Biological Resources Assessment

Petaluma Station Complex
315 D Street
Petaluma, California (APN: 134-072-012)

Prepared for:
Hines Acquisitions, LLC
c/o: Charles Tilleman
1970 Broadway, Suite 400
Oakland, CA 94612

Contact:
Doug Spicher
spicher@wra-ca.com

Rhiannon Korhummel
korhummel@wra-ca.com

Date:
November 2020

WRA Project:
30005

wra
ENVIRONMENTAL CONSULTANTS

2169-G East Francisco Blvd., San Rafael, CA 94702 (415) 454-8868 tel info@wra-ca.com www.wra-ca.com

[Page left intentionally blank]

EXECUTIVE SUMMARY

This report details the regulatory background, methods, results, and recommendations of a Biological Resources Assessment (BRA) for the single parcel located at 315 D Street and the Turning Basin stormwater outfall site, Petaluma, California (Project Area). WRA, Inc. performed field surveys on February 23, March 17, and April 11, 2017 at the Turning Basin stormwater outfall site, and a recent site visit was conducted on March 2, 2020. Site visits for the main Project Area located at 315 D Street were conducted on February 10, 2020 and March 2, 2020 with a follow up plant survey conducted on November 5, 2020 for late blooming special-status species with potential to occur with negative results.

The parcel is composed of mostly undeveloped (no permanent structures) barren or ruderal compacted land that supports a preponderance of non-native grasses and forbs. The only permanent development is three sets of railroad tracks located in the eastern and central portion of the parcel. The stormwater outfall area is also dominated by landscaped and ruderal vegetation and rip-rap. However, 0.02 acres of potential seasonal wetlands are also present and are considered a sensitive community. Additionally, a portion of the banks and water of the Petaluma River is within the Project Area (but separated from the development parcel across Copeland and Weller Streets) and is considered a sensitive community. Mitigation measures for potential impacts have been developed and provided herein to avoid impacts to the wetlands and river. No other sensitive communities are present.

No special-status plant species were observed during any site visits, including the focused survey for late blooming species on November 5, 2020; a total of three special-status species of plants are determined to have potential for presence. The remaining two species require an additional focused survey in spring 2021 to determine presence or absence. A special-status bat and bird, as well as non-status birds with baseline legal protections have the potential to occur in the Project Area. Likewise, several special-status fish have the potential to occur in the Petaluma River. Critical habitat for Federal-listed fish and Essential Fish Habitat is present in the Petaluma River. Mitigation measures and best management practices have been developed and provided herein to avoid impacts to these resources.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF PREPARERS

Doug Spicher – Principal-in-Charge
Jean-Paul Ponte – Plant Biologist
Brian Freiermuth – Wildlife Biologist

LIST OF ABBREVIATIONS & ACRONYMS

BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
BRA	Biological Resources Assessment
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
County	County of Sonoma
Corps	U.S. Army Corps of Engineers
CRLF	California Red-legged Frog
CSRL	California Soils Resources Lab
CWA	Clean Water Act
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	(Federal) Endangered Species Act
Magnusen-Stevens Act	Magnuson-Stevens Fishery Conservation & Management
MBTA	Migratory Bird Treaty Act
MHW	Mean High Water
NAVD88	North American Vertical Datum 88
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SFP	State Fully Protected Species
SWRCB	State Water Resource Control Board
TOB	Top of Bank
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

In February and March, 2020, WRA, Inc. (WRA) performed an assessment of biological resources at an open parcel located at 315 D Street, Petaluma (APN: 134-072-012) and a nearby portion of the Petaluma River at the location of an existing storm drain outfall; hereafter Project Area (Figure 1, Appendix A). The purpose of this study was to gather the information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA).

A biological resources assessment (BRA) provides general information on the presence, or potential presence, of sensitive species and habitats. These survey(s) contain the results of a general assessments of existing conditions and the potential for the occurrence of special-status species and other sensitive biological resources. This survey is based on information available at the time of the study and on-site conditions that were observed on the date(s) the site was visited.

This report describes the results of the site visit, which assessed the Project Area for (1) the presence of sensitive land cover types, (2) the potential for land cover types on the site to support special-status plant and wildlife species, and (3) the presence of any other sensitive natural resources protected by local, state, or federal laws and regulations. Special-status species observed during the site assessment were documented and their presence is discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys or other studies be conducted; recommendations for additional studies are provided, if necessary.

2.0 REGULATORY BACKGROUND

This report is intended to facilitate conformance of future development with the standards outlined in the local municipality regulations within which the Project Area is located. In addition to these requirements, any future development may also be subject to several federal and state regulations designed to protect sensitive natural resources. An analysis of these requirements in the context of future development is addressed herein.

2.1 Federal and State Regulatory Setting

2.1.1 Sensitive Land Cover Types

Land cover types are herein defined as those areas of a particular vegetation type, soil or bedrock formation, aquatic features, and/or other distinct phenomenon. Typically, land cover types have identifiable boundaries that can be delineated based on changes in plant assemblages, soil or rock types, soil surface or near-surface hydroperiod, anthropogenic or natural disturbance, topography, elevation, etc. Many land cover types are not considered sensitive or otherwise protected under the environmental regulations discussed here. However, these land cover types typically provide essential ecological and biological functions for plants and wildlife, including common and special-status species. Land cover types that are considered or protected under one or more environmental regulations are discussed below.

Waters of the United States: The United States Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM) or High Tide Line (HTL) in tidal waters. Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the United States generally requires an individual or nationwide permit from the Corps under Section 404 CWA. In June 2020 a new definition of what constitutes jurisdictional wetlands regulated under Section 404 CWA by the Corps of Engineers became effective by the Federal Wetlands Protection Rule. This new rule defines the characteristics of wetlands that will be regulated under Section 404 CWA.

Waters of the State: The Porter-Cologne Water Quality Control Act gives the State Water Resources Control Board authority to regulate discharge of dredged or fill material that may affect the quality of waters of the state. In April 2019 the Water Board adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Wetland Definition and Procedures)(SWRCB, 2019b). Waters of the state include some, but not all, features that are defined as wetlands, as well as other features, including the ocean, lakes, and rivers. The state wetland definition became effective May 28, 2020 is similar to, but slightly different from that used by the Corps of Engineers:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The State Wetland Definition and Procedures utilize existing Corps delineation guidance (Environmental Laboratory 1987, Corps 2008a, 2010) and considers any waters of the U.S. identified in an aquatic resource report verified by the Corps to meet the state definition. Any area not verified by the Corps is required to be delineated using Corps methods for consideration as a state wetland with the exception that areas that lack vegetation are not precluded from meeting the state definition of wetland.

Section 10 of the Rivers and Harbors Act: The Corps of Engineers also has jurisdiction over "navigable waters" under Section 10 of the Rivers and Harbors Act of 1899. Section 10 of this Act applies to tidal areas below mean high water (MHW) and includes tidal areas currently subject to tidal influence, as well as historic tidal areas behind levees that both historically and presently reside at or below MHW. "Navigable waters of the U.S.", as defined in 33 CFR Part 329, are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

The act prohibits any unauthorized action that obstructs navigable capacity. These actions can include building of structures; excavation, fill; and alterations and modifications to navigable waters (33 USC 403). A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity. The upper limit of navigable water is at the point along its length where the character of the river changes from navigable to non-navigable, such as at a major fall or rapids. Since the upper limit of navigability of waterways under Section 10 jurisdiction is sometimes difficult to discern, determinations of navigability under Section 10 are often made by the Corps and kept on file, independent of submitted permit applications or delineations.

Streams, Lakes, and Riparian Habitat: Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “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” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Sensitive Natural Communities: Sensitive natural communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFG 2010, CDFW 2019a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2019a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2019) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G).

2.1.2 Special-status Species

Plants: Special-status plants include taxa that have been listed as endangered or threatened, or are formal candidates for such listing, under the federal Endangered Species Act (ESA) and/or California Endangered Species Act (CESA). The California Native Plant Protection Act (CNPPA) lists 64 “rare” or “endangered” and prevents “take”, with few exceptions, of these species. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA. Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g.,

range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. A description of the CNPS Ranks is provided below in Appendices B and C.

Wildlife: As with plants, special-status wildlife include species/taxa that have been listed or are formal candidates for such under ESA and/or CESA. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species, bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), that in some regards are similar to those provided by ESA. The CFGC designates some species as Fully Protected (SFP), which indicates that take of that species cannot be authorized through a state permit. Additionally, CDFW Species of Special Concern are given special consideration under CEQA, and are therefore considered special-status species. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. The Western Bat Working Group (WBWG) designates conservation statuses for species of bats, and those with a high or medium-high priority are given special consideration under CEQA.

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

Essential Fish Habitat, and Wildlife Corridors: The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the U.S. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g. eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Regulatory Setting

City of Petaluma Tree Ordinance: The City of Petaluma recognizes the aesthetic, environmental, and economic benefits that mature trees provide to the citizens of the City. Chapter 17, "Tree Preservation," of the Petaluma City Code (Tree Ordinance) regulates the protection of certain trees on public and private properties within the City limits. The Tree Ordinance defines a

"protected tree" as California native oaks (*Quercus* spp.) 4 inches diameter or greater measured at 4.5 above grade ("diameter at breast height" or DBH), California buckeye (*Aesculus californica*) 6 inches DBH or greater, California bay (*Umbellularia californica*) 12 inches DBH or greater, coast redwood (*Sequoia sempervirens*) 18 inches DBH or greater, heritage trees as approved by Council resolution per Title 8 of the Petaluma Municipal Code, significant groves or stands of trees, trees located in riparian corridors, any tree required to be planted or preserved as mitigation or condition of approval for a discretionary development project, or trees in the public right-of-way. A permit is generally required for the removal of any protected tree. Conditions of approval may include tree replacement plantings or the payment of in-lieu fees.

3.0 ENVIRONMENTAL SETTING

The approximately 4.80 acre Project Area is located in Petaluma, Sonoma County, California (Figure 1, Appendix A). The parcel fronts on East Washington Boulevard and can be accessed from there; the parcel is bounded by East Washington Blvd to the northwest, Petaluma SMART station to the northeast, D Street to the southeast, and Copeland Street Transit Mall to the southwest. The stormwater outfall is situated at Turning Basin on the eastern bank of the Petaluma River, west of 222 Weller Street. Detailed descriptions of the physical and biological characteristics are provided below.

3.1 Topography and Soils

The overall topography of the Project Area is flat, with slopes of less than one percent, and elevations ranging from approximately 12 to 16 feet above sea level. According to the *Soil Survey of Sonoma County* (USDA 1972), the Project Area is underlain by one soil mapping unit: Clear Lake clay, sandy substratum, drained, 0 to 2 percent slope. The parent soil series are summarized below.

Clear Lake Series. This series consists of very deep clay soils formed in alluvium derived from sedimentary rock, and are located on basin floors of river valleys at elevations ranging from 25 to 2,000 feet (CSRL 2020, USDA 1972). These soils are considered hydric, and are poorly drained, with negligible to high runoff, and slow to very slow permeability (USDA 2019b, USDA 1972). Soil pH is neutral (pH 7.0) to moderately alkaline (pH 8.0) Native and naturalized vegetation is composed of grasses and forbs, and land uses include row cropping, dry farming, irrigated pasture, and dry pasture (USDA 1972).

3.2 Climate and Hydrology

The Project Area is located within the valley fog incursion zone of Sonoma County where summer temperatures are buffeted by fog and fog drip contributes to annual rainfall totals. Winter "tule" fog is common, and summer "coastal" fog emerges with increased interior temperatures. The average monthly maximum temperature of Petaluma (047965) is 70.4 degrees Fahrenheit, while the average monthly minimum temperature is 44.9 degrees Fahrenheit. Predominantly, precipitation falls as rainfall with an annual average of 24.9 inches. Precipitation-bearing weather systems are predominantly from the west and south with the majority of rain falls between November and March, with a combined average of 20.9 inches (USDA 2020a).

The local watershed is Adobe Creek-Frontal San Pablo Bay Estuaries (HUC 12: 180500020605) and the regional watershed is San Pablo Bay (HUC 8: 18050002). The nearest blue-line stream is Petaluma River located approximately 730 feet south of the parcel and the McNear Channel, located 376 feet to the southeast. The Petaluma River is the only mapped blue-line streams on the 7.5-minute quadrangle within the Project Area (USGS 2018); however, there are no existing wetlands or other aquatic resources mapped in the CARI (SFEI 2020) and NWI (USFWS 2020a) databases. However, a portion of the parcel is mapped as historical tidal marsh (SFEI 2020).

3.3 Land Cover and Vegetation

The parcel portion of the Project Area is partially developed with three segments of railroad tracks in the eastern and central portions. There are no structures within the parcel development portion of the Project Area; however the remainder is compacted soil/gravel and non-native dominated vegetation. The stormwater outfall is located at the high tide line (HTL) of the Petaluma River. Concrete riprap is located below the outfall and ruderal vegetation is located above the tide line.

The development parcel portion of the Project Area was previously industrial and partially developed with railroad and associated structures in the early to mid-20th Century; structures have been removed, however the railroad track segments remain. As the Project Area is located in central Petaluma, development in the immediate vicinity has been present since the late 1800's. This historic condition along with its topographic position, soil types, and localized climate create the conditions for an herbaceous non-native vegetation community, dominated by non-native species tolerant of disturbance. Detailed descriptions of vegetation are provided in Section 5.1.

4.0 ASSESSMENT METHODS

Prior to the site visit, WRA biologists reviewed the following literature and performed database searches to assess the potential for sensitive natural communities (e.g., wetlands) and special-status species (e.g., endangered plants):

- *Soil Survey of Sonoma County, California* (USDA 1972)
- Petaluma 7.5-minute quadrangle (USGS 2018)
- Contemporary aerial photographs (Google Earth 2020)
- Historical aerial photographs (Historical Aerials 2020)
- National Wetlands Inventory (USFWS 2020a)
- California Aquatic Resources Inventory (SFEI 2020)
- California Natural Diversity Database (CNDDB, CDFW 2020a)
- California Native Plant Society Electronic Inventory (CNPS 2020a)
- Consortium of California Herbaria (CCH 2020)
- California Aquatic Resource Inventory (SFEI 2020)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2020b)
- *eBird* Online Database (eBird 2019)
- CDFW Publication, *California Bird Species of Special Concern in California* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)

- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009)
- *A Manual of California Vegetation Online* (CNPS 2019b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- *Sonoma County Fine Scale Vegetation and Habitat Map* (Sonoma County 2020)
- *California Natural Community List* (CDFW 2018b)

Database searches (i.e., CNDDB, CNPS) focused on the Two Rock, Cotati, Glen Ellen, Point Reyes NE, Petaluma, Petaluma River, Inverness, San Geronimo, Novato USGS 7.5-minute quadrangles for special-status plants. The special-status wildlife evaluation was based on database searches for the entirety of Sonoma County. Appendix A contains figures illustrating documented special-status species occurrences within a five-mile radius of the Project Area (CDFW 2020a).

Following the remote assessment, a botanist with 40-hour Corps wetland delineation and wildlife biologist training traversed the entire Project Area on foot to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present[1].

4.1 Land Cover Types

4.1.1 Terrestrial Land Cover Types

The Project Area's terrestrial land cover types were evaluated to determine if such areas have the potential to support special-status plants or wildlife. In most instances, communities are delineated based on distinct shifts in plant assemblage (vegetation), and follow the *California Natural Community List* (CDFW 2018), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, Online Edition* (CNPS 2020b). In some cases it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature; should an undescribed variant be used, it will be noted in the description. Vegetation alliances and associations (natural communities) with a CDFW Rank of 1 through 3 or "Y" (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.[2]

4.1.2 Aquatic Resources

Aquatic resources include Waters of the U.S., Waters of the State, and Streams, Lakes, and Riparian Habitat as defined in the CWA, Porter-Cologne Act, and CFGC, respectively.

This site assessment does not constitute a formal wetland delineation; however, the surveys looked for superficial indicators of wetlands such as hydrophytic vegetation (i.e., plant communities dominated by wetland species), evidence of inundation or flowing water, saturated soils and seepage, and topographic depressions/swales. In areas where indicators were

[1] Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.
[2] Ranking of CDFW List of Vegetation Alliances is based on NatureServe Rankings (NatureServe 2019)

observed, WRA biologists performed sample points following the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

If streams potentially jurisdictional under the CWA and/or the CFGC are noted on a site, they are delineated using a mix of surveyed topography data, high resolution aerial photographs, and a sub-meter GPS unit. The ordinary high water mark would be used to determine the extent of potential Section 404 jurisdiction, while the top-of-bank would be used to determine the extent of CFGC Section 1602 and 401. Streams with associated woody vegetation were assessed to determine if these areas would be considered riparian habitat by the CDFW following *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994).

4.2 Special-status Species

4.2.1 General Assessment

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database review. Database searches for known occurrences of special-status species focused on the 7.5-minute USGS quadrangles mentioned above for special-status plants and special-status wildlife.

An initial site visit was made on March 2, 2020 to evaluate the presence of suitable habitat for special-status species. Suitable habitat conditions are based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project Area was then determined according to the following criteria:

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

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was recommended as a future study. Methods for the assessments are described below. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2.

4.2.2 Special-status Plants

A general assessment for special-status plants was conducted within the Project Area on March 2, 2020. The survey assessed the habitat within the Project Area to determine if any special-status plants have the potential to occur. All plants observed were noted. Plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012), *A Flora of Sonoma County* (Best et. al. 1996), and Jepson Flora Project (eFlora 2020), to the taxonomic level necessary to determine whether or not they were sensitive. Plant names follow those of Jepson Flora Project (eFlora 2020), unless otherwise noted. A focused plant survey for late season blooming plants was conducted on November 5, 2020.

4.2.3 Special-status Wildlife

The general assessment for special-status wildlife was conducted for the Project Area on March 17, 2017 and March 2, 2020. The earlier date included the stormwater outfall culvert only. The existing conditions within the Project Area were assessed to determine if any special-status wildlife have the potential to occur. Protocol-level surveys were deemed inapplicable or infeasible at the time of the site visit, due to inappropriate timing between such a survey and Project initiation.

4.2.4 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Prior to the site visit the USFWS Critical Habitat Mapper (USFWS 2020b) and the NMFS Essential Fish Habitat Mapper (NMFS 2020) were queried to determine if critical habitat for any species or EFH, respectively, occurs within the Project Area.

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS) (CDFW 2020b). Additionally, aerial imagery (Google 2020) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Project Area. This assessment was refined based on observations of on-site physical and/or biological conditions.

5.0 ASSESSMENT RESULTS

5.1 Land Cover Types

WRA observed five land cover types within the Project Area: barren/disturbed, ruderal, developed, open water, and potential seasonal wetlands. Land cover types within the Project Area are illustrated in Figure 2 (Appendix A). The non-sensitive land cover types in the Project Area include barren/disturbed, ruderal, and developed, while the only sensitive community are open water and potential seasonal wetlands.

5.1.1 Terrestrial Land Cover Types

Non-sensitive

Barren (no vegetation alliance). CDFW Rank: None: Barren areas within the Project Area consist of informal access roads. These areas lack any vegetation and are regularly disturbed through motorized vehicle activity. The soils are highly compressed through current and past regular compaction of vehicles, storage of equipment, and placement of fill. Some portions of the barren land cover contain depressions which contain peeling biotic crusts.

Developed (no vegetation alliance). CDFW Rank: None: Developed areas within the Project Area consist of the landscaped area along the stormwater outfall pipe, west of Weller Street. Vegetation consists of non-native landscape shrubs and trees.

Ruderal (no vegetation alliance). CDFW Rank: None: Ruderal areas within the Project Area consist of vegetation dominated by non-native weedy herbs and grasses. While the site visit was conducted in March, many plants were not identifiable as they are immature, therefore previous year's growth was used to determine species present. Species identified include stinkwort (*Dittrichia graveolens*), annual blue grass (*Poa annua*), charlock (*Sinapis arvensis*), big heron bill (*Erodium botrys*), hairy cats ears (*Hypochaeris radicata*), wild oats (*Avena* sp.), wild geranium (*Geranium dissectum*), willow herb (*Epilobium brachycarpum*), and scarlet pimpernel (*Lysimachia arvensis*). The vegetation indicates recent and past disturbance which have altered conditions from native/natural which may support native species to disturbed conditions which no longer support most native species.

5.1.2 Aquatic Resources

Open Water/Tidal Shoreline (no vegetation alliance). CDFW Rank: None. Section 404/401 of the CWA; Section 10 of the Rivers and Harbors Act; Section 1602 of CFGC: The Petaluma River is located at the stormwater outfall portion of the Project Area. The vegetation within the TOB and above the mean high water (MHW) is ruderal, forming a mat dominated by iceplant (*Carpobrotus* sp.), sour clover (*Oxalis pes-carpe*), ripgut brome (*Bromus diandrus*), and wild radish (*Raphanus sativus*). Very sparse California bulrush (*Schoenoplectus californicus*) occurs below the MHW line. The banks below the MHW are lined with concrete riprap and old wooden piers. The stormwater outfall culvert is located on the riprap at or below the MHW (5.88 feet NAVD88) at the interface where vegetation becomes absent. Besides the sparse California bulrush, no plant species typical of riparian vegetation (i.e., willows, alders) are present along the river at the outfall.

Less than 0.01 acre of tidal shoreline (area below the MHW) is present at the defined work area location of the storm drain outfall. While tidal vegetation along portions of the shoreline up and downstream of the outfall is dominated by hardstem bulrush (*Schoenoplectus acutus*), there is very sparse emergent vegetation at the location of the existing outfall because of concrete rubble (rip rap) that has been placed, and this section would technically be considered non-vegetated waters of the U.S.

Seasonal Wetland. Section 404/401 of the CWA or Porter-Cologne Act: Seasonal wetlands are known from a variety of topographic positions and soil types where surface waters collect and flows are reduced, or subsurface waters approach the soil surface as a rising water table or seep. In the Project Area, two seasonal wetlands occupy 0.02 acres.

Vegetation in the seasonal wetland consisted of a prevalence of wetland classified plants, such as hyssop loosestrife (*Lythrum hyssopifolia*, OBL), prostrate knotweed (*Polygonum aviculare*, FAC), and annual blue grass (*Poa annua*, FAC), however a large percentage of the ground area

was barren. Indicators of wetland hydrology included inundation after 14 days of significant rainfall event and biotic crust. However, a soil pit dug to 16 inches deep within the feature 14 days after a significant rainfall event contained no water table; however soils were observed to be moist but not saturated. This indicates the source of water is likely to be precipitation and not subsurface water table. Dark yellowish brown (10YR 4/6) redox concentrations in the dark (10YR 2/1) matrix at approximately 10 percent indicates hydric soil, specifically hydric soil indicator of Redox Dark Surface (F6); therefore the feature meets hydric soil characteristics.

Nine areas within topographic swales or depression created through excavation and/or grading for construction and/or storage purposes contain biotic crust or algal matting. No vascular emergent vegetation is present and soils are highly restrictive/impervious due to soil compaction and presence of fill material and rock. However, only one of these areas was observed to be inundated during a site visit 14 days following a significant rainfall event. As the Project Area is regularly disturbed through land management (e.g., placement of fill, vehicle and equipment movement, storage of equipment, excavation of soil) these areas are mapped as non-jurisdictional puddles. They do not meet the Corps three-parameter criteria of wetlands, and are subject to ongoing operation and maintenance (compaction, filling, grading) and are temporary and transitory areas where water puddles following significant rainfall events. They are essentially maintained tire ruts and depressions created through regular and ongoing human activity. They do not support aquatic plant or wildlife and may provide limited source of water for resident wildlife (e.g. crows, jackrabbit). Additionally, the features likely do not provide significant surface or subsurface flow to any traditional navigable water (TNW) and, therefore, would not be Section 404 CWA jurisdictional under the new Federal Wetlands Protection Rule. Finally, due to the highly compacted soils and absence of observed subsurface water table, these features are likely fed by precipitation only and are not indicators of subsurface water table. However, for full disclosure, these areas are shown on the map only as seasonal wetlands and are not identified as potential jurisdictional features which can only be determined by the Corps. A request for a jurisdictional determination should be submitted to the Corps.

5.2 Special-status Species

5.2.1 Special-status Plant Species

Based upon a review of the resource databases listed in Section 4.0, 95 special-status plant species have been documented in the vicinity of the Project Area. Figure 3 in Appendix A depicts the locations of documented special-status plant occurrences within 5-mile radius of the Project Area. Three of these plants have the potential to occur in the Project Area as they are adapted to highly disturbed areas. The remaining 92 species documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Project Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Project Area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Project Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Project Area;

- Associated natural communities (e.g., interior chaparral, woodlands) necessary to support the special-status plant species are not present in the Project Area;
- The Project Area is geographically isolated (e.g., below elevation, coastal environ) from the documented range of the special-status plant species.
- Land use conditions (e.g., compacted soils, grading) degrade habitat necessary to support the species.

The following special-status plants are determined to have the potential to occur within the Project Area based on database searches discussed above.

Pappose tarplant (*Centromadia parryi* ssp. *parryi*). CRPR 1B. Moderate Potential. Pappose tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from May to November. It typically occurs in vernally mesic, often alkaline areas in coastal prairie, meadow, seep, coastal salt marsh, and valley and foothill grassland habitat at elevations ranging from 5 to 1380 feet (CDFW 2020a, CNPS 2020a). This species is determined to have the potential to occur in the Project Area due to presence of disturbed wetlands and known ability to occur in highly disturbed areas. This species is a late season blooming plant inclusive of the months between

White hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) CRPR 1B. Moderate Potential. White hayfield tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from April to November. It typically occurs in grassy areas and fallow fields in coastal scrub, and valley and foothill grassland at elevations ranging from 65 to 1,840 feet (CDFW 2020a, CNPS 2020a). This species is determined to have the potential to occur in the Project Area due to presence of non-native grassland and known ability to occur in highly disturbed areas.

Woolly-headed lessingia (*Lessingia hololeuca*) CRPR 3. Moderate Potential**.** Woolly-headed lessingia is an annual herb in the sunflower family (Asteraceae) that blooms June to October. It typically occurs on clay often derived from serpentine in broadleaf upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland at elevations ranging from 45 to 1000 feet (CNPS 2020). Known associated species include California poppy (*Eschscholzia californica*), California gilia (*Gilia achilleifolia*), naked buckwheat (*Eriogonum nudum*), willow herb (*Epilobium brachycarpum*), and ruby chalice clarkia (*Clarkia rubicunda*) (CCH 2020). This species is determined to have the potential to occur in the Project Area due to presence of non-native grassland and known ability to occur in highly disturbed areas.

5.2.2 Special-status Wildlife Species

Dozens of special-status wildlife species have been recorded in the vicinity of the Project Area. Appendix B summarizes the potential for each of these species to occur in the Project Areas and Figure 4 shows occurrences of special-status wildlife species within 5 miles of the Project Areas. No special-status wildlife species were observed in the Project Area during the site assessment, no special-status wildlife species has a high potential to occur in the Project Area, and eight special-status wildlife species have a moderate potential to occur in the Project Area; these species are discussed below.

The remaining species are unlikely or have no potential to occur due to one or more of the following reasons:

- Aquatic habitats (e.g., vernal pools, ponds) necessary to support the special-status wildlife species are not present in the Project Area;
- Vegetation habitats (e.g., coast redwood forest, oak woodland) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the Project Area;
- Physical structures and vegetation (e.g., mines, old-growth coniferous trees) necessary to provide nesting, cover, and/or foraging habitat to support the special-status wildlife species are not present in the Project Area;
- Host plants necessary to provide larval and nectar resources for the special-status wildlife species are not present in the Project Area;
- The Project Area is outside (e.g., north of, west of) of the special-status wildlife species documented nesting range.

Because of frequent human disturbance and presence, the site offers limited value for most special-status wildlife species that may occur in the vicinity. With development, roads, and chain link fencing surrounding the Project Area, the site is relatively inaccessible to many species, and eliminates the possibility of the site functioning as a movement corridor. The ruderal field that comprises the majority of each of the Project Area offers little to no cover and meets few habitat requirements for most special-status species.

One (non-status) wildlife species, black-tailed jackrabbit (*Lepus californicus*), was observed within the Project Area during the site assessment; this is a commonly found species adapted to occupying disturbed or urban areas. No special-status wildlife species were observed and no special-status species have been documented to occur in the Project Area.

The following special-status wildlife were determined to have a potential to occur in the Project Area based on evaluation of the habitat in and near the Project Area and review of literature and databases. For further discussions of special-status species potentially present or unlikely to be present, see Appendix C. Recommendations to avoid impacts to special-status species and nesting birds in general, are described in Section 6.2 of this assessment.

Special-status Wildlife with the Potential to Occur, but Presence Unknown

Pallid Bat (*Antrozous pallidus*), CDFG Species of Special Concern, WBWG High Priority. Moderate Potential**.** Pallid bats occur in a number of habitats ranging from rocky arid deserts to grasslands and higher elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine), inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is taken on the ground, or sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2020)

Trees within and adjacent to the Project Area may provide suitable roosting habitat for pallid bats and a nearby occurrence has been recorded. Additionally, the Petaluma River and open areas within the Project Area provide suitable foraging habitat for this species, therefore it is determined that this species has a moderate potential to occur within the Project Area.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. White-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. Trees in and adjacent to the Project Area may provide marginal nesting habitat; however, high levels of human disturbance may deter individuals from nesting in the vicinity. The Project Area provides foraging habitat, therefore there is a moderate potential for this species to occur.

Steelhead - Central California Coast DPS (*Oncorhynchus mykiss irideus*), Federal Threatened, Species under the Jurisdiction of the NMFS. Moderate Potential**.** The Central California Coast DPS includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. The portion of the Project Area that will be within the Petaluma River has the potential to support various life stages of steelhead and therefore is determined to have a moderate potential to occur within the Project Area. The Petaluma River is designated as ESA critical habitat for this species.

Sacramento splittail (*Pogonichthys macrolepidotus*), CDFW Species of Special Concern, Species included in a USFWS Recovery Plan or Draft Recovery Plan. Moderate Potential. Splittails are primarily freshwater fish that have been found mostly in slow-moving sections of rivers and sloughs, and in the Delta and Suisun Marsh they seemed to congregate in dead-end sloughs (Moyle et al. 1982, Daniels and Moyle 1983). Splittail are benthic foragers that feed extensively on opossum shrimp (*Neomysis mercedis*) but also eat a variety of other invertebrates (worms, clams, insect larvae) as well as detrital material. . This species is preyed on by striped bass and other predatory fishes. Splittails apparently require flooded vegetation for spawning and as foraging areas for young, and hence are found in habitats subject to periodic flooding during the breeding season (Caywood 1974). Although the Project Area does not contain suitable flooded vegetated habitat to support spawning or foraging for young, this species may occur within the Project Area it provides foraging habitat. The nearest documented occurrence is 0.5 mile north of the Project Area (CDFW 2017).

White sturgeon (*Acipenser transmontanus*), CDFW Species of Special Concern. Moderate Potential. This sturgeon is found in most estuaries along the Pacific coast, and are known to the San Francsico Bay Estuary. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. White sturgeon typically spawn in May through June. The diet consists of crustaceans, mollusks,

and some fish. White sturgeon have been known to be captured by anglers downstream of the Project Area and may occasionally forage within it.

Green sturgeon (*Acipenser medirostris*); Federal Threatened, CDFW Species of Special Concern. Unlikely (included for completeness). The southernmost spawning population of green sturgeon is in the Sacramento River, with the principal spawning area located in the lower Feather River (Moyle 2002). Spawning populations of green sturgeon in the San Joaquin River are presumed to have been lost in the past 25-30 years. Green sturgeon are primarily marine species, entering into fresh water rivers mainly to spawn, although early life stages may reside in freshwater for up to two years (Moyle 2002). Adults typically migrate into fresh water from late February through late July. The spawning period occurs from March to July, with peak spawning occurring from mid-April to mid-June (Emmett et al. 1991). Green sturgeon prefer deep pools in large, turbulent, freshwater river mainstreams to spawn (Moyle et al. 1992). Juvenile green sturgeon emigrate out to sea primarily during the summer and fall before the end of their second year (Emmett et al. 1991). Green sturgeon adults, sub-adults, and juveniles are widely distributed throughout the Delta and estuary. Adults typically migrate upstream on the western edge of the Delta, returning to the ocean when river temperatures decrease and flows increase during the fall and early winter. They may hold in low gradient or off-channel sloughs or coves where temperatures are within acceptable thresholds. Larvae prefer open aquatic habitats for foraging, but utilize structure habitat during the day. Juvenile rearing habitats for green sturgeon include spawning areas and migration corridors. Rearing habitat utilization varies dependent on seasonal flows and temperatures. Juvenile green sturgeon are found year round in the Delta and use the region as a migration corridor, feeding area, and juvenile rearing area. Juvenile green sturgeon are strong swimmers and thus have the ability to select or avoid habitats. The Petaluma River is a tributary to the San Pablo Bay, ESA designated critical habitat for this species. The Project Area does not contain suitable spawning habitat, but does provide habitat for foraging of juvenile and adult green sturgeon within the Petaluma River.

Pacific lamprey (*Entosphenus [=Lampetra] tridentatus*), CDFW Species of Special Concern. Moderate Potential. This anadromous lamprey is found along the entire California coast with regularity until becoming disjunct south of San Luis Obispo County with the exception of regular runs to the Santa Clara River. With the exception of land-locked populations, this species spends the predatory phase of its life in the ocean, feeding off the bodily fluids of a variety of fish. This species is usually concentrated near the mouths of their spawning streams because its prey is most abundant in coastal areas. Adults move up into spawning streams between early March and late June. After hatching, ammocetes are washed downstream, where they burrow into soft substrates and filter feed. Five to seven years later, ammocetes undergo metamorphosis into the predatory phase of their life cycle, and out-migrate to the ocean as adults. This species may occur in the Petaluma River portion of the Project Area.

River lamprey (*Lampetra ayresi*), CDFW Species of Special Concern. Moderate Potential. River lampreys prey upon a variety of fishes in the 10-30 cm TL size range, but the most common prey seem to be herring and salmon. Unlike other species of lamprey in California, river lampreys typically attach to the back of the host fish, above the lateral line, where they feed on muscle tissue. Little is known about habitat requirements in California, but presumably, the adults need clean, gravelly riffles in permanent streams for spawning, while the ammocetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C. Adults migrate back into fresh water in the fall and spawn

during the winter or spring months in small tributary streams. The Petaluma River portion of the Project Area may support river lamprey.

5.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Critical habitat for green sturgeon, coho salmon and steelhead salmon are present in the Petaluma River, however no significant adverse changes to the extent or quality of critical habitat will result from the project and no measures specific to critical habitat are recommended.

Essential Fish Habitat is located within the Project Area. However, no changes to the extent or quality of EFH will occur as a result of the Project.

A review of the California essential connectivity project (CDFW 2019b) showed that the Project Area is not located within areas previously identified as an essential connectivity area, core reserve or corridor, landscape block, or general wildlife corridors identified in the BIOS system. The Petaluma River serves a conduit for several species of special-status fish as they transit from one habitat type to another; as such the Petaluma River is a wildlife corridor, however no impacts to the Petaluma River's quality as a corridor will result from the Project and no measures are necessary to maintain the Petaluma River's quality as a wildlife corridor.

After conducting the site assessment, and evaluating species potential, the Project Area was determined to have no potential to function as a wildlife corridor for terrestrial species because of the extent and density of surrounding development and associated infrastructure which create barriers to movement and lack of aquatic features (or other conveyance corridors) that would facilitate movement between habitats. Movement between two core habitats defines a wildlife corridor; therefore, because the Project Area does not facilitate movement between core habitats, it cannot be defined as a wildlife corridor. No further recommendations are made to address wildlife movement.

6.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

6.1 Project Description

The proposed project involves the construction of two structures with 172 units consisting of commercial/retail on the ground floor and residential apartment housing on three upper floors, with a portion made available to low-income residents. The Petaluma Station Complex requires full buildout of the entire parcel bounded by Copeland Street on the west, East Washington Street on the north, Lakeville Highway on the east, and B Street on the south. In addition, drainage for the Project will utilize an existing drainage corridor from Weller Street to the Petaluma River which requires replacing the existing 15-inch storm drain pipe with a 30-inch drain pipe (part of the larger capacity pipe is to accommodate drainage needs for expected future development in the area).

6.2 Significance Threshold Criteria

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

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

This report utilizes these thresholds in the analysis of impacts and determination of the significance of those impacts. The assessment of impacts under CEQA is based on the changes caused by the Project relative to the existing conditions in the Study Area. The existing conditions in the Study Area are described above, based on surveys conducted in 2019. In applying CEQA Appendix G, the terms “substantial” and “substantially” are used as the basis for significance determinations in many of the thresholds, but are not defined qualitatively or quantitatively in CEQA or in technical literature. In some cases, such as direct impacts to special-status species listed under the CESA or ESA, the determination of a substantial impact may be relatively straightforward. In other cases, the determination is less clear, and requires application of best professional judgment based on knowledge of site conditions as well as the ecology and physiology of biological resources present in a given area. Determinations of whether or not Project activities will result in a substantial adverse effect to biological resources are discussed in the following sections for sensitive biological communities, special-status plant species, and special-status wildlife species.

6.3 Potentially Significant Impacts

The proposed project involves the construction of two structures with 172 units consisting of commercial/retail on the ground floor and residential apartment housing on three upper floors, with a portion made available to low-income residents. The Petaluma Station Complex requires full buildout of the entire 4.8 acre parcel bounded by Copeland Street on the west, East Washington Street on the north, Lakeville Highway on the east, and B Street on the south. In addition, drainage for the Project will utilize an existing drainage corridor from Weller Street to the Petaluma River which requires replacing the existing 15-inch storm drain pipe with a 30-inch drain pipe (part of the larger capacity pipe is to accommodate drainage needs for expected future development in the area.

The majority of the Project Area is comprised of ruderal or barren lands, consisting of graveled areas and ruderal field (see Representative Photographs, Appendix D). These land types are not considered sensitive habitats and have low biological resource value due to their highly disturbed condition and surrounding urban development including streets, warehouses, and office buildings. Within ruderal field there are two man-made depressions that showed indicators of seasonal wetlands due to the presence of hydrophytic vegetation and saturated/inundated soil observed during site visits. In addition, the existing outfall and location of the proposed new enlarged outfall is at or below the high tide line of the Petaluma River. The area of the shoreline that could potentially be affected by replacement of the existing 15-inch pipe with a 30-inch pipe and a rock dissipation apron, consisting of rock rip rap that will dissipate water flow and prevent bank erosion, will cover approximately 130 sq. ft. (0.003 acre). There is no other portion of the open water area that will be filled or otherwise be impacted by the Petaluma Station Development or the storm drain outfall. Both of these latter habitat types are biological resources that are considered to be sensitive habitats. Impacts to these wetlands habitats, such as filling them, will result in impacts that will be considered significant under CEQA unless suitable mitigation is provided that will make the impacts less than significant or the impacts can be avoided.

Finally, three special-status plants and seven special-status wildlife species with moderate potential (none had high potential) to be present in or near the Project Area have the potential to be significantly impacted by the project unless mitigation measures or avoidance measures can be implemented to reduce impacts to less than significant.

The special-status plants potentially within the Project Area may fall under the jurisdiction of CDFW under CEQA. The special-status wildlife species potentially within or immediately downstream of the Project Area may fall under the jurisdiction of USFWS under the ESA and Migratory Bird Treaty Act, NMFS under the ESA and Magnuson-Stevens Act, and/or the CDFW under the CESA and CEQA.

6.3.2 Aquatic Resources

Bio Impact 01: The Project Area contains 0.02 acre of seasonal wetlands which will be impacted by permanent filling. The wetlands habitat is potentially Corps jurisdiction under Section 404 of the Clean Water Act and the RWQCB under Section 401 of the Clean Water Act and Porter-Cologne Act. However, as a result of a change in jurisdictional wetlands definition according to the new Federal Wetlands Protection Rule as of June 2020, the seasonal wetlands may be determined by the Corps to not be jurisdictional under Section 404 CWA. These seasonal wetlands would like remain jurisdictional under Porter-Cologne Act. Wetlands impacts should be avoided and/or minimized as much as practicable. Construction personnel shall be informed of the location of aquatic resources that are to be preserved and preserved wetlands shall be protected with high-visibility flagging or staking prior to start of construction. No materials or equipment shall be laid the aquatic resources to be preserved, and spill prevention materials should be deployed for all construction equipment. Entrance within the flagged area should be limited to the greatest extent practical.

MM Bio 01: For seasonal wetlands that cannot be avoided, acquire a Jurisdictional Determination (JD) from the San Francisco Corps District whether or not the wetlands are jurisdictional under

the new Federal Wetlands Protection Rule. If determined to be Section 404 CWA jurisdiction, accompanying or following the JD, apply for Nationwide Permit (NWP) 29/39 (Residential/Commercial Development), and a 401 Water Quality Certification from RWQCB. If not federal jurisdictional, apply for Waste Discharge Requirements from RWQCB. As part of the Corps/RWQCB permit application packages, demonstrate acquisition of wetlands mitigation habitat to off-set losses of seasonal wetland habitat, such as purchase of wetland mitigation bank credits from an approved mitigation bank in the regions (Mt. Burdell Conservation Bank or North Bay Mitigation Bank). Proponent created wetlands successfully completed at an offsite location using an agency approved construction and monitoring and reporting plan will also provide adequate replacement mitigation. Potential seasonal wetlands that will be removed shall be replaced at a minimum 1:1 ratio on a functions and values basis.

Bio Impact 01: The Project Area contains less than 0.01 acre of jurisdictional tidal area within banks of the Petaluma River where the replacement upgrade of the existing outfall culvert to a larger size is proposed which could adversely affect tidal wetlands. Impacts related to outfall replacement may be authorized by obtaining appropriate permits from regulatory agencies. Permits which may be necessary include a Section 10 Rivers and Harbors Act and/or a Section 404 CWA fill permit from the Corps, a Section 401 Water Quality Certification from RWQCB, and a 1602 Lake and Streambed Alteration Agreement (LSAA) from CDFW.

MM Bio 01: Impacts to tidal wetlands related to outfall replacement upgrade shall be authorized by obtaining permits from appropriate regulatory agencies. Permits which may be necessary include a Section 10 Rivers and Harbors Act and/or a Section 404 CWA fill permit from the Corps, a Section 401 Water Quality Certification from RWQCB, and a 1602 Lake and Streambed Alteration Agreement (LSAA) from CDFW. As part of the Corps/RWQCB permit application packages, demonstrate mitigation measures to off-set losses to tidal wetlands replaced at a minimum 1:1 ratio on a functions and values basis. Mitigation may be by purchase of created wetlands credits from an approved mitigation bank or proponent created wetlands at an offsite location. The appropriate permits shall be obtained from regulatory agencies prior to initial grading/construction which shall include approval of a wetlands mitigation plan.

Bio Impact 02: Sediment runoff into the Petaluma River could adversely affect water quality and grading activities or upsizing the outfall culvert at the river have potential for sediment runoff into the Petaluma River.

MM Bio 02: To reduce erosion in the river during project activities, the following measures shall be implemented in addition to any additional measures that may be incorporated into regulatory agency permits.

Water quality in the Petaluma River shall be protected from sediment or other pollutants by developing a storm water pollution prevention plan to be implemented during construction and post-construction.

Appropriate best management practices (BMPs) shall be developed and implemented before, during, and post construction, including the following:

- Project work shall be conducted, as much as practicable, during the dry season (May through October) to reduce runoff into the river. If rainfall is in the forecast predicted to be

greater than one-half inch over a 24-hour period, standard erosion control measures (e.g., straw waddles, bales, silt fencing) shall be deployed and grading shall be suspended.

- Silt wattles shall be installed along the river bank within the Project Area, outside of active ground disturbance. Following completion of ground disturbance, silt wattles shall be installed along the stream bank, above the mean high water. Silt wattles shall be made of jute and not plastic.
- All equipment shall be staged above the top of bank and spill kits shall be located within working equipment. Equipment fuels and lubricants shall be prevented from reaching the river by locating fueling/maintenance areas an appropriate distance away from the river or drainage ways to the river and construction contractors shall have a spill prevention kit and plan on location.
- Uncured concrete shall not be exposed to water flowing to the river or within the river itself and all excess uncured concrete shall be properly disposed of at an offsite location.
- Areas of vegetation removal shall be limited to the smallest area feasible. Any areas of bare ground shall be re-seeded immediately following completion of all ground disturbance work. Additional erosion control measures (jute, hay) as feasible will be installed prior to rainy season. Areas of exposed stream bank above the mean high water shall be planted with native species appropriate for area and habitat.

6.3.3 Special-status Plants

Bio Impact 03: The Project Area is a mostly undeveloped (no permanent structures, former rail yard) barren or ruderal compacted area that supports non-native grasses and forbs and still actively used for materials storage and other site disturbances. Due to these conditions it is unlikely special-status plants are present, however there is moderate potential for three special-status plant species to occur because of documented occurrences of all three species within 5 miles of the Project Area. While no documented occurrences of these species are known within the Project Area, and a late season survey for two species had negative results (none found), there is potential that development could adversely impact a special-status plant if found present.

MM Bio 03: A protocol-level late season plant survey was conducted during the blooming season of two special-status plants in November 2020 to determine presence or absence of late season blooming species and none were found. Therefore, no impacts to pappose tarplant (*Centromadia parryi* ssp. *parryi*) or white hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) will occur and no further action for these species is necessary. For spring blooming plant species, a protocol-level spring survey shall be conducted. If any special-status plants are found to be present, a census of the population and mapping of outward extent shall be performed. These plants shall be avoided to the greatest extent feasible, however, if impacts are unavoidable, a plan that will replace the plants shall be developed which will restore impacted species in a suitable habitat on or off site within an equal area and/or in equal population numbers determined prior to the impact. The plan shall also include a monitoring and reporting program to determine success that shall be met to the satisfaction of the City of Petaluma and regulatory agencies.

6.3.4 Special-status Wildlife

The Project Area has the potential to support seven special-status wildlife species. Additionally, the Project Area is within designated critical habitat for green sturgeon and steelhead. The

following mitigation measures are provided to avoid or otherwise minimize potential impacts to these species.

Bio Impact 04: One special-status bat (pallid bat) has the potential to occasionally occur in trees within the Project Area (there are no existing buildings or structures) or around the periphery. Nearly any tree may provide suitable habitat for bats to find short-term refuge for the purposes of day or night roosting during the active season, and therefore presence or absence cannot and should not be determined until construction activities, including tree removal, will be initiated. Removal and trimming of any trees during the bat maternity season (generally, April through August) could impact bat breeding and potentially result in an adverse impact to bats.

MM Bio 04: Any tree removal shall be performed from September through March, outside of the general bat maternity season. If tree removal during this period is not feasible, a bat roost survey shall be performed by a qualified biologist no more than 14 days prior to tree removal to determine if bats are present in the trees. If no roosting bats are detected, then no further action is warranted. If bat maternity roosts are detected, then roost trees shall be avoided until the end of the maternity roosting season. Irrespective of time of year, all felled trees shall remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats present within the felled trees to escape.

Bio Impact 05: In addition to the special-status bird species discussed above (white-tailed kite), a variety of non-status bird species with baseline protections under the MBTA and CFGC may use vegetation within the Project Area for nesting and nesting birds could be adversely affected by construction activities. Nearly any vegetation on the proposed development site may provide birds an opportunity to nest, however more dense vegetation, including all trees and grasses-forbs on the site, provides the best cover for birds, in general, and larger trees for white-tailed kites, in particular.

MM Bio 05: Vegetation removal (including trees) and initial ground disturbance shall occur from September 1 to January 31 which is outside of the general bird nesting season. If tree/vegetation removal during this time is not feasible, a pre-construction nesting bird survey shall be performed by a qualified biologist no more than 7 days prior to the initiation of tree removal or ground disturbance, paying special attention to areas of more dense vegetation cover. The survey shall include the Project Area and surrounding areas within 500 feet. If active bird nests are found during the survey, the appropriate no-disturbance buffer specific to the bird species shall be established by the qualified biologist. Once it is determined that the young have fledged (left the nest) or the nest otherwise becomes inactive (e.g., due to predation), the buffer restriction shall be removed and work may be initiated within the buffer.

Bio Impact 06: The portion of the Petaluma River within the Project Area has the potential to support several species of special-status fishes: white sturgeon, steelhead, Sacramento splittail, river lamprey, and Pacific lamprey. Additionally, the Project Area is within designated critical habitat for green sturgeon and steelhead and the river has common fish species that are not protected by the ESA or CESA, but can serve as prey species for special-status fish such as steelhead and Chinook salmon. Project work to upgrade the storm drain culvert has the potential to adversely impact these aquatic species as follows: (1) removing the existing culvert within the Petaluma River has the potential to mobilize sediment and temporarily increase turbidity levels in suitable fish rearing habitat; (2) fish could be impacted because of noise or vibration; (3) fish could get stranded behind barriers (such as coffer dams, etc.); (4) toxic pollutants, such as fuel or wet

concrete could spill into the river; (5) there is the potential to transport invasive aquatic species into and out of the waterway.

MM Bio 06: Prior to installation of the outfall culvert upgrade work, the appropriate permits for the work from regulatory agencies shall be obtained. The permit authorization process shall include, if needed and at the discretion of the regulatory agencies involved, consultation with National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and/or California Department of Fish and Wildlife (CDFW) to determine the appropriate impact avoidance, minimization, and mitigation measures (if any) for the proposed Project with respect to its potential to affect special-status fish, critical habitat and EFH. Avoidance and minimization measures required by NMFS, USFWS, and CDFW shall be implemented. General avoidance and minimization measures that will be implemented during the Project are outlined below and shall include but not be limited to:

- An environmental awareness training program will be given to all crew members working on the outfall replacement part of the Project. The training will be given by a qualified biologist and shall include education on sensitive resources such as protected wildlife with the potential to occur within the Project Area, water quality, and environmental protection measures.
- Equipment will be cleaned prior to being moved onsite and prior to being removed such that it will not pose a potential to introduce or spread invasive plant or animal species.
- Erosion control measures will be utilized throughout all phases of the Project where sediment runoff from construction may potentially enter waters. Erosion control structures will be monitored for effectiveness and will be repaired or replaced as needed. Appropriate erosion control measures will be installed around any stockpiles of soil or other materials which could be mobilized by rainfall or runoff.
- Prior to construction, an Accidental Spill Prevention and Cleanup Plan shall be prepared. This plan shall include required spill control absorbent material, for use beneath stationary equipment, to be present on-site and available at all times.
- No fueling, cleaning, or maintenance of vehicles or equipment will take place within any areas where an accidental discharge may cause hazardous materials to enter waterways.
- Any equipment or vehicles used for the Project will be checked and maintained daily to prevent leaks of fluids that could be deleterious to aquatic habitats.
- All equipment will be cleaned before arriving on the site and before removal from the site to prevent spread of invasive plants.
- Construction disturbance or removal of vegetation will be restricted to the minimum footprint necessary to complete the work. The work area will be delineated where necessary to minimize impacts to vegetated habitats beyond the work limit, or to protected vegetation within the work area.
- Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel banks and outside of seasonal wetlands.
- Stationary equipment such as motors, pumps, and generators, located adjacent to aquatic features will be positioned over secondary containment sufficient to arrest a catastrophic failure.
- All activities performed near aquatic features will have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill.
- Stockpiles of excavated soil or other will be covered when not in active use (i.e. will not be used, or moved for 72 hours). All trucks hauling soil, sand, and other loose materials will be covered.

- No construction debris of any type will be allowed to enter or be placed where they may be washed into any aquatic features.
- At the end of the project all temporary flagging, fencing, or other materials will be removed from the project site and vicinity of the channel.
- No equipment shall be washed down where runoff could enter the creek.
- No motorized equipment shall be left within the channel overnight.
- All refueling and maintenance of equipment, other than stationary equipment, shall occur outside of the top-of-bank. Refueling of stationary equipment within the channel (top of bank to top of bank) shall only occur when secondary containment sufficient to eliminate escape of all potential fluids is in place.

Avoidance and Minimization Measures for NMFS Species and resources (including critical habitat and essential fish habitat) that are recommended to be implemented during the proposed Project are outlined below.

- Any work below the top of bank shall be completed during the dry season, between June 15 and October 15.
- No work requiring heavy machinery to enter the channel of the Petaluma River will be conducted. Any work below the top of bank of the Petaluma River will be conducted using an excavator or other similar equipment capable of reaching the work area from above top of bank.
- Work will be conducted during the lowest tidal periods of the day to minimize disturbance to aquatic habitat and preclude need for using a coffer dam.
- Prior to beginning sediment removal work adjacent to waters which may be occupied by protected species, a qualified biologist will place exclusion nets to prevent fish from temporarily occupying waters that may be accidentally impacted by landslides or similar failures. The exclusion nets shall be of sufficient height to span the water column and small enough in size (1/8 inch or less) to exclude juvenile fish from areas that may be subject to disturbance during excavation.
- To prevent the spread of turbidity that might be caused by liberation of sediment, a turbidity curtain shall be installed within the exclusion zone created by block nets whenever equipment operates below top of bank.
- Native vegetation removed shall be limited to the minimum necessary in order to complete outfall culvert installation and shall be replanted within the work area where appropriate. For compensatory mitigation of loss of wetland habitat, see MM Bio 1A, or at other locations lacking riparian overstory at a minimum ratio of 1:1.

If the mitigation measures described above are followed, potential impacts will be reduced to a less than significant level.

7.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, 2nd Edition. University of California Press, Berkeley, CA. 1568 pp.

Best, C., J.T. Howell, W. & I. Knight, and M. Wells. 1996. A Flora of Sonoma County. California Native Plant Society, Sacramento, CA.

California Department of Fish and Game (CDFG). 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607. Environmental Service Division, California Department of Fish and Game, Sacramento, CA.

California Department of Fish and Game (CDFG). 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game, Sacramento, CA. September 2010.

California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities. California Natural Resources Agency, California Department of Fish and Game. March 20, 2018.

California Department of Fish and Wildlife (CDFW). 2020a. California Natural Diversity Database (CNDDB), Wildlife and Habitat Data Analysis Branch. Sacramento, CA. Accessed: March 2020

California Department of Fish and Wildlife (CDFW). 2018. California Natural Community List. Vegetation Classification and Mapping Program, California Department of Fish and Game, Sacramento, CA. October 15, 2018.

California Department of Transportation (CalTrans). 2010. California Essential Habitat Connectivity Project. Available at: https://www.wildlife.ca.gov/conservation/planning.

Californica Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory: Cal-IPC Publication 2006-2. California Invasive Plant Council, Berkeley, CA. Available online: http://www.cal-ipc.org/ip/inventory/index.php.

California Native Plant Society (CNPS). 2001. CNPS Botanical Survey Guidelines. June 2, 2001.

California Native Plant Society (CNPS). 2020a. Online Inventory of Rare, Threatened, and Endangered Plants of California. Available at: http://www.rareplants.cnps.org/. Accessed: March 2020.

California Native Plant Society (CNPS). 2020b. A Manual of California Vegetation Online. Available at: http://vegetation.cnps.org/. Accessed March 2020.

California Soil Resources Lab (CSRL). 2020. Online Soil Survey. Available at: http://casoilresource.lawr.ucdavis.edu/drupal/ Accessed: March 2020.

Consortium of California Herbaria (CCH). 2020. Data provided by the participants of the Consortium of California Herbaria. Available at: http://ucjeps.berkeley.edu/consortium. Accessed: March 2020.

Dunk, JR. 1995. White-tailed Kite (*Elanus leucurus*), The Birds of North America Online (A Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/178.

eBird. 2020. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at: http://www.ebird.org. Accessed: March 2020.

Jepson Herbarium. Jepson Flora Project (eFlora). 2020. Jepson eFlora Online at: http://ucjeps.berkeley.edu/IJM.html. Accessed: March 2020.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Google Earth. 2019. Petaluma Area. Image dates: 1993-2019. Accessed: January-June 2019.

Historical Aerials. 2020. Available at: http://historicalaerials.com. Accessed: March 2020.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA. 156 pp.

Keeler-Wolf, T., D.R. Elam, K. Lewis, and S.A. Flint. 1998. California Vernal Pool Assessment Preliminary Report. The Resources Agency, California Department of Fish and Game, Sacramento, CA. 161 pp. with appendices.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17.

Martin, J.W. and M.K. Wicksten. Review and Redescription of the Freshwater Atyid Shrimp Genus *Syncaris* Holmes, 1900, in California. Journal of Crustacean Biology 24(3): 447-462.

National Marine Fisheries Service (NMFS). 2020. Essential Fish Habitat Mapper. Available at: https://www.habitat.noaa.gov/protection/efh/efhmapper/. Accessed: March 2020.

NatureServe. 2020. NatureServe Explorer: NatureServe Conservation Status. Available at: http://www.natureserve.org/explorer/ranking#relationship. Accessed: March 2020.

San Francisco Estuary Institute (SFEI). 2020. California Aquatic Resource Inventory (CARI). Available at: http://www.sfei.org/cari#sthash.Mzz93W9i.dpbs. Accessed: March 2020.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA. 1300 pp.

Shuford, W.D. and Gardali, T., eds. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Sonoma County. 2020. Sonoma County Vegetation and LiDAR Program: High Quality Data for Planning, Conservation, and Resource Management. Available at: http://sonomavegmap.org/. Accessed: March 2020.

Stebbins, RC. 2003. A Field Guide to Western Reptiles and Amphibians, Third Edition. Houghton Mifflin Company, Boston, MA and New York, NY.

Thomson, R.C., A.N. Wright, and H.B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. Co-published by the California Department of Fish and Wildlife and University of California Press. Oakland, California.

U.S. Army Corps of Engineers (Corps). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS. September 28, 2008.

U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS). 1978. Soil Survey of Sonoma County, California. In cooperation with the University of California Agricultural Experiment Station.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2020a. Climate Information for Sonoma County in the State of California. Available at: http://www.wcc.nrcs.usda.gov/. Accessed: March 2020.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2020b. List of Hydric Soils. Available at: https://www.nrcs.usda.gov/

U.S. Fish and Wildlife Service (USFWS). 1996. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain. Sacramento Fish and Wildlife Office, Sacramento, CA. September.

U.S. Fish and Wildlife Service (USFWS). 2020a. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/index.html. Accessed: March 2020.

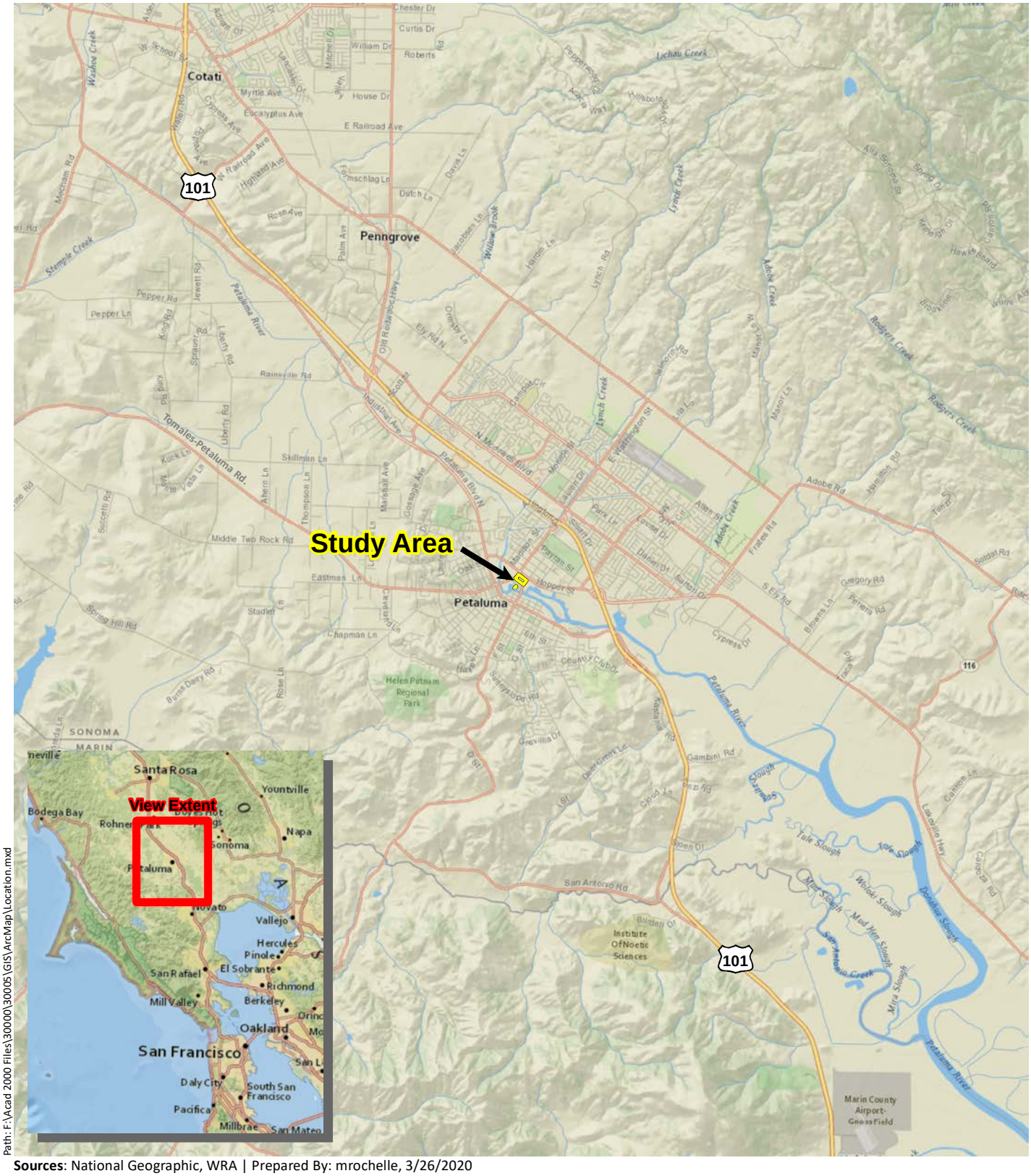
U.S. Fish and Wildlife Service (USFWS). 2020b. List of Federal Endangered and Threatened Species that Occur in Sonoma County, California. Available at: https://ecos.fws.gov/ipac/. Accessed: March 2020.

U.S. Geological Survey (USGS). 2018. Petaluma, California 7.5-minute quadrangle topographic map.

Western Bat Working Group (WBWG). 2020. Species Accounts. Available at: http://www.wbwg.org/speciesinfo/species_accounts/species_accounts.html. Accessed: March 2020.

Appendix A

Figures



Path: F:\Acad 2000 Files\30000\30005\GIS\ArcMap\Location.mxd

Sources: National Geographic, WRA | Prepared By: mrochelle, 3/26/2020

Figure 1. Study Area Regional Location Map

Hines Petaluma Downtown
SMART Station Mixed-Use
Sonoma County, California

0 1 2 Miles

N

wra
ENVIRONMENTAL CONSULTANTS

Figure 2.
Land Cover Types

Hines Petaluma Downtown
SMART Station Mixed-Use
Sonoma County, California

Study Area - 4.80 ac.

Top of Bank

Mean High Water Line/High Tide Line - 5.88' (NAVD 88)

Non-Sensitive Land Cover Types

Barren - 1.40 ac.

Developed - 0.98 ac.

Non-Jurisdictional Depressions - 0.26 ac.

Ruderal - 2.13 ac.

Sensitive Land Cover Types

Open Water - 0.01 ac.

Seasonal Wetland - 0.02 ac.

N

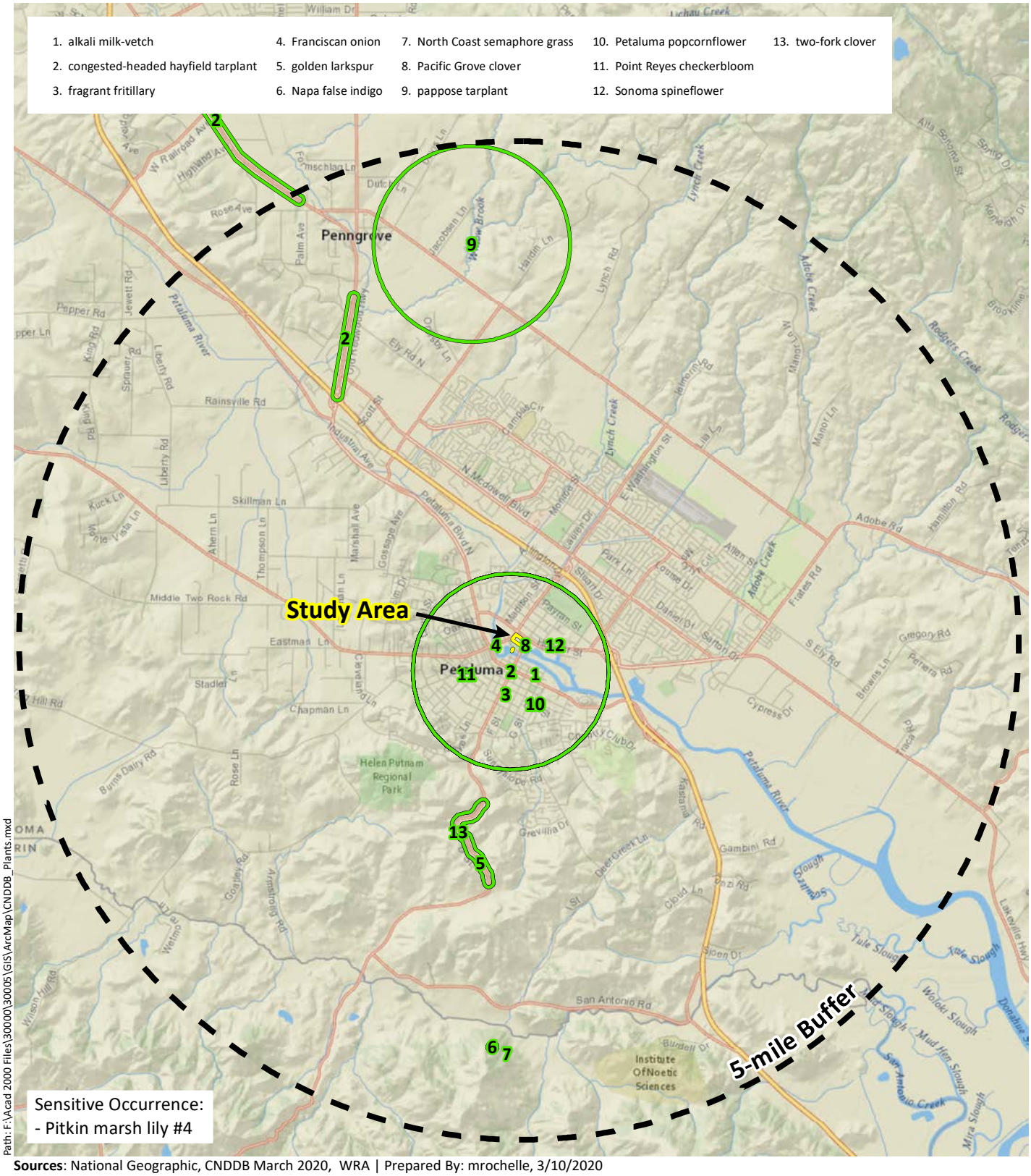
0 100 200

Feet

wra
ENVIRONMENTAL CONSULTANTS

Path: F:\Acad 2000 Files\30000\30005\GIS\ArcMap\Land Cover.mxd

Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: mrochelle, 3/26/2020



Sources: National Geographic, CNDDB March 2020, WRA | Prepared By: mrochelle, 3/10/2020

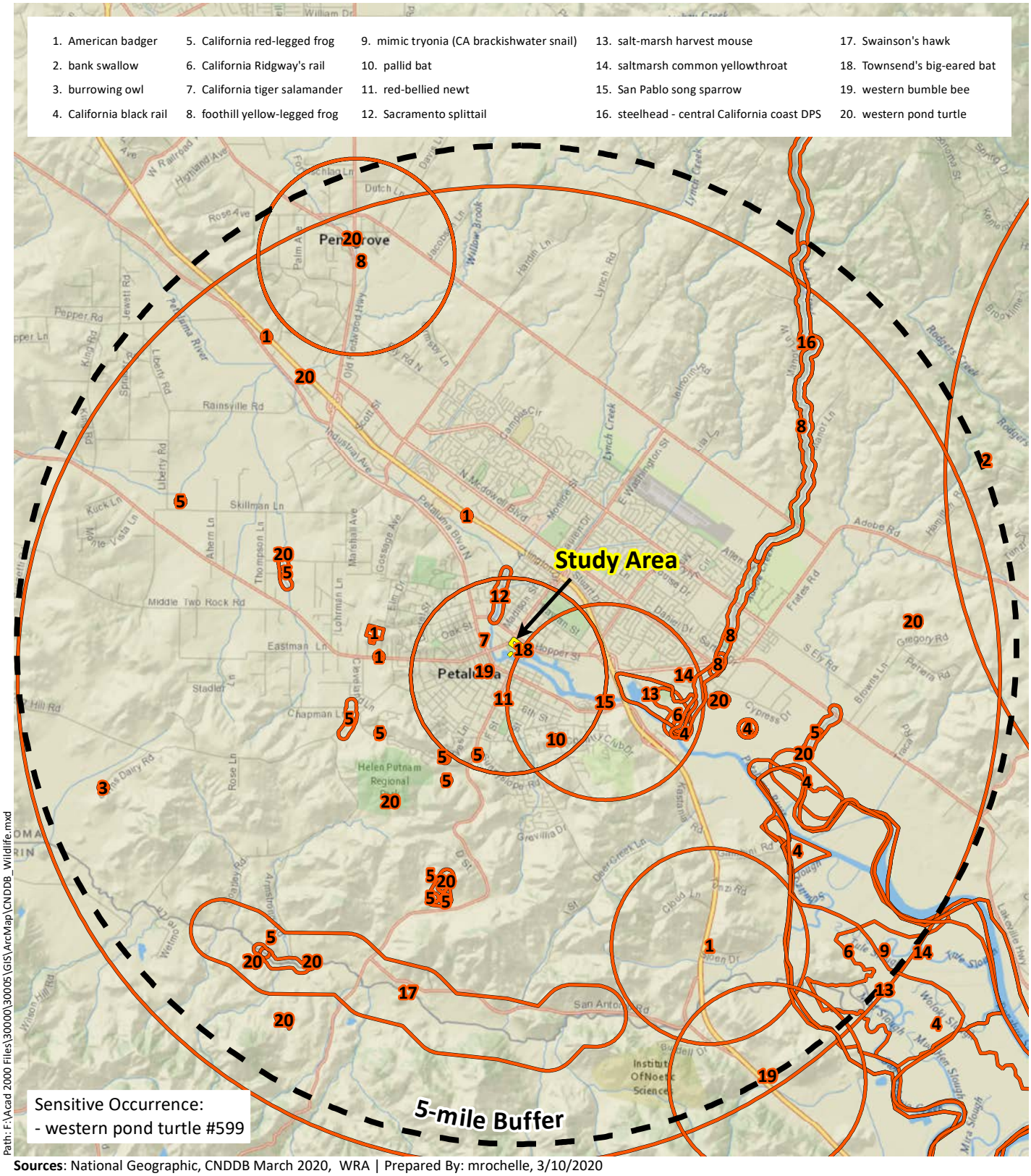
Figure 3. Special-Status Plant Species Documented within 5-miles of the Study Area

Hines Petaluma Downtown
SMART Station Mixed-Use
Sonoma County, California

0 1 2 Miles

N

wra
ENVIRONMENTAL CONSULTANTS



Sources: National Geographic, CNDDB March 2020, WRA | Prepared By: mrochelle, 3/10/2020

Figure 4. Special-Status Wildlife Species Documented within 5-miles of the Study Area

Hines Petaluma Downtown
SMART Station Mixed-Use
Sonoma County, California

0 1 2 Miles

N

wra
ENVIRONMENTAL CONSULTANTS

Appendix B

Species Observed

Appendix B. Wildlife and plant species observed in the Project Area, March 2, 2020

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3] (AW 2016)
Wildlife						
Lepis californicus	Black-tailed jackrabbit	native	-	-	-	-
Plants						
Avena sp.	Wild oat	non-native	annual grass	-	-	-
Brassica nigra	Black mustard	non-native	annual herb		Moderate	
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Cardamine hirsuta	Hairy bitter cress	non-native	annual herb	-	-	FACU
Carpobrotus chilensis	Sea fig	non-native (invasive)	perennial herb	-	Moderate	FACU
Citrullus lanatus	watermelon	non-native	annual herb	-	-	UPL
Dittrichia graveolens	Stinkwort	non-native (invasive)	annual herb	-	Moderate	-
Epilobium ciliatum	Slender willow herb	native	perennial herb	-	-	FACW
Erodium botrys	Big heron bill	non-native	annual herb	-	-	FACU
Erodium sp.	Stork's bill	non-native	annual herb	-	-	-
Euphorbia prostrata	Prostrate sandmat	non-native	annual herb			FACU
Festuca sp.	Rye grass	non-native	annual grass	-	-	-
Geranium dissectum	Wild geranium	non-native (invasive)	annual herb	-	Limited	-
Geranium sp.	Crane's bill	non-native	annual herb	-	-	-
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
Hypochaeris radicata	Hairy cats ear	non-native (invasive)	perennial herb	-	Moderate	FACU
Kickxia sp.	Sharpleaf cancerwort	non-native	annual herb	-	-	-
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU
Lepidium nitidum	Shining pepper grass	native	annual herb	-	-	FAC
Lysimachia arvensis	Scarlet pimpernel	non-native	annual herb	-	-	FAC
Lythrum hyssopifolia	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL-IPC Status[2]	Wetland Status[3] (AW 2016)
Malacothrix californica	Desert dandelion	native	annual herb	-	-	-
Oxalis pes-caprae	Bermuda buttercup	non-native (invasive)	perennial herb	-	Moderate	-
Poa annua	Annual blue grass	non-native	annual grass	-	-	FAC
Polypogon aviculare	Prostrate knotweed	non-native	annual, perennial herb	-	-	FAC
Raphanus sativus	Wild radish	non-native (invasive)	annual, biennial herb	-	Limited	-
Schoenoplectus californicus	California bulrush	native	perennial grasslike herb	-	-	OBL
Sinapis arvensis	Charlock	non-native (invasive)	annual herb	-	Limited	-
Soliva sessilis	South American soliva	non-native	annual herb	-	-	FACU
Sonchus sp.	Sow Thistle	non-native	annual herb	-	-	-
Tribulus terrestris	Puncture vine	non-native	annual herb		Limited	-
Zeltnera muehlenbergii	Muehlenberg's centaury	native	annual herb	-	-	FAC

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) and *A Flora of Sonoma County* (Best et al. 1996); nomenclature follows *The Jepson Flora Project* (eFlora 2020) unless otherwise noted. Sp.: "species", intended to indicate that the observer was confident in the identity of the genus but uncertain which species
Cf.: intended to indicate a species appeared to the observer to be specific, but was not identified based on diagnostic characters

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2020)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2A:	Plants presumed extirpated in California, but more common elsewhere
Rank 2B:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list

Rank 4: Plants of limited distribution – a watch list

[2]Invasive Status: California Invasive Plant Inventory (Cal-IPC 2020)

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited- moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

[3]Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL: Almost always a hydrophyte, rarely in uplands

FACW: Usually a hydrophyte, but occasionally found in uplands

FAC: Commonly either a hydrophyte or non-hydrophyte

FACU: Occasionally a hydrophyte, but usually found in uplands

UPL: Rarely a hydrophyte, almost always in uplands

NL: Rarely a hydrophyte, almost always in uplands

NI: No information; not factored during wetland delineation

Appendix C

Special-status Species Potential

Appendix C. Potential for Special-status Species to Occur in the Project Area. List compiled from the CDFW BIOS database (CDFW 2020a), USFWS IPaC Report (USFWS 2020b), and CNPS Electronic Inventory (CNPS 2020a) searches. For plants, the Two Rock, Cotati, Glen Ellen, Point Reyes NE, Petaluma, Petaluma River, Inverness, San Geronimo, and Novato USGS 7.5' quadrangles were included in the search. For wildlife, the entirety of Sonoma County was considered.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Plants				
pink sand-verbena *Abronia umbellata var. breviflora*	Rank 1B.1	Coastal dunes. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	**No Potential.** The Project Area does not contain sand dunes.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Blasdale's bent grass *Agrostis blasdalei*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms May-Jul.	**No Potential.** The Project Area is not located very near the coast nor contains coastal habitats.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Franciscan onion *Allium peninsulare var. franciscanum*	Rank 1B.2	Cismontane woodland, valley and foothill grassland. Elevation ranges from 170 to 1000 feet (52 to 305 meters). Blooms (Apr)May-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	FE, Rank 1B.1	Marshes and swamps (freshwater), riparian scrub. Elevation ranges from 15 to 1200 feet (5 to 365 meters). Blooms May-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Napa false indigo *Amorpha californica var. napensis*	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 390 to 6560 feet (120 to 2000 meters). Blooms Apr-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain forest, woodland or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain woodland or scrub habitats.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
coast rockcress *Arabis blepharophylla*	Rank 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 5 to 3610 feet (3 to 1100 meters). Blooms Feb-May.	**No Potential.** The Project Area is highly disturbed and does not contain rocky outcrops.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	Rank 1B.3	Chaparral, valley and foothill grassland. Elevation ranges from 520 to 2495 feet (160 to 760 meters). Blooms Feb-Apr.	**No Potential.** The Project Area is highly disturbed and does not contan chaparral habitat nor serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin manzanita *Arctostaphylos virgata*	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. Elevation ranges from 195 to 2295 feet (60 to 700 meters). Blooms Jan-Mar.	**No Potential.** The Project Area is highly disturbed and does not contain forest or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	Rank 1B.2	Coastal dunes (mesic), coastal scrub, marshes and swamps (coastal salt, streamsides). Elevation ranges from 0 to 100 feet (0 to 30 meters). Blooms (Apr)Jun-Oct.	**No Potential.** The Project Area is highly disturbed and does not contain mesic sites in dunes or salt marsh.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
alkali milk-vetch *Astragalus tener var. tener*	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 0 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain playas nor vernal pools.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma sunshine *Blennosperma bakeri*	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 30 to 360 feet (10 to 110 meters). Blooms Mar-May.	**Unlikely.** The Project Area is highly disturbed and does not contain vernal pools.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Bolander's reed grass *Calamagrostis bolanderi*	Rank 4.2	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 0 to 1495 feet (0 to 455 meters). Blooms May-Aug.	**Unlikely.** The Project Area is highly disturbed and does not contain perennial aquatic features nor forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Oakland star-tulip *Calochortus umbellatus*	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 325 to 2295 feet (100 to 700 meters). Blooms Mar-May.	**Unlikely.** The Project Area is highly disturbed and does not contain forest habitat nor serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
swamp harebell *Campanula californica*	Rank 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 0 to 1330 feet (1 to 405 meters). Blooms Jun-Oct.	**Unlikely.** The Project Area is highly disturbed and does not contain perennial aquatic features nor forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
seaside bittercress *Cardamine angulata*	Rank 2B.2	Lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 80 to 3000 feet (25 to 915 meters). Blooms (Jan)Mar-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Lyngbye's sedge *Carex lyngbyei*	Rank 2B.2	Marshes and swamps (brackish or freshwater). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Aug.	**No Potential.** The Project Area is highly distrubed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Tiburon paintbrush *Castilleja affinis var. neglecta*	FE, ST, Rank 1B.2	Valley and foothill grassland (serpentine). Elevation ranges from 195 to 1310 feet (60 to 400 meters). Blooms Apr-Jun.	**No Potential.** The Project Area is highly disturbed and does not contain rocky serpentine outcrops.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
johnny-nip *Castilleja ambigua var. ambigua*	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Elevation ranges from 0 to 1425 feet (0 to 435 meters). Blooms Mar-Aug.	**Unlikely.** The Project Area is highly disturbed and does not contain vernal pools and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Apr-Aug.	**No Potential.** The Project Area is highly disturbed and does not contain salt marsh.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Nicasio ceanothus *Ceanothus decornutus*	Rank 1B.2	Chaparral (maritime). Elevation ranges from 770 to 950 feet (235 to 290 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
glory brush *Ceanothus gloriosus var. exaltatus*	Rank 4.3	Chaparral. Elevation ranges from 95 to 2000 feet (30 to 610 meters). Blooms Mar-Jun(Aug).	**No Potential.** The Project Area is highly disturbed and does not contain chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes ceanothus *Ceanothus gloriosus var. gloriosus*	Rank 4.3	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub. Elevation ranges from 15 to 1705 feet (5 to 520 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and is not located very near the coast nor contains forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	Rank 1B.3	Closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 80 to 1000 feet (25 to 305 meters). Blooms Feb-May.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat nor is located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mason's ceanothus *Ceanothus masonii*	SR, Rank 1B.2	Chaparral (openings, rocky, serpentine). Elevation ranges from 750 to 1640 feet (230 to 500 meters). Blooms Mar-Apr.	**No Potential.** The Project Area is highly disturbed and does not contain chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Sonoma ceanothus *Ceanothus sonomensis*	Rank 1B.2	Chaparral (sandy, serpentine or volcanic). Elevation ranges from 705 to 2625 feet (215 to 800 meters). Blooms Feb-Apr.	**No Potential.** The Project Area is highly disturbed and does not contain chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
pappose tarplant *Centromadia parryi ssp. parryi*	Rank 1B.2	Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic). Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	**Moderate Potential.** While the Project Area is highly disturbed, this species can occur in such disturbed areas in non-native grasslands.	A protocol-level special-status plant survey should be conducted in July to determine presence.
Point Reyes bird's-beak *Chloropyron maritimum ssp. palustre*	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
soft bird's-beak *Chloropyron molle ssp. molle*	FE, SR, Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Jun-Nov.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma spineflower *Chorizanthe valida*	FE, SE, Rank 1B.1	Coastal prairie (sandy). Elevation ranges from 30 to 1000 feet (10 to 305 meters). Blooms Jun-Aug.	**No Potential.** The Project Area is highly disturbed and does not contain coastal prairie habitat nor is located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Bolander's water-hemlock *Cicuta maculata var. bolanderi*	Rank 2B.1	Marshes and swamps coastal, fresh or brackish water. Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Jul-Sep.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Franciscan thistle *Cirsium andrewsii*	Rank 1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms Mar-Jul.	**Unlikely.** The Project Area is highly disturbed and does not contain scrub or forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	Rank 1B.2	Broadleafed upland forest, chaparral, meadows and seeps. Elevation ranges from 785 to 2035 feet (240 to 620 meters). Blooms May-Aug.	**No Potential.** The Project Area is highly disturbed and does not contain serpentine seeps or streams.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Baker's larkspur *Delphinium bakeri*	FE, SE, Rank 1B.1	Broadleafed upland forest, coastal scrub, valley and foothill grassland. Elevation ranges from 260 to 1000 feet (80 to 305 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
golden larkspur *Delphinium luteum*	FE, SR, Rank 1B.1	Chaparral, coastal prairie, coastal scrub. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain chaparral or other scrub habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western leatherwood *Dirca occidentalis*	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
dwarf downingia *Downingia pusilla*	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 0 to 1460 feet (1 to 445 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain vernal pools.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
small spikerush *Eleocharis parvula*	Rank 4.3	Marshes and swamps. Elevation ranges from 0 to 9910 feet (1 to 3020 meters). Blooms (Apr)Jun-Aug(Sep).	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
California bottle-brush grass *Elymus californicus*	Rank 4.3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest, riparian woodland. Elevation ranges from 45 to 1540 feet (15 to 470 meters). Blooms May-Aug(Nov).	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Koch's cord moss *Entosthodon kochii*	Rank 1B.3	Cismontane woodland (soil). Elevation ranges from 590 to 3280 feet (180 to 1000 meters).	**No Potential.** The Project Area is highly disturbed and does not contain woodland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
streamside daisy *Erigeron biolettii*	Rank 3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest. Elevation ranges from 95 to 3610 feet (30 to 1100 meters). Blooms Jun-Oct.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat nor rocky outcrops.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Tiburon buckwheat *Eriogonum luteolum var. caninum*	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms May-Sep.	**No Potential.** The Project Area is highly disturbed and does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
bluff wallflower *Erysimum concinnum*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Elevation ranges from 0 to 605 feet (0 to 185 meters). Blooms Feb-Jul.	**Unlikely.** The Project Area is highly disturbed and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin checker lily *Fritillaria lanceolata var. tristulis*	Rank 1B.1	Coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 45 to 490 feet (15 to 150 meters). Blooms Feb-May.	**Unlikely.** The Project Area is highly disturbed and does not contain topographic features which may support this species.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
fragrant fritillary *Fritillaria liliacea*	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	**Unlikely.** The Project Area is highly distured and does not contain serpentine soils nor woodland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
blue coast gilia *Gilia capitata ssp. chamissonis*	Rank 1B.1	Coastal dunes, coastal scrub. Elevation ranges from 5 to 655 feet (2 to 200 meters). Blooms Apr-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain duen or coastal scrub habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
woolly-headed gilia *Gilia capitata ssp. tomentosa*	Rank 1B.1	Coastal bluff scrub, valley and foothill grassland. Elevation ranges from 30 to 720 feet (10 to 220 meters). Blooms May-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain rocky outcrops nor serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
San Francisco gumplant *Grindelia hirsutula var. maritima*	Rank 3.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland. Elevation ranges from 45 to 1310 feet (15 to 400 meters). Blooms Jun-Sep.	**Unlikely.** The Project Area is highly disturbed and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	Rank 1B.2	Valley and foothill grassland. Elevation ranges from 65 to 1835 feet (20 to 560 meters). Blooms Apr-Nov.	**Moderate Potential.** While the Project Area is highly disturbed, this species can occur in such disturbed areas in non-native grasslands.	A protocol-level special-status plant survey should be conducted in July to determine presence.
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	Rank 1B.2	Coastal bluff scrub (sandy), coastal dunes, coastal prairie. Elevation ranges from 0 to 705 feet (0 to 215 meters). Blooms Mar-Jun.	**No Potential.** The Project Area is highly disturbed and not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin western flax *Hesperolinon congestum*	FT, ST, Rank 1B.1	Chaparral, valley and foothill grassland. Elevation ranges from 15 to 1215 feet (5 to 370 meters). Blooms Apr-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
water star-grass *Heteranthera dubia*	Rank 2B.2	Marshes and swamps (alkaline, still or slow-moving water). Elevation ranges from 95 to 4905 feet (30 to 1495 meters). Blooms Jul-Oct.	**No Potential.** The Project Area does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Point Reyes horkelia *Horkelia marinensis*	Rank 1B.2	Coastal dunes, coastal prairie, coastal scrub. Elevation ranges from 15 to 2475 feet (5 to 755 meters). Blooms May-Sep.	**No Potential.** The Project Area is highly disturbed and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
harlequin lotus *Hosackia gracilis*	Rank 4.2	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms Mar-Jul.	**Unlikely.** The Project Area is highly disturbed and does not contain perennial aquatic features nor forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
island rock lichen *Hypogymnia schizidiata*	Rank 1B.3	Closed-cone coniferous forest, chaparral. Elevation ranges from 1180 to 1330 feet (360 to 405 meters).	**No Potential.** The Project Area is highly disturbed and does not contain forest nor chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
coast iris *Iris longipetala*	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Burke's goldfields *Lasthenia burkei*	FE, SE, Rank 1B.1	Meadows and seeps (mesic), vernal pools. Elevation ranges from 45 to 1970 feet (15 to 600 meters). Blooms Apr-Jun.	**No Potential.** The Project Area is high disturbed and does not contain vernal pools.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
perennial goldfields *Lasthenia californica ssp. macrantha*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation ranges from 15 to 1705 feet (5 to 520 meters). Blooms Jan-Nov.	**No Potential.** The Project Area is highly disturbed and not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Contra Costa goldfields *Lasthenia conjugens*	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain vernal pool habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
beach layia *Layia carnosa*	FE, SE, Rank 1B.1	Coastal dunes, coastal scrub (sandy). Elevation ranges from 0 to 195 feet (0 to 60 meters). Blooms Mar-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain dune or coastal scrub habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
legenere *Legenere limosa*	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	**No Potential.** The Project Area does not contain vernal pool habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
bristly leptosiphon *Leptosiphon acicularis*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain woodland or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Jepson's leptosiphon *Leptosiphon jepsonii*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 325 to 1640 feet (100 to 500 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and does not contain woodland or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
woolly-headed lessingia *Lessingia hololeuca*	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 45 to 1000 feet (15 to 305 meters). Blooms Jun-Oct.	**Moderate Potential.** While the Project Area is highly disturbed, this species can occur in such disturbed areas in non-native grasslands.	A protocol-level special-status plant survey should be conducted in July to determine presence.
Tamalpais lessingia *Lessingia micradenia var. micradenia*	Rank 1B.2	Chaparral, valley and foothill grassland. Elevation ranges from 325 to 1640 feet (100 to 500 meters). Blooms (Jun)Jul-Oct.	**Unlikely.** The Project Area is highly disturbed and does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mason's lilaeopsis *Lilaeopsis masonii*	SR, Rank 1B.1	Marshes and swamps (brackish or freshwater), riparian scrub. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Nov.	**No Potential.** The Project Area is not located along a tidal area.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
coast lily *Lilium maritimum*	Rank 1B.1	Broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 15 to 1560 feet (5 to 475 meters). Blooms May-Aug.	**No Potential.** The Project Area is highly disturbed and does not contain chaparral nor forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	FE, SE, Rank 1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater). Elevation ranges from 110 to 215 feet (35 to 65 meters). Blooms Jun-Jul.	**No Potential.** The Project Area is highly disturbed and not located within or near Sebastopol.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Sebastopol meadowfoam *Limnanthes vinculans*	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 45 to 1000 feet (15 to 305 meters). Blooms Apr-May.	**Unlikely.** The Project Area is highly disturbed and does not contain vernal pools or marshy areas.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Diablo cottonweed *Micropus amphibolus*	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 2705 feet (45 to 825 meters). Blooms Mar-May.	**Unlikely.** The Project Area is highly disturbed and does not contain forest, chaprral, nor woodland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
marsh microseris *Microseris paludosa*	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 15 to 1165 feet (5 to 355 meters). Blooms Apr-Jun(Jul).	**Unlikely.** The Project Area is highly disturbed and does not contain fores or woodland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
elongate copper moss *Mielichhoferia elongata*	Rank 4.3	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, subalpine coniferous forest. Elevation ranges from 0 to 6430 feet (0 to 1960 meters).	**No Potential.** The Project Area is highly disturbed and does not contain acidic rock outcrops.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	Rank 1B.2	Chaparral (scr co.), coastal dunes, coastal scrub, lower montane coniferous forest (scr co., ponderosa pine sandhills). Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms (Apr)May-Jul(Aug-Sep).	**No Potential.** The Project Area is highly disturbed and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
cotula navarretia *Navarretia cotulifolia*	Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 6005 feet (4 to 1830 meters). Blooms May-Jun.	**No Potential.** The Project Area is highly disturbed and does not contain adobe soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 15 to 5710 feet (5 to 1740 meters). Blooms Apr-Jul.	**Unlikely.** The Project Area is highly disturbed and does not contain vernal pools.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Marin County navarretia *Navarretia rosulata*	Rank 1B.2	Closed-cone coniferous forest, chaparral. Elevation ranges from 655 to 2085 feet (200 to 635 meters). Blooms May-Jul.	**No Potential.** The Project Area is highly disturbed and does not contain forest or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Gairdner's yampah *Perideridia gairdneri ssp. gairdneri*	Rank 4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 2000 feet (0 to 610 meters). Blooms Jun-Oct.	**No Potential.** The Project Area is highly disturbed and does not contain adobe soils nor forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
North Coast phacelia *Phacelia insularis var. continentis*	Rank 1B.2	Coastal bluff scrub, coastal dunes. Elevation ranges from 30 to 560 feet (10 to 170 meters). Blooms Mar-May.	**No Potential.** The Project Area is highly disturbed and not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Petaluma popcornflower *Plagiobothrys mollis var. vestitus*	Rank 1A	Marshes and swamps (coastal salt), valley and foothill grassland (mesic). Elevation ranges from 30 to 165 feet (10 to 50 meters). Blooms Jun-Jul.	**Unlikely.** The Project Area is highly disturbed and does not contain	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
North Coast semaphore grass *Pleuropogon hooverianus*	ST, Rank 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Elevation ranges from 30 to 2200 feet (10 to 671 meters). Blooms Apr-Jun.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
nodding semaphore grass *Pleuropogon refractus*	Rank 4.2	Lower montane coniferous forest, meadows and seeps, north coast coniferous forest, riparian forest. Elevation ranges from 0 to 5250 feet (0 to 1600 meters). Blooms (Mar)Apr-Aug.	**No Potential.** The Project Area is highly disturbed and does not contain forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin knotweed *Polygonum marinense*	Rank 3.1	Marshes and swamps (coastal salt or brackish). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms (Apr)May-Aug(Oct).	**No Potential.** The Project Area does not contain marsh habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Cunningham Marsh cinquefoil *Potentilla uliginosa*	Rank 1A	Marshes and swamps. Elevation ranges from 95 to 130 feet (30 to 40 meters). Blooms May-Aug.	**No Potential.** The Project Area does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Lobb's aquatic buttercup *Ranunculus lobbii*	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 45 to 1540 feet (15 to 470 meters). Blooms Feb-May.	**Unlikely.** The Project Area is highly disturbed and does not contain forest or woodland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
California beaked-rush *Rhynchospora californica*	Rank 1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater). Elevation ranges from 145 to 3315 feet (45 to 1010 meters). Blooms May-Jul.	**No Potential.** The Project Area does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
round-headed beaked-rush *Rhynchospora globularis*	Rank 2B.1	Marshes and swamps (freshwater). Elevation ranges from 145 to 195 feet (45 to 60 meters). Blooms Jul-Aug.	**No Potential.** The Project Area does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Victor's gooseberry *Ribes victoris*	Rank 4.3	Broadleafed upland forest, chaparral. Elevation ranges from 325 to 2460 feet (100 to 750 meters). Blooms Mar-Apr.	**No Potential.** The Project Area does not contain forest or chaparral habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Sanford's arrowhead *Sagittaria sanfordii*	Rank 1B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 0 to 2135 feet (0 to 650 meters). Blooms May-Oct(Nov).	**Unlikely.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	Rank 1B.2	Marshes and swamps (freshwater, near coast). Elevation ranges from 5 to 245 feet (3 to 75 meters). Blooms Apr-Sep.	**No Potential.** The Project Area is highly disturbed and does not contain perennial aquatic features.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Tamalpais jewelflower *Streptanthus batrachopus*	Rank 1B.3	Closed-cone coniferous forest, chaparral. Elevation ranges from 1000 to 2135 feet (305 to 650 meters). Blooms Apr-Jul.	**No Potential.** The Project Area does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	Rank 1B.2	Chaparral, valley and foothill grassland. Elevation ranges from 490 to 2625 feet (150 to 800 meters). Blooms May-Jul(Aug).	**No Potential.** The Project Area does not contain serpentine soils.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
two-fork clover *Trifolium amoenum*	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 15 to 1360 feet (5 to 415 meters). Blooms Apr-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain suitable swale habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Santa Cruz clover *Trifolium buckwestiorum*	Rank 1B.1	Broadleafed upland forest, cismontane woodland, coastal prairie. Elevation ranges from 340 to 2000 feet (105 to 610 meters). Blooms Apr-Oct.	**Unlikely.** The Project Area is highly disturbed and does not contain woodland or forest habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	**Unlikely.** The Project Area is highly disturbed and does not contain suitable wetland habitat.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
Pacific Grove clover *Trifolium polyodon*	SR, Rank 1B.1	Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland. Elevation ranges from 15 to 1395 feet (5 to 425 meters). Blooms Apr-Jun(Jul).	**No Potential.** The Project Area does not contain springs or streams.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.
San Francisco owl's-clover *Triphysaria floribunda*	Rank 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 30 to 525 feet (10 to 160 meters). Blooms Apr-Jun.	**Unlikely.** The Project Area is highly disturbed and is not located very near the coast.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
coastal triquetrella *Triquetrella californica*	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 30 to 330 feet (10 to 100 meters).	**No Potential.** The Project Area is not located very near the coast nor contains coastal habitats.	**Not Present.** The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Mammals				
Antrozous pallidus pallid bat	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential.** The Project Area does contain trees suitable to provide roosting of this species. Additionally this species was documented in a building less than a mile from the Project Area (CDFW 2020).	**Presence Unknown.** Recommendations to reduce potential impacts to pallid bats are described in section 6.3.4.
Arborimus pomo Sonoma tree vole	SSC	Occurs in old-growth and other forests, mainly those of Douglas-fir, redwood, and montane hardwood-conifer. Closely associated with Douglas fir; however, recent observations from the North Coast have documented this species in other coniferous forests.	**No Potential.** The Project Area does not contain Douglas fir or forested habitat this species needs for foraging and nesting. There are no documented occurrences within 5 miles of the Project Area (CDFW 2020).	**Not Present.** Suitable habitat is absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Corynorhinus townsendii townsendii Townsend's western big-eared bat	SSC, WBWG High	Humid coastal regions of northern and central California. Roost in limestone caves, lava tubes, mines, buildings etc. Will only roost in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to disturbance	**Unlikely.** The Project Area does not contain structures or caves. Additionally, the Project Area is regularly disturbed through human activity.	**Not Present.** Suitable roosting and foraging habitat is absent. No further recommendations for this species.
Lasiurus blossevillii western red bat	SSC, WBWG High	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**Unlikely.** Project Area does not contain broad leafed trees suitable for roosting. The Project Area does have open areas, therefore this species may be observed foraging within the Project Area.	**Not Present.** Suitable roosting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Myotis thysanodes fringed myotis	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Building, mines, and large trees and snags are important day and night roosts.	**No Potential.** The Project Area does not contain grassland habitat or trees to support foraging or roosting of this species.	**Not Present.** Suitable roosting and foraging habitat is absent. No further recommendations for this species.
Myotis volans long-legged myotis	WBWG High	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices, buildings, mines, and caves are important day roosts.	**No Potential.** The Project Area does not contains coniferous forest habitat to support roosting of this species.	**Not Present.** Suitable roosting and foraging habitat is absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Pekania pennanti fisher	FC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	**No Potential.** The Project Area does not contains coniferous forest habitat to support nesting or foraging of this species.	**Not Present.** Suitable habitat is absent. No further recommendations for this species.
Reithrodontomys raviventris salt marsh harvest mouse	FE, SE, SFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for dryland refugia during high tides.	**No Potential.** The Project Area does not contain pickleweed that this species needs for foraging and nesting. There nearest documented occurrence is 1.5 miles south of the Project Area in marsh habitat along to Petaluma River (CDFW 2020).	**Not Present.** Suitable habitat is absent. No further recommendations for this species.
Sorex ornatus sinuosus Suisun shrew	SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays. Require dense low-lying vegetation cover, driftwood, and other litter above the mean high tide line for nesting and foraging.	**No Potential.** The Project Area does not contain tidal marsh habitat.	**Not Present.** Suitable habitat is absent. No further recommendations for this species.
Taxidea taxus American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**No Potential.** The Project Areas do not contain suitable habitat necessary to support this species. Additionally, large fossorial and burrowing mammals are absent.	**Not Present.** Suitable habitat is absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Birds				
Agelaius tricolor tricolored blackbird	SC (E), SSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**Unlikely.** The Project Area does not support the dense marsh vegetation necessary for nesting. The nearest documented occurrence is over 5 miles south of the Project Area (CDFW 2020).	**Not Present.** Suitable nesting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Ammodramus savannarum grasshopper sparrow	SSC	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Unlikely.** The Project Area does not contain low to moderately high grassland, further it is surrounded by urban development. The nearest documented occurrence is 7 miles east of the Project Area.	**Not Present.** Suitable nesting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Aquila chrysaetos golden eagle	BGEPA, SFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**No Potential.** Suitable habitat for nesting is not present and the Project Area lacks adequate foraging areas and is in an urbanized area. The species may occasionally forage over or in the Project Area.	**Not Present.** Suitable nesting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Ardea alba great egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential to Nest**. The Project Area lacks clusters of trees in proximity to aquatic features with extended inundation periods. The species may occasionally forage within the Project Area.	**Not Present.** Suitable nesting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Ardea herodias great blue heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequestered terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential to Nest**. The Project Area lacks clusters of trees in proximity to aquatic features with extended inundation periods. The species may occasionally forage in the Project Area.	**Not Present.** Suitable nesting habitat is absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Asio flammeus short-eared owl	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**No Potential to Nest**. The Project Area lacks elevated areas that would support nesting and dense herbaceous vegetation for roosting and nesting.	**Not Present.** Suitable habitat for nesting or foraging is Not Present**.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Asio otus long-eared owl	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	**No Potential to Nest**. The Project Area lacks forests and tree groves that would support nesting.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Athene cunicularia burrowing owl	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**Unlikely.** Suitable burrows for occupation and nesting are not present. Widely regarded to only be a winter visitor to Sonoma County.	**Presumed Absent.** No further recommendations for this species.
Brachyramphus marmoratus marbled murrelet	FT, SE	Primarily coastal marine, but breeds in old-growth redwood stands containing platform-like branches along the coast. Migrates daily from inland nests and roosts to forage in the Pacific Ocean.	**No Potential.** Suitable forests for nesting are not present**.** No saltwater habitats are present that would facilitate foraging.	**Not Present.** Suitable habitat for this species is not present**.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Buteo swainsoni Swainson's hawk	ST	Summer resident in Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**Unlikely.** The Project Area is not within the known breeding range of this species. This species is presumed extirpated from the Petaluma Area (CDFW 2020).	**Presumed Absent**. Habitat is absent and the species has not been documented to nest nearby. No further recommendations for this species.
Charadrius alexandrines nivosus western snowy plover	FT, SSC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	**No Potential.** Suitable beaches for nesting are not present**.** No saltwater habitats are present that would facilitate foraging.	**Not Present.** Suitable habitat for this species is Not Present. No further recommendations for this species.
Circus cyaneus northern harrier	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Unlikely to Nest**. The Project Area contains no open grassland habitat, and the urban development immediately adjacent to the Project Area makes this species less likely to occur.	**Presumed Absent.** Habitat quality in the Project Area is low and the surrounding urbanization would likely deter nesting. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT, SE	Summer resident, breeding in dense riparian forests and jungles, typically with early successional vegetation present. Utilizes densely-foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very restricted.	**No Potential.** The Project Area does not contain dense or old-growth riparian habitat. The nearest documented occurrence is 7 miles northeast of the Project Area.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Contopus cooperi olive-sided flycatcher	SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	**No Potential.** Suitable forests or woodlands for nesting are not present**.** Additionally the Project Area is surrounded by urban development.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Coturnicops noveboracensis yellow rail	SSC	Summer resident in eastern Sierra Nevada, breeding in shallow freshwater marshes and wet meadows with dense vegetation. A rare winter visitor along the coast and other cismontane areas. Extremely cryptic.	**No Potential.** Suitable marshes and/or wet meadows with dense vegetation are absent in the Project Area.	**Not Present.** Suitable habitat for nesting and foraging is not present**.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Cypseloides niger black swift	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas.	**No Potential.** Cliffs, bluffs and waterfalls are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Dendroica petechia brewsteri (Brewster's) yellow warbler	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting is variable, but dense willow growth is typical. Occurs widely on migration.	**No Potential to Nest**. Riparian areas and dense vegetation of adequate height to support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Elanus leucurus white-tailed kite	SFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Moderate Potential.** Trees within the vicinity of the Project Area could support nesting for this species. This species may be seen foraging within the Project Area.	**Presence Unknown**. Additional surveys to determine if the species is nesting in the Project Area are described in Section 6.2 and should be applied if work occurs in the nesting season.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Falco peregrinus anatum American peregrine falcon	SE, SFP	Year-round resident and winter visitor. Occurs near water, including coastal areas, wetlands, lakes and rivers. Usually nests on sheltered cliffs or tall man-made structures. Preys primarily on waterbirds.	**No Potential to Nest**. Cliffs and other structures that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Fratercula cirrhata tufted puffin	SSC	Pelagic and coastal marine. Nests near or along the coast on islands, islets, and (rarely) isolated mainland cliffs. Requires sod or earth into which the birds can burrow, or rocky crevices where friable soil is absent. Forages at sea, primarily for fish.	**No Potential.** The Project Area is not located along the ocean bluffs.	**Not Present.** No suitable habitat for nesting is present. No potential for foraging.
Geothlypis trichas sinuosa San Francisco (saltmarsh) common yellowthroat	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**No Potential to Nest**. Vegetation that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Haliaeetus leucocephalus bald eagle	BGEPA, SE, SFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**No Potential to Nest**. The Project Area does not contain large trees adjacent to large water bodies of water to support nesting of this species. Additionally, due to the developed nature of the Petaluma River, foraging habitat within the Project Area along the river is reduced.	**Not Present.** Suitable habitat for nesting and foraging is not present**.** The species may occasionally fly over the Project Area. No further recommendations for this species.
Icteria virens yellow-breasted chat	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow (*Salix* ssp.), blackberry (*Rubus* spp.), and wild grape (*Vitis californicus*).	**No Potential to Nest**. Riparian areas that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Lanius ludovicianus loggerhead shrike	SSC	Year-round resident in open woodland, grasslands, savannah, and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**Unlikely.** The Project Area is surrounded by development and the percentage of suitable habitat within it is relatively small. It is unlikely that this species would find adequate foraging and nesting opportunities in the Project Area.	**Unlikely.** Suitable habitat for nesting is mostly absent. The species may occasionally forage over or in the Project Area. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Laterallus jamaicensis coturniculus California black rail	ST, SFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential to Nest**. Vegetation types that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.
Melospiza melodia samuelis San Pablo song sparrow	SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	**No Potential to Nest.** Vegetation that could support nesting is absent in the Project Area. The species may forage in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Nycticorax nycticorax black-crowned night heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	**No Potential to Nest.** Clusters of trees and emergent vegetation that could support nesting are absent.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Passerculus sandwichensis alaudinus Bryant's savannah sparrow	SSC	Year-round resident associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats and adjacent areas, including grasslands. Also uses drier, more upland coastal grasslands. Nests near the ground in taller vegetation, including along levees and canals.	**No Potential to Nest**. Vegetation that could support nesting are absent in the Project Area and the Project Area is further from the coast than typical for this species.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Progne subis purple martin	SSC	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	**No Potential to Nest**. Trees and other structures that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Rallus obsoletus obsoletus California Ridgway's (clapper) rail	FE, SE, SFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on mollusks and crustaceans.	**No Potential to Nest**. Habitat and associated vegetation types that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting and foraging is not present**.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Riparia riparia bank swallow	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**No Potential to Nest**. Vertical banks that could support nesting are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. No further recommendations for this species.
Sternula antillarum browni California least tern	FE, SE, CFP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	**Unlikely.** The Project Area does not contain barren or sparsely vegetated beaches or pond margins**.**	**Not Present.** Suitable nesting habitat is not present. Species may occasionally forage over or in the Project Area.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Strix occidentalis caurina northern spotted owl	FT,ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with stands of mature conifers. Uses both coniferous and mixed (coniferous-hardwood) forests in some areas. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	**No Potential to Nest**. Forests that could support nesting or foraging are absent in the Project Area.	**Not Present.** Suitable habitat is not present**.** No further recommendations for this species.
Xanthocephalus xanthocephalus yellow-headed blackbird	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**No Potential.** Extensive freshwater emergent wetlands are absent in the Project Area.	**Not Present.** Suitable habitat for nesting is not present. The species may occasionally forage over or in the Project Area. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Reptiles and Amphibians				
Ambystoma californiense California tiger salamander, Sonoma County Distinct Population Segment	FE, ST	Occurs in grasslands, oak savannah, and open woodlands with a mosaic of vernal pools or similar seasonal wetlands. Requires vernal pools or similarly inundated waters for breeding and larvae. Adults are fossorial utilizing small mammal burrows for estivation.	**No Potential.** The Project Area is outside the known range of this species within the Santa Rosa Plain (USFWS 2016) and does not contain seasonal pool habitat. A historical record that maps to the City of Petaluma is present in the CNDDB but the record has no provenance and was mapped based on the home of the collector not the collection location (CDFW 2020).	**Not Present.** Suitable habitat for this species is absent. The Project Area is outside of the documented range for the species. No further recommendations for this species.
Green sea turtle Chelonia mydas	FT (west coast populations)	Found in fairly shallow waters inside reefs, bays and inlets with marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting. This species exhibits high site fidelity.	**Unlikely.** This species is uncommon along the California coast. This turtles prefers warm waters and only a few sightings have been documented in the San Francisco Bay Area.	**Not Present.** Suitable habitat for this species is not present. No further recommendations for this species.
Dicamptodon ensatus California giant salamander	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	**No Potential.** No cool streams or moist forests are present in the Project Area.	**Not Present.** Suitable habitat for this species is not present. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Emys marmorata Pacific (western) pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**Unlikely.** The Project Area does not contain structural complexity to allow this species to remain in the Project Area. The Project Area and surrounding areas are heavily trafficked, but there are no nearby occurrences in the vicinity of the Project Area. It may occasionally swim by the Project Area.	**Presumed Absent.** This species may have occasionally transited the Project Area, but the extent of surrounding urbanization now makes that unlikely**.** No further recommendations for this species.
Rana boylii foothill yellow-legged frog	SC (T), SSC	Found in or near rocky streams in a variety of habitats; highly aquatic. Prefers partially-sunlit, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on invertebrates (aquatic and terrestrial).	**No Potential.** The Project Area does not contain rocky streams.	**Not Present.** Suitable habitat (rocky streams) for this species is not present. No further recommendations for this species.
Rana draytonii California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense emergent and/or overhanging riparian vegetation. Favors perennial to intermittent ponds, marshes, and stream pools. Requires 11 to 20 weeks of continuous inundation for larval development. Disperses through upland habitats during and after rains.	**Unlikely.** The Project Area lacks suitable freshwater aquatic habitat with emergent vegetation. Additionally, burrows are not present to provide upland refuge.	**Presumed Absent.** Breeding habitat is absent and no nearby occurrences are documented. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Taricha rivularis red-bellied newt	SSC	Inhabits coastal forests from southern Sonoma County northward, with an isolated population in Santa Clara County. Typical habitat is coast redwood forest, but can inhabit hardwood forests. Adults are terrestrial and fossorial. Breeding occurs in rocky streams, usually with relatively strong flows.	**No Potential.** The Project Area does contain forest habitat to support this species. Additionally, suitable seasonal pool habitat to support breeding is not present within the Project Area.	**Not Present.** Suitable habitat (rocky streams with surrounding forests) for this species is not present**.** No further recommendations for this species.
Fishes				
Eucyclogobius newberryi tidewater goby	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches. Requires fairly still but not stagnant water and high oxygen levels.	**No Potential.** This species is extirpated from San Francisco Bay.	**Not Present.** Suitable habitat for this species is not present. No further recommendations for this species.
Hypomesus transpacificus delta smelt	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**Unlikely.** The species does occur within San Pablo Bay, and is believed to move into the lower portions of the Petaluma River; however, there are no known occurrences near the Project Area. Therefore, it is unlikely that the species would occur within the riverine portion of the Project Area.	**Not Present.** This species is not known to occur this far up the Petaluma River.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Hysterocarpus traskii pomo Russian River tule perch	SSC	Found in lower elevation streams of the Russian River basin. Requires clear, flowing water with abundant cover. They also require deep (greater than three feet) pool habitat.	**No Potential.** The Project Area is outside the known range of this species.	**Not Present.** The Project Area is not in the Russian River Basin**.** No further recommendations for this species.
Lavinia symmetricus navarroensis Navarro roach	SSC	Found in warm, intermittent streams to cold, well-aerated streams in the Navarro River watershed.	**No Potential.** The Project Area is outside the known range of this species.	**Not Present.** No further recommendations for this species.
Lavinia symmetricus parvipinnis Gualala roach	SSC	Occurs only in the Gualala River and its tributaries. Adaptable; found in warm, intermittent streams as well as cold, well-aerated streams.	**No Potential.** The Project Area is outside the known range of this species.	**Not Present.** No further recommendations for this species.
Mylopharodon conocephalus hardhead	SSC	Known from mid-elevation streams in the Sacramento, San Joaquin, and Russian River drainages. Prefer clear, deep pools with sand-gravel-boulder bottoms and slow water velocity.	**No Potential.** The Project Area is outside the known range of this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Oncorhynchus kisutch coho salmon – central CA coast ESU	FE, SE	Occurs in inland and coastal rivers, and marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also requires riparian cover to contribute to cool, well-aerated water. Federal listing applies to populations between Punta Gorda and San Lorenzo River. State listing applies populations south of San Francisco Bay only.	**No Potential.** Coho salmon are considered extirpated from San Francisco Bay and tributaries.	**Not Present.** Suitable habitat for this species is Not Present**.** No further recommendations for this species.
Oncorhynchus mykiss irideus steelhead - central CA coast DPS	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	**Moderate Potential.** The aquatic portion of the Project Area occurs within the Petaluma River, which is Critical Habitat for this species. Although the Project Area does not provide suitable spawning habitat, this species has a moderate potential to occur during migration, or use the Project Area to forage. The nearest documented occurrence is 3 miles east of the Project Area (CDFW 2020).	See recommendations in Section 6.3.4.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
green sturgeon *Acipenser medirostris*	FT, SSC	Spawn in the Sacramento River and the Feather River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Unlikely.** The aquatic portion of the Project Area occurs within the Petaluma River, which is Critical Habitat for this species. Although the Project Area does not provide suitable spawning habitat, this species has a potential to occur during migration, or use the Project Area to forage.	See recommendations in Section 6.3.4.
white sturgeon *Acipenser transmontanus*	SSC	Found in most estuaries along the Pacific coast. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. Spawn May through June.	**Moderate Potential.** The aquatic portion of the Project Area occurs within the Petaluma River, which is habitat for this species. Although the Project Area does not provide suitable spawning habitat, this species has a potential to occur during migration, or use the Project Area to forage.	See recommendations in Section 6.3.4.
Pacific lamprey *Entosphenus (=Lampetra) tridentatus*	SSC	Spawns between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**Moderate Potential.** The aquatic portion of the Project Area occurs within the Petaluma River, which is habitat for this species. Although the Project Area does not provide suitable spawning habitat, this species has a potential to occur during migration.	See recommendations in Section 6.3.4.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Lampetra ayresi) river lamprey	SSC	Little is known about habitat requirements in California, but presumably, the adults need clean, gravelly riffles in permanent streams for spawning, while the ammocetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C. Adults migrate back into fresh water in the fall and spawn during the winter or spring months in small tributary streams.	**Moderate Potential.** The aquatic portion of the Project Area occurs within the Petaluma River, which is habitat for this species. Although the Project Area does not provide suitable spawning habitat, this species has a potential to occur during migration.	See recommendations in Section 6.3.4.
Pogonichthys macrolepidotus Sacramento splittail	SSC	Formerly endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young. A freshwater species, but tolerant of moderate salinity (10-18 parts per thousand).	**Moderate Potential.** This species has been documented within the vicinity of the Project Area in the Petaluma River (CDFW 2020). Although the Project Area does not contain flooded vegetation required for spawning, this species may forage in the riverine portion of the Project Area.	See recommendations in Section 6.3.4.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Spirinchus thaleichthys longfin smelt	FC, ST, SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**Unlikely.** The Project Area is located outside of the known range of this species (PISCES 2017). The species does occur within San Pablo Bay, and is believed to move into the lower portions of the Petaluma River; however, there are no known occurrences near the Project Area which is over 13 miles upstream from the confluence. Therefore, it is unlikely that the species would occur within the riverine portion of the Project Area.	**Assumed Absent.** No further actions are recommended.
Invertebrates				
Bombus crotchii Crotch bumble bee	SC	Range largely restricted to California. Favors grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground. Visits a variety of plants.	**Unlikely.** As per the Xerces Society (2018), there are no known extant populations of this species in the San Francisco Bay area.	**Assumed Absent.** No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Bombus occidentalis western bumble bee	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2015). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** As per the Xerces Society (2018), there are no known extant populations of this species in the San Francisco Bay area.	**Assumed Absent.** No further actions are recommended.
Callophrys mossii bayensis San Bruno elfin butterfly	FE, SSI	Limited to the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on in rocky outcrops and cliffs in coastal scrub habitat on steep, north-facing slopes within the fog belt. Species range is tied to the distribution of the larval host plant, Sedum spathulifolium.	**No Potential.** The Project Area does not contain rocky outcrops nor contain known host plant. Additionally, this species is limited to San Mateo County.	**Not Present**. No suitable habitat is present. No further recommendations.
Danaus plexippus monarch butterfly	roosting sites protected by CDFW	Winter roost sites along the coast from Baja California north to Mendocino County. Roosts are wind-protected tree groves, typically of eucalyptus (*Eucalyptus* spp.), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*).	**Unlikely.** The Project Area does not contain trees to support a winter roost of this species. Suitable coastal habitat is over 5 miles from the Project Area (CDFW 2020).	**Not Present.** Suitable habitat for this species is Not Present. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RESULTS AND RECOMMENDATIONS
Speyeria zerene behrensii Behren's silverspot butterfly	FE	Inhabits coastal terrace prairie habitat. Larval plant is dog violet (*Viola adunca*). Known from six historic locations from City of Mendocino to Salt Point; currently considered extant from Point Arena south to Salt Point.	**Unlikely.** The Project Area is surrounded by urban development and the larval food plant to support this species is not present within the Project Area.	**Not Present.** Suitable habitat for this species is Not Present. No further recommendations for this species.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE	Inhabits coastal terrace prairie habitat. Larval plant is dog violet (*Viola adunca*). Historic populations from Russian River to San Mateo County; currently known only from western Marin and southwestern Sonoma counties.	**Unlikely.** The Project Area is surrounded by urban development and the larval food plant to support this species is not present within the Project Area.	**Not Present.** Suitable habitat for this species is Not Present. No further recommendations for this species.
Syncaris pacifica California freshwater shrimp	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**Unlikely.** The Project Area does not contain water features to support this species. Additionally, areas adjacent to the Project Area lack riparian cover typical of this species. The nearest documented occurrence of this species is approximately 10 miles east of the Project Area (CDFW 2020).	**Not Present.** Suitable habitat for this species is Not Present. No further recommendations for this species.

***Key to status codes:**

FC	Federal Candidate for Listing
FE	Federal Endangered
BGEPA	Bald and Golden Eagle Protection Act Species
FT	Federal Threatened
SC (E/T)	State Candidate for Listing (Endangered/Threatened)
SE	State Endangered
SFP	State Fully Protected Animal
SR	State Rare
SSC	State Species of Special Concern
ST	State Threatened
Rank 1A	CNPS Rank 1A: Plants presumed extinct in California
Rank 1B	CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2A	CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B	CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CNPS Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4	CNPS Rank 4: Plants of limited distribution (a watch list)
WBWG	Western Bat Working Group High or Medium-high Priority Species

Potential to Occur:

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

Results and Recommendations:

Present: Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.
Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.
Assumed Present without Impact: Species assumed present; however, project activities will not have an impact on the species.
Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.
Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.
Not Observed: Species was not observed during dedicated/formal surveys.
Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed.

Appendix D

Representative Photographs

Photograph 1: General location of outlet of storm drain culvert on east bank of Petaluma.

Photograph 2: Outlet of storm drain culvert (photo center) that drains into Petaluma River.

Photograph 3: Seasonal wetland located in the southeastern portion of the Project Area.

Photograph 4: Seasonal wetland in southeast portion of the Project Area approximately 50 feet southeast of the seasonal wetland shown in Photograph 3.

Photograph 5: Barren land cover type mottled throughout the study area, especially around the perimeter of the site.

Photograph 6: Ruderal land cover type mottled throughout the study area.

Photograph 7: Developed land west of Weller Street that contains the existing storm drain culvert. View looks west toward the Petaluma River where the storm drain outfalls.

Photograph 8: Curbside storm drain on Weller Street that drains into the existing storm drain which eventually outfalls into the Petaluma River.