis* being dominant or co-dominant in the herbaceous layer with *Ambrosia psilostachya, Bromus hordeaceus, Carex praegracilis, Carpobrotus edulis, Cirsium occidentale, Distichlis spicata, Euthamia occidentalis, Holocarpha virgata, Hordeum murinum ssp. leporinum, Juncus arcticus, Juncus cooperi, Juncus rugulosus, Lactuca serriola, Leymus triticoides, Lolium perenne, Medicago polymorpha, Rumex crispus, Schoenoplectus americanus, Sisyrinchium bellum* and *Sporobolus airoides*. Membership rules require 30% cover in the herbaceous layer. It has a rarity listing of S2 which indicates it is fairly rare and threatened. In the lower reaches of the low flow channel there is a ponded segment measuring approximately 100 square feet that, at the time of the aquatic resource delineation, exclusively supported the early growth of *Anemopsis californica* at approximately 30% cover. The remaining cover was algal matting, mud, or water.

5.2.3 Hardstem and California Bulrush Marshes (S3)

CNPS describes the Hardstem and California Bulrush Marshes community as *Schoenoplectus acutus* and/or *Schoenoplectus californicus* being dominant or co-dominant in the herbaceous layer with *Apocynum cannabinum, Azolla filiculoides, Bolboschoenus maritimus, Calystegia sepium, Eichhornia crassipes, Euthamia occidentalis, Hibiscus lasiocarpos, Hoita macrostachya, Hydrocotyle ranunculoides, Leersia oryzoides, Ludwigia peploides, Lycopus americanus, Persicaria punctata, Phragmites australis, Sparganium eurycarpum, Triglochin spp., Typha angustifolia, Typha domingensis, Typha latifolia* and *Urtica dioica*. Membership rules require that *Schoenoplectus acutus* or *Schoenoplectus californicus* > 50% cover in the herbaceous layer or > 30% relative cover if codominant with *Typha* spp. It has a rarity listing of S3 which indicates it is moderately rare and threatened. The Hardstem and California Bulrush Marsh alliance occurs as an understory community beneath the arroyo willow thicket extending downstream to the open herbaceous area.

5.3 Special-Status Animal Species

Queries were conducted for the BSA in the USFWS's IPaC database, and for the BSA plus a 5-mile buffer in the CNDDB (CDFW 2020). These queries identified 29 special-status wildlife species known to occur in the search area (Figure 6). The potential for occurrence and legal status of special-status animal species known to occur, or potentially occurring, in the BSA region are presented in Table 3. Most of the special-status species listed in Table 3 are not expected to occur in the BSA because it lacks suitable habitat, is outside the known range of the species, or is isolated from the nearest known extant populations by significant barriers to movement (e.g., dense urban development, major roadways, Suisun Bay, or otherwise unsuitable habitat).

For some of these, such as the California least tern (*Sterna antillarum browni*), western snowy plover (*Charadrius nivosus nivosus*), and vernal pool fairy shrimp (*Branchinecta lynchi*), suitable habitat is not present in the BSA and these species were determined to have no potential to occur. Some species, such as the San Bruno elfin butterfly (*Callophrys mossii bayensis*), foothill yellow-legged frog (*Rana boylii*), California tiger salamander (*Ambystoma californiense*), giant garter snake (*Thamnophis gigas*), and

California legless lizard (*Anniella pulchra*) occur within the query's geographic area, but the project is not within their current respective ranges. The creek and drainage do not provide habitat for special-status fishes such as Sacramento splittail (*Pogonichthys macrolepidotus*) or longfin smelt (*Spirinchus thaleichthys*) due to their intermittent nature, shallow waters, and lack of connection to Suisun Bay. The Bridge's coast-range shoulderband snail (*Helminthoglypta nickliniana bridgesi*), obscure bumblebee (*Bombus caliginosus*), California linderiella (*Linderiella occidentalis*), Cooper's hawk (*Accipiter cooperi*), and northern harrier (*Circus hudsonius*) were identified by the CNDDB search but are not included in Table 3 because their present status does not require CEQA review (i.e., they are not special-status as defined in this report) (CDFW 2020).

No monarch butterflies (*Danaus plexippus*) were observed in the BSA during the reconnaissance survey. While large winter roosts have been recorded elsewhere in Contra Costa County and across Suisun Bay at Mare Island, none are known to occur along the southern shores of San Pablo or Suisun Bays. Monarch butterflies may occur in small numbers as migrants, but large winter roosts were determined to be absent from the BSA.

The California red-legged frog, San Francisco common yellowthroat, Suisun song sparrow, and San Francisco dusky-footed woodrat have a low potential to occur in the BSA and are discussed below, along with the remaining special-status species that have potential to occur. Species that were historically present or are known to occur in close proximity to the BSA (e.g., Ridgway's rail, black rail), are also discussed.

Four bird species that are considered California Species of Special Concern when they are breeding may occur in the BSA as nonbreeding transients, foragers, or migrants, but they have not been recorded nesting in, or very close to, the BSA. These include the northern harrier (*Circus cyaneus*), yellow warbler, and yellow breasted chat (*Icteria virens*), and short-eared owl (*Asio flammeus*). Because these species are considered Species of Special Concern only when nesting, they are not "special-status species" when they occur as nonbreeding visitors to the BSA.

Several species that are considered special-status species in all circumstances could occasionally occur in the BSA as nonbreeding foragers: the American peregrine falcon (*Falco peregrinus anatum*) and golden eagle, which are State fully protected species; bald eagle (*Haliaeetus leucocephalus*), State listed as endangered and fully protected by the state; and tricolored blackbird (*Agelaius tricolor*), State listed as threatened. These species are not expected to nest on or immediately adjacent to the BSA and would be affected very little, if at all, by the proposed Project.

The California red-legged frog (*Rana draytonii*), California Ridgway's rail (*Rallus obsoletus obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Suisun song sparrow (*Melospiza melodia maxillaris*), white-tailed kite (*Elanus leucurus*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) are addressed in greater detail below because these species can potentially breed or occur within or immediately adjacent to the BSA and/or may be significantly affected by the proposed Project activities.

Table 2. Special-Status Plant Species with Potential to Occur in the BSA

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Sensitive Natural Communities					
CNDDB Legacy[3†] Communities					
Coastal Brackish Marsh		S3.2	—	Now described as the following Alliances: *Argentina egedii, Atriplex prostrata - Cotula coronopifolia, Bolboschoenus maritimus, Carex obnupta, Eleocharis macrostachya, Grindelia (camporum, stricta), Juncus arcticus (var. balticus, mexicanus), Juncus lescurii, Juncus patens, Oenanthe sarmentosa, Ruppia (cirrhosa, maritima), Stuckenia (pectinata) - Potamogeton spp., Typha (angustifolia, domingensis, latifolia)*.	*Typha angustifolia, Juncus* spp., *Grindelia* sp., *Eleocharis* sp., and *Carex* spp. occur separately or in various associations in portions of the low-flow channel in the BSA.
Northern Maritime Chaparral		S1.2	—	Now described as the following Alliances: *Adenostoma fasciculatum, Arctostaphylos hookeri*, *Arctostaphylos montana*, *Arctostaphylos* (*nummularia*, *sensitiva*), *Ceanothus thyrsiflorus*, *Chrysolepis chrysophylla*, *Quercus berberidifolia*.	No Northern Maritime Chaparral occurs in the BSA.

[3] Legacy data: "At the time funding for the Natural Communities part of the CNDDB program was halted in the mid-1990s, approximately 2,500 occurrences of 96 sensitive natural community types had been entered in CNDDB, all based on Holland's classification. No new occurrences have been added since then, and our focus is now on completing an updated statewide classification, element ranking, and map. Once the entire state is classified and mapped, we will be able to review the existing occurrences in CNDDB and update them individually by existence, type, and global and state rarity ranking. We think it imprudent to remove these Holland-based elements from the CNDDB before assessing them and reclassifying them in terms of the currently accepted state and national standards for vegetation classification. Their existence should be addressed in the environmental review processes of CEQA and its equivalents, along with occurrences of plants and animals tracked by the CNDDB." (CDFW 2020).

†Ranks are reported in the CNDDB (CDFW 2020); Alliances and Associations may have separate rankings.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Sensitive Natural Communities per Manual of California Vegetation					
Leymus cinereus - Leymus triticoides Herbaceous Alliance	Creeping Ryegrass Turfs	S3	—	*Leymus cinereus* and/or *Leymus triticoides* (=*Elymus triticoides*) is dominant or co-dominant in the herbaceous layer with *Ambrosia psilostachya, Anemopsis californica, Aristida purpurea, Avena fatua, Bromus spp., Danthonia unispicata, Distichlis spicata, Elymus elymoides, Hordeum spp., Juncus arcticus, Lolium perenne, Poa secunda* or *Triglochin maritima*. Emergent trees and shrubs may be present at low cover. Membership rules vary from 30% to 50% relative cover in the herbaceous layer.	**Present.** This community is present at the north pedestrian bridge footing, continuing north across the grassy slope and east under the riparian canopy along the stream channel.
Anemopsis californica - Helianthus nuttallii - Solidago spectabilis Alkaline Wet Meadows	Yerba Mansa Alkaline Wet Meadows	S2	—	*Anemopsis californica, Helianthus nuttallii, Solidago confinis* and/or *Solidago spectabilis* is dominant or co-dominant in the herbaceous layer with *Ambrosia psilostachya, Bromus hordeaceus, Carex praegracilis, Carpobrotus edulis, Cirsium occidentale, Distichlis spicata, Euthamia occidentalis, Holocarpha virgata, Hordeum murinum ssp. leporinum, Juncus arcticus, Juncus cooperi, Juncus rugulosus, Lactuca serriola, Leymus triticoides, Lolium perenne, Medicago polymorpha, Rumex crispus, Schoenoplectus americanus, Sisyrinchium bellum* and *Sporobolus airoides.* Membership rules require 30% cover in the herbaceous layer.	**Present.** This community is restricted to a small area (100 sq. ft.) near the middle in the low flow channel.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Schoenoplectus (acutus, californicus) Marshes	Hardstem and California Bulrush Marshes	S3	—	*Schoenoplectus acutus* and/or *Schoenoplectus californicus* is dominant or co-dominant in the herbaceous layer with *Apocynum cannabinum, Azolla filiculoides, Bolboschoenus maritimus, Calystegia sepium, Eichhornia crassipes, Euthamia occidentalis, Hibiscus lasiocarpos, Hoita macrostachya, Hydrocotyle ranunculoides, Leersia oryzoides, Ludwigia peploides, Lycopus americanus, Persicaria punctata, Phragmites australis, Sparganium eurycarpum, Triglochin spp., Typha angustifolia, Typha domingensis, Typha latifolia and Urtica dioica.* Membership rules require that *Schoenoplectus acutus* or *Schoenoplectus californicus* > 50% cover in the herbaceous layer or > 30% relative cover if codominant with *Typha* spp.	**Present.** This community is present as an understory community beneath the arroyo willow thicket, becoming most dense at the downstream end as the overstory canopy declines. It is restricted to a small area (300 sq. ft.) within the low flow channel.
Plants					
Amsinckia lunaris	bent-flowered fiddleneck	1B.2	Mar-Jun	Cismontane woodland, valley and foothill grassland, and coastal bluff scrub; damp rock and soil on outcrops and cliffs within broadleaved upland forest, lower montane coniferous forest and north coast coniferous forest; often on acidic substrates. Known elevations are between 325-3280 ft elevation.	**Not Expected.** Only one record within 5-miles of the BSA, at Briones Regional Park. Elevations in the BSA are lower than known occurrences.
Androsace elongata ssp. acuta	California androsace	4.2	Mar-Jun	Prefers dry grassy slopes within Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland	**Low to Moderate.** Suitable vegetation communities occur in the BSA. No occurrences are reported north of the City of Concord.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Arctostaphylos pallida	pallid manzanita	FT/SE 1B.1	Dec-Mar	Siliceous shale, sandy or gravelly soils in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub within the Diablo Range at known elevations between 605-1525 ft. elevation. Perennial evergreen shrub.	**Not Expected.** Suitable shale, sandy or gravelly soils are absent from the BSA. Further, no manzanita shrubs were observed in the BSA during reconnaissance surveys.
Atriplex coronata var. coronata	crownscale	4.2	Mar-Oct	Alkaline, often clay soils in chenopod scrub, valley and foothill grassland, and vernal pools.	**Low.** Alkaline soils are minimally present in the BSA. No occurrences are reported west of Mt. Diablo.
Blepharizonia plumosa	big tarplant	1B.1	Jul-Oct	Valley and foothill grassland, usually clay soils	**Not Expected.** Grassland habitat is very limited in the BSA. The only observation within 5-miles of the BSA dates from a 1917 museum record and is vaguely located as “Benicia”.
Calochortus pulchellus	Mt. Diablo fairy-lantern	1B.2	Apr-Jun	Occurs on north-facing wooded slopes in riparian woodland, and valley and foothill grassland, rarely within chaparral, at elevations between 100-2755 ft.	**Not Expected.** North-facing wooded slopes are minimally present in the BSA and are predominantly *Eucalyptus* groves. Several records of the species occur in the coastal hills of the Carquinez Strait Regional Shoreline Park, the nearest of which is located 0.3 miles west of the BSA.
Calochortus umbellatus	Oakland star-tulip	4.2	Mar-May	Often serpentine soils in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland at elevations of 328-2,297 ft.	**Not Expected.** Suitable serpentine habitat is absent from the BSA and the BSA is outside the elevational range of the species. No records of the species occur within 5-miles of the BSA.
Castilleja ambigua var. ambigua	johnny-nip	4.2	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins	**Not Expected.** No records of the species occur within 5-miles of the BSA. Suitable habitat is minimally present within the BSA.
Centromadia parryi ssp. congdonii	Congdon's tarplant	1B.1	May-Oct(Nov)	Often alkaline soils in chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grassland, at elevations of 3-750 ft.	**Not Expected.** Alkaline soils are minimally present within the BSA. Four records occurs within 5-miles of the BSA, the nearest of which is located 2.4 miles east at the Waterbird Regional Preserve.
Chloropyron molle ssp. molle	soft bird's-beak	FE/SR 1B.2	Jun-Nov	Marshes and swamps (coastal salt)	**Not Expected.** Coastal salt marsh habitat is absent from the BSA.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Cicuta maculata var. bolanderi	Bolander's water-hemlock	2B.1	Jul-Sep	Marshes and swamps Coastal, fresh or brackish water	**Low to Moderate.** Potentially suitable habitat is present in the BSA. The only records of the species within 5-miles of the BSA date from 1900 and 1938, and are located in Benicia and "Near Martinez".
Cirsium andrewsii	Franciscan thistle	1B.2	Mar-Jul	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; mesic, sometimes serpentine soils	**Not Expected.** Suitable serpentine soils are absent from the BSA.
Dirca occidentalis	western leatherwood	1B.2	Jan-Mar(Apr)	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland; mesic soils	**Low to Moderate.** Potentially suitable habitat is present. All known occurrences of the species in the vicinity are associated with the areas around Cummings Skyway near Crockett, 2.9 miles west of the BSA.
Eleocharis parvula	small spikerush	4.3	(Apr)Jun-Aug(Sep)	Marshes and swamps	**Low to Moderate.** Potentially suitable habitat is present. No records of the species occur within 5-miles of the BSA.
Eryngium jepsonii	Jepson's coyote thistle	1B.2	Apr-Aug	Occurs in wetlands below 1,640 ft elevation on moist clay soil.	**Moderate**. The nearest occurrence is located 0.5 miles southwest of the BSA in annual grasslands associated with the Carquinez Strait Regional Shoreline Park.
Extriplex joaquinana	San Joaquin spearscale	1B.2	Apr-Oct	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland; alkaline soils	**Not Expected.** Alkaline soils are minimally present within the BSA. No records of the species occur within 5-miles of the BSA.
Fissidens pauperculus	minute pocket moss	1B.2		North Coast coniferous forest (damp coastal soil)	**Not Expected.** Coniferous forest habitat with damp soils is absent from the BSA. No records of the species occur within 5-miles of the BSA.
Fritillaria liliacea	fragrant fritillary	1B.2	Feb-Apr	Often serpentinite soils in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland, at elevations of 10- 1,345 ft.	**Not Expected**. No suitable serpentine soils are present in the BSA. No records of the species occur within 5-miles of the BSA.
Helianthella castanea	Diablo helianthella	1B.2	Mar-Jun	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; usually rocky, axonal soils. Often in partial shade	**Moderate.** Suitable habitat is present in the BSA. Several records occur on the coastal hillsides of the Carquinez Strait Regional Shoreline Park, with the nearest located ~100 feet west of the BSA.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Holocarpha macradenia	Santa Cruz tarplant	FT/SE 1B.1	Jun-Oct	Occurs in coastal prairie, coastal scrub and valley and foothill grasslands, in areas with light sandy soil, or sandy clay between 30-720 ft. elevation.	**Low**. Grassland habitat is minimally present in the BSA. No records of the species occur within 5-miles of the BSA.
Iris longipetala	coast iris	4.2	Mar-May	Coastal prairie, Lower montane coniferous forest, Meadows and seeps; mesic soils	**Low**. Potentially suitable habitat is minimally present within the BSA. No records of the species occur within 5-miles of the BSA.
Isocoma arguta	Carquinez goldenbush	1B.1	Aug-Dec	Generally found in wetlands within valley and foothill grassland, usually within alkali flats or other mineral-rich soils of the Suisun Slough at elevations of 3-65 ft.	**Low to Moderate**. Potentially suitable habitat is present within the BSA. The only CNDDB record within 5-miles of the BSA dates from 1968, and is based on a site named in, "A California Flora and Supplement."
Lasthenia conjugens	Contra Costa goldfields	FE/— 1B.1	Mar-Jun	Mesic habitats including cismontane woodland, alkaline playas, valley and foothill grasslands, and vernal pools, at elevations of 0- 1,542 ft.	**Low**. Potentially suitable habitat is minimally present within the BSA. No records of the species occur within 5-miles of the BSA.
Lathyrus jepsonii var. jepsonii	Delta tule pea	1B.2	May-Jul (Aug-Sep)	Low elevation marshes and swamps (freshwater and brackish)	**Low to Moderate**. Potentially suitable habitat is present within the BSA. Nine records of the species occur within 5-miles of the BSA, with the nearest located 0.6 miles northeast of the BSA at the Martinez Regional Shoreline Park. Additional records occur at the Waterbird Regional Preserve, 1.7 miles east of the BSA.
Lilaeopsis masonii	Mason's lilaeopsis	—/SR 1B.1	Apr-Nov	Marshes and swamps (brackish or freshwater), Riparian scrub	**Low to Moderate**. Potentially suitable habitat is present within the BSA. The nearest known occurrence is located 1.9 miles east of the BSA, at Payton Slough.
Meconella oregana	Oregon meconella	1B.1	Mar-Apr	Coastal prairie and scrub between 820-2035 ft. elevation.	**Not Expected.** Known in California from only 9 occurrences – 4 of which occur in the San Francisco Bay Area, in the Oakland/ Berkeley hills. No records of the species occur within 5-miles of the BSA, and the BSA is outside the elevational range of the species.
Micropus amphibolus	Mt. Diablo cottonweed	3.2	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland; rocky soils	**Low**. Potentially suitable habitat is minimally present within the BSA.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Monardella antonina ssp. antonina	San Antonio Hills monardella	3	Jun-Aug	Chaparral and cismontane woodland at elevations of 1050-3281 ft.	**Not Expected**. Potentially suitable habitat is minimally present within the BSA. No records of the species occur within 5-miles of the BSA. Elevations in the BSA are lower than at reported occurrences.
Navarretia gowenii	Lime Ridge navarretia	1B.1	May-Jun	Chaparral at elevations of 591-1001 ft.	**Not Expected**. Potentially suitable habitat is minimally present within the BSA. No records of the species occur within 5-miles of the BSA. Elevations in the BSA are lower than at reported occurrences.
Polygonum marinense	Marin knotweed	3.1	(Apr)May-Aug(Oct)	Marshes and swamps (coastal salt or brackish)	**Not Expected**. Potentially suitable habitat is present within the BSA.
Ranunculus lobbii	Lobb's aquatic buttercup	4.2	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools; mesic soils	**Not expected.** Waters in the BSA are saline or alkaline. No records of the species occur within 5-miles of the BSA
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	1B.2	Feb-May(Jun)	Alkaline marshes, mud flats, meadows, and hot springs between 0-670 ft. elevation.	**Not Expected.** Potentially suitable habitat is minimally present within the BSA. The only record occurring within 5-miles of the BSA dates from a 1900 museum collection.
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	1B.2	(Mar)Apr-Sep(Oct)	Chaparral, Cismontane woodland, Valley and foothill grassland; serpentine soils	**Not Expected.** No serpentine soils are present in the BSA.
Symphyotrichum lentum	Suisun Marsh aster	1B.2	(Apr)May-Nov	Marshes and swamps (brackish and freshwater)	**Moderate.** Suitable habitat is present within the BSA. The nearest records are located 3.1 miles east of the BSA at Pacheco Creek.
Trifolium hydrophilum	saline clover	1B.2	Apr-Jun	Salt marsh and swamp, vernal pool or other wetlands within valley and foothill grassland on alkaline soils at elevations of 0-985 ft.	**Not Expected.** Salt marsh and alkaline wetlands are not present in the BSA. The only record occurring within 5-miles of the BSA dates from a 1938 museum collection and is located across the Bay near Benicia.

Scientific Name	Common Name	Status†	Blooming Period	General Habitat Preferences	Potential to Occur in BSA
Viburnum ellipticum	oval-leaved viburnum	2B.3	May-Jun	Chaparral, cismontane woodland, and lower montane coniferous forest at elevations of 705-4,595 ft.	**Not Expected**. Potentially suitable habitat is minimally present within the BSA. The only record within 5-mile of the BSA occurs at Briones Regional Park. Elevations in the BSA are lower than at reported occurrences.

California Rare Plant Rank (CRPR) Designation: (1A) Presumed extinct in California; (1B) Rare, threatened, or endangered in California and elsewhere; (2) Rare, threatened, or endangered in California, but more common elsewhere; (3) More information is needed; (4) Limited distribution, watch list. Threat Ranks: 0.1 Seriously threatened in California (more than 80% of occurrences threatened / high degree and immediacy of threat); 0.2 Fairly threatened in California (20 to 80% occurrences threatened / moderate degree and immediacy of threat); 0.3 Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Table 3. Special-Status Animal Species with Potential to Occur in the BSA

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Invertebrates				
Bombus occidentalis	western bumble bee	—/SC	Wet/moist meadows with abundant floral resources, roadside areas, and other areas containing forage species preferred by bumble bees (USFS 2018).	**Not Expected.** Current California populations are mostly restricted to high elevation sites in the Sierra Nevada, with only a few observations of the species on the northern California coast (Xerces Society 2008). May occur in grassland and scrub areas and forest openings. Not expected in low-diversity eucalyptus groves and annual grasslands.
Branchinecta conservation	conservancy fairy shrimp	FE/—	Ephemeral freshwater and playa pools in the Central Valley and the San Francisco Bay Area	**Not Expected.** The BSA is outside the species' known range.
Branchinecta lynchi	vernal pool fairy shrimp	FT/—	Vernal pools and ditches in the Central Valley.	**Not Expected.** No suitable vernal pool habitat is present, and the BSA is outside the species' range.
Callophrys mossii bayensis	San Bruno elfin butterfly	FE/—	Rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula. Host plant is *Sedum spathulifolium*.	**Not Expected.** The BSA is outside of species' known range.
Danaus plexippus	monarch butterfly	FC/—	Requires milkweed for larval host plant, and late-blooming plants for adult nectar during migration. Overwinters in dense groves of trees, usually eucalyptus, pine, and cypress. Requires very specific microclimatic conditions at overwintering sites, including dappled sunlight, high humidity, fresh water, and an absence of freezing temperatures and high winds.	**Not Expected (overwintering).** While potentially suitable habitat is present in eucalyptus woodlands, overwintering monarchs are not known to occur in the BSA. The nearest known active overwintering site occurs 8.8 miles northwest of the BSA, on Mare Island. Within Contra Costa County, only two overwintering locations are known, of which only one is known to be active (Xerces Society 2016). The active overwintering site occurs at Point Pinole, eleven miles southwest of the BSA.
Speyeria callippe callippe	Callippe silverspot butterfly	FE/—	Grasslands supporting its host plant, *Viola pedunculata*. Uses a variety of nectar plant species found in grassland and coastal scrub communities, with ridgelines and hilltops forming an important habitat component.	**Not Expected.** While the species historically occurred in the grasslands of Contra Costa County, it is no longer extant in the County. Since the late 1980s, the species has only been recorded in San Mateo, Alameda, and Sonoma Counties. Further, the species' larval host plant was not observed in the BSA during reconnaissance surveys.

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Syncaris pacifica	California freshwater shrimp	FE/SE	Low gradient streams with moderate to heavy riparian cover. Occasionally in isolated pools of minimal cover when water levels are low. Endemic to Marin, Napa and Sonoma Counties.	**Not Expected.** No suitable perennial stream habitat is present, and the BSA is outside the species' range.
Fish				
Archoplites interruptus	Sacramento perch	—/SSC	Found mostly in alkaline lakes, reservoirs, and farm ponds. Often associated with submerged vegetation or other objects in the nearshore area of warm water lakes and ponds.	**Not Expected.** No suitable aquatic habitat is present in the BSA.
Hypomesus transpacificus	Delta smelt	FT/SE	Shallow tidal waters of the Sacramento and San Joaquin River Delta.	**Not Expected**. No suitable tidal aquatic habitat is present in the BSA, and the BSA is outside the species' range.
Pogonichthys macrolepidotus	Sacramento splittail	—/SSC	Confined to the Delta, Suisun Bay and associated marshes, slow moving rivers sections, and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young.	**Not Expected.** No suitable aquatic habitat is present in the BSA.
Spirinchus thaleichthys	longfin smelt	FC/ST	Spawns in fresh water in the upper end of the San Francisco Bay; occurs year-round in the Suisun Bay.	**Not Expected.** No suitable aquatic habitat is present in the BSA.
Amphibians				
Ambystoma californiense	California tiger salamander	FT/ST	Breeds in vernal pools and seasonal wetlands; uses small mammal burrows in suitable uplands during the dry season.	**Not Expected.** The only record of the species in 5-miles of the BSA dates from 1920 and is believed to be extirpated (CNDDB 2020). Further, the BSA is outside of the known range of the species (California Herps 2020).

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Rana boylii	foothill yellow-legged frog West/Central Coast Clade	—/SE	Rocky streams in open areas with riffles and cobble-sized stones in coast ranges	**Not Expected**. No suitable breeding habitat occurs in the BSA, as streams in this area lack the riffles and cobble-sized stones preferred by the species. The only observation of the species within 5-miles of the BSA dates from 1939 and is believed to be extirpated (CNDDB 2020). Further, foothill yellow-legged frogs are likely absent from Contra Costa County, as eight of the nine CNDDB records from the county are museum specimens collected between 1891 and 1953 and the most recent observation is of dubious veracity (Bonham 2019). Suitable dispersal habitat may be present in the BSA, but given the rarity of the species in Contra Costa County, ephemeral nature of the streams and wetlands, and lack of suitable breeding habitat in the BSA, the species is not expected to occur in the BSA.
Rana draytonii	California red-legged frog	FT/SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development and must have access to upland habitat.	**Low.** Aquatic habitat in the BSA would provide marginal or low-quality breeding habitat as they are shallow, narrow, sparsely vegetated, and typically dry by July. Although CNDDB records of red-legged frogs occur within 5-miles of the BSA, no records are present within two miles of the BSA which is near the maximum distance that frogs can disperse from breeding sites during a single season (USFWS 2010). No suitable habitat occurs north or east of the BSA due to the presence of tidal salt marsh and dense urban development therefore it is unlikely that frogs would move through the BSA from open space areas to the south or west. Further, the location of the wetlands in the BSA near urban development greatly increases the likelihood for red-legged frog predator species to occur.
Reptiles				
Anniella pulchra	northern California legless lizard	—/SSC	Sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Requires loose soils that are warm and moist. Typically found under surface objects such as rocks, boards, driftwood, and logs.	**Not Expected.** The BSA is outside of the species' range (California Herps 2020).

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Emys marmorata	western pond turtle	—/SSC	Permanent and intermittent freshwater aquatic habitats including rivers, streams, lakes, ponds, marshes, and vernal pools. Prefers habitats with abundant basking sites, underwater refugia, and standing or slow moving water. Nesting sites are on sandy banks and bars or in fields or sunny spots up to a few hundred meters from water.	**Not Expected.** Wetland habitat in the BSA is shallow, lacks underwater refugia and basking sites, and occurs adjacent to highly disturbed urban development. Further, wetlands in the BSA are not connected to suitable stream or pool habitat. Thus, the species is not expected to occur in the BSA.
Masticophis lateralis euryxanthus	Alameda whipsnake (= striped racer)	FT/ST	Chaparral, northern coastal sage scrub, coastal sage, and grassland communities.	**Low.** Scrub habitat in and adjacent to the BSA is limited in extent, highly fragmented, and surrounded by oak and eucalyptus woodland. All observations of the species in the vicinity of the BSA occur south of State Route 4, with the nearest located approximately 2.4 miles south of the BSA. Although patches of scrub habitat large enough to support the Alameda whipsnake are present within about 0.5-mile of the BSA, larger areas containing high-quality habitat are separated from the BSA by State Route 4 which poses at least a partial barrier to movement for the species. Due to the limited availability and isolated nature of the suitable habitat in the BSA and the presence of movement barriers between the BSA and core habitat containing records of the species, the Alameda whipsnake has a low potential to occur in the BSA.
Thamnophis gigas	giant garter snake	FT/ST	Associated with aquatic habitats. Often occurs in or near agricultural wetlands and other waterways such as irrigation and drainage canals; sloughs; ponds; small lakes; lowgradient streams; rice fields; freshwater marshes; and adjacent uplands in the Sacramento and Central Valleys.	**Not Expected.** The BSA is outside of the species' range and suitable habitat is absent.
Birds				

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Agelaius tricolor	tricolored blackbird	—/ST	Nests colonially in extensive emergent vegetation and agricultural fields. Within agricultural fields, closely associated with stands of triticale and Himalayan blackberry (*Rubus armeniacus*)	**Not Expected (nesting).** Dense emergent habitat sufficient to support a nesting colony of tricolored blackbirds is absent from the BSA. Limited foraging habitat for this species occurs in the wetlands bordering the railroad tracks. Tidal marshes located north of the BSA may provide suitable foraging habitat for wintering birds; however, the species has not been observed either as a forager or breeder in these marshes (Mount Diablo Audubon Society 2009, eBird 2020). Only two breeding records occur within 5-miles of the BSA. The nearest occurrence is located 1.4 miles east of the BSA, at sewage treatment ponds. This location was abandoned after tule removal in the 1980s. The second record occurs 4.9 miles north of the BSA, across the Carquinez Straights, at Lake Herman.
Aquila chrysaetos	golden eagle	—/FP	Avoiding developed areas, they are found in open areas of native vegetation, mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nest in large trees in oak savannah, and on cliffs and steep escarpments in chaparral, forest, and other vegetated areas.	**Not Expected (nesting).** High quality nesting habitat for golden eagles includes large trees located near extensive open grasslands where small-medium mammal prey, particularly ground squirrels, are abundant. Suitably large trees are present in the BSA; however, the BSA is not located near the extensive grasslands the species prefers, and no ground squirrel colonies were observed in the BSA. Further, there is no record of golden eagle nesting in or near the BSA (Mount Diablo Audubon Society 2009); golden eagles exhibit nest site fidelity and often return to the same nest sites. The potential for a pair of eagles to nest in or near the BSA is therefore considered unlikely.
Asio flammeus	short-eared owl	—/SSC	Occupies a variety of open habitats with sufficient rodent prey concentrations. Nests on dry ground in open areas with dense herbaceous cover. May occur in salt and freshwater marshes, grasslands, agricultural fields, and pastures.	**Not Expected (nesting).** Suitable open marsh or grassland habitat is absent from the BSA. Marshes north of the BSA may provide breeding and foraging habitat, but the species is not expected to occur in the BSA except as a transient.
Athene cunicularia	burrowing owl	—/SSC	Open arid and semiarid grassland, agricultural, and ruderal habitats where ground squirrel or other burrows are present.	**Not Expected.** No suitably open grassland habitat occurs in the BSA, and no ground squirrel colonies or other burrows were observed during surveys.

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Charadrius nivosus nivosus	western snowy plover	FT/SSC (nesting)	Breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitat includes bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars.	**Not Expected (nesting).** No suitable beach habitat is present in the BSA.
Circus hudsonius	northern harrier	—/SSC (nesting)	Occurs in sloughs; wet meadows; marshlands; swamps; prairies; plains; grasslands; shrublands; large forest openings; or low woody or herbaceous vegetation. Nests on the ground in dense clumps of vegetation, such as grasses or rushes.	**Not Expected (nesting).** Suitable open grassland or marsh nesting habitat is absent from the BSA. Individuals may occasionally forage in grasslands and marsh habitat near the BSA.
Coturnicops noveboracensis	yellow rail	—/SSC	Sedge marshes and meadows with moist soil or shallow standing water and densely vegetated montane sedges.	**Not Expected (nesting).** The BSA is outside of the known breeding range of the species. Considered an extremely rare winter visitor in the San Francisco Bay region, with single birds occasionally observed in the Suisun Marsh (Heath 2008).
Elanus leucurus	white-tailed kite	—/FP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	**Low (nesting).** White-tailed kites have frequently been observed in marsh habitats north of the BSA (eBird 2020), however large isolated trees or shrubs suitable for kite nesting are absent from the BSA, and the species has not been recorded breeding in the vicinity (Mt. Diablo Audubon Society 2009). A lack of isolated trees surrounded by open foraging habitat, combined with high levels of human disturbance associated with park trails and railroads limit nesting opportunities for the species in this area.
Falco peregrinus anatum	American peregrine falcon	—/FP	Nests near water on ledges of rocky cliffs or buildings. Also found along rivers and coastlines or in cities/urban areas.	**Not Expected (nesting).** No suitable cliff habitat or tall buildings are present in the BSA. The nearest known nesting records are located on the Carquinez Bridge and the Mare Island Bridge (Napa-Solano Audubon Society 2014). While individuals may occasionally forage in the vicinity, they are not expected to breed in or near the BSA.

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Geothlypis trichas sinuosa	San Francisco common yellowthroat	—/SSC (nesting)	Nests in herbaceous vegetation in densely vegetated brackish and freshwater marshes, moist floodplains, and woody swamps.	**Low (nesting).** The nearest known breeding records of the species are located in extensive tidal marshes 2.1 miles east of the BSA. High quality nesting habitat in the form of dense marsh vegetation occurs north of the BSA in the Martinez Regional Shoreline Park, and the species is frequently observed there in the breeding season (eBird 2020). Records of common yellowthroats breeding outside of marsh habitats in the Bay Area are typically associated with dense herbaceous cover contiguous with marsh habitat. Because riparian habitat and dense herbaceous cover are limited, and the BSA is not contiguous with marsh habitat, the species has a low chance of nesting in the BSA.
Haliaeetus leucocephalus	bald eagle	D/SE, FP	Breeding habitats are mainly in mountain and foothill forests and woodlands near reservoirs, lakes, and rivers. Most breeding territories are in northern California.	**Not Expected (nesting)**. The only known nesting account in Contra Costa County is located at San Pablo Reservoir. This was the first known bald eagle nest for the County, and the species was not known to breed in the County prior to this account (Grinnell and Miller 1927, Mt. Diablo Audubon Society 2009). Trees in the BSA are large enough to support bald eagle nesting; however, the species prefers to nest near large bodies of fresh water, such as lakes or reservoirs, and none are present in or near the BSA.
Icteria virens	yellow-breasted chat	—/SSC (nesting)	Nests in dense stands of willow and other riparian habitat.	**Not Expected (nesting).** No breeding records of the yellow-breasted chat are known from the vicinity and the species is a very rare breeder in the County, with records occurring only in the County's far northeastern corner (Mount Diablo Audubon Society 2009). Historically, the species is only known to occur as far west as the center of the County. Suitably dense stands of riparian habitat are not present in the BSA. Therefore, the species is not expected to occur in the BSA.

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Laterallus jamaicensis coturniculus	California black rail	ST/FP	Salt marshes of San Francisco Bay and Suisun Marsh, and some freshwater inland marshes of the Sacramento Bay-Delta.	**Not Expected.** The limited extent and sparse vegetation of the wetlands in the BSA are not suitable habitat for the species. The nearest records of black rails occur in marshes 0.6 miles northeast of the BSA (CDFW 2020) and rails have also been heard calling in the restored portions of the tidal marshes about 500 feet north of the BSA (Jaramillo 2015). However, heavily traveled railroad tracks and developed areas separate the BSA from suitable habitat to the north. Therefore, project activities are not expected to affect the species, either directly or indirectly.
Melospiza melodia maxillaris	Suisun song sparrow	—/SSC	Permanent resident of tidal salt marshes of Suisun Bay. Forages and nests in emergent vegetation. The Suisun subspecies occurs along the shores of Suisun Bay from Martinez eastward.	**Low (nesting).** The BSA is located within the range of the Suisun song sparrow, and individuals were heard singing in marshes immediately north of the BSA during reconnaissance surveys. Breeding individuals have been recorded in tidal marshes north of the BSA (eBird 2020, CDFW 2020). Riparian habitat in Segment 2 of the BSA supports shrub and herbaceous vegetation suitable to Suisun song sparrow nesting. However, the narrow extent of riparian habitat, proximity to high levels of disturbance associated with the railroad, and the availability of high-quality habitat nearby limit the likelihood that the species will nest in the BSA.
Melospiza melodia samuelis	San Pablo song sparrow	—/SSC	Permanent resident of tidal salt marshes of the San Pablo Bay. Forages and nests in emergent vegetation. The San Pablo subspecies occurs in salt marshes along the shores of San Pablo Bay, including Richmond and Pinole, southeast to Point San Pablo.	**Not Expected (nesting).** The BSA is outside of the known range of the subspecies. Song sparrows occurring in the BSA are assumed to be the Suisun subspecies.
Rallus obsoletus obsoletus	California Ridgway's rail	FE/SE,FP	Salt and brackish marshes of San Francisco Bay.	**Not Expected (nesting).** No suitable salt or brackish marsh habitat occurs in the BSA. The nearest records of Ridgway's rails occur in marshes 0.6 miles northeast of the BSA (CDFW 2020) and the species has been observed in the restored tidal marshes at Martinez Regional Shoreline, about 500 feet north of the BSA (Jaramillo 2015). However, heavily traveled railroad tracks and developed areas separate the BSA from suitable habitat to the north. Therefore, project activities are not expected to affect the species, either directly or indirectly.

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Setophaga petechia	yellow warbler	—/SSC	Nests in riparian habitat with a mature overstory of cottonwood and sycamore, a midstory of box elder and willow and a dense understory of vines, blackberries and forbs.	**Not Expected (nesting)**. The species typically nests in riparian corridors with a mature overstory and dense understory. Yellow warblers are generally absent from riparian zones that are limited, discontinuous, or lacking sufficient understory cover (Santa Clara Valley Audubon Society 2007). Willow riparian habitat in the BSA lacks the complexity preferred by the species, is limited in extent, and subject to high levels of disturbance associated with railroad operations. Further, the species has only rarely been observed breeding in the County and known nesting records occur more than five miles from the BSA at Tilden Regional Park and the San Pablo Reservoir (Mount Diablo Audubon Society 2009). It is therefore not expected that the species will nest in the BSA.
Sterna antillarum browni	California least tern	FE/SE (nesting colony)	Nests on barren and sparsely vegetated sandy or gravelly substrate within marine and estuarine shores and abandoned salt ponds. Nesting colonies placed in areas of low human and predatory disturbance.	**Not Expected (nesting).** No suitably barren shoreline habitat is present in the BSA. No nesting colonies have been recorded in the vicinity (CDFW 2020).
Mammals				
Antrozous pallidus	Pallid bat	—/SSC	Regionally found in low elevation arid or semi-arid areas near water. Their day roost is often in a warm horizontal opening (e.g. rock cracks, attics); the night roost is often in the open, near foliage; and the hibernation roost is often in buildings, caves, or cracks in rocks.	**Low.** The pedestrian bridge in the BSA lacks crevices or other structures that retain heat and provides only low-quality night roost habitat for the species. Eucalyptus with exfoliating bark, cracks, and crevices provide suitable roost habitat for pallid bats. Small numbers of bats may utilize tree roost habitat in the BSA. No documented occurrences are present within 5 miles (CDFW 2020).
Lasiurus blossevillii	western red bat	—/SSC	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**Low.** Suitable roosting habitat occurs in the BSA where dense foliage clusters are present in woodland habitat. No documented occurrences are present within 5 miles (CDFW 2020).

Scientific Name	Common Name	USFWS[a]/ CDFW[b]	General Habitat	Potential to Occur
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	—/SSC	Builds large stick nests in a variety of habitats, including riparian areas, oak woodlands, and scrub.	**Low.** Suitable habitat occurs throughout the BSA in riparian oak woodland, willow riparian, and scrub habitats. Reconnaissance-level surveys did not detect any woodrat nests in the BSA, however the presence of dense stands of poison oak and blackberry may have concealed nests. Due to the availability of moderate quality habitat throughout the BSA, and the limitations of the survey, there is a low probability that the species may occur in the BSA.
Nyctinomops macrotis	Big free-tailed bat	—/SSC	Roosts in desert and arid grassland areas where rocky out-crops, canyons, or cliffs provide ideal roosts. Occasionally in buildings.	**Not Expected.** No suitable arid, rocky habitat is present in the BSA and the species' range does not include northern California. Observations in the project vicinity are considered vagrants or extralimital records. The only documented occurrence within 5-miles dates from a 1979 museum specimen whose locality was vaguely recorded as “Martinez”.
Reithrodontomys raviventris	Salt marsh harvest mouse	FE/SE	Salt and brackish marshes of San Francisco Bay. Primary habitat dominated by pickleweed (*Salicornia pacifica*), with adjacent upland grasslands providing refugia during flooding.	**Not Expected.** The species has been recorded throughout marshes east of I-680, and potentially suitable marsh habitat is available north of the BSA at the Martinez Regional Shoreline. The BSA lacks suitable marsh habitat and is separated from nearby marshes by heavily traveled railroad tracks. The species’ dependence on cover to escape predation, combined with the heavy use of the railroad tracks prevent it from occurring in the BSA.
Sorex ornatus sinuosus	Suisun shrew	—/SSC	Salt and brackish marshes along the north shore of San Pablo and Suisun Bays. Prefers areas of low, dense vegetation contiguous with vegetated uplands that provide refugia during high tides.	**Not Expected**. No suitable marsh habitat is present on site and the BSA is outside the known distribution of the species.
Taxidea taxus	American badger	—/SSC	Permanent resident found throughout most of the state, except in the northern North Coast area. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	**Not Expected**. No suitably extensive grassland habitat is present in the BSA.

Key to Abbreviations:

Status: Federally Endangered (FE); Federally Threatened (FT); Federal Candidate (FC); Federally Delisted (D); State Endangered (SE); State Threatened (ST); State Candidate (SC); State Fully Protected (SP); California Species of Special Concern (CSSC).

5.3.1 Federal and State Endangered and Threatened Species

5.3.1.1 California Red-legged Frog (*Rana draytonii*)

The California red-legged frog is federally listed as threatened and is also considered a Species of Special Concern by the CDFW (USFWS 1996; CDFW 2019f). Critical habitat was designated for the species in 2010 (USFWS 2010).

The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949) and can range from 1.75 to 5.25 inches in length (Stebbins 2003). Its back is typically brown, gray, olive, or reddish brown with prominent dorsolateral folds and many small black flecks around whitish centers (Stebbins 2003). Larvae are dark brown and yellow with darker spotting and range from 0.6 to 3.1 inches in length (Storer 1925). Historically, the range of the California red-legged frog extended from along the California coast near Elk Creek in Mendocino County and inland from around Redding in Shasta County, south to Baja California (Jennings and Hayes 1985; Hayes and Krempels 1986). Although California red-legged frogs are still locally abundant in portions of the Central Coast and San Francisco Bay Area, their current range has been reduced by an estimated 70 percent from its former extent within California (USFWS 2002).

The California red-legged frog uses a variety of habitat types, including aquatic, riparian and upland areas. It predominantly inhabits permanent and semi-permanent water bodies including ponds, streams, and wetlands, but also occurs in seasonal creeks and drainages. Breeding habitat consists of wetlands, ponds, and other still or slow-moving aquatic habitat including as backwaters of streams and creeks. Other aquatic habitats including pools in intermittent creeks, seeps, and springs may provide shelter, predator avoidance, foraging opportunities, and aquatic dispersal habitat. During summer months California red-legged frogs may take refuge in cool, moist areas including pools in stream channels, exposed roots, dense vegetation, rodent burrows, and soil crevices near breeding sites during times when water is not available. Upland and dispersal habitat can include grassland, forest, riparian areas, and agricultural fields (USFWS 2010).

The BSA is located outside of designated critical habitat for the California red-legged frog (USFWS 2010). Seven records of red-legged frogs occur within 5-miles of the BSA. The nearest recorded observation of the California red-legged frog was an unknown number of individuals observed in 2000 at a pond adjacent to the former Port Costa Brick Company, 2.2 miles northwest of the BSA (CDFW 2020). The second observation was of six frogs observed in 1998 in Telephone Creek, immediately north of State Route 4, 4.4 miles southwest of the BSA. This location is connected, via an underpass of State Route 4, to Rodeo Creek, where breeding red-legged frogs were documented in the early 2000s (CDFW 2020).

The wetlands located in the BSA near the railroad tracks provide marginal or extremely low-quality breeding habitat for the California red-legged frog. Red-legged frog breeding sites are normally associated with relatively deep (greater than 2 feet) fresh water with shrubby or emergent riparian vegetation (Hayes and Jennings 1988), and hold water for a minimum of 20 weeks in all but the driest of years (USFWS 2010). Larvae typically metamorphose between July and September (USFWS 2002). The wetlands in the BSA typically dry by July (Bobzien 2003), and during the May field survey they contained water less than two feet deep. Emergent vegetation within the wetlands and edge cover were sparse during the field survey. The relatively narrow width of the wetlands (less than six feet across in most areas) and their proximity to developments which promote the presence of urban adapted predators, such as striped skunks (*Mephitis mephitis*), possums, and raccoons would make any California red-legged frogs or their eggs highly

susceptible to predation. Areas containing deep water or dense aquatic vegetation that would allow frogs to escape from predators were absent. The ephemeral creek within the BSA is dry most of the year, and characteristics associated with red-legged frog presence, including dense vegetation, undercut banks, and exposed roots, were absent from the creek.

A small number of ponds that may be suitable to support breeding occur within about one mile of the BSA, which is reflective of the average dispersal distance for the species, although frogs are capable of moving distances of up to two miles (Bulger, et al 2003, USFWS 2010). Historic aerial imagery indicates that some of these ponds maintain sufficient hydroperiods to support breeding red-legged frogs, although most do so only in particularly wet years (Google Earth 2020). All ponds within potential dispersal distance are located to the south and west of the BSA, within open space areas which are contiguous with the BSA. No suitable habitat for red-legged frogs occurs north or east of the BSA, due to the presence of tidal salt marsh and dense urban development.

Due to the marginal nature of the habitat onsite and the distance to known occurrences, the California red-legged frog has a low potential to occur the BSA. They are most likely to occur in the BSA during rain events and periods of wet weather when frogs tend to make overland movements away from breeding ponds and aquatic non-breeding habitats. If present, frogs would be most likely to use the wetlands, drainage ditches, and nearby leaf litter and dense vegetation. During the summer months, California red-legged frogs are less likely to occur in the BSA.

5.3.1.2 Alameda Whipsnake (=Striped Racer) (*Masticophis lateralis euryxanthus*)

The Alameda whipsnake (*Masticophis lateralis euryxanthus*, AWS) is listed as threatened under the ESA and CESA (USFWS 1997, CDFW 2019). Management Units, including Recovery Units and Critical Habitat Units, have been designated for the whipsnake (USFWS 2002b, 2006).

The Alameda whipsnake inhabits portions of Alameda and Contra Costa Counties (Jennings 1983; USFWS 2005c; Stebbins and McGinnis 2012; Richmond et al. 2016) and was first described as a subspecies by Riemer (1954) from individuals found in the Berkeley Hills. The primary cause of the decline of the Alameda whipsnake is the loss of habitat from human activities, and the alteration of suitable habitat from permanent loss as well as succession to oak bay woodland in the absence of natural disturbance and fire regimes (USFWS 2005c, 2011). Urban development and associated highway and road development have potentially fragmented and/or reduced the connectivity between metapopulations of this species. The loss of habitat to non-native invasive tree and shrub species represent one of the primary threats to the Alameda whipsnake (USFWS 2011). Eucalyptus and other non-native trees, and broom often degrade and displace suitable AWS habitat on a landscape scale (USFWS 2002b, 2006, 2011).

The Alameda whipsnake is most closely associated with scrub and chaparral communities, but also uses adjacent habitats, including grasslands, open woodlands, woodland edges, and open riparian scrub (Stebbins 2003; Swaim 1994; USFWS 2005c). Telemetry data (Swaim 1994) showed that home ranges of Alameda whipsnakes were centered on coastal scrub communities and that their home ranges included a mosaic of scrub/woodland/grassland habitats. Within their home ranges whipsnakes have areas of concentrated use which can include spatial and temporal overlap of multiple whipsnakes (Swaim 1994). Swaim (1994) called these areas of concentrated use by multiple AWS “core areas” and called habitat in these areas of overlap and concentrated use “core type habitat”. The microhabitat in core areas consisted of scrub and to a lesser degree, immediately adjacent grassland, with aspects ranging from northeast, southeast, south, or southwest facing slopes.

Alameda whipsnake prey on lizards, other snakes, frogs, and birds (Stebbins 1985 2003; Swaim 1994; Shafer and Hein 2005) with fence lizards being a primary prey species (Stebbins 1985, 2003; Swaim 1994). Rock outcrops within and in very close proximity to scrub and chaparral likely enhance the habitat for AWS because they provide secure cover and promote abundant lizard populations (Swaim 1994). However, rock outcrops are not present at all study areas where whipsnakes have been documented. Trapping surveys have documented breeding populations of AWS in scrub patches as small as ½ acre, when the patch occurs on core type aspects embedded in grassland /open woodland mosaic with other patches of scrub of similar or larger size nearby (Swaim Biological, Inc. [SBI] 2011).

The BSA is not located within designated critical habitat for the Alameda whipsnake (USFWS 2006). The CNDDB contains 12 recorded observations of the Alameda whipsnake within five miles, and the nearest records are located less than four miles from the BSA on property owned by the John Muir National Historic Site and Muir Heritage Trust (CDFW 2020). Other nearby occurrences include records from the Franklin Canyon area and the hills west of Alhambra Avenue (CDFW 2020). All of the records of the whipsnake within 5 miles of the BSA are located on the south side of State Route 4 which would pose at least a partial barrier to movement. Although no records are present north of State Route 4, suitable habitat including patches of scrub with adjacent grassland and woodlands are visible on aerial imagery within about 0.5-mile of the BSA. Within the BSA, high quality habitat consisting of scrub or chaparral with rock outcrops is absent and the eucalyptus woodland, seasonal wetlands, and ruderal habitats that comprise a large portion of the BSA generally provide low quality Alameda whipsnake habitat. The small amounts of scrub habitat in and adjacent to the BSA are limited in extent and highly fragmented, and no impacts to scrub habitat are anticipated from project activities. Due to the limited availability and isolated nature of the suitable habitat in the BSA as well as the presence of significant barriers to movement between the BSA and both core habitat and known records of the species, the Alameda whipsnake has a low potential to occur in the BSA.

5.3.1.3 California Ridgeway's Rail (*Rallus obsoletus obsoletus*) and California Black Rail (*Laterallus jamaicensis coturniculus*)

California Ridgway's Rail

The California Ridgway's rail, formerly the California clapper rail, is federally and State listed as endangered (USFWS 1970, CDFW 2019f). In addition, the species is fully protected under the California Fish and Game Code (Section 3511). Critical habitat for this species has not been proposed or designated.

One of the largest rail species, the California Ridgway's rail is a medium sized marsh bird with a compact body and short wings. Ridgway's rails are opportunistic predators of a variety of invertebrates, including crustaceans, aquatic insects, minnows, grasshoppers, small vertebrates, and seeds (Test 1942). California Ridgway's rails breed from mid-March through August, with peak nesting in late April to mid-May (Eddleman and Conway 2020). Nests are placed in dense marsh cover, often near the edges of tidal sloughs. The species' semiprecocial young leave the nest soon after hatching and follow parents on foraging bouts until independence at about 5 to 6 weeks of age (Eddleman and Conway 2020).

The California Ridgway's rail is endemic to the marshes of the San Francisco Bay. The subspecies once bred in coastal marshes in Humboldt, Monterey and San Luis Obispo Counties, but has been extirpated from all locations outside the San Francisco Bay (Harding-Smith 1993). This secretive species is found primarily in the intertidal zone and sloughs of brackish marshes dominated by pickleweed, Pacific cordgrass, marsh gumplant, saltgrass, and jaumea (*Jaumea carnosa*). Continuity of marsh habitat with upland refugia is an important habitat component, as upland habitats provide protection from predation during high tides.

Due to its secretive nature, nests and young of the species are rarely observed. Instead, breeding is often inferred in areas where the species is observed during the breeding season. Nesting extends from mid-March through early August, with peak activity in mid-May (Degroot 1927, Eddleman and Conway 2020). In Contra Costa County, Ridgway's rails have been observed in marshes east of the BSA during the breeding season. The nearest record of Ridgway's rail occurs 1.1 miles north-northeast of the BSA, in marshes east of the Martinez Marina (CDFW 2020). This occurrence is marked as a breeding record, likely because the individual was detected during the breeding season (CDFW 2020). Additional CNDDB records, several during the breeding season, occur in the marshes of Suisun Bay, at Waterfront Park and the Point Edith Wildlife Area. North of the BSA, the species has been observed in the restored portions of the tidal marshes of the Martinez Regional Shoreline located west of Alhambra Creek (Jaramillo 2015).

California Black Rail

The California black rail was State listed as threatened in 1971 and is fully protected under the California Fish and Game Code (Section 3511).

The California black rail is North America's smallest rail. Little is known about the species' diet, but it is presumed to be an opportunistic forager of crustaceans, insects, and seeds (Eddleman et al. 2020). Black rails breed from early March to July. Nests are concealed in clumps of vegetation, often pickleweed, near the upper limits of tidal inundation. Black rail young are semiprecocial and leave the nest within 24 hours of hatching (Eddleman et al. 2020). Time to independence is not known.

Black rails are most abundant in extensive tidal marshes with some freshwater input (Evens et al. 1991). They nest primarily in pickleweed-dominated marshes with patches or borders of bulrushes, often near the mouths of creeks. The California black rail occurs only in marshes and are most common in the extensive tidal marshes of the San Pablo Bay and associated rivers (Evans et al. 1991). As with the Ridgway's rail, the availability of upland refugial habitat contiguous with core marsh habitat is important for predation avoidance during marsh inundation.

More secretive than even the Ridgway's rail, black rails are more often heard than seen, and breeding is typically inferred from the presence of calling birds during the nesting season. Pair formation is thought to occur as early as late February (Eddleman et al. 2020) and nesting may continue through late July, with a peak in mid May (Flores and Eddleman 1993, Eddleman et al. 2020).

In Contra Costa County black rails have been observed in marshes east of the BSA during the breeding season. The nearest record for black rail occurs 1.1 miles north-northeast of the BSA, in marshes east of the Martinez Marina, where the species is presumed to be nesting (CDFW 2020). Additional breeding season records occur in the marshes of Suisun Bay, at Waterfront Park and the Point Edith Wildlife Area. North of the BSA, the species has been heard calling in the restored portions of the tidal marshes of the Martinez Regional Shoreline west of Alhambra Creek (Jaramillo 2015).

Potential for Rails to Occur in the BSA

Although both the California Ridgway's rail and California black rail have been observed in the tidal marshes north of the BSA where estuarine and riverine wetlands were restored beginning in 2000, the restored portions of the marsh are located at least 500 feet from the BSA (CWMW 2020). Furthermore, the restored tidal marsh areas are separated from the BSA by the UPRR Ozol Terminal, and in some areas, by buildings and hardscape associated with the Martinez Pumping Station, Martinez Homing Pigeon Club, and other commercial and residential development. The BSA itself lacks suitable marsh habitat capable of supporting either species, and neither Ridgway's rails nor black rails are expected to occur in the BSA. Indirect

disturbance to rails from noise associated with construction activity is unlikely to occur both due to the distance between the BSA and the nearest tidal marsh habitat, and to the baseline level of disturbance associated with the railroad terminal where train cars and locomotives on long manifest trains are frequently rearranged and switched into smaller, individual trains ("UPRR Reducing Times" 2020). Other tidal and non-tidal marsh habitats north of the railroad tracks are also subject to disturbance from pedestrians and bicyclists along the trails at the Martinez Regional Shoreline. These factors make it unlikely for either Ridgway's or black rails to occur in the BSA, and for indirect effects on either species to occur.

5.3.2 California Species of Special Concern

5.3.2.1 San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*)

The San Francisco common yellowthroat is considered a Species of Special Concern by CDFW. The San Francisco common yellowthroat is one of approximately 13 subspecies of the common yellowthroat in North America. Two subspecies may occur in the Martinez area, the protected *sinuosa* subspecies and the more common *arizela* subspecies. Specimens collected from Martinez in 1960 were identified as the *sinuosa* subspecies (Marshall and Dedrick 1993), and common yellowthroats nesting in the area are likely of the special-status *sinuosa* subspecies. Since subspecies cannot be reliably distinguished in the field, presence of the protected *sinuosa* subspecies is assumed based on presence within its known breeding range, which includes the marshes south of the Carquinez Strait and San Pablo Bay.

The San Francisco common yellowthroat is the smallest of this diminutive warbler species. Its breeding range remains largely unchanged from historical records, but loss of riparian and marsh habitat has greatly reduced the availability of suitable habitat within that range (Gardali and Evens 2008). The San Francisco common yellowthroat occurs year-round in the tidal marshes of the San Pablo Bay. It nests in brackish or freshwater marshes and woody swamps, typically on the boundaries between moist and upland habitats. In tidal marsh habitat, San Francisco common yellowthroats were most common in areas with a relatively high cover of rushes (*Scripus* sp.), peppergrass (*Lepidium latifolium*) and *Juncus* (Gardali and Evens 2008). Open cup nests are built in dense, concealing vegetation, often near the ground in grasses, forbs, cattails, tules, and some shrubs (e.g. coyote brush). Nesting occurs from early March through late June (Mount Diablo Audubon Society 2009).

San Francisco common yellowthroats are common in the marshes near the BSA, with the nearest records occurring in the marshes immediately north of the BSA (eBird 2020) and in extensive tidal marshes 2.1 miles east of the BSA (CDFW 2020). No suitable tidal marsh habitat occurs in the BSA; however, stands of rushes interspersed with dense blackberry in the BSA may provide lower quality nesting habitat for the species. Nevertheless, the quality of this habitat is further reduced by its narrow extent, relatively low cover of rushes, proximity to high levels of disturbance, and separation from tidal marsh habitat. There is therefore a low likelihood of the subspecies foraging or nesting in the BSA.

5.3.2.2 Suisun Song Sparrow (*Melospiza melodia maxillaris*)

The Suisun song sparrow is considered a Species of Special Concern by CDFW. The Suisun song sparrow is one of three subspecies of song sparrow that breed only in salt marsh habitats of the San Francisco Bay Area (Spautz and Nur 2008). This subspecies occurs year-round in the tidal salt and brackish marshes of the Carquinez Strait and Suisun Bay, with the greatest densities estimated along the Martinez shoreline (Spautz and Nur 2008). High quality habitat for the Suisun song sparrow consists of large areas of tidal salt marsh with dense vegetation, some shrub cover (especially gumplant and coyote brush), and adjacent upland

habitat (Spautz et al 2006). Nesting begins in mid March and continues through mid August (Mount Diablo Audubon Society 2009). Nests are built in concealing vegetation with secure support for the nest. A variety of plant substrates may be used, including pickleweed, coyote brush, and garden plantings. Nests may be placed near the ground or as high as 12 feet in shrubs (Arcese et al. 2020).

The distribution of the Suisun song sparrow remains relatively unchanged from historical records; however, the availability of marsh habitat has substantially decreased (Spautz and Nur 2008). Suisun song sparrows are common in the marshes near the BSA, with the nearest records occurring in the marshes immediately north of the BSA (eBird 2020, CDFW 2020). Suisun song sparrows were also heard singing in marsh habitat north of the BSA during reconnaissance surveys. No suitable tidal marsh habitat occurs in the BSA; however, the species has been recorded nesting along the upland edges of large marshes, especially where shrubs are present. Riparian habitat in Segment 2 of the BSA supports shrub and herbaceous vegetation suitable to Suisun song sparrow nesting. However, the narrow extent of suitable nesting habitat, proximity to high levels of disturbance, separation from tidal marsh habitat, and the availability of high-quality habitat nearby limit the likelihood that the species will nest in the BSA. There is therefore a low likelihood of the species foraging or breeding in the BSA.

5.3.2.3 Pallid bat (*Antrozous pallidus*)

The pallid bat is considered a Species of Special Concern by CDFW; it is not federally listed. Pallid bats are listed as a species of medium to high level of concern and in need of conservation action by the Western Bat Working Group.

Pallid bats occur in a variety of habitats in California, including low desert, oak woodland, and coastal redwood forests. In northern California, the species is typically associated with oak savannah habitat (Pierson and Rainey 1998). Pallid bat day-roosting habitat typically includes rocky outcrops, cliffs, large-diameter live and snag trees, and spacious crevices with access to open habitats for foraging. Pallid bats may also roost in caves, mines, bridges, barns, porches, bat boxes, stone piles, rags, baseboards, rocks, and on the ground. Day roosts are generally warm and out of reach from ground predators. Day roosts may consist of single- or mixed-sex colonies in crevices or man-made structures. Numbers of individuals in a day roost range from a few individuals to over a hundred (Barbour and Davis 1969). Breeding colonies are formed in the spring. Young are dependent on their mothers for at least six weeks and do not gain full independence until the fall, when colonies disperse (Pierson and Rainey 1998). Pallid bats are sensitive to disturbance at roost sites and may abandon a roost if repeatedly disturbed (Pierson and Rainey 1998).

Pallid bats have been documented using bridge structures for roosting and the pedestrian bridge structure in the BSA may provide low quality night roost habitat for a small number of bats. In addition, pallid bats may roost in the loose bark, leaves, and crevices of mature eucalyptus and oaks in the BSA. No cavities capable of supporting a large colony were observed in the BSA during reconnaissance surveys and no records of the species occur within 5-miles of the BSA (CDFW 2020). In general, pallid bats have a moderate likelihood to occur in relatively small numbers within suitable tree roost habitat observed within the BSA.

5.3.2.4 Western Red Bat (*Lasiurus blossevillii*)

The western red bat is considered a Species of Special Concern by CDFW. It is not listed under FESA or CESA.

Western red bats can be found throughout California's lower elevations, with many records concentrated in the Central Valley. Like some bats found in California, western red bats make regional movements between their winter and maternity roosts seasonally. As a foliage roosting bat, the western red bat is

closely associated with well-developed riparian habitats but will also utilize other habitats (e.g. orchard trees, eucalyptus, tamarisk, etc.) that provide suitable dense clusters of leaves creating suitable roosting sites. Of note, this species has been observed roosting on the ground within leaf clutter. The western red bat is a solitary roosting bat that will often have two pups per year.

Dense foliage clusters observed in eucalyptus groves in the BSA provide potentially suitable western red bat roost habitat, though there are no western red bat records within 5 miles of the BSA. Western red bat roosts are small and consist of just one to a few individuals. Given the limited extent of the BSA, it is therefore unlikely to support many individuals of this solitary roosting bat. Based on the presence of potentially suitable roost habitat within and adjacent to the BSA, western red bats have a low likelihood to occur.

5.3.2.5 San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

The San Francisco dusky-footed woodrat is one of 11 woodrat subspecies and is state protected as a California Species of Special Concern. It can be found throughout the San Francisco Bay Area within mixed coniferous forests and oak and riparian woodlands. It can be abundant in areas with dense shrub cover and is strongly associated with structurally complex habitats, such as riparian corridors. Woodrats are usually conspicuous where they occur due to their large stick-pile houses which they construct on the ground, in rocky outcrops, and in trees from sticks and other debris. Houses may be reused by successive generations and some can grow to be six feet or more in height, while others are well-hidden and easily overlooked. Houses are used for rearing young, protection from predators, resting, food storage, thermal protection, and social interaction (Vestal 1938). Each house is typically inhabited by one male or one female with young (Carraway and Verts 1991) but individuals may use multiple satellite houses within a home range. Dusky-footed woodrat houses are also used by a wide variety of native amphibians, small mammals, reptiles, and insects. Dusky-footed woodrats are mostly nocturnal. They forage in trees and on the ground for a wide variety of nuts, fruits, fungi, foliage, and some forbs (Linsdale and Tevis 1951). Reproduction typically occurs between September and December and between February and July, peaking in April and May.

No woodrat houses were observed during focused surveys conducted on May 12, 2020. However, due to the availability of moderate quality habitat throughout the BSA and presence of dense stands of poison oak and blackberry, there is a low probability that the species may occur in the BSA.

5.3.3 State Fully Protected Species

5.3.3.1 White-tailed Kite (*Elanus leucurus*)

The white-tailed kite is a California Fully Protected species. The species is also protected under California Fish and Game Code, the MBTA, and as a "bird of prey" under the Raptor Recovery Act.

The white-tailed kite occurs in nearly all lowlands in California, except the southeast deserts. The core of the white-tailed kite's breeding range in the U.S. is California, with nearly all areas up to the western Sierra Nevada foothills and southeast deserts occupied (Dunk 1995). They require relatively open habitat for foraging, and trees (isolated or within stands) for nesting and roosting. White-tailed kite nests are built in trees or shrubs and are composed of small twigs lined with grass, hay or leaves (Dunk 1995). White-tailed kites breed in lowland grasslands, agriculture, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. The presence of prey species, particularly voles, may be the most

important determinant of habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997).

White-tailed kites have frequently been observed in marsh habitats north of the BSA (eBird 2020). The species has not been recorded breeding in the vicinity, although the reasons why are not clear (Mt. Diablo Audubon Society 2009). A lack of isolated trees surrounded by open foraging habitat, combined with high levels of human disturbance associated with park trails and UPRR tracks, may limit nesting opportunities for the species in this area. Therefore, white-tailed kites are not expected to nest in the BSA and have a low likelihood to occur as a transient or forager.

5.3.4 Migratory Bird Treaty Act and California Fish and Game Code

Certain birds are protected under the MBTA and/or California Fish and Game Code. High quality nesting and foraging habitat for a variety of species is present throughout the BSA in all vegetation communities. Reconnaissance level surveys detected active nesting or evidence of recent nesting (e.g., adults feeding fledglings) for several species, including: red-shouldered hawk, common raven, oak titmouse, Bewick's wren, Anna's hummingbird, wild turkey, house finch, and European starling. Numerous other common bird species may occur seasonally or nest in the BSA.

6. Impacts and Mitigation Measures

Potential impacts resulting from the proposed Project are depicted on Figure 4. Permanent and temporary impact acreages are presented for each biotic habitat type in Table 4.

The proposed Project has the potential to adversely impact the following species, if they occur in the BSA: California red-legged frog, California Ridgway's rail, California black rail, San Francisco common yellowthroat, Suisun song sparrow, white-tailed kite, pallid bat, western red bat, San Francisco dusky-footed woodrat, and nesting birds. Potential project impacts on these species are discussed below and AMMs are proposed to avoid and minimize impacts.

Table 4. Impacts Within Each Biotic Habitat Type[4]

Biotic Habitats	Acreage	
	Permanent Impacts	Temporary Impacts
Developed	0.15	–
Ruderal	0.17	–
Eucalyptus Grove	–	0.01
Wild Oats and Annual Brome Grassland	0.02	0.03
Creeping Ryegrass Turf	0.014	–
Coast Live Oak Woodland and Forest	0.09	<0.01
California Sagebrush Scrub	0.02	–
Arroyo Willow Thicket	–	–
Freshwater and Brackish Marsh	0.363	–
Low Flow Channel	0.125	–
Total	0.949	0.04

[4] Figures subject to rounding error. Wetlands and Sensitive Natural Communities are estimated to 0.001 acre; all other habitats are estimated to 0.01 acre.

6.1 Impacts on Special-Status Plant Species

The following impact analysis describes the potential adverse effects of the proposed Project on special-status plant species and Sensitive Natural Communities. Table 2 lists the potentially occurring special-status plant species, along with their listing status and potential to occur in the BSA.

6.1.1 Impacts on Rare Plants

Rare plant surveys will be conducted according to CDFW's 2018 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities and will document presence if detected in the BSA. No rare plants were observed during the reconnaissance survey or the Aquatic Resources Delineation. If rare plants are present in the BSA they could be directly and permanently impacted during staging and construction by blading, grading, and trail establishment activities. If not destroyed by the construction footprint, they could be directly and temporarily impacted during staging and construction by trampling or staging materials on top of them. Rare plant surveys are critical to preventing these types of impacts by identifying their presence in the BSA. If rare plants are identified in the BSA, the following AMM would reduce potentially significant impacts to less than significant:

AMM BIO-1. Rare Plant Avoidance. Rare plant individuals and/or populations would be avoided by trail construction. To prevent accidental impacts, rare plant areas would be clearly marked with high visibility flagging or fencing prior to the start of construction activities, and the flagging or fencing would be maintained around the rare plant areas for the duration of construction.

AMM BIO-2. Coordination with Agencies. If avoidance is infeasible, the appropriate agencies will be contacted to identify appropriate relocation and compensation strategies. These agencies are usually CDFW and CNPS, but may also include USFWS, RWQCB, and BCDC based on rare plant legal status and whether the growing location overlaps with aquatic resource jurisdiction.

6.2 Impacts on Sensitive Natural Communities

Three SNCs are present in the BSA and will be directly and permanently impacted during staging and construction by blading, grading, and trail establishment activities. While certain types of rare plant individuals and vegetation communities are difficult to successfully relocate and reestablish, these three SNCs are likely to survive transplantation and successfully colonize their new areas. These areas are relatively small, especially the Yerba Mansa Alkali Wet Meadow which is approximately 100 square feet. The Hardstem and California Bulrush Marshes community is approximately 300 square feet. The Creeping Ryegrass Turf community is approximately 2,000 square feet (0.05 acre). By requiring relocation of these communities, the following AMM will reduce potentially significant impacts to Less Than Significant:

AMM BIO-3. Sensitive Natural Communities Avoidance. In advance of construction mobilization, the project proponent will flag portions of the project are containing sensitive natural communities for avoidance.

AMM BIO-4. Sensitive Natural Communities Relocation/Replanting. If avoidance of SNCs is not possible, plants that are characteristic of the SNCs that would be affected by project activities will be relocated before or in timely conjunction with construction activities. It may be feasible to relocate plants from each of the SNCs to areas along the trail margins where they already occur. The excavated SNCs will be replanted

promptly to ensure they survive and do not die from exposure and desiccation, with the location and timing of transplantation will be determined in consultation with CDFW.

6.3 Impacts on Special-status Wildlife

The following general avoidance and minimization measures are recommended to reduce the potential impacts on special-status wildlife:

AMM BIO-5. Worker Environmental Awareness Program. Before any ground-disturbing activities begin, a Qualified Biologist, defined as a person who possesses, at a minimum, a bachelor's degree in biological sciences, zoology, botany, ecology, or another closely-related field, and who is familiar with the special-status species that could occur in the project area, will conduct a training session for all onsite project personnel. At a minimum, the training will include a description of the California red-legged frog, California Ridgway's Rail, California black rail, white-tailed kite, San Francisco common yellowthroat, Suisun song sparrow, pallid bat, and western red bat, the importance of these species, the measures that are being implemented to avoid and minimize impacts as they relate to the Project, and the boundaries within which work may occur.

AMM BIO-6. Delineation of Work Area. The boundaries of the work area where natural vegetation occurs shall be clearly staked or otherwise delineated on the Plansto prevent workers or equipment from inadvertently straying from the work area. All construction personnel, equipment, and vehicle movement shall be confined to designated construction and staging areas.

AMM BIO-7. Prevention of Entrapment. All excavated, steep-walled holes or trenches will be covered at the end of each workday with plywood or similar materials. If this is not possible, one or more escape ramps constructed of earth fill or wooden planks will be established in the hole. Before such holes or trenches are filled, they will be thoroughly inspected for any animals.

AMM BIO-8. No Monofilament Plastic. Plastic monofilament netting (erosion control matting) or similar material will not be used because wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds.

AMM BIO-9. Biological Monitoring. A Qualified Biologist will remain on-site during clearing and grubbing, tree removal, initial grading, and any vegetation removal in wetland or riparian habitat. Prior to commencement of the above construction activities, the Qualified Biologist will survey the Project footprint to ensure no special-status species are within the work area. If any special-status species are found in areas where they could be impacted by work activities, work activities will be halted until the animal leaves the work area on its own.

6.3.1 Impacts on the California Red-Legged Frog (Less than Significant with Mitigation)

No suitable California red-legged frog breeding habitat is present in the BSA, and the BSA does not provide connectivity between known or potential breeding ponds. However, the BSA is contiguous with areas of open habitat that could support the species, and individual frogs could disperse into the BSA from those occupied habitats. Due to the high levels of human disturbance, distance from known breeding ponds, and limited extent of the wetlands on site, red-legged frogs are unlikely to occur in the BSA. Nevertheless, wetland and riparian habitats in the BSA provide potentially suitable habitat for the species, particularly during the wet, winter months.

If California red-legged frogs were present in work areas, implementation of the proposed Project could potentially result in the injury or mortality of individual frogs. For example, individuals could be directly harmed by equipment, or indirectly exposed to greater predation or desiccation risk if project activities cause individuals to move away from cover. Implementation of the proposed Project is not expected to cause a substantive increase human activity, disturbance, lighting, or noise over current conditions in the vicinity. Given the low potential for occurrence of California red-legged frogs in the BSA, and because take would be minimized via implementation of the general AMMs above and the species specific AMMs below, no compensatory mitigation is warranted, and the Project will have a less than significant impact on the species.

AMM BIO-10. Seasonal Avoidance. To the extent feasible, initial grading, tree removal, and vegetation removal within riparian or wetland habitats should be restricted to the dry season (i.e., April 15 through October 15). No vegetation removal or ground disturbing activities should occur in riparian or wetland habitats during or within 24 hours following a rainfall event of 0.1 inches or more.

AMM BIO-11. Pre-Activity Survey. The Qualified Biologist will survey the work area immediately prior to vegetation removal in wetland or riparian habitats, and prior to all initial ground disturbance and tree removal activities. If California red-legged frogs are found, work will not proceed until the animal has moved out of the work area on its own.

6.3.2 Impacts on Alameda Whipsnake (Less than Significant with Mitigation)

Scrub habitat in and adjacent to the BSA is limited in extent and highly fragmented. Eucalyptus woodland, seasonal wetland, and ruderal habitats that comprise a large portion of the BSA generally provide low quality habitat for Alameda whipsnakes. In addition, core habitat for the species, as well as all observations of Alameda whipsnakes, occur south of State Route 4. Due to the high levels of human disturbance, distance from core habitat, and limited extent of suitable scrub habitat, Alameda whipsnakes are unlikely to occur in the BSA. Nevertheless, the BSA is contiguous with areas of open habitat that could support the species and habitats in the BSA may provide low-quality habitat for the species.

If Alameda whipsnakes were present in work areas, implementation of the proposed Project could potentially result in the injury or mortality of individual snakes. For example, individuals could be directly harmed by equipment, or indirectly exposed to greater predation risk if project activities cause individuals to move away from cover. Implementation of the proposed Project is not expected to cause a substantive increase human activity, disturbance, lighting, or noise over current conditions in the vicinity. Given the low potential for occurrence of Alameda whipsnakes in the BSA, and because take would be minimized via implementation of the general AMMs above and the species specific AMMs below, no compensatory mitigation is warranted, and the proposed Project will have a less than significant impact on the species.

AMM BIO-12. Pre-Activity Survey. A Qualified Biologist will survey the work area immediately prior to initial ground disturbance, vegetation removal, and tree removal activities. If Alameda whipsnakes are found, work will not proceed until the animal has moved out of the work area on its own or the Qualified Biologist has otherwise cleared that it is ok to proceed.

6.3.3 Impacts on the San Francisco Common Yellowthroat and Suisun Song Sparrow (Less than Significant with Mitigation)

The San Francisco common yellowthroat and Suisun song sparrow, both California Species of Special Concern are known to occur near the BSA year-round. In addition, both species have been recorded in

nearby marshes during the breeding season, are presumed to nest there, and have similar nesting habitat preferences. Thus the San Francisco common yellowthroat and Suisun song sparrow were assessed together, because impacts on these species from the proposed Project would be similar.

Construction of Segment 2 of the proposed Project would result in the loss of marginally suitable nesting and foraging habitat for the San Francisco common yellowthroat and Suisun song sparrow. In addition, noise, ground disturbance, and other activities associated with project implementation could cause individuals to move away from work areas. However, few, if any, pairs of either species are expected to nest in the BSA. In the unlikely event that either species did establish a nest in the BSA, then AMMs protecting nesting birds presented below (Section 6.3.7) would avoid and minimize any impacts on nests of these subspecies to less than significant levels.

6.3.4 Impacts on the White-Tailed Kite (Less than Significant)

The white-tailed kite, a California Fully Protected Species, is known to occur in marshes immediately north of the BSA. The lack of isolated trees surrounded by open foraging habitat, combined with high levels of human disturbance associated with park trails and railroads, makes it unlikely that the species will nest in and near the BSA. While the species is frequently observed foraging over marshes north of the BSA, suitable open foraging habitat is also absent from the BSA. Nevertheless, due to the proximity of the BSA to high quality marsh habitat and frequent observations of the species nearby, we cannot rule out the possibility that non-breeding white-tailed kites may occasionally occur in the BSA. Noise and disturbance caused by proposed activities could potentially disturb a foraging or resting kite, causing it to move away from work areas. No suitable open nesting habitat will be lost as a result of project implementation. Therefore, the potential disturbance of an individual white-tailed kite would not constitute a significant impact on this species under CEQA.

6.3.5 Impacts on the Pallid Bat and Western Red Bat (Less than Significant with Mitigation)

Pallid and western red bats may forage throughout the BSA, and the pedestrian bridge and vegetation in the BSA provide suitable day and night-roosting habitat for these species. No evidence of a large colony of pallid bats was detected in the BSA during the reconnaissance-level survey, but the presence of a small colony of this species cannot be ruled out. Bridge repair and vegetation removal activities have the potential to result in the loss of a small colony of pallid bats and/or the loss of a small number of western red bats. Vegetation removal and bridge repair could result in the direct injury or mortality of individual bats, could subject bats to physiological stress from being disturbed during torpor, or could subject bats to increased risk of predation when flushed from roosts during the day. In addition, disturbance of maternity roosts could result in abandonment by dependent young.

Few trees are scheduled for removal, and most are not large enough to provide suitable roosting for either bat species. However, there is some potential for project activities to impact roosting bats and bat roost habitat. Implementation of the mitigation measures listed below would largely avoid impacts on roosting bats and reduce any remaining impacts to a less than significant level.

The following measures would reduce the potential for impacts on roosting bats in the BSA.

AMM BIO-13. Seasonal Bat Avoidance. The removal of any trees containing suitable bat roosting habitat should be scheduled to avoid the maternity roost season. To the extent feasible, activities should be restricted to the period between August 31 and April 15.

AMM BIO-14. Bat Roost Deterrent/Exclusion Plan. If seasonal avoidance is not possible and roosting bats or signs of roosting bats are observed, a qualified biologist should develop a roost deterrent and/or roost exclusion plan. The deterrent/exclusion plan should include measures to avoid bats potentially using bat tree roost habitat within the BSA, if necessary.

AMM BIO-15. Bat Roost Habitat Survey. Prior to the start of work, the pedestrian bridge and all vegetation scheduled for removal should be surveyed to determine if potential bat roost habitat is present and if 2-phase tree removal or other avoidance measures are necessary to avoid impacts on bats.

AMM BIO-16. Pre-Construction Surveys. Prior to the start of work, the pedestrian bridge, trees, leaf clusters, or similar structures in the BSA should be thoroughly inspected by a qualified biologist for the presence of wildlife, including roosting bats, prior to being removed. Any bat observed in the BSA should be allowed to leave on its own.

AMM BIO-17. Biological Monitoring During Vegetation removal. A biological monitor should be present during tree removal and any clearing of riparian vegetation. The onsite biologist should inspect all bat roost habitat (e.g. crevice, and foliage habitat types) for roosting bats prior to trimming or removal activities.

6.3.6 Impacts on San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation)

No nests of the San Francisco dusky-footed woodrat were observed during the focused survey conducted May 12, 2020. However, the presence of dense stands of blackberry and poison oak may have obscured the presence of nests. Due to the presence of suitable habitat in the BSA, there is a low potential for individuals to occur in the area prior to construction.

If present, woodrats and their nests could be directly impacted through nest removal, relocation, or destruction, and indirectly impacted through exposure to predation, adverse weather, unfamiliar or marginal habitats, or territories already occupied by other woodrats after they are displaced from their nests. AMMs are proposed below to avoid and minimize adverse impacts of project activities. With the implementation of these AMMs, impacts on San Francisco dusky-footed woodrats from Project construction would be less than significant.

The following measure would minimize impacts on San Francisco dusky-footed woodrat.

AMM BIO-18. Woodrat House Survey. Prior to the start of Project activities, a survey of the BSA will be conducted for woodrat houses.

AMM BIO-19. Woodrat and House Relocation Plan. If woodrat houses are found and cannot be avoided, a San Francisco dusky-footed woodrat relocation plan will be prepared and submitted to CDFW before any woodrat houses are disturbed. The Plan would establish buffers and avoidance measures and establish a relocation protocol for woodrat houses.

6.3.7 Impacts on Nesting Birds Protected by the MBTA and CFGC (Less than Significant with Mitigation)

Plan activities will not significantly reduce overall nesting habitat available for birds. Vegetation removal is planned along Segment 2 of the BSA only. While wetland and riparian vegetation is typically of high value

to nesting birds, the narrow extent, highly disturbed nature, and location adjacent to heavily utilized railroad tracks reduces the area's suitability for nesting birds.

Implementation of the proposed project could result in the incidental loss of eggs or nestlings through direct destruction or disturbance of active nests, or by causing abandonment of nests. Most of the species likely to nest in the BSA, such as Bewick's wrens (*Thryomanes bewickii*), oak titmice (*Baeolophus inornatus*), and Anna's hummingbirds, are locally and regionally abundant. Due to the low magnitude of the potential impact of Project activities on these species, and their local and regional abundance, this type of impact would not be considered significant under CEQA. Nevertheless, implementation of the AMMs presented below will avoid and minimize adverse impacts of Project activities on nesting birds.

AMM BIO-20. Seasonal Avoidance. Project activities should be scheduled to avoid the nesting bird season. For project planning purposes, the nesting bird season in the San Francisco Bay Area for birds protected under the MBTA is often identified by regulatory agencies as February 1 through August 31. Plan to conduct activities between September 1 – January 31 and do not initiate activities at any time if nesting birds are present (hummingbirds and raptors, for example, may nest earlier if weather conditions are mild, and could be present outside of the guidance period).

If seasonal avoidance is not possible, the following measures would minimize potential impacts on nesting birds.

AMM BIO-21. Pre-Construction Nesting Bird Surveys. Within 10-days prior to the start of work at each Segment, a Qualified Biologist should conduct a visual survey of the area for nesting birds within the work areas to be disturbed and including a perimeter buffer of 100 feet for non-raptor migratory birds and 300 feet for raptors. All nest avoidance requirements of the Migratory Bird Treaty Act should be observed (e.g., establishing appropriate protection buffers around active nests until young have fledged). A Qualified Biologist should resurvey the BSA if a halt in project activities of 10-days or more occurs. All nests identified during pre-construction surveys should be determined "inactive" by a Qualified Biologist prior to removal. No eagle nests should be removed without approval from USFWS.

AMM BIO-22. No Project Activities within Nest Buffers. If seasonal avoidance is not possible and nesting birds are present, a Qualified Biologist will establish temporary buffers around the nest. Project activities will not occur within the buffer areas until the nest has fledged or has otherwise become inactive.

AMM BIO-23. Biological Monitoring for Compliance and Nest Buffer Avoidance. A Qualified Biologist should monitor all identified nesting birds within the survey area for long enough to determine whether project activities will result in observable signs of disturbance to the nest. Nest buffers may need to be adjusted to a greater distance if disturbance is. Conversely, buffer size may be decreased in consultation with CDFW if project activities do not result in disturbance.

6.4 Impacts on Jurisdictional Waters and Wetlands (Less than Significant with Mitigation)

Wetlands are protected at federal, state, and local levels, and are considered sensitive environmental resources. They provide unique habitat functions, are of high value for wildlife, and support plant species adapted to wetland hydrology. Wetlands in the BSA are generally of low value to wildlife and plants due to their narrow extent and location adjacent to UPRR tracks.

Removal of jurisdictional wetland habitat in Segment 2 of the BSA will occur as a result of the proposed Project, and up to 0.5 acres may be affected. Impacts on wetlands were mitigated through the improvement and creation of 0.79 acres of wetland habitat off site. This mitigation effort was completed prior to October 2007, at the Martinez Regional Shoreline. With the completed mitigation and the incorporation of the measures below, this impact is considered less than significant.

AMM Bio-24. Avoid Wetlands and Other Waters to the Extent Feasible. Prior to the start of construction, areas containing wetlands and other waters within the project area that can be avoided by construction will be flagged for avoidance.

AMM Bio-25. Dry Season Work. Construction activities that will result in impacts to wetlands will occur during the dry season (April 15 to October 15) to the extent feasible.

AMM Bio-26 Equipment Refueling. Refueling of equipment and vehicles will be conducted at least 100 feet from any wetlands or other waters unless otherwise approved by a Qualified Biologist.

6.5 Impacts on Wildlife Movement (Less than Significant)

Environmental corridors provide linkages between different habitats while also providing cover. Development that fragments natural habitats can impact wildlife in twos ways: first, smaller habitat patches are able to support fewer animals; and second, connectivity between the remaining patches may be reduced by loss of cover or other alterations to the environment.

Project activities could affect the movement patterns of native resident or migratory wildlife species during implementation but would not isolate separate habitat areas or block critical movement. The new section of the Martinez Bay Trail is not expected to inhibit wildlife movement after completion. Chain link fencing installed along the railroad tracks is not expected to inhibit the movement of smaller animals. Fencing may inhibit the movement of medium and large mammals between upland and adjacent urban and marsh habitats. However, the species affected are primarily black-tailed deer and common, urban adapted predators, such as feral cats, striped skunks, and raccoons.

The wetland habitats in the BSA serve as a movement pathway for semi-aquatic and terrestrial species, providing vegetative cover and foraging opportunities. Common, urban adapted species may also use this corridor. Small mammals, such as mice and shrews, may utilize this habitat to move longitudinally through the BSA, but are not expected to move north from the BSA across the railroad tracks. The proposed Project will convert the majority of the wetlands in the BSA to developed areas, and installation of chain link fencing will create a barrier to dispersal for medium and large mammals. However, fencing is not expected to inhibit the movement of smaller animals, such as frogs, snakes and birds. Further, many of the wildlife species utilizing these wetlands are acclimated to high levels of disturbance and fragmented landscapes in the vicinity, and this is not expected to result in significant impacts on the movement of individual animals. Therefore, the proposed Project would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and this impact is determined to be less than significant.

6.6 Local Policies or Ordinances Protecting Biological Resources

6.6.1 City of Martinez Tree Protection Ordinance (Less than Significant)

The plans for the proposed Project, including tree removal, were approved by the City of Martinez. The proposed Project is therefore exempt from compliance with the City of Martinez Tree Ordinance under the following provision:

> Any tree whose removal was specifically approved as a part of an approved development plan, subdivision or other discretionary project.

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Appendix A. Photos of the Study Area from May 2020

Photo 1. Developed habitat adjacent to the UPRR railroad tracks.

Photo 2. Eucalyptus woodland habitat in Segment 1 of the BSA.

Photo 3. Wild Oats and Annual Brome grassland habitat in Segment 1 of the BSA.

Photo 4. Native *Elamus* sp. grasses growing north of pedestrian bridge in Segment 1.

Photo 5. Coast Live Oak Woodland and Forest in Segment 1 of the BSA.

Photo 6. Debris pile within Coast Live Oak Woodland and Forest in the BSA.

Photo 7. California Sagebrush Scrub habitat occurring near the western boundary of Segment 2.

Photo 8. Arroyo willow thicket located in Segment 2 of the BSA.

Photo 9. Ornamental palm trees growing beside freshwater and brackish marsh in the eastern half of Segment 2.

Photo 10. Emergent vegetation in freshwater and brackish marsh habitat growing beside oak woodland in Segment 2.

Appendix B. List of Plants Observed During May 2020 Field Surveys

Genus	*Species*	Common Name	Wetland Indicator Status[a]	Cal-IPC Rating
Achillea	*millefolium*	yarrow	NL	
Aesculus	*californica*	buckeye	NL	
Ageratina	*adenophora*	thoroughwort	FACU	Moderate Federal: Noxious Weed
Anemopsis	*californica*	yerba mansa	OBL	
Artemesia	*californica*	California sage	NL	
Asclepias	*fascicularis*	narrowleaf milkweed	FAC	
Avena	*barbata*	wild oat	NL	Moderate
Avena	*fatua*	wild oat	NL	Moderate
Baccharis	*pilularis*	coyote brush	NL	
Baccharis	*salicifolia*	mulefat	FAC	
Brachypodium	*distachyon*	false brome	NL	Moderate
Brassica	*nigra*	black mustard	UPL	Moderate
Briza	*minor*	little rattlesnake grass	FAC	Naturalized
Bromus	*diandrus*	ripgut brome	NL	Moderate
Bromus	*hordeaceus*	soft chess	FACU	Limited
Bromus	*madritensis*	foxtail brome	UPL	Naturalized
Calystegia	sp.	morning glory	NL	
Carex	species	sedge	FACW-OBL	
Carduus	*pycnocephalus*	Italian thistle	UPL	Moderate
Centaurea	*melitensis*	tocalote	NL	Moderate
Centaurea	*solstitialis*	yellow star thistle	NL	High
Chenopodium	*murale*	nettle leaf goosefoot	FACU	Naturalized
Chlorogallum	*pomeridianum*	soap root	NL	
Claytonia	sp.	miner's lettuce	FAC?	
Cirsium	*vulgare*	bull thistle	NL	Moderate
Conium	*maculatum*	poison hemlock	FACW	Moderate

Genus	Species	Common Name	Wetland Indicator Status[a]	Cal-IPC Rating
Cotoneaster	*francheti?*	cotoneaster	NL	Moderate
Cynosurus	*echinatus*	hedgehog dogtail grass	NL	Moderate
Cyperus	*eragrostis*	tall flat sedge	FACW	
Digitaria	*sanguinalis*	hairy crabgrass	FACU	Naturalized
Diplacus	*aurantiacus*	bush monkeyflower	FACU	
Dipsacus	*sativus*	Indian teasel	NL	Moderate
Distichlis	*spicata*	saltgrass	FAC	
Dittrichia	*graveolens*	stinkwort	NL	Moderate
Elymus	*glaucus*	blue wild rye	FACU	
Elymus (=Leymus)	*triticoides*	beardless Lyme grass	FAC	
Epilobium	*ciliatum*	FACW	FACW	
Epilobium	*densiflorum*	dense-flower willowherb	FACW	
Eriophyllum	*confertiflorum*	yellow yarrow	NL	
Erodium	*botrys*	storksbill	FACU	Naturalized
Erodium	*cicutarium*	storksbill	NL	Limited
Eschscholzia	*californica*	California poppy	NL	
Eucalyptus	sp.	Eucalyptus	NL	Limited
Festuca	*myuros*	6-week's grass	NL	Moderate
Festuca	*perennis*	Italian rye grass	FAC	Moderate
Foeniculum	*vulgare*	fennel	NL	High
Frangula	*californica*	California coffeeberry	NL	
Fritillaria?	sp.		NL	
Galium	*aparine*	bedstraw	FACU	
Genista	*monspessulana*	French broom	NL	High
Geranium	*dissectum*	wild geranium	NL	Limited
Geranium	*molle*	cranebill	NL	Naturalized
Geranium	*purpureum*	herb robert	NL	Limited
Glyceria?	*occidentalis*	western manna grass	OBL?	Naturalized
Grindelia	sp.	gumplant	FACW	
Helenium	*bigelovii*	Bigelow's sneezeweed	FACW	

Genus	Species	Common Name	Wetland Indicator Status[a]	Cal-IPC Rating
Helenium	*puberulum*	sneezeweed	FACW	
Helminthotheca	*echioides*	bristly oxtongue	FACU	Limited
Heteromeles	*arbutifolia*	toyon	NL	
Holcus	*lanatus*	velvet grass	FAC	Moderate
Hordeum	*jubatum*	foxtail barley	FAC	
Hordeum	*marinum*	seaside barley	FAC	Moderate
Hordeum	*murinum*	mouse barley	FACU	Moderate
Iris	*pseudacorus*	yellow iris	OBL	Limited
Juglans	*hindsii*	walnut	FAC	
Juncus	*sp. mexicanus, patens?*	rush	FAC?	
Lactuca	*serriola*	prickly lettuce	FACU	Naturalized
Lamium	*purpureum*	henbit	NL	Naturalized
Lathyrus	*latifolius*	everlasting pea	NL	Naturalized
Lepidium	*latifolium*	perennial pepperweed	FAC	High
Lilium?	*pardalinum*	leopard lily	FACW	
Lonicera	*hispidula*	pink honeysuckle	FACU	
Lotus	*corniculatus*	bird's foot trefoil	FAC	Naturalized
Lythrum	*hyssopifolia*	hyssop loosestrife	OBL	Limited
Madia	*sativa*	coastal tarweed	NL	
Medicago	*lupulina*	black medic	FAC	Naturalized
Medicago	*polymorpha*	burclover	FACU	Limited
Melilotus	*indicus*	Indian sweet clover	FACU	Naturalized
Monardella	sp.	coyote mint	NL	
Oxalis	*corniculata*	creeping wood sorrel	FACU	Naturalized
Pentagramma	*triangularis*	goldback fern	NL	
Phalaris	*sp.*	grass	FACU?	Some species Native, others Naturalized
Phoenix	*canariensis*	Canary Island palm	NL	Limited
Phyla	*nodiflora*	turkey tangle fog fruit	FACW	
Plantago	*coronopus*	cut leaf plantain	NL	Naturalized
Plantago	*lanceolata*	English plantain	FAC	Limited

Genus	Species	Common Name	Wetland Indicator Status[a]	Cal-IPC Rating
Polypogon	*monspeliensis*	rabbitsfoot grass	FACW	Limited
Polystichum	sp.	sword fern	FACU?	
Prunus	sp.	plum	FACU?	Limited?
Quercus	*agrifolia*	coast live oak	NL	
Ranunculus	sp.	buttercup	FACU to OBL	
Rosa	*californica?*	California rose	FAC	
Rumex	*crispus*	curly dock	FAC	Limited
Rumex	*pulcher*	fiddle dock	FAC	Naturalized
Rubus	*armeniacus*	Himalayan blackberry	FAC	High
Rubus	*parviflorus*	western thimbleberry	FAC	
Rubus	*ursinus*	California blackberry	FAC	
Salix	*laevigata*	red willow	FACW	
Salix	*lasiolepis*	arroyo willow	FACW	
Sambucus	*nigra*	black elderberry	FACU	
Silybum	*marianum*	milk thistle	NL	Limited
Solanum	sp.	nightshade	FACU?	
Sonchus	*asper*	spiny sow-thistle	FAC	Naturalized
Sonchus	*oleraceus*	common sow thistle	UPL	Naturalized
Spergularia	*bocconi*	Boccone's sand spurry	FACW	Naturalized
Stachys	*bullata*	hedgenettle	NL	
Stipa	*miliacea*	Smilo grass	NL	Limited
Symphoricarpos	*albus*	common snowberry	FACU	
Torilis	*arvensis*	stickweed	NL	Moderate
Toxicodendron	*diversilobum*	poison oak	FACU	
Trichostemma	*lanceolatum*	vinegarweed	FACU	
Trifolium	*hirtum*	rose clover	NL	Limited
Trifolium	*tomentosum*	woolly clover	NL	Naturalized
Typha	*angustifolia*	narrow-leaf cattail	OBL	Naturalized
Umbellularia	*californica*	California bay laurel	FAC	
Urtica	*urens*	annual stinging nettle	NL	

Genus	Species	Common Name	Wetland Indicator Status[a]	Cal-IPC Rating
Vicia	*sativa*	garden vetch	FACU	Naturalized
Vicia	*villosa*	spring vetch	NL	Naturalized
Xanthium	*strumarium*	rough cocklebur	FAC	

Sources: Environmental Laboratory 1987; U.S. Army Corps of Engineers 2012; Baldwin et al. 2012; Lichvar, et al., 2014; 2016; 2018.

[a] Indicator Status Definitions:

OBL = Obligate, almost always occurs in wetlands (>99% probability of occurrence)

FACW = Facultative wetland, usually occurs in wetlands (66%–99% probability)

FAC = Facultative, equally likely to occur in wetlands or nonwetlands (34%–66% probability)

FACU = Facultative upland, usually occurs in nonwetlands but occasionally in wetlands (1%–33% probability)

UPL = Obligate upland, almost never occurs in wetlands (<1% probability)

NI = No indicator (insufficient information to assign an indicator status)

~ = unsure as to FAC or FACU (plant not identifiable to species in its current condition)

-- = unsure as to FAC, FACU, or UPL (plant not identifiable to species in its current condition)