

**BIOLOGICAL RESOURCES ASSESSMENT
2485 MIDDLE TWO ROCK ROAD
PETALUMA, SONOMA COUNTY, CALIFORNIA
APN 021-160-041**



Prepared for:

Mr. Joshua Melcon
2485 Middle Two Rock Road
Petaluma, California

Prepared by:

Ms. Lucy Macmillan, M.S.
Environmental Scientist
108 Rising Road
Mill Valley, California 94941
(415) 389-9199

Ms. Anya Peron-Burdick, M.S.
Restoration Ecologist
2923 Grinnel Drive
Davis, California 95619
(707) 529-0904

**OCTOBER 31, 2023
REVISED AUGUST 1, 2024**

Table of Contents

1.0 INTRODUCTION	3
2.0 WETLANDS ASSESSMENT	6
2.1 Corps of Engineers Jurisdictional Criteria Review	6
2.1.1 Potential Wetlands	7
2.1.2 Waters of the U.S. (Other Waters)	9
2.2 San Francisco Regional Water Quality Control Board	9
2.3 California Department of Fish and Wildlife	10
2.4 Sonoma County Riparian Setback Requirements	10
2.5 Background review	10
2.6 Wetland Assessment and Results	11
3.0 SPECIAL-STATUS SPECIES	16
3.1 Special-status Animals	16
3.1.1 Results	17
3.1.2 Mitigation Measures and Recommendations	30
3.2 Special-status Plants	34
3.2.1 Methods and Results	34
REFERENCES	67
APPENDIX A – WETLAND DATA SHEETS	69
APPENDIX B – CALIFORNIA RED-LEGGED FROG AND CALIFORNIA TIGER SALAMANDER HABITAT ASSESSMENT	78

1.0 INTRODUCTION

This report presents the results of a biological resources assessment conducted for approximately 41 acres at 2485 Middle Two Rock Road in Petaluma, Sonoma County, California. The project site is accessed from a private driveway leading west of Middle Two Rock Road to two existing single-family residences (Figure 1). There are ephemeral drainages and associated riparian corridors on the site; the drainages drain under Middle Two Rock Road to Wiggins Creek and ultimately to the Petaluma River. Except for the driveway, residences, and associated improvements, the site may be characterized as non-native grasslands and riparian. This report is in support of the minor subdivision of Sonoma County APN 021-160-041 into four 10-acre lots.

The purpose of the assessment is to identify special-status plant and wildlife species and sensitive habitats (including wetlands) that have the potential to occur on or in the vicinity of the project site and if the projects would affect these resources. Based on information and data collected for the analysis, mitigation measures designed to minimize and/or avoid potential biological resource impacts resulting from potential development are provided. A study was previously prepared by Kjeldsen Biological Consulting for most of the site in 2021, but that study did not include all the acreage for the currently proposed 4-lot subdivision.

Based on background data collected and a site visit conducted on July 13, 2023, it was determined that the site provides potential habitat for nesting birds and raptors, special-status bats, and badgers. In addition, in the Spring of 2024 wildlife biologists from Sol Ecology conducted a site assessment for California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) to determine the potential for either species to occur on site.

Ms. Anya Perron-Burdick conducted protocol-level rare plant surveys on the site in the Spring of 2024. No rare plants were identified on site.

The creeks on site are potentially subject to regulation by the U.S. Army Corps of Engineers and the San Francisco Regional Water Quality Control Board. The creeks are also subject to jurisdiction of the California Department of Fish and Wildlife. One seasonal swale was identified on the site. The swale drains to one of the creeks on site.

The methods and results of the wetlands assessment and special-status species assessment follows.



Sources: Sonoma County (2021/2022), ESRI

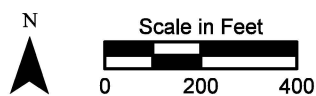
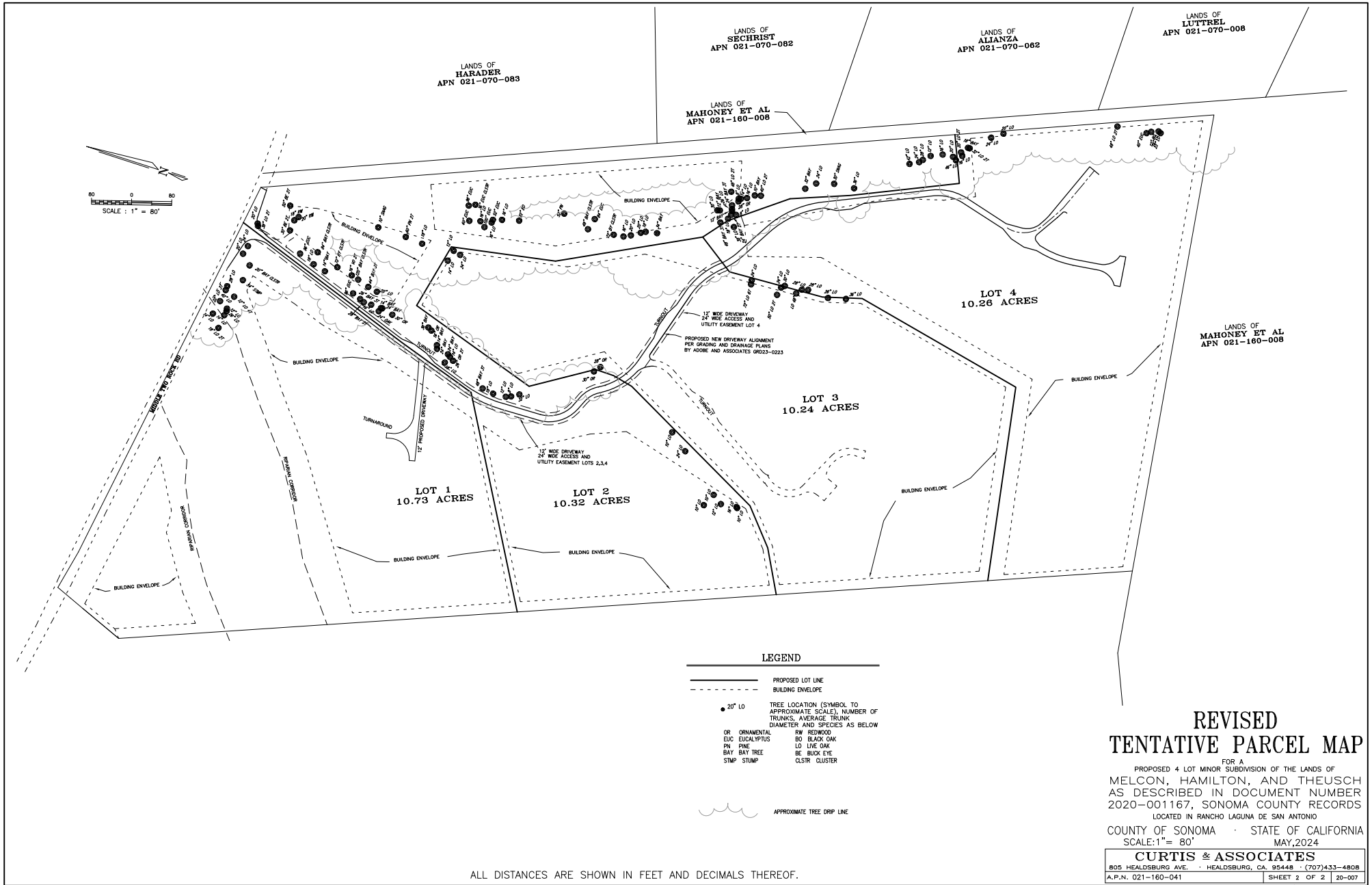


Figure 1. Site Location
2485 Middle Two Rock Rd
Petaluma, CA
Sonoma County



ALL DISTANCES ARE SHOWN IN FEET AND DECIMALS THEREOF.

2.0 WETLANDS ASSESSMENT

2.1 Corps of Engineers Jurisdictional Criteria Review

Unless exempt from regulation, all proposed discharges of dredged or fill material into waters of the United States require U.S. Army Corps of Engineers (Corps) authorization under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Clean Water Act Section 401 authorization from the Regional Water Quality Control Board (RWQCB). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including ephemeral and intermittent streams), and farmed wetlands.

Unless exempt from regulation, all proposed discharges of dredged or fill material into waters of the United States require U.S. Army Corps of Engineers (Corps) authorization under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Clean Water Act Section 401 authorization from the Regional Water Quality Control Board (RWQCB).

The Corps identifies wetlands using a "multi-parameter approach" which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. The *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West*, which was released in early 2007 and revised in 2008 (version 2.0), is utilized when conducting jurisdictional wetland determinations in areas identified within the boundaries of the Arid West (U.S. Army Corps of Engineers, 2008). The project site falls within the Arid West region and so wetlands identified on the site were delineated using that guidance.

On June 22, 2020, the Environmental Protection Agency (EPA) and the Department of the Army's Navigable Waters Protection Rule: Definition of "Waters of the United States" (NWPR) became effective in 49 states and in all US territories. "Waters of the U.S." (WOTUS) are waters such as oceans, rivers, streams, lakes, ponds, and wetlands subject to Corps Regulatory Program jurisdiction under Section 404 of the Clean Water Act (CWA). The San Francisco District will use the NWPR definitions of WOTUS when making permit decisions and providing landowners written determinations of the limits of federal jurisdiction on their property (SPNUSACE, 2020). Under this new rule, jurisdictional features must have a direct surface connection to a navigable water. Certain features previously subject to potential regulation such as farm or roads side ditches, ephemeral streams, and isolated wetlands are excluded under the new rule. It should be noted, the State Water Resources Board in anticipation of this rule has developed its own wetland definition in efforts to maintain jurisdiction over certain wetland features including ephemeral drainages and isolated wetlands.

On August 29, 2023, the U.S. Environmental Protection Agency (EPA) and Department of the Army (the agencies) issued a final rule to amend the final "Revised Definition of

'Waters of the United States'" rule, published in the Federal Register on January 18, 2023. This final rule conforms the definition of "waters of the United States" to the U.S. Supreme Court's May 25, 2023, decision in the case of Sackett v. Environmental Protection Agency. Parts of the January 2023 Rule are invalid under the Supreme Court's interpretation of the Clean Water Act in the Sackett decision. Therefore, the agencies have amended key aspects of the regulatory text to conform it to the Court's decision. The conforming rule, "Revised Definition of 'Waters of the United States'; Conforming," published in the Federal Register became effective on September 8, 2023 (USACE, 2023). Under this rule, wetlands connected via surface flow to navigable waters may be regulated by the Corps whereas wetlands that are isolated and do not connect via surface flow will not be regulated under the Clean Water Act.

2.1.1 Potential Wetlands

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

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

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

intermittent streams), wetlands (excluding isolated wetlands for the Corps), and farmed wetlands.

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

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

Vegetation

Plant species identified are assigned a wetland status according to the U.S. Fish and Wildlife Service list of plant species that occur in wetlands (Reed 1988). This wetland classification system is based on the expected frequency of occurrence in wetlands as follows:

OBL	Always found in wetlands	>99% frequency
FACW	Usually found in wetlands	67-99%
FAC	Equal in wetland or non-wetlands	34-66%
FACU	Usually found in non-wetlands	1-33%

UPL/NL Upland/Not listed (upland) <1%

The Corps Manual and Supplements require that a three-step process be conducted to determine if hydrophytic vegetation is present. The first step is the Dominance Test (Indicator 1); the second is the Prevalence Index (Indicator 2); the third is Morphological Adaptations (Indicator 3). The Dominance Test requires the delineator to apply the “50/20 rule”. The dominant species are chosen independently from each stratum of the community. In general, dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are defined as the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total cover. If greater than 50 percent of the dominant species has an OBL, FACW, or FAC status, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails the 50/20 rule and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1, but hydric soils and wetland hydrology are both present, the delineator must apply the Indicator 2, Prevalence Index. The Indicator 3, Morphological Adaptations, is rarely used in this region.

Hydrology

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

Soils

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

“A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”
Federal Register July 13, 1994, U.S. Department of Agriculture, NRCS

Soils formed over long periods under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. The supplement provides a list of the hydric soil indicators that are known to occur in region. Soil samples

were collected and described according to the methods provided in the supplements. Soil chroma and values were determined using a Munsell soil color chart (Kollmorgen 1975). If any of the soil samples met one or more of the hydric soil indicators described in the supplement hydric soils were determined to be present.

2.1.2 Waters of the U.S. (Other Waters)

“Other waters” or “Waters of the United States” (WUS) other than wetlands are also potentially subject to Corps jurisdiction. WUS subject to Corps jurisdiction include ponds, lakes, rivers, streams (including ephemeral and intermittent streams), and all areas below the High Tide Line (HTL) subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high-water mark (OHW) defined as:

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

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

2.2 San Francisco Regional Water Quality Control Board

The Regional Water Quality Control Board regulates waters of the State pursuant to Sections 13260(a)(1) and 13050(e) of the State Water Code, and the Porter Cologne Act. In addition, anyone proposing to conduct a project that requires a federal permit or involves dredge or fill activities that may result in a discharge to U.S. surface waters and/or "Waters of the State" are required to obtain a Clean Water Act (CWA) Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill Projects) from the Regional Water Quality Control Board, verifying that the project activities will comply with state water quality standards. The most common federal permit for dredge and fill activities is a CWA Section 404 permit issued by the Corps of Engineers (North Coast Regional Water Quality Control Board, 2007). In general, the RWQCB employs similar wetland delineation techniques for identifying wetland areas potentially subject to its regulation.

Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity occurring in or adjacent to Waters of the State. In California, the Regional Water Quality Control Boards (Regional Board) are the agency mandated to ensure protection of the State's waters. So if a proposed project requires a U.S. Army Corps of Engineers CWA Section 404 permit, falls under other federal jurisdiction, and has the potential to impact Waters of the State, the Regional Water Quality Control Board will regulate the project and associated activities through a Water Quality Certification determination (Section 401) (North Coast Regional Water Quality Control Board, 2007).

However, if a proposed project does not require a federal permit but does involve dredge or fill activities that may result in a fill discharge to "Waters of the State", the Regional Board has the option to regulate the project under its state authority (Porter-Cologne) in the form of Waste Discharge Requirements or Waiver of Waste Discharge Requirements (North Coast Regional Water Quality Control Board, 2007). Waters of the State include isolated wetlands, which are not regulated by the Corps.

In June 2020, the State of California developed its definition of a wetland to address arid conditions in the west. The definition differs from the federal definition in that a wetland can include only wetlands soil and hydrology and not hydrophytic wetland vegetation. However, if the area does have vegetation, it must include wetland vegetation to be classified a wetland.

2.3 California Department of Fish and Wildlife

Activities that result in the substantial modification of the bed, bank or channel of a stream or lake may require a Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600-1607 of the California Fish and Game Code. On streams, creeks and rivers, the extent of CDFW jurisdiction extends from the top of bank to top of bank or the outer limits of the riparian canopy, whichever is wider.

2.4 Sonoma County Riparian Setback Requirements

The County of Sonoma adopted Ordinance 6089 Riparian Corridor Combining Zone on November 14, 2014. This ordinance establishes residential and agricultural setbacks from creeks and rivers within Sonoma County. A riparian corridor setback is defined by the County as a riparian corridor with a streamside conservation area of a designated distance on each side of the designated stream from the top of bank. For example, a parcel designated with a setback of 100 feet would require a setback of 100 feet from the top of bank on either side of the stream unless an exemption applies.

The creeks on site have a designated setback of 50 feet per the Sonoma County Riparian Buffer Ordinance.

2.5 Background review

Prior to conducting the on-site wetlands assessment within the study area, various background materials relating to the site were reviewed. These include aeriels from Google earth, the Petaluma U.S.G.S. 7.5-minute quadrangle and Sonoma County's LIDAR.

Additionally, the Soil Survey of Sonoma County (web Soil Survey) was reviewed to determine if any of the soils on the project site are mapped as hydric soils. The presence of a hydric soil-mapping unit on a project site suggests the presence of potential wetland habitats and therefore is another tool used in potential wetland identification.

Soils within the Study Area are mapped as variations of Los Osos Clay Loam and Steinbeck loam slopes 2 to 30 percent. Of these mapped units, Steinbeck has minor unnamed hydric inclusions in the form of swales.

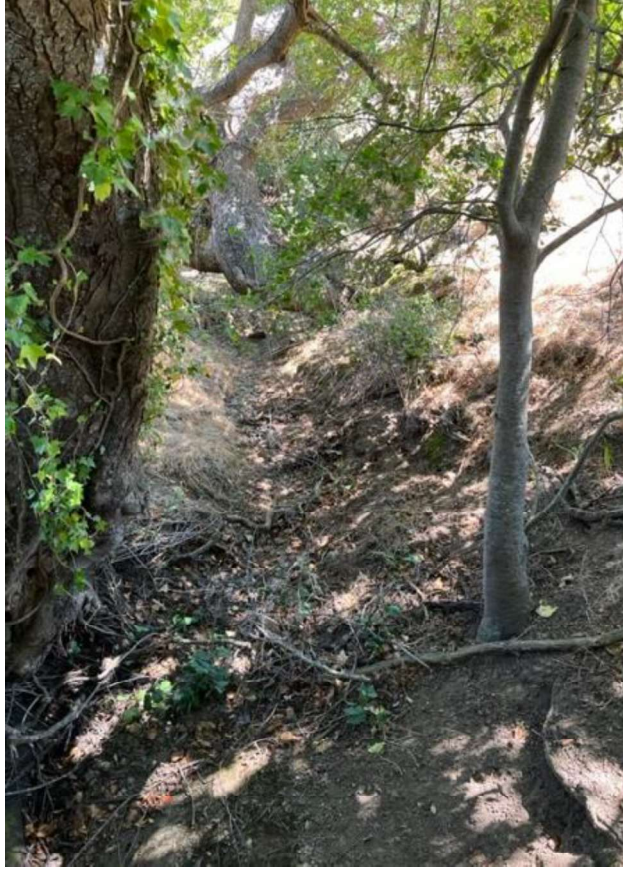
2.6 Wetland Assessment and Results

On July 13, 2023, and on April 18, 2024, we conducted a wetland delineation within the project area. The entire project site was walked to identify potential wetlands and or creeks based on visual observation of vegetation and presence or absence of ponding. The April 2024 delineation was conducted at the County's request in part because the 2023 delineation was conducted during the dry season.

Two unnamed ephemeral drainages were identified on site and are shown on Plate 1. These creeks are potentially subject to Corps, Regional Board and CDFW jurisdictions. A seasonal swale drains to one of the creeks on the southcentral portion of the site. The location of these features is illustrated on Plate 1 attached.

A setback to the creeks is illustrated on the proposed site plan.

If work is to occur in the swale or the creeks or within the creeks, permits would likely be required from the Corps of Engineers and the Regional Board. The California Department of Fish and Wildlife would regulate work within the riparian corridor and creek bed, bank or channel of the creeks and likely the swale draining to the southern creek. Mitigation impacts to any jurisdictional features would be developed in coordination with the agencies with permitting authority over the project.



Ephemeral creek in the central portion of the site



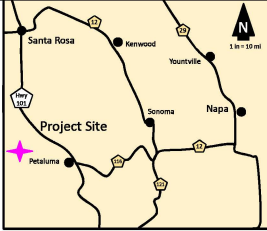
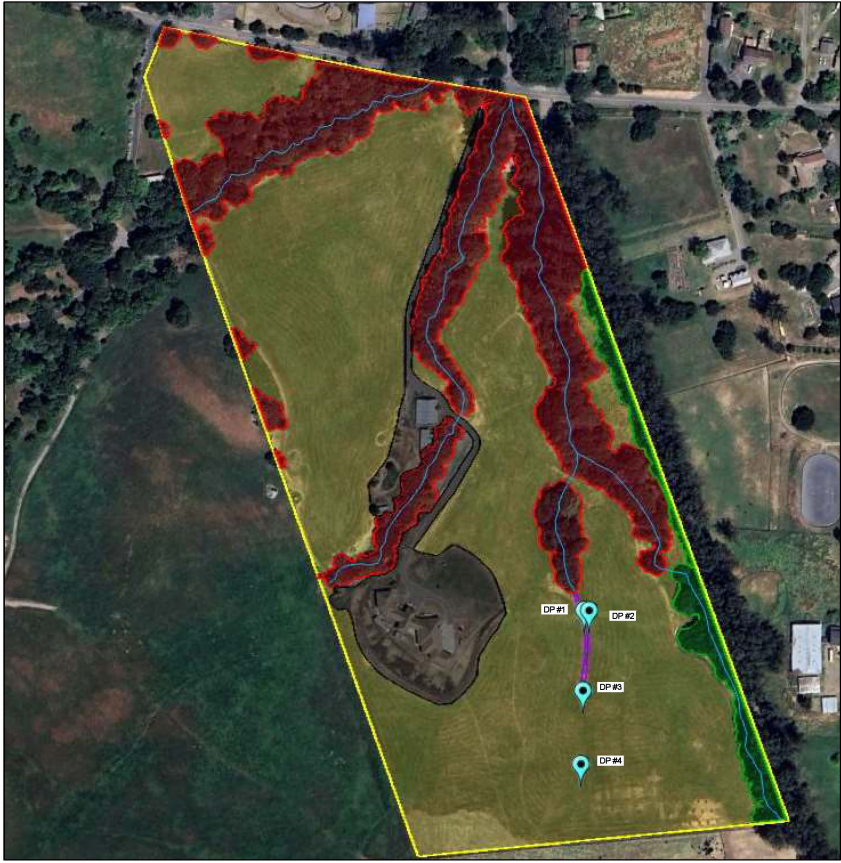
The riparian corridor associated with the creek on the eastern portion of the site



Seasonal swale looking downslope towards creek April 18, 2024



Seasonal swale that drains towards southern creek April 18, 2024



Map Key

- Parcel & Survey Boundary
- Creek
- Potential Sloped Wetland
- Grassland
- Oak Woodland Riparian Corridor
- Eucalyptus Forest
- Developed/Disturbed
- Data Point

Habitat Communities in Survey Area	Acres
Potential Sloped Wetland	0.17
Annual Grassland	25.32
Oak Woodland Riparian Corridor	8.96
Eucalyptus Forest	1.16
Developed	4.39

Anya Perron-Burdick, M.S.
Professional Ecological Services
(707) 529-0904 anya.burdick@gmail.com

MAP DETAILS: APB
1st DRAFT: 10/24/2023
REVISION: 03/05/2024
REVISION: 04/22/2024

N
1 in = 240 ft

Habitat Communities
2485 Middle 2 Rock Road
Petaluma, CA 94952
APN 021-160-041

PLATE
1

3.0 SPECIAL-STATUS SPECIES

Special-status plants and animals are legally protected under the State and Federal Endangered Species Acts or other regulations, and species that are considered rare by the scientific community. Special status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special status invertebrates are all considered special status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal.

To obtain up-to-date conservation information U.S. Fish and Wildlife Service (USFWS) species lists were reviewed for federally listed species (including Proposed and Candidate species, 2023) were reviewed. Special-status species also include those with California Rare Plant Rank (CRPR) 1A (Plants Presumed Extinct in California), CRPR 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or CRPR 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere), as indicated by the CNPS *Inventory* (CNPS 2023). Impacts to these species must be reviewed under the provisions of the California Environmental Quality Act (CEQA) Guidelines.

While plant species with CRPR 3 (Plants About Which We Need More Information—A Review List) and CRPR 4 (Plants of Limited Distribution—A Watch List) listing of the CNPS *Inventory* are of lower sensitivity, these species are sometimes granted protection under CEQA as determined by the lead agency reviewing a project.

3.1 Special-status Animals

Potential occurrence of special-status wildlife species on the project site was evaluated by first determining which special-status species occur near the site through a literature and database search. Database searches for known occurrences of special-status species focused on the Petaluma 7.5-minute USGS quadrangle and the eight surrounding USGS quadrangles. Special-status wildlife species documented to occur in the surrounding 5-mile vicinity of the Project Site are shown on Figures 2a-b. Fifteen special-status animal species are recorded within a 5-mile range of the site.

On July 13, 2023, Ms. Lucy Macmillan, M.S. conducted a reconnaissance-level survey of the property to identify whether suitable habitat elements for each of

the special-status species documented in the vicinity or in range of the project site are present and whether the proposed project has the potential to result in impacts to any of these species and/or their habitats. On March 28, 2024, biologists from Sol Ecology conducted a site assessment for California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) on the property to determine the potential for either species on the property and whether they may be impacted if potentially present.

3.1.1 Results

The trees, shrubs, and grasslands on the site provide nesting and foraging habitat for a variety of birds. The mature trees on the property provide potential habitat for nesting raptors and certain species of special-status roosting bats. The grasslands also provide potential habitat for badgers as evidenced by various badger dens during surveys in 2024.

Sol Ecology conducted a site assessment for California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) on the property and determined the creeks on site provide potential dispersal habitat for California red-legged frog.

A discussion of these species is provided below.

Nesting Birds and Raptors

The trees on the site provide habitat for a variety of nesting birds and raptors. Birds and raptors are protected under the federal Migratory Bird Treaty Act (50 CFR 10.13). Their nest, eggs, and young are also protected under California Fish and Wildlife Code (§3503, §3503.5, and §3800). In addition, raptors such as the white-tailed kite (*Elanus leucurus*) are “fully protected” under Fish and Wildlife Code (§3511). Fully protected raptors cannot be taken or possessed (that is, kept in captivity) at any time.

Special-status Bats

The trees on the project site provide potential roosting habitat for various special-status bat species known to occur in the project region including but not long-eared myotis (*Myotis evotis*). Special-status bats may roost in mature trees, snags, crevices, cavities, and foliage within this habitat. Maternity roosting for bats is April through November.

American badger

The American badger (*Taxidea taxus*) is considered a Species of Special Concern by the California Department of Fish and Wildlife. The grasslands and adjacent vineyards on the

project site provide potential habitat for the American badger although no badger burrows were observed during the May 2021 or February 2023 reconnaissance surveys.

California red-legged frog and California tiger salamander

The California red-legged frog (CRLF) was listed as Federally Threatened on May 23, 1996, and is a state species of special concern. The California Tiger Salamander (CTS) Sonoma County Distinct Population Segment (DPS) was emergency listed as endangered on July 22, 2002. The riparian corridors and uplands on site were assessed for the potential to support both species. In addition, habitats within one mile of the site were also evaluated to determine potential for corridors or breeding locations.

The riparian corridors on site are almost fully shaded with a dense canopy dominated by coast live oak, buckeye, black oak, willow (*Salix* sp.), California bay laurel (*Umbellularia californica*) with a dense understory of non-native/invasive Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*) and Canary Island Ivy (*Hedera canariensis*), and native poison oak (*Toxicodendron diversilobum*). Habitat above top-of-bank mainly features dense invasive plant groundcover or open and exposed areas lacking vegetation, with woody duff providing the primary cover. Canopy cover is high and there is limited bank habitat for basking except for the southern ends of the drainages.

While the on-site drainages are not likely to be suitable for breeding for either species, they do provide suitable habitat for foraging and dispersal for CRLF. CRLF movements may be largely confined to the creek channels due to steep, incised banks and dense understory vegetation, but some gently sloped banks and gaps in vegetation at upstream ends that could allow them to access to both aquatic and upland habitats outside of the riparian corridors – namely to the south. Faster flows during the rainy season, likely preclude CTS from using these areas during foraging and dispersal.

The Project Site is dominated by ruderal grassland, remnant patches of oak woodland, eucalyptus forest, and riparian habitat. Two houses, an entrance road, and other structures are present. Most of the upland habitat in the Project Site consists of an open grassland with ruderal vegetation. The riparian corridor features some large woody debris which could provide refuge sites, but there is minimal rodent activity providing open burrows in the ruderal grassland close to the riparian habitat. Smaller mammal burrows with small to large openings were found throughout the site which could serve as aestivation habitat for CTS and CRLF. Overall, these burrow complexes were relatively infrequent and as such, upland areas within the Project Site likely provide marginal upland aestivation habitat for both species.

Land use to the north of the Project Site is primarily mixed residential and agriculture, whereas land use to the south is primarily ranch land and crop land. Numerous ponds and small drainages, which could potentially provide suitable breeding habitat for CTS and CRLF, are located within one half mile to the south and west of the Project Site. The closest of these ponds is 130 feet south of the southern border of the Project Site and directly in line with the easternmost drainage feature (as shown in Figure 1 and 2). Aerial imagery indicates this feature likely provides water year-round, though at shallower depths in the summer. No obvious dispersal barriers exist between these ponds and the Project Site.

Based on the habitats present on and off-site, coupled with the results of the database review, the Project Site does not likely provide suitable aquatic breeding habitat for either CRLF or CTS. Further, fast flowing streams on the site are not likely to provide suitable dispersal habitat for CTS, but likely do provide non-breeding aquatic foraging and dispersal habitat for CRLF. The presence of at least 3 perennial ponds within one half mile of the site suggests that CRLF likely use the site as a dispersal corridor between known occurrences downstream and the pond (which may provide suitable breeding habitat). Permanent impacts to the corridor would require consultation with the appropriate agencies and mitigation for the loss of dispersal habitat.

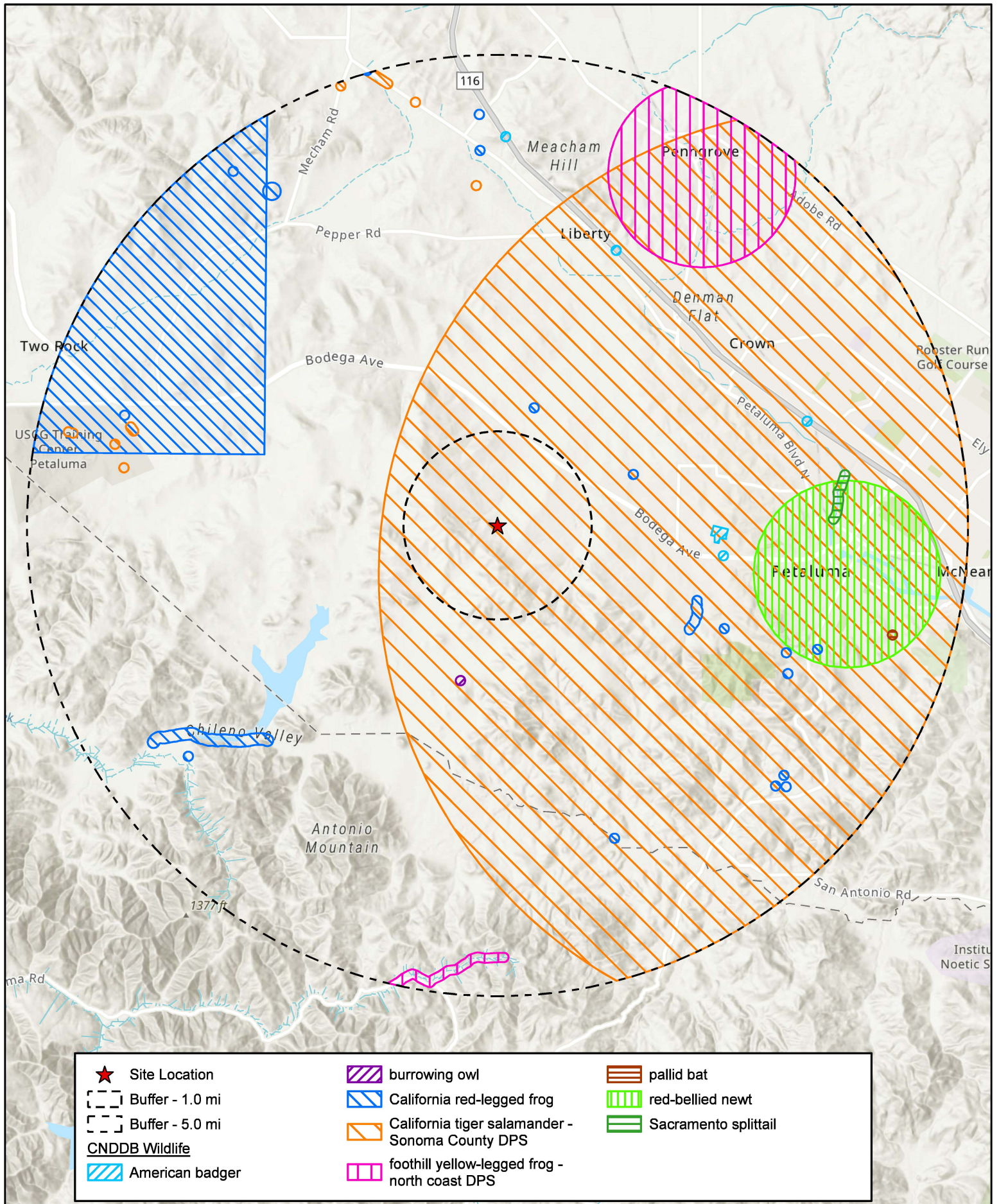
While there is potentially suitable breeding habitat in ponds to the south of the site, it is unclear whether a viable population of CTS exists in this area. The lack of any CTS occurrences within the known dispersal distance of the site and absence of any viable corridor with other CTS occurrences to the north and west, suggest a low likelihood for CTS to be present in these areas. Given the marginal quality of the upland habitat on-site, it is further unlikely that CTS use uplands on-site and as such, are unlikely to be impacted by the proposed project.

While there is a high potential for CRLF to use the drainages on-site as a movement corridor, only marginal upland aestivation habitat for CRLF is located within the Project Site. Therefore, it is anticipated that CRLF would move through the site, but not likely remain for extended periods outside of the dispersal period which generally occurs between late fall to early summer. Provided work is initiated outside this period between June 15 to October 15, impacts to dispersing adults is not likely to occur.

Based on the above findings, the project site does not provide suitable habitat for CTS, and such the project would likely have no effect on this species, and as such no mitigation measures are recommended at this time.

The project would potentially adversely affect CRLF unless measures are provided to both ensure permanent long-term protection of on-site dispersal corridors,

and short-term protections to ensure no direct mortality occurs to dispersing juveniles and adults. In the event any of the following measures cannot be implemented for any reason, consultation with the USFWS and/or CDFW is recommended to ensure complete avoidance of incidental take as defined in the Endangered Species Act (ESA) is provided. Alternatively, "take" authorization under Section 7 or 10 of the ESA would be required.



Sources: ESRI, CDFW CNDDDB (7/1/2023)

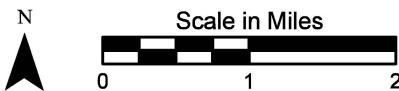
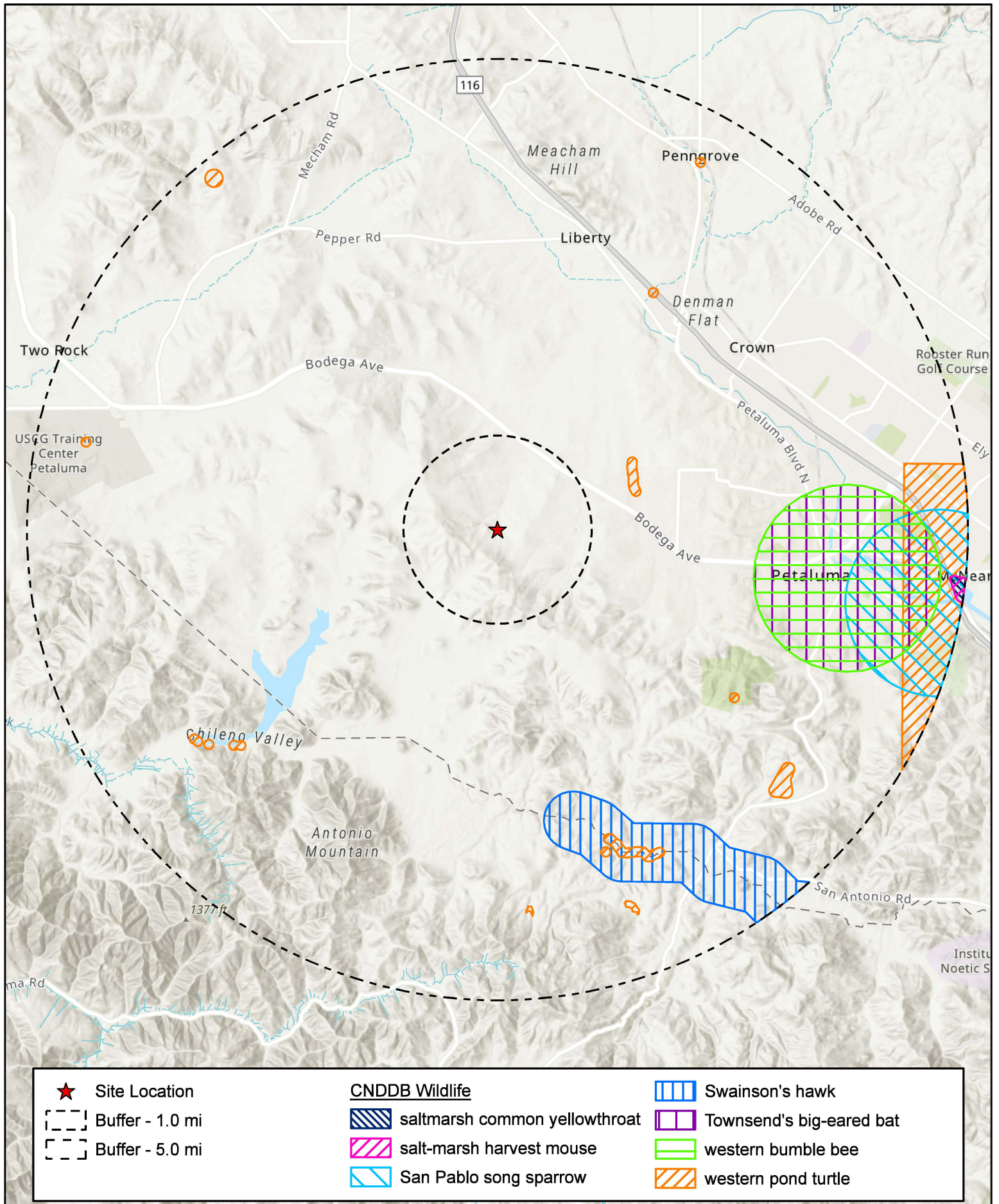


Figure 2a. CNDDDB Wildlife

2485 Middle Two Rock Rd
Petaluma, CA
Sonoma County



Sources: ESRI, CDFW CNDDDB (7/1/2023)

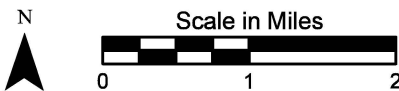


Figure 2b. CNDDDB Wildlife

2485 Middle Two Rock Rd
 Petaluma, CA
 Sonoma County

Table 1 - Special-status animal species with potential to occur on or in the vicinity of Project Site

Animal*	Status	Habitat	Potential for Occurrence on or In Vicinity of Site
Amphibians and Reptiles			
California tiger salamander (<i>Ambystoma californiense</i>)	FE1, FT	Needs underground refuges especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	Outside of critical habitat. No potential.
Western pond turtle (<i>Emmys marmorata</i>)	PT, CSC	Associated with permanent or nearly permanent water in a wide variety of habitats. Requires basking sites, nest sites may be found up to 0.5 km from water.	Potential for occurrence unlikely due to lack of perennial water.
California red-legged frog (<i>Rana aurora draytonii</i>)	FT, CSC	Lowlands and foothills in or near permanent sources of deepwater with dense, shrubby or emergent riparian vegetation.	Creeks on site provide potential dispersal habitat.

1 Listed as federally endangered in Sonoma County (Santa Rosa Plain) and Santa Barbara counties.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Foothill yellow-legged frog (<i>Rana boylei</i>)	CSC in Sonoma County	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Creeks on site do not provide perennial water required by this stream dwelling species.
Red-bellied newt (<i>Taricha rivularis</i>)	CSC	Coastal drainages from Humboldt County to Sonoma County and inland to Lake County. Lives in terrestrial habitats and typically breeds in streams with moderate flow and clean, rocky substrate.	Creeks on site are not perennial and therefore not suitable for successful breeding and metamorphosis.
California giant salamander (<i>Dicamptodon ensatus</i>)	CSC	Known from coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County. Adults may be found under rocks, logs and other debris adjacent to water sources. Aquatic larvae are found in cold, clear streams, sometimes in lakes or ponds	Creeks on site are not perennial and therefore not suitable for successful breeding and metamorphosis.
Fish			
Sacramento splittail (<i>Pogonichthys macrolepidotus</i>)	CSC	Prefers shallow water habitat in slow-moving sections of rivers and sloughs. Found primarily in Delta, Suisun Bay, Suisun Marsh, Napa River, occasionally Petaluma River. Primarily a freshwater fish but tolerant of moderate salinity. Spawns on submerged vegetation in temporarily flooded upland and riparian habitat.	No suitable habitat on or adjacent to site. No potential.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Birds**			
Tricolored blackbird (<i>Agelaius tricolor</i>)	CSC	Colonial nester. Most numerous in the Central Valley & Vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	No suitable habitat on or adjacent to site. No potential.
Yellow rail (<i>Cypseloides niger</i>)	CSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also, a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No suitable habitat on or adjacent to site. No potential.
Grasshopper sparrow (<i>Ammodramus savvanrum</i>)	CSC	Dense grasslands in rolling hills, lowland plains, in valleys and on hillsides on lower desert mountain slopes. Favors native grasses when nesting.	Potential for occurrence low to moderate.
Burrowing owl (<i>Athene cunicularia</i>)	CSC	Open, dry annual or perennial grasslands; deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent on burrowing animals, most notably the California ground squirrel.	Potential for occurrence low due to lack of mammalian burrows.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Northern harrier (<i>Circus cyaneus</i>)	CSC	Prefers open country, like grasslands, steppes, wetlands, meadows, cultivated areas.	May forage on or near project site. Potential for nesting in adjacent trees.
Black swift (<i>Cypseloides niger</i>)	CSC	(Nesting) coastal belt of Santa Cruz & Monterey County; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf.	No suitable habitat on site. No suitable habitat.
Swainson's hawk (<i>Buteo swainsoni</i>)	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain field supporting rodent populations.	Potential for occurrence low. CNDDB occurrence is historic and assumed extirpated.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Saltmarsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>)	CSC	Mostly breeds and winters in wet meadows, fresh emergent wetland, and saline emergent wetland habitats in the San Francisco Bay region. Microhabitat includes thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No suitable habitat on site. No potential.
San Pablo song sparrow (<i>Melospiza melodia samuelis</i>)	CSC	Residents of salt marshes along the north side of San Francisco and San Pablo Bays.	No suitable habitat on site. No potential.
California ridgway's rail (<i>Rallus obsoletus</i>)	FE, SE	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Microhabitats associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	No suitable habitat on site. No potential.
Yellow rail <i>Coturnicops noveboracensis</i>	CSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No suitable habitat on site. No potential.
Bank swallow (<i>Riparia riparia</i>)	ST	(Nesting) Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks or cliffs with fine-textured/sandy soils near streams, river, lakes, and ocean to dig nest hole.	No suitable habitat on site. No potential.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Mammals			
Pallid bat (<i>Antrozous pallidus</i>)	CSC, WGWB High Priority	Deserts, grasslands, woodlands and forests. Most common in open dry habitats with rocky areas for roosting. Very sensitive to disturbance of roosting sites.	Potential for occurrence in trees on site.
Yuma myotis (<i>Myotis yumamensis</i>)	WBWG Low to Medium	Prefers woodlands and forests with a water source for drinking. Typically roosts in buildings, mines, caves or crevices.	Potential for occurrence in older residence on site.
Fringed myotis (<i>Myotis thysanodes</i>)	WGWB High Priority	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	Potential for occurrence in older residence on site.
Long-legged myotis (<i>Myotis Volans</i>)	WGWB High Priority	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	Potential for occurrence in older residence on site.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	CSC	Throughout California in a variety of habitats. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Potential for occurrence in older residence on site.
American badger (<i>Taxidea taxus</i>)	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Potential for occurrence moderate. Dens observed during 2024 survey.

*Note: FSC = U.S. Fish and Wildlife Service Species of Concern; FE = federally listed as endangered; FT = federally listed as threatened; SE = state listed as endangered; SCE = State Candidate Endangered; ST = state listed as threatened; SFP = State fully protected (may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW). CSC = California species of special concern; CDFS = considered sensitive by the California Department of Forestry. WBWG - H or M = Western Bat Working Group High or Medium Priority. IUCN-V = International Union for Conservation of Nature, vulnerable. G1 – Critically imperiled globally – at very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors. G2 – Imperiled globally at high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other risk factors. S1 – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state. S2- State rank imperiled because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines or other risk factors making it very vulnerable to extirpation from the state.

**All migratory birds are protected by the Migratory Bird Treaty Act (50 CFR 10), which makes it unlawful to take, possess, buy, sell, purchase or barter any migratory bird, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). In addition, Section 2080 of the California Fish and Game Code prohibits the killing of a listed species, and Sections 3503, 3503.5, and 3800 of the Fish and Game Code prohibit the take, possession, or destruction of birds, their nests, or eggs.

Table compiled based on review of California Department of Fish and Wildlife Natural Diversity Database for the Sonoma and surrounding USGS quadrangles.

3.1.2 Mitigation Measures and Recommendations

Nesting Birds

To avoid impacts to nesting birds including raptors and owls, the following measures are recommended:

- Any active raptor nests in the vicinity of proposed grading shall be avoided until young birds can leave the nest (i.e., fledged) and forage on their own. Avoidance may be accomplished either by scheduling grading and tree removal during the non-nesting period (September through February), or if this is not feasible, by conducting a pre-construction survey for raptor nests. Specific provisions of the pre-construction survey and nest avoidance are included in the measure. These measures for avoiding and minimizing impacts to nesting birds are consistent with current mitigation measures.

Special-status Bats

The trees and buildings on the site provide potential habitat for special status bats. Removal of suitable roosts has the potential to impact special-status bat species as well as other common bat species, if present. Likewise, noise, vibration, and dust from activities has the potential to impact maternity roosting bats in nearby habitats, if present.

To reduce to impacts to special status bat species, the following mitigation measures will be followed:

Structure Removal: A qualified bat biologist shall conduct a habitat assessment and surveys for special status species bats prior to any structure removal. The survey methodology shall include an initial habitat assessment and survey several months before project construction, to facilitate sufficient time to implement the exclusion plan described below, and the types of equipment used for detection.

A bat exclusion plan shall be submitted to CDFW for approval if bats are detected during the above survey. The plan shall be implemented prior to project construction and allow bats to leave the structures unharmed. The plan shall: (1) recognize that both the maternity and winter roosting seasons are vulnerable times for bats and require exclusion outside of these times, generally between March 1 and April 15 or September 1 and October 15 when temperatures are sufficiently warm, and (2) identify suitable areas for excluded bats to disperse or require installation of appropriate dispersal habitat, such as artificial bat houses, prior to project construction, and include an associated management and monitoring plan with implementation funding.

Tree Removal - Prior to any tree removal, a qualified bat biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, or exfoliating bark for colonial species, and suitable canopy for foliage-roosting species). If suitable habitat trees are found, they shall be flagged or otherwise clearly marked, CDFW shall be notified immediately, and tree trimming or removal shall not proceed without approval in writing from CDFW. Trees may be removed only if: a) presence of bats is presumed, or documented during the surveys described below, in trees with suitable bat habitat, and removal using the two-step removal process detailed below occurs only during seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15, or b) after a qualified bat biologist, under prior written approval of the proposed survey methods by CDFW, conducts night emergence surveys or complete visual examination of roost features that establish absence of roosting bats. Two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under direct supervision and instruction by a qualified bat biologist with experience conducting two-step tree removal limbs and branches shall be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed.

American badger

- Prior to any ground disturbing activity, pre-construction surveys for American Badger den sites will be conducted by a qualified biologist. These surveys will be conducted no less than 14 days and no more than 30 days prior to the start of ground disturbing activities. If active badger dens are found, a 100-foot no-work buffer will be established around occupied maternity dens throughout the pup-rearing season (February 15 through July 1) and a 50-foot no-work buffer around occupied dens during other times of the year. If non-maternity dens are found within the proposed work area, the dens will be monitored for badger activity. If the biologist determines that the dens may be occupied, passive den exclusion measures will be implemented for three to five days to discourage the use of these dens prior to project disturbance activities.

California red-legged frog

The following avoidance measures are recommended:

- A minimum 100-foot no-disturbance buffer should be provided between the proposed building envelopes and nearby riparian habitats or the top of bank of any drainage where no riparian habitat exists to protect CRLF dispersal habitats. Permanent fencing between the lots and the outer extent of the no-disturbance buffer should be provided to prevent any

indirect effects resulting from human activities associated with the residences.

In addition to the minimum 100-foot buffer surrounding the drainages, an additional 100-foot- wide corridor extending from the terminus of the centrally located drainage (which terminates in the middle of the site) to either the property line or nearest riparian buffer is also required to provide safe dispersal for any CRLF emerging from this feature. Both temporary and permanent fencing as described BIO-1 should be provided.

All buffer zones should be clearly demarcated in the field during construction-related activities (including construction) using flagging and signage to prevent incidental trespass by construction personnel into these areas. No project activities including staging of materials, loitering, eating, drinking, smoking, refueling, placement of hazardous materials, parking of vehicles, nor any other construction-related activity is permitted in these areas. Further vegetation clearing and/or removal of topsoil in this area is strictly prohibited; mowing may be performed prior to construction for fire control and/or access. Furthermore, placement of spoils will be restricted to areas outside any buffer zones (including any buffer zones established for sensitive species).

- **Environmental Training.** A worker awareness environmental training program (program) should be presented by a qualified biologist to construction personnel prior to the start of construction activities. The program should include information on sensitive species with potential to occur including identifying characteristics, the location of sensitive habitats in the vicinity of the Project along with a map showing their respective “no-disturbance” buffer zones, and what to do in the event a sensitive species is identified during construction activities. A copy of the training plan should be maintained on-site, and an affidavit should be provided for all attendees to sign to document compliance with this measure.
- **Work Windows for Initiating Construction Activities.** To minimize potential impacts to CRLF that may utilize upland habitat on-site temporarily during dispersal events, new ground disturbing activities (including grubbing) should be initiated between June 15 and October 15 to avoid the period when CRLF may be present in the uplands. All outdoor work should be performed during daylight hours only; no work should be performed within 30 minutes of sunrise or sunset.

If it is not feasible to initiate activities during this work window, the following additional measures should be implemented.

- Wet Weather Restriction. No work should occur when there is greater than a 70% chance of rain greater than one quarter inch in the forecast. Work should not resume until there is no rain forecasted. A qualified biologist should survey the site following any rain event to ensure that no CRLF have entered the work area.
- Daily Inspections. For any ground-disturbing activity occurring between October 15 and June 15, a daily inspection should be performed by a qualified biological monitor prior to the start of work each day. The monitor should inspect the entire work area, including under any stockpiled materials, vehicles, and any trenches or holes for the presence of CRLF. If found, the animal should be allowed to leave the area on its own. If the animal cannot leave the area on its own accord, USFWS must be contacted.
- Pre-construction Surveys and Burrow Excavation. Pre-construction surveys for CRLF should be performed no less than 48 hours prior to the start of project activities (including construction, vegetation clearing, staging, and/or any other project-related activity). The survey should be performed by a qualified biologist with familiarity identifying CRLF and other special status species with potential to occur. All areas of the project site and adjacent buffer areas should be searched. Any suitable burrows (as determined by the qualified biologist) should be examined prior to excavating using either a camera probe (or other USFWS approved detection method); if clear, the burrow should be hand excavated immediately following under the direct supervision of a qualified biologist. If CRLF (or CTS) is found, work should be halted, and USFWS contacted. If possible, the animal should be allowed to leave the area on its own. If it does not leave on its own, all work should remain halted until the USFWS provides authorization for work to resume.
- Wildlife Exclusion Fencing. Wildlife exclusion fencing should be maintained around the perimeter of the construction site throughout ground-disturbing activities (including grubbing). The fencing should be installed under the direction of a qualified biologist, and be at least 36 inches high, and trenched in at least 4 inches below the surface. Exit funnels should be installed every 300 feet. Periodic monitoring by a biological monitor should be performed to ensure the integrity of the fence is maintained to prevent CRLF from accessing the work area. All

staging and stockpiled materials should be placed inside the exclusion fencing.

- **Biodegradable Erosion Control Materials.** Tightly woven fiber netting or similar material should be used for erosion control or other purposes to ensure amphibian and reptile species do not get trapped. Plastic monofilament netting (erosion control matting) rolled erosion control products, or similar material should not be used. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- **Exit Ramps.** Trenches and holes should be covered and inspected daily for stranded animals. Trenches and holes deeper than one foot should contain escape ramps at a maximum slope of 2:1 to allow trapped animals to escape.

3.2 Special-status Plants

3.2.1 Methods and Results

A database query of the CNDDDB and the CNPS Electronic Inventory within a 9-quad of the property was conducted to determine potential for special status plant species to occur on site. A special-status plant survey was performed by Anya Perron-Burdick, M.S. within the project boundary on July 13, 2023 (Plate 1 - Survey Boundary) and again on April 18, May 17, and June 14, 2024. No rare plants were observed onsite during the 2023 or 2024 special status plant surveys. The botanical field survey was completed in accordance with California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (March 2018). A map and table from the CDFW California Natural Diversity Database Rare Find database and a table from the California Native Plant Society Rare Plant Inventory of known special-status plant species in the proximity and within the nine quadrangles of the project site was evaluated prior to botanical field surveys (Table 2 - Potential for Occurrence). A total of 100 special status plant species were identified within the 9 quadrangles of the project site. Of the 100 plant species a total of 11 special status plant species were determined to have potential for occurrence in the survey boundary, with verified observations within 5 miles radius. An additional 49 special status plant species have a low potential for occurrence in the survey boundary with no verified observations within 5 miles radius. Weather data collected for 2022 would be considered dry with 2.94 inches of rainfall between January-April 2022, followed in 2023 by a wet winter season with 26 inches of rainfall between January-April 2023 and another wet winter season 24.59 inches of rainfall between January-April 2024. The elevation above sea level within the survey boundary is between 160 and 300 feet. The surveyed area soils are classified as 51.5 percent Los Osos clay loam on a 2 to 15 percent slope, 42.5 percent Steinbeck loam on a 2 to 9 percent slope, and 6 percent Los Osos clay loam on a 15 to 30 percent slope.

A Manual of California Vegetation (Sawyer 2009) classifies the habitat communities within the project boundaries as Valley and Foothill Grassland, Oak Woodland Riparian Corridor, Eucalyptus Forest, and meadows and seeps. The dominant vegetation alliances within the habitat communities are Wild oats and annual brome grasslands (42.027.00), Valley oak riparian forest and woodland (71.040.13), Eucalyptus forest (79.100.00), and *Lolium perenne* (now known as *Festuca perennis*) (41.321.01). The Wild oats and annual brome grasslands are dominated by *Avena barbata*, *Avena Bromus diandrus*, *Bromus hordeaceus*, and *Festuca perennis*. The Oak Woodland Riparian Corridor is dominated by *Quercus lobata*, *Quercus agrifolia*, *Quercus kelloggii*, *Aesculus californica*, *Umbellularia californica*, *Rubus armenicus*, and *Toxicodendron diversilobum*. The Eucalyptus forest is dominated by *Eucalyptus globulus*, *Quercus agrifolia*, *Umbellularia californica*, and *Toxicodendron diversilobum*. The *Festuca perennis* seep is dominated by *Festuca perennis*, *Briza minor*, *Hordeum brachyantherum*, *Leymus triticoides*, *Vulpia myuros*, and *Mentha pulegium* (Table 3 - Plant Species Observed Onsite). A total of 49 plant species were observed within the project boundary during the 2023/2024 plant surveys. No rare plants were identified during the 2023/2024 surveys.

Because no rare plants were observed, no mitigation is required.

Table 2 - Special-status Plant Species Potentially Occurring on or Near Project Site

No potential = No suitable habitat found on-site or no verified observations within 20 miles.
 Low potential = Suitable habitat found on-site and no verified observations within 5 miles and/or observations are over 4 years old.
 Potential = Suitable habitat found on-site and verified observations within 5 miles and/or within watershed.

Scientific Name	Common Name	CRPR; CESA; FESA	Habitat; Microhabitat	Blooming Period	Potential for Occurrence on Project Site
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand- verbena	1B.1; None; None	Coastal dunes	Jun-Oct	No suitable habitat occurs in the survey area. All observations known to occur along the coast. No Potential None observed during the 2023 or 2024 surveys.
<i>Agrostis blasdalei</i>	Blasdale's bent grass	1B.2; None; None	Coastal bluff scrub, Coastal dunes, Coastal prairie	May-Jul	No suitable habitat occurs in the survey area. All observations known to occur along the coast. No Potential None observed during the 2023 or 2024 surveys.
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	1B.2; None; None	Cismontane woodland, Valley and foothill grassland; Clay, Serpentinite (often), Volcanic	(Apr)May-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	1B.1; None; FE	Marshes and swamps (freshwater), Riparian	May-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	1B.2; None; None	Broadleafed upland forest (openings), Chaparral, Cismontane woodland	Apr-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	1B.2; None; None	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland	Mar-Jun	Suitable habitat occurs in the survey area. Verified observation within 5 miles of project site in May 2023. Potential None observed during the 2023 or 2024 surveys.
<i>Arabis blepharophylla</i>	coast rockcress	4.3; None; None	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; Rocky	Feb-May	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Arctostaphylos montana</i> <i>ssp. montana</i>	Mt. Tamalpais manzanita	1B.3; None; None	Chaparral, Valley and foothill grassland; Rocky, Serpentine	Feb-Apr	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No manzanita species were observed during the survey. No Potential None observed during the 2023 or 2024 surveys.
<i>Arctostaphylos virgata</i>	Marin manzanita	1B.2; None; None	Broadleafed upland forest, Chaparral, Closed-cone coniferous forest, North Coast coniferous forest; Granitic (sometimes), Sandstone (sometimes)	Jan-Mar	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No manzanita species observed during the survey. No Potential None observed during the 2023 or 2024 surveys.
<i>Astragalus pycnostachyus</i> <i>var. pycnostachyus</i>	coastal marsh milk-vetch	1B.2; None; None	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	(Apr)Jun-Oct	No suitable habitat occurs in the survey area. No observations within 5 miles of the project site. All observations known to occur along the coast. No Potential None observed during the 2023 or 2024 surveys.

<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	1B.2; None; None	Playas, Valley and foothill grassland (adobe clay), Vernal pools; Alkaline	Mar-Jun	Suitable habitat occurs in the survey area. No observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Blennosperma bakeri</i>	Sonoma sunshine	1B.1; CE; FE	Valley and foothill grassland (mesic), Vernal pools	Mar-May	No vernal pools found in the survey area. Non-mesic valley and foothill grassland habitat occurs in the survey area. Verified observation within 5 miles of the project site in May 2023. Low Potential None observed during the 2023 or 2024 surveys.
<i>Brodiaea leptandra</i>	narrow- anthered brodiaea	1B.2; None; None	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland; Volcanic	May-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Calamagrostis bolanderi</i>	Bolander's reed grass	4.2; None; None	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps (freshwater), Meadows and seeps (mesic), North Coast coniferous forest; Mesic	May-Aug	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Calamagrostis ophitidis</i>	serpentine reed grass	4.3; None; None	Chaparral (openings, often north-facing slopes), Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland; Rocky, Serpentine	Apr-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Calochortus umbellatus</i>	Oakland star-tulip	4.2; None; None	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland; Serpentine (often)	Mar-May	Suitable habitat occurs in the survey area. Verified observation within 5 miles of the project site in May 2023. Potential None observed during the 2023 or 2024 surveys.

<i>Cardamine angulata</i>	seaside bittercress	2B.2; None; None	Lower montane coniferous forest, North Coast coniferous forest; Streambanks	(Jan)Mar-Jul	Moderate suitable habitat (riparian corridor) occurs in the survey area. No verified observation within 5 miles of the project site. Most known occurrences are along the coast. Low Potential None observed during the 2023 or 2024 surveys.
<i>Carex lyngbyei</i>	Lyngbye's sedge	2B.2; None; None	Marshes and swamps (brackish, freshwater)	Apr-Aug	No suitable habitat occurs in the survey area. No observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Castilleja affinis</i> var. <i>neglecta</i>	Tiburon paintbrush	1B.2; CT; FE	Valley and foothill grassland (serpentine)	Apr-Jun	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in May 2021. Low Potential None observed during the 2023 or 2024 surveys.
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2; None; None	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools (margins)	Mar-Aug	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in May 2021. Low Potential None observed during the 2023 or 2024 surveys.

<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	1B.2; None; None	Marshes and swamps (coastal salt)	Apr-Aug	No suitable habitat occurs in the survey area. No observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Ceanothus decornutus</i>	Nicasio ceanothus	1B.2; None; None	Chaparral (maritime); Clay (sometimes), Rocky, Serpentine	Mar-May	No suitable habitat occurs in the survey area. No ceanothus observed on the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Ceanothus gloriosus</i> var. <i>exaltatus</i>	glory brush	4.3; None; None	Chaparral	Mar-Jun(Aug)	No suitable habitat occurs in the survey area. No ceanothus observed on the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Ceanothus gloriosus</i> var. <i>gloriosus</i>	Point Reyes ceanothus	4.3; None; None	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal scrub; Sandy	Mar-May	No suitable habitat occurs in the survey area. No ceanothus observed on the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Ceanothus gloriosus</i> var. <i>porrectus</i>	Mt. Vision ceanothus	1B.3; None; None	Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Valley and foothill grassland	Feb-May	Suitable habitat occurs in the survey area. No ceanothus species observed within the survey area. No observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Ceanothus masonii</i>	Mason's ceanothus	1B.2; CR; None	Chaparral (openings, rocky, serpentinite)	Mar-Apr	No suitable habitat occurs in the survey area. No ceanothus observed on the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Ceanothus sonomensis</i>	Sonoma ceanothus	1B.2; None; None	Chaparral (sandy, serpentinite, volcanic)	Feb-Apr	No suitable habitat occurs in the survey area. No ceanothus observed on the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	1B.2; None; None	Chaparral, Coastal prairie, Marshes and swamps (coastal salt), Meadows and seeps, Valley and foothill grassland (vernally mesic); Alkaline (often)	May-Nov	Suitable habitat occurs in the survey area. No observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Chloropyron maritimum</i> <i>ssp. palustre</i>	Point Reyes salty bird's-beak	1B.2; None; None	Marshes and swamps (coastal salt)	Jun-Oct	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Chloropyron molle</i> <i>ssp.</i> <i>molle</i>	soft salty bird's- beak	1B.2; CR; FE	Marshes and swamps (coastal salt)	Jun-Nov	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Chorizanthe valida</i>	Sonoma spineflower	1B.1; CE; FE	Coastal prairie (sandy)	Jun-Aug	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Cicuta maculata</i> <i>var.</i> <i>bolanderi</i>	Bolander's water-hemlock	2B.1; None; None	Marshes and swamps (brackish, coastal, freshwater)	Jul-Sep	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Cirsium andrewsii</i>	Franciscan thistle	1B.2; None; None	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; Mesic, Serpentine (sometimes)	Mar-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	Mt. Tamalpais thistle	1B.2; None; None	Broadleafed upland forest, Chaparral, Meadows and seeps; Seeps, Serpentine	May-Aug	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Delphinium bakeri</i>	Baker's larkspur	1B.1; CE; FE	Broadleafed upland forest, Coastal scrub, Valley and foothill grassland; Mesic (often), Shale	Mar-May	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in May 2023. Potential None observed during the 2023 or 2024 surveys.
<i>Delphinium luteum</i>	golden larkspur	1B.1; CR; FE	Chaparral, Coastal prairie, Coastal scrub; Rocky	Mar-May	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Dirca occidentalis</i>	western leatherwood	1B.2; None; None	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland; Mesic	Jan-Mar(Apr)	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Downingia pusilla</i>	dwarf downingia	2B.2; None; None	Valley and foothill grassland, Vernal pools	Mar-May	Suitable habitat occurs in the survey area. No verified observation within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Eastwoodiella californica</i>	swamp harebell	1B.2; None; None	Bogs and fens, Closed-cone coniferous forest, Coastal prairie, Marshes and swamps (freshwater), Meadows and seeps, North Coast coniferous forest; Mesic	Jun-Oct	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Eleocharis parvula</i>	small spikerush	4.3; None; None	Marshes and swamps	(Apr)Jun-Aug(Sep)	No suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in August 2020. No Potential None observed during the 2023 or 2024 surveys.

<i>Elymus californicus</i>	California bottle-brush grass	4.3; None; None	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland	May-Aug(Nov)	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in June 2021. Most known occurrences are along the coast. Low Potential None observed during the 2023 or 2024 surveys.
<i>Entosthodon kochii</i>	Koch's cord moss	1B.3; None; None	Cismontane woodland (soil)		Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Erigeron biolettii</i>	streamside daisy	3; None; None	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest; Mesic, Rocky	Jun-Oct	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Eriogonum luteolum var. caninum</i>	Tiburon buckwheat	1B.2; None; None	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland; Gravelly, Sandy, Serpentine	May-Sep	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Erysimum concinnum</i>	bluff wallflower	1B.2; None; None	Coastal bluff scrub, Coastal dunes, Coastal prairie	Feb-Jul	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Marin checker lily	1B.1; None; None	Coastal bluff scrub, Coastal prairie, Coastal scrub	Feb-May	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Fritillaria liliacea</i>	fragrant fritillary	1B.2; None; None	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; Serpentine (often)	Feb-Apr	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in April 2023. Potential None observed during the 2023 or 2024 surveys.
<i>Gilia capitata</i> ssp. <i>chamissonis</i>	blue coast gilia	1B.1; None; None	Coastal dunes, Coastal scrub	Apr-Jul	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Gilia capitata</i> ssp. <i>tomentosa</i>	woolly-headed gilia	1B.1; None; None	Coastal bluff scrub, Valley and foothill grassland; Rocky, Serpentine	May-Jul	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in May 2017. Low Potential None observed during the 2023 or 2024 surveys.
<i>Grindelia hirsutula</i> var. <i>maritima</i>	San Francisco gumplant	3.2; None; None	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; Sandy (sometimes), Serpentine (sometimes)	Jun-Sep	Suitable habitat occurs in the survey area. Verified observation within 5 miles of the project site in September 2022. Potential None observed during the 2023 or 2024 surveys.
<i>Hemizonia congesta</i> ssp. <i>congesta</i>	congested-headed hayfield tarplant	1B.2; None; None	Valley and foothill grassland; Roadsides (sometimes)	Apr-Nov	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in 1934. Low Potential None observed during the 2023 or 2024 surveys.
<i>Hesperolinon congestum</i>	Marin western flax	1B.1; CT; FT	Chaparral, Valley and foothill grassland; Serpentine	Apr-Jul	Suitable habitat occurs in the survey area. Verified observation within 5 miles of the project site was in April 2022. Potential None observed during the 2023 or 2024 surveys.

<i>Heteranthera dubia</i>	water star-grass	2B.2; None; None	Marshes and swamps (alkaline, still, slow- moving water); Alkaline	Jul-Oct	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Horkelia marinensis</i>	Point Reyes horkelia	1B.2; None; None	Coastal dunes, Coastal prairie, Coastal scrub; Sandy	May-Sep	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Hosackia gracilis</i>	harlequin lotus	4.2; None; None	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland; Roadsides	Mar-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Hypogymnia schizidiata</i>	island tube lichen	1B.3; None; None	Chaparral, Closed-cone coniferous forest		No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Iris longipetala</i>	coast iris	4.2; None; None	Coastal prairie, Lower montane coniferous forest, Meadows and seeps; Mesic	Mar-May(Jun)	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Lasthenia burkei</i>	Burke's goldfields	1B.1; CE; FE	Meadows and seeps (mesic), Vernal pools	Apr-Jun	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Lasthenia californica ssp. macrantha</i>	perennial goldfields	1B.2; None; None	Coastal bluff scrub, Coastal dunes, Coastal scrub	Jan-Nov	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Lasthenia conjugens</i>	Contra Costa goldfields	1B.1; None; FE	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools; Mesic	Mar-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Legenere limosa</i>	legenere	1B.1; None; None	Vernal pools	Apr-Jun	No suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.
<i>Leptosiphon aureus</i>	bristly leptosiphon	4.2; None; None	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland	Apr-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Leptosiphon grandiflorus</i>	large-flowered leptosiphon	4.2; None; None	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland; Sandy (usually)	Apr-Aug	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in May 2022. Potential None observed during the 2023 or 2024 surveys.

<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	1B.2; None; None	Chaparral, Cismontane woodland, Valley and foothill grassland; Volcanic (usually)	Mar-May	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Lessingia hololeuca</i>	woolly-headed lessingia	3; None; None	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Clay, Serpentinite	Jun-Oct	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Lessingia micradenia</i> var. <i>micradenia</i>	Tamalpais lessingia	1B.2; None; None	Chaparral, Valley and foothill grassland; Roadsides (often), Serpentinite (usually)	(Jun)Jul-Oct	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	1B.1; CR; None	Marshes and swamps (brackish, freshwater), Riparian scrub	Apr-Nov	No suitable habitat occurs in the survey area. Riparian habitat found on property is Riparian broadleaf forest. No verified observations within 5 miles of the project site. No Potential None observed during the 2023 or 2024 surveys.

<i>Lilium maritimum</i>	coast lily	1B.1; None; None	Broadleafed upland forest, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest; Roadsides (sometimes)	May-Aug	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Recorded observations are found along the coast north of Fort Ross. Low Potential None observed during the 2023 or 2024 surveys.
<i>Lilium pardalinum ssp. pitkinense</i>	Pitkin Marsh lily	1B.1; CE; FE	Cismontane woodland, Marshes and swamps (freshwater), Meadows and seeps; Mesic, Sandy	Jun-Jul	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in December 2020. Potential None observed during the 2023 or 2024 surveys.
<i>Limnanthes vinculans</i>	Sebastopol meadowfoam	1B.1; CE; FE	Meadows and seeps, Valley and foothill grassland, Vernal pools; Vernal Mesic	Apr-May	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in May 2023. Potential None observed during the 2023 or 2024 surveys.

<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	3.2; None; None	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland; Rocky	Mar-May	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Microseris paludosa</i>	marsh microseris	1B.2; None; None	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley and foothill grassland	Apr-Jun(Jul)	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Navarretia cotulifolia</i>	cotula navarretia	4.2; None; None	Chaparral, Cismontane woodland, Valley and foothill grassland; Adobe	May-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	1B.1; None; None	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools; Mesic	Apr-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Navarretia rosulata</i>	Marin County navarretia	1B.2; None; None	Chaparral, Closed-cone coniferous forest; Rocky, Serpentine	May-Jul	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Gairdner's yampah	4.2; None; None	Broadleafed upland forest, Chaparral, Coastal prairie, Valley and foothill grassland, Vernal pools; Vernal Mesic	Jun-Oct	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Phacelia insularis</i> var. <i>continentis</i>	North Coast phacelia	1B.2; None; None	Coastal bluff scrub, Coastal dunes; Rocky (sometimes), Sandy	Mar-May	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Petaluma popcornflower	1A; None; None	Marshes and swamps (coastal salt), Valley and foothill grassland (mesic)	Jun-Jul	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	1B.1; CT; None	Broadleafed upland forest, Meadows and seeps, North Coast coniferous forest; Mesic, Openings	Apr-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2; None; None	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest; Mesic	Apr-Aug	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Polygonum marinense</i>	Marin knotweed	3.1; None; None	Marshes and swamps (brackish, coastal salt)	(Apr)May-Aug	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Potentilla uliginosa</i>	Cunningham Marsh cinquefoil	1A; None; None	Marshes and swamps (freshwater)	May-Aug	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.

<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	Tamalpais oak	1B.3; None; None	Lower montane coniferous forest	Mar-Apr	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	4.2; None; None	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools; Mesic	Feb-May	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in March 2021. Potential None observed during the 2023 or 2024 surveys.
<i>Rhynchospora californica</i>	California beaked-rush	1B.1; None; None	Bogs and fens, Lower montane coniferous forest, Marshes and swamps (freshwater), Meadows and seeps (seeps)	May-Jul	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Rhynchospora globularis</i>	round-headed beaked-rush	2B.1; None; None	Marshes and swamps (freshwater)	Jul-Aug	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	1B.2; None; None	Marshes and swamps (shallow freshwater)	May-Oct(Nov)	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.

<i>Sidalcea calycosa ssp. rhizomata</i>	Point Reyes checkerbloom	1B.2; None; None	Marshes and swamps (freshwater, near coast)	Apr-Sep	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Sidalcea hickmanii ssp. viridis</i>	Marin checkerbloom	1B.1; None; None	Chaparral (serpentine)	May-Jun	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Streptanthus anomalus</i>	Mount Burdell jewelflower	1B.1; None; None	Cismontane woodland (openings); Openings, Serpentine	May-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Streptanthus batrachopus</i>	Tamalpais jewelflower	1B.3; None; None	Chaparral, Closed-cone coniferous forest; Serpentine	Apr-Jul	No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Streptanthus glandulosus ssp. pulchellus</i>	Mt. Tamalpais bristly jewelflower	1B.2; None; None	Chaparral, Valley and foothill grassland; Serpentine	May-Jul(Aug)	Suitable habitat occurs in the survey area. Verified observations within 5 miles of the project site in April 2022. Potential None observed during the 2023 or 2024 surveys.

<i>Trifolium amoenum</i>	two-fork clover	1B.1; None; FE	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentine)	Apr-Jun	Suitable habitat occurs in the survey area. Last verified observation within 5 miles of the project site was in 1921. Low Potential None observed during the 2023 or 2024 surveys.
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	1B.1; None; None	Broadleafed upland forest, Cismontane woodland, Coastal prairie; Gravelly	Apr-Oct	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Trifolium hydrophilum</i>	saline clover	1B.2; None; None	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools	Apr-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Trifolium polyodon</i>	Pacific Grove clover	1B.1; CR; None	Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Valley and foothill grassland; Granitic (sometimes), Mesic	Apr-Jun(Jul)	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

<i>Triphysaria floribunda</i>	San Francisco owl's-clover	1B.2; None; None	Coastal prairie, Coastal scrub, Valley and foothill grassland; Serpentine (usually)	Apr-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Triquetrella californica</i>	coastal triquetrella	1B.2; None; None	Coastal bluff scrub, Coastal scrub		No suitable habitat occurs in the survey area. No Potential None observed during the 2023 or 2024 surveys.
<i>Triteleia lugens</i>	dark-mouthed triteleia	4.3; None; None	Broadleafed upland forest, Chaparral, Coastal scrub, Lower montane coniferous forest	Apr-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.
<i>Viburnum ellipticum</i>	oval-leaved viburnum	2B.3; None; None	Chaparral, Cismontane woodland, Lower montane coniferous forest	May-Jun	Suitable habitat occurs in the survey area. No verified observations within 5 miles of the project site. Low Potential None observed during the 2023 or 2024 surveys.

List of special-status species has been compiled based on plant species listed in the CNDDDB for the Petaluma USGS quadrangle (2023) and based on CNPS Inventory (CNPS 2023) records for the Sonoma quadrangle and the eight surrounding quadrangles. Note: FESA: FE = federally endangered; FT = federally threatened. State listed under the California Endangered Species Act and the California Native Plant Protection Act CESA: CE = state listed as endangered; CT = state listed as threatened; CR = state listed as rare. Global Rank: G1 =

critical imperilment on a global basis, the species is at great risk of extinction; G2 = Imperiled, at high risk of extinction or elimination
 Vulnerable, at moderate
 risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread
 declines, threats, or other factors; G4 = Secure, at fairly low risk of extinction or elimination due to an extensive range and/or many
 populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
 State Rank: S1 = Critically Imperiled At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations
 or occurrences, very steep declines, severe threats, or other factors; S2 = imperiled in the state because of extreme rarity or because of
 some factor(s) making it especially vulnerable to extirpation, typically 6 to 20 occurrences or few remaining individuals (1,000 to
 3,000); S3 = Uncommon not of conservation concern, typically, 21 to 50 known occurrences or populations; S3 ranked species are not
 yet susceptible to becoming extirpated in the state but may be if additional populations are destroyed. California Rare Plant Rank:
 CRPR 1A = Plants presumed extinct in California; CRPR 1B = Rare, threatened, or endangered in California and elsewhere; CRPR 2 =
 plants rare, threatened or endangered in California, but more common elsewhere; CRPR 3 = plants about which more information is
 needed; CRPR 4 = Uncommon in California. Other Status:

California Plant
 Rescue Institutions. Bureau of Land Management sensitive (BLM_S). United States Forest Service sensitive (USF_S). California Plant
 Rescue Institutions: SB_CalBG/RSABG = California/Rancho Santa Ana Botanic Garden, SB_SBBG = Santa Barbara Botanic Garden,
 SB_UCBG = UC Botanical Garden at Berkeley, SB_UCSC = UC Santa Cruz, SB_BSB = Berry Seed Bank, SB_KRBG = Kew Royal Botanic
 Gardens, SB_SDZC = San Diego Zoo CRES, SB_NGSB = Native Gene Seed Bank, SB_USDA = US Department of Agriculture.

Table 3 - Vascular Plants Observed Onsite - July 2023, and April, May, June 2024

Family	Scientific Name	Common Name	Native (N) Non- native Invasive (I)	Habitat Communities			
				Annual Grassland	Riparian Corridor	Eucalyptus Forest	Slope Wetland
AGAVACEAE	<i>Chlorogalum pomeridianum</i>	common soaproot	N	x	x		
ANACARDIACEAE	<i>Toxicodendron diversilobum</i>	poison oak	N		x	x	
APIACEAE	<i>Daucu carota</i>	wild carrot	I	x	x	x	
	<i>Foeniculum vulgare</i>	sweet fennel	I	x	x		
	<i>Sanicula crassicaulis</i>	Pacific sanicle	N		x		
ARACEAE	<i>Zantedeschia aethiopica</i>	calla lily	I		x		
ARALIACEAE	<i>Hedera helix</i>	English ivy	I		x		
ASTERACEAE	<i>Carduus pycnocephalus</i>	Italian thistle	I	x	x		
	<i>Dittrichia graveolens</i>	stinkwort	I	x			
	<i>Helminthotheca echioides</i>	bristly ox-tongue	I	x	x	x	
	<i>Hypochaeris glabra</i>	smooth cat's ear	I	x	x		
	<i>Pseudognaphalium californicum</i>	ladies' tobacco cudweed	N	x			
	<i>Silybum marianum</i>	milk thistle	I	x	x		

	<i>Sonchus oleraceus</i>	sow thistle	I	x			
	<i>Taraxacum officinale</i>	common dandelion	I	x	x	x	
BRASSICACEAE	<i>Raphanus sativa</i>	wild radish	I	x			
				Habitat Communities			
Family	Scientific Name	Common Name	Native (N) Non-native Invasive (I)	Annual Grassland	Riparian Corridor	Eucalyptus Forest	Slope Wetland
CAPRIFOLIACEAE	<i>Lonicera hispidula</i>	pink honeysuckle	N		x	x	
	<i>Symphoricarpos albus</i>	common snowberry	N		x	x	
CONVOLVULACEAE	<i>Convolvulus arvensis</i>	field bindweed	I	x			
FABACEAE	<i>Lupinus bicolor</i>	bicolor lupine	N	x			
	<i>Medicago polymorpha</i>	bur-clover	I	x	x	x	
	<i>Trifolium hirtum</i>	rose clover	I	x			
	<i>Trifolium subterraneum</i>	subterranean clover	I	x			x
	<i>Vicia sativa</i>	spring vetch	I	x	x	x	
FAGACEAE	<i>Quercus agrifolia</i>	coast live oak	N		x	x	
	<i>Quercus douglasii</i>	blue oak	N		x	x	
	<i>Quercus kelloggii</i>	black oak	N		x		
	<i>Quercus lobata</i>	valley oak	N		x		
GERANIACEAE	<i>Erodium botrys</i>	broadleaf filaree	I	x			

	<i>Geranium dissectum</i>	wild geranium	I	x			
JUNCACEAE	<i>Juncus bufonius</i>	toad rush	N		x	x	
	<i>Juncus tenuis</i>	slender rush	N		x		
LAMIACEAE	<i>Mentha pulegium</i>	penny royal	I		x	x	x
	<i>Stachys ajugoides</i>	hedgenettel	N		x	x	
				Habitat Communities			
Family	Scientific Name	Common Name	Native (N) Non-native Invasive (I)	Annual Grassland	Riparian Corridor	Eucalyptus Forest	Slope Wetland
LAURACEAE	<i>Umbellularia californica</i>	California bay laurel	N		x	x	
MONTIACEAE	<i>Claytonia parviflora</i>	miner's lettuce	N		x	x	
MYRSINACEAE	<i>Lysimachia arvensis</i>	scarlet pimpernel	I	x			
MYRTACEAE	<i>Eucalyptus globulus</i>	blue gum	I		x	x	
PAPAVERACEAE	<i>Eschscholzia californica</i>	California poppy	N	x			
PLANTAGINACEAE	<i>Plantago lanceolata</i>	English plantain	I	x			
POACEAE	<i>Avena barbata</i>	slender wild oat	I	x	x	x	
	<i>Bromus diandrus</i>	rip-gut brome	I	x	x	x	
	<i>Bromus hordeaceus</i>	soft-chess brome	I	x	x	x	
	<i>Briza minor</i>	little quaking grass	I				x
	<i>Cynosurus echinatus</i>	dog tail grass	I	x	x	x	

	<i>Festuca perennis</i>	perennial Italian rye-grass	I	x	x	x	
	<i>Hordeum brachyantherum</i>	meadow barley	N				x
	<i>Hordeum murinum</i>	wall barley	I	x	x	x	
	<i>Leymus triticoides</i>	creeping rye	N				x
	<i>Phalaris aquatica</i>	harding grass	I	x	x	x	x
	<i>Phleum pratense</i>	Timothy grass	I	x	x	x	
	<i>Vulpia myuros</i>	rat's tail fescue	I				x
				Habitat Communities			
Family	Scientific Name	Common Name	Native (N) Non-native Invasive (I)	Annual Grassland	Riparian Corridor	Eucalyptus Forest	Slope Wetland
POLYGONACEAE	<i>Rumex acetosella</i>	sheep sorrel	I		x		
ROSACEAE	<i>Rubus armeniacus</i>	himalayan blackberry	I		x		
RUBIACEAE	<i>Calium aparine</i>	common bedstraw	N		x	x	
SALICACEAE	<i>Salix lasiolepis</i>	arroyo willow	N		x		
SAPINDACEAE	<i>Aesculus californica</i>	California buckeye	N		x	x	

References

Best, C., J. T. Howell, W. Knight, I. Knight, and M. Wells. 1996. A flora of Sonoma County. California Native Plant Society, Sacramento, CA. 347 pp.

California Department of Fish and Wildlife (CDFW). 2023. Natural Diversity Database, Wildlife and Habitat Data Analysis Branch. Sacramento.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx>

<https://Sonomavegmap.org>

(http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/news/tech_spt_doc_for_CWR.pdf)

Kirkland and Ellis, 2023. Seeking Clarity, the Supreme Court Narrows Clean Water Act Jurisdiction Over Wetlands in Sackett vs. the EPA.

Kjeldsen Biological Consulting. 2021. Preliminary Biological Assessment 2485 Middle Two Rock Road. June.

Kollmorgen Instruments Corporation. 1975. Munsell Soil Book of Color. Kollmorgen Instruments Corporation, Baltimore, Maryland.

Munz, P. A. and D. D. Keck. 1973. A California flora and supplement. University of California Press, Berkeley, CA.

Natural Resources Conservation Service. 2023. United States Department of Agriculture. Web Soil Survey. Accessed October 23. Available at <http://websoilsurvey.nrcs.usda.gov>.

North Coast Regional Water Quality Control Board, 2007. <http://www.waterboards.ca.gov/northcoast/programs/wqwetcert.html>

SPNUSACE, 2020. San Francisco Corps of Engineers Regulatory Webpage.

USACE, 2023. <https://www.usace.army.mil/Media/Announcements/Article/3520843/8-september-2023-epa-and-the-army-issue-final-rule-to-amend-2023-rule/>

U.S. Army Corps of Engineers, 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region

Version 2.0.

Zeiner, David C., William F. Laudenslayer, Jr., Kenneth E. Mayer, and Marshall White. 1990. California's Wildlife, Volume I, Amphibians and Reptiles, Volume II, Birds, and Volume III, Mammals. California Statewide Habitat Relationships.

Appendix A – Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 2485 Middle 2 Rock City/County: Petaluma SON Sampling Date: 4/18/24
 Applicant/Owner: Joshua Melcar State: CA Sampling Point: 1
 Investigator(s): Way Macmillan Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): NS
 Subregion (LRR): CRRC Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Los Osos clay loam 2-5% NWI classification: _____

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

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
Total Cover: _____				Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ Total Cover: _____																				
Herb Stratum 1. <u>Lolium perenne</u> <u>90</u> <u>Y</u> <u>FAC</u> 2. <u>Hordeum murinum</u> <u>5</u> <u>N</u> <u>FACU</u> 3. <u>Leymus triticoides</u> <u>5</u> <u>N</u> <u>FAC</u> 4. <u>Urtica pulegioides</u> <u>5</u> <u>N</u> <u>OBL</u> 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: _____																				
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____																				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____																				
Hydrophytic Vegetation Indicators: ☒ Dominance Test is >50% ☐ Prevalence Index is ≤3.0 ¹ ☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																				
Hydrophytic Vegetation Present? Yes ☒ No _____																				
Remarks:																				

Sampling Point:

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 2485 Middle Two Rock City/County: Petaluma SON Sampling Date: 4/18/24
 Applicant/Owner: Joshua Gielcon State: CA Sampling Point: 2
 Investigator(s): Lucy Macmillan Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): swale/ridge Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): ULRC Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: LOS 0505 clay loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species _____ x 4 = _____ UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>100</u> (A) <u>340</u> (B) Prevalence Index = B/A = <u>3.4</u>
Sapling/Shrub Stratum 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ Total Cover: _____				
Herb Stratum 1. <u>Hordeum brachyantherum</u> <u>40</u> <u>Y</u> <u>FACW</u> 2. <u>Trifolium subterraneum</u> <u>30</u> <u>Y</u> <u>UPL</u> 3. <u>Leumys tataricus</u> <u>20</u> <u>N</u> <u>FAC</u> 4. <u>Bromus diandrus</u> <u>10</u> <u>N</u> <u>UPL</u> 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: <u>100</u>				
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes _____ No ☒

Sampling Point:

2

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 1 cm Muck (A9) (LRR C) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ 2 cm Muck (A10) (LRR B) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) | ☐ Reduced Vertic (F18) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Red Parent Material (TF2) |
| ☐ Stratified Layers (A5) (LRR C) | ☐ Depleted Matrix (F3) | ☐ Other (Explain in Remarks) |
| ☐ 1 cm Muck (A9) (LRR D) | ☐ Redox Dark Surface (F6) | |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Dark Surface (F7) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Depressions (F8) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Vernal Pools (F9) | |
| ☐ Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No ✓

Remarks:

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) | ☐ Sediment Deposits (B2) (Riverine) |
| ☐ High Water Table (A2) | ☐ Biotic Crust (B12) | ☐ Drift Deposits (B3) (Riverine) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) | ☐ Drainage Patterns (B10) |
| ☐ Water Marks (B1) (Nonriverine) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) (Nonriverine) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☐ Thin Muck Surface (C7) |
| ☐ Drift Deposits (B3) (Nonriverine) | ☐ Presence of Reduced Iron (C4) | ☐ Crayfish Burrows (C8) |
| ☐ Surface Soil Cracks (B6) | ☐ Recent Iron Reduction in Plowed Soils (C6) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) | ☐ Shallow Aquitard (D3) |
| ☐ Water-Stained Leaves (B9) | | ☐ FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 2485 Middle Two Rock City/County: Petaluma Son Sampling Date: 4/18/24
 Applicant/Owner: Joshua Silicon State: CA Sampling Point: 3
 Investigator(s): Wm Macmill Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 25
 Subregion (LRR): UMA Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: LOS OROS clay loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>80</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4</u>
Sapling/Shrub Stratum 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ Total Cover: _____				
Herb Stratum 1. <u>Trifolium subterraneum</u> <u>20</u> <u>Y</u> <u>UPL</u> 2. <u>Medicago polymorpha</u> <u>20</u> <u>Y</u> <u>FACU</u> 3. <u>Hordeum murinum</u> <u>15</u> <u>Y</u> <u>FACU</u> 4. <u>Hypochaeris glabra</u> <u>10</u> <u>N</u> <u>UPL</u> 5. <u>Vicia sativa</u> <u>10</u> <u>N</u> <u>UPL</u> 6. <u>Vulpia myuros</u> <u>5</u> <u>N</u> <u>FACU</u> 7. _____ 8. _____ Total Cover: <u>80</u>				
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes _____ No ☒

Sampling Point:

3

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 2485 Middle two rock City/County: Petaluma Son Sampling Date: 4/18/24
 Applicant/Owner: Jenna Melcon State: CA Sampling Point: 4
 Investigator(s): Lucy Macmillan Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): — Slope (%): 25
 Subregion (LRR): LMRC Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: los osos clayloam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				
Herb Stratum				
1. <u>Infolium subterraneum</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes _____ No ☒
2. <u>Bromus diandrus</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Vicia sativa</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
4. <u>Hypochaeris glabra</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
5. <u>Vulpia myuros</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>100</u>				
Woody Vine Stratum				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

Sampling Point:

4

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 1 cm Muck (A9) (LRR C) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ 2 cm Muck (A10) (LRR B) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) | ☐ Reduced Vertic (F18) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Red Parent Material (TF2) |
| ☐ Stratified Layers (A5) (LRR C) | ☐ Depleted Matrix (F3) | ☐ Other (Explain in Remarks) |
| ☐ 1 cm Muck (A9) (LRR D) | ☐ Redox Dark Surface (F6) | |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Dark Surface (F7) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Depressions (F8) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Vernal Pools (F9) | |
| ☐ Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present.

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) | ☐ Sediment Deposits (B2) (Riverine) |
| ☐ High Water Table (A2) | ☐ Biotic Crust (B12) | ☐ Drift Deposits (B3) (Riverine) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) | ☐ Drainage Patterns (B10) |
| ☐ Water Marks (B1) (Nonriverine) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) (Nonriverine) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☐ Thin Muck Surface (C7) |
| ☐ Drift Deposits (B3) (Nonriverine) | ☐ Presence of Reduced Iron (C4) | ☐ Crayfish Burrows (C8) |
| ☐ Surface Soil Cracks (B6) | ☐ Recent Iron Reduction in Plowed Soils (C6) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) | ☐ Shallow Aquitard (D3) |
| ☐ Water-Stained Leaves (B9) | | ☐ FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

Appendix B – California Red-legged Frog and California Tiger Salamander habitat
Assessment

May 17, 2024

Lucy Macmillan
Lucy Macmillan Consulting
108 Rising Road
Mill Valley CA 94941

Re: 2485 Middle Two Rock Road Project - California Red-Legged Frog and California Tiger Salamander Assessment

Dear Ms. Macmillan,

The purpose of this letter is to describe the methods and results of a site assessment for California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) on the property located at 2485 Middle Two Rock Rd (APN 021-160-041) in unincorporated Sonoma County, California (Project Site). The purpose of the assessment is to determine the potential for either species to be impacted by proposed development on the property and to provide recommendations to avoid such impacts. This work does not constitute a formal protocol-level habitat assessment for submission to the U.S. Fish and Wildlife Service (USFWS) but has been performed in accordance with published federal guidelines.

METHODS

The site assessment described in this report was performed in accordance with the 2003 USFWS Interim Guidance on Site Assessment and Field Surveys for Determining Presence or A Negative Finding of the California Tiger Salamander¹ and the 2005 USFWS *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged* ². Biologists Amy Patten and Brian Schmahl performed the site assessment on March 28, 2024.

A map of the property and surrounding habitats is provided in Attachment A (Figure 1). Prior to the site visit, available information and the CNDDDB database³ were reviewed for records on CTS and CRLF sightings within 1.3 mile of the Project Site (Attachment A, Figures 2 and 3). Available aerial photography was also reviewed to identify potential breeding, upland, and dispersal habitats on the site and surrounding vicinity and whether barrier-free corridors are present to nearby suitable habitats and/or documented occurrences. During the site assessment, transects

¹ USFWS. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October 1, 2003.

² USFWS 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog.

³ California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Accessed May 2024.

were conducted across the entire property to determine whether suitable habitat elements (e.g. suitable water bodies, small-mammal burrows, or other suitable refugia) are present to support CTS or CRLF. Surrounding land uses located between the site and nearby suitable occupied habitats were also evaluated.

California Red-legged Frog (Rana draytonii). Federal Threatened / State Species of Special Concern.

The California red-legged frog (CRLF) was listed as Federally Threatened on May 23, 1996 and is a state species of special concern. Critical Habitat for the CRLF was designated on April 13, 2006, and the revised designation was finalized on March 17, 2010. A Recovery Plan for the CRLF was published by the USFWS on May 28, 2002. The historical range of the CRLF extended along the coast from the vicinity of Point Reyes National Seashore, Marin County, California and inland from Redding, Shasta County southward to northwestern Baja California, Mexico. The current distribution of this species includes the San Francisco Bay area and along the coast, including in coastal areas north of Marin County where it was previously thought to be *Rana aurora*.

CRLF requires both aquatic and terrestrial habitats to complete its life cycle. Aquatic breeding habitat consists of low gradient freshwater bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and other slow-moving waterways. Optimal aquatic habitat includes dense riparian vegetation overhanging deep (greater than 0.7 m) slow moving pools⁴. Aquatic breeding habitat must hold water for a minimum of 20 weeks in years of normal rainfall, though this species may metamorph more quickly during drought conditions. Twenty weeks is the average amount of time needed for egg, larvae, and tadpole development and metamorphosis so that juveniles can become capable of surviving in upland habitats⁵. Recent studies summarized by USFWS in 2010 have shown that tadpoles and metamorphs are more abundant in open ponds than those containing higher concentrations of emergent vegetation such as cattails, tules, or bulrushes; those some emergent vegetation is needed for egg attachment.

Following the breeding and egg laying season, adult CRLF often disperse to nearby shaded streams for foraging in both the water and dense riparian vegetation or nearby upland sites (where adequate refugia (logs, rocks, debris, burrows) is present; such movements typically occur in fall and spring and the start and end of the breeding season (late November to late April). These upland sites typically are located within close proximity to breeding sites (within 200

⁴ Thomson, Robert C., Amber N. Wright, and H. Bradley Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. California Department of Fish and Wildlife University Press.

⁵ U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register, Vol. 75, No. 51. 12815-12959.

meters), though some individuals may migrate overland where adequate moisture is present up to 2800 meters from their breeding sites, according to Thompson, Wright, and Shaffer.

California Tiger Salamander (Ambystoma californiense) – Sonoma County Distinct Population Segment. Federal Endangered / State Threatened Species

The California Tiger Salamander (CTS) Sonoma County Distinct Population Segment (DPS) was emergency listed as endangered on July 22, 2002. Critical Habitat for CTS on the Santa Rosa Plain was designated on July 2011, and revised on August 31, 2011. This population is geographically isolated from other CTS in the state and known to occur in the Santa Rosa area (or Plain) and possibly the Petaluma River watershed, historically. CTS in the Santa Rosa Plain inhabits low-elevation (below 500 feet) vernal pools and seasonal pools, associated grassland, and the grassy understory of oak savannah plant communities.

CTS requires two primary habitat components: aquatic breeding sites and upland terrestrial estivation or refuge sites. Adult CTS spend most of their time underground in upland subterranean refugia⁶. Underground retreats in the Santa Rosa Plain usually consist of small mammal burrows (namely pocket gophers), but also under logs and piles of lumber⁷. CTS emerges from underground to breed and lay eggs primarily in vernal pools and other ephemeral water bodies. Adults migrate from upland habitats to aquatic breeding sites during the first major rainfall events, between November and February and return to upland habitats after breeding⁸. In drought years, seasonal pools may not hold water for sufficient period for adults to breed. Pools must remain inundated for at least 16-weeks in a normal or below normal rainfall year, which is the minimum time needed for larvae to complete metamorphosis⁹.

Following metamorphosis, juveniles move into the surrounding uplands where they may live for several years before returning to aquatic habitats to breed. CTS may disperse into uplands up to 1.3 miles from breeding ponds (USFWS 2004). Trenham found up to 25 percent of CTS in one pond were found within 2,200 feet of the breeding pond. In a more recent study Orloff found both adults and juveniles at least 800 meters (2,624 feet) from the nearest breeding pond, with a smaller number of salamanders as far as 2.2 km (1.3 miles) away¹⁰.

⁶ Trenham, P. C. 2001. Terrestrial habitat use by adult California Tiger Salamanders. *Journal of Herpetology* 35:343-346.

⁷ Holland, D. C., M. P. Hayes, and E. McMillan. 1990. Late summer movement and mass mortality in the California Tiger Salamander (*Ambystoma californiense*). *Southwestern Naturalist* 35:217-220.

⁸ Barry, S. J. and H. B. Shaffer. 1994. The status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: a 50-year update. *Journal of Herpetology* 28:159-164.

⁹ CDFW. 2024. Personal communication with Nick Wagner and Alex Single, Bay Delta Region (Region 3).

¹⁰ Orloff, Susan G. 2011. Movement patterns and migration distances in an upland population of California tiger salamanders (*Ambystoma californiense*). *Herpetological Conservation and Biology*. 6(2):266-276.

RESULTS

Element 1. Is the project site within the range of the CRLF or CTS?

The project site is within the potential range of the CTS Sonoma County DPS. However, the project is located outside designated critical habitat¹¹, approximately 2 miles to the north.

The Project Site is within the range of the CRLF in Sonoma County, where this species is known from many coastal drainages and across Sonoma Mountain including lowland areas within the Sonoma Creek and the Petaluma River watersheds. In Sonoma County, they are generally restricted to undeveloped or rural residential areas and dairy rangelands supporting small natural creeks and constructed ponds. The closest designated Critical Habitats are located about 3.7 miles to the southwest in the vicinity of Chileno Valley and Laguna Lake and 2.6 miles to the southeast near the City of Petaluma.

Element 2. What are the known localities of CRLF and CTS within the project site and within 1.3 miles (up to 3.1 miles or 5 km) of the project boundaries?

Figures 2 and 3 (Attachment A) depict the location of known occurrences of CRLF and CTS respective to the Project Site.

According to the background review, there are no reported occurrences (or localities) of CRLF within 1 mile of the Project Site. The closest occurrences are approximately 1.13 miles (EO #1563) and 1.43 (EO #441) miles north of the Project Site (Table 1 below).; EO #1563 is within Wiggins Creek, and therefore hydrologically connected to the site. Three tadpoles were documented in a small drainage surrounded by cattle pastures in 2017 at this occurrence. EO #441 recorded two frogs in pool in a seasonal flood control channel. Several records which include successful breeding are also found approximately 2 miles to the southeast in the vicinity of Windsor Drive in Petaluma, and on private properties located along San Antonio Creek, approximately 4 miles to the south.

There are no CTS occurrences within 1.3 miles of the Project Site, and only one occurrence or locality (EO #1) of CTS within 3.1 miles of the project site. Occurrence EO #1 is composed of two specimens collected by E. Samuels between 1855 and 1856. Both specimens were collected within 20 miles of Petaluma yet were catalogued as “Petaluma”. Since the Santa Rosa Plain is within 20 miles of Petaluma, it is possible that these specimens were collected not in Petaluma, but on the Santa Rosa Plain. As it stands, occurrence no. 1 is mapped to the center of Petaluma and encompasses a 5-mile radius, which happens to overlap with the Project Site. Recent efforts by herpetologists have found no evidence of CTS within 5 miles of Petaluma. No other, more recent, occurrences of CTS are located within 3.1 miles of the Project Site. The nearest

¹¹ U.S. Fish and Wildlife Service. 2014. Draft Recovery Plan for the Santa Rosa Plain: *Blennosperma bakeri* (Sonoma sunshine); *Lasthenia burkei* (Burke’s goldfields); *Limnanthes vinculans* (Sebastopol meadowfoam); Sonoma County Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. vi + 132 pp

occurrences outside the Santa Rosa Plain are located approximately 4 miles to the east of the site, at the Petaluma Coast Guard Station, and 4.7 miles to the north on Stony Point Road, in unincorporated Petaluma.

Table 1: CRLF Records Within 5 miles of the Project Site

Occ. No.	Location	CNDDDB Comments	Distance to Project Site
441	SOUTH OF MAGNOLIA AVENUE, WEST SIDE OF PETALUMA.	FROG (3" SVL) OBSERVED BY A POOL ABOUT 2.5 FT DEEP; HABITAT CONSISTS OF A SEASONAL FLOOD CONTROL CHANNEL WITH SANDY / LOAM BANKS (5-7 FEET HIGH), VEGETATED BY GRASSES. OVERSTORY OF PATCHY WILLOW WHERE FROG WAS OBSERVED.	1.43
1563	WIGGINS CREEK, ABOUT 0.2 MILES NE OF SKILLMAN RD AT LIBERTY RD, NW OF PETALUMA.	3 TADPOLES CAUGHT AND RELEASED ON 16 MAY 2017 FROM MARSHY AREA OF CREEK IN RIPARIAN CLEARING: SMALL EPHEMERAL CREEK WITH DENSE AND PATCHY WILLOW RIPARIAN. SURROUNDING LAND USED FOR GRAZING. CREEK HISTORICALLY CHANNELIZED.	1.13

Element 3. What are the habitats within the project site and within 1.24 miles (2 km) of the project boundaries?

The Project Site is an approximately 40-acre parcel between 300 and 170 feet above sea level with 0 to 7 percent slopes. Plant communities present include nonnative annual grassland, oak woodland riparian corridor, eucalyptus forest, and developed/ruderal.

Aquatic Habitat On-Site

Three headwater streams to Wiggins Creek originate on-site, and flow in a northerly direction where they merge together off-site, and eventually drain into Liberty Creek, which drains to the Petaluma River. All three drainages are high gradient, fast flowing streams, with small step pools, and erosive banks. Two of the drainages are likely ephemeral, while the middle drainage demonstrates some intermittent pool habitat, though pool depth generally did not exceed one foot. The pools also lacked sufficient emergent vegetation for egg attachment. All three drainages likely have little to no flow during the summer, and thus, cannot maintain sufficient depth throughout the breeding season for either CRLF or CTS. The banks of the drainages are highly incised and heavily eroded in most areas, but there are some areas with gently sloping banks (near the upper limits) that could allow for CRLF movements away from the creek.

The riparian corridor is almost fully shaded with a dense canopy dominated by coast live oak, buckeye, black oak, willow (*Salix* sp.), California bay laurel (*Umbellularia californica*) with a dense understory of non-native/invasive Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*) and Canary Island Ivy (*Hedera canariensis*), and native poison oak (*Toxicodendron*

diversilobum). Habitat above top-of-bank mainly features dense invasive plant groundcover or open and exposed areas lacking vegetation, with woody duff providing the primary cover. Canopy cover is high and there is limited bank habitat for basking except for the southern ends of the drainages.

While the on-site drainages are not likely to be suitable for breeding for either species, they do provide suitable habitat for foraging and dispersal for CRLF. CRLF movements may be largely confined to the creek channels due to steep, incised banks and dense understory vegetation, but some gently sloped banks and gaps in vegetation at upstream ends that could allow them to access to both aquatic and upland habitats outside of the riparian corridors – namely to the south. Faster flows during the rainy season, likely preclude CTS from using these areas during foraging and dispersal.

Upland Habitat On-Site

The Project Site is dominated by ruderal grassland, remnant patches of oak woodland, eucalyptus forest, and riparian habitat. Two houses, an entrance road, and other structures are present. Most of the upland habitat in the Project Site consists of an open grassland with ruderal vegetation. The riparian corridor features some large woody debris which could provide refuge sites, but there is minimal rodent activity providing open burrows in the ruderal grassland close to the riparian habitat. Smaller mammal burrows with small to large openings were found throughout the site which could serve as aestivation habitat for CTS and CRLF. Overall, these burrow complexes were relatively infrequent and as such, upland areas within the Project Site likely provide marginal upland aestivation habitat for both species.

Habitats Within 1 Mile of the Project Site

Land use to the north of the Project Site is primarily mixed residential and agriculture, whereas land use to the south is primarily ranch land and crop land. Numerous ponds and small drainages, which could potentially provide suitable breeding habitat for CTS and CRLF, are located within one half mile to the south and west of the Project Site. The closest of these ponds is 130 feet south of the southern border of the Project Site and directly in line with the easternmost drainage feature (as shown in Figure 1 and 2). Aerial imagery indicates this feature likely provides water year-round, though at shallower depths in the summer. No obvious dispersal barriers exist between these ponds and the Project Site.

Discussion

Based on the habitats present on and off-site, coupled with the results of the database review, the Project Site does not likely provide suitable aquatic breeding habitat for either CRLF or CTS. Further, fast flowing streams on the site are not likely to provide suitable dispersal habitat for CTS, but likely do provide non-breeding aquatic foraging and dispersal habitat for CRLF. The presence of at least 3 perennial ponds within one half mile of the site suggests that CRLF likely use the site as a dispersal corridor between known occurrences downstream and the ponds

(which may provide suitable breeding habitat). Permanent impacts to the corridor would require consultation with the appropriate agencies and mitigation for the loss of dispersal habitat.

While there is potentially suitable breeding habitat in ponds to the south of the site, it is unclear whether a viable population of CTS exists in this area. The lack of any CTS occurrences within the known dispersal distance of the site and absence of any viable corridor with other CTS occurrences to the north and west, suggest a low likelihood for CTS to be present in these areas. Given the marginal quality of the upland habitat on-site, it is further unlikely that CTS use uplands on-site and as such, are unlikely to be impacted by the proposed project.

While there is a high potential for CRLF to use the drainages on-site as a movement corridor, only marginal upland aestivation habitat for CRLF is located within the Project Site. Therefore, it is anticipated that CRLF would move through the site, but not likely remain for extended periods outside of the dispersal period which generally occurs between late fall to early summer. Provided work is initiated outside this period between June 15 to October 15, impacts to dispersing adults is not likely to occur.

Conclusion and Recommendations

Based on the above findings, the project site does not provide suitable habitat for CTS, and such the project would likely have no effect on this species, and as such no mitigation measures are recommended at this time.

The project would potentially adversely affect CRLF unless measures are provided to both ensure permanent long-term protection of on-site dispersal corridors, and short-term protections to ensure no direct mortality occurs to dispersing juveniles and adults. In the event any of the following measures cannot be implemented for any reason, consultation with the USFWS and/or CDFW is recommended to ensure complete avoidance of incidental take as defined in the Endangered Species Act (ESA) is provided. Alternatively, "take" authorization under Section 7 or 10 of the ESA would be required.

The following avoidance measures are recommended to be incorporated into the environmental document:

BIO-1: Dispersal Corridor No-Disturbance Buffer. A minimum 100-foot no-disturbance buffer should be provided between the proposed building envelopes and nearby riparian habitats or the top of bank of any drainage where no riparian habitat exists to protect CRLF dispersal habitats. Permanent fencing between the lots and the outer extent of the no-disturbance buffer should be provided to prevent any indirect effects resulting from human activities associated with the residences.

In addition to the minimum 100-foot buffer surrounding the drainages, an additional 100-foot-wide corridor extending from the terminus of the centrally located drainage (which terminates in the middle of the site) to either the property line or nearest riparian buffer is also required to

provide safe dispersal for any CRLF emerging from this feature. Both temporary and permanent fencing as described BIO-1 should be provided.

All buffer zones should be clearly demarcated in the field during construction-related activities (including construction) using flagging and signage to prevent incidental trespass by construction personnel into these areas. No project activities including staging of materials, loitering, eating, drinking, smoking, refueling, placement of hazardous materials, parking of vehicles, nor any other construction-related activity is permitted in these areas. Further vegetation clearing and/or removal of topsoil in this area is strictly prohibited; mowing may be performed prior to construction for fire control and/or access. Furthermore, placement of spoils will be restricted to areas outside any buffer zones (including any buffer zones established for sensitive species).

BIO-2: Environmental Training. A worker awareness environmental training program (program) should be presented by a qualified biologist to construction personnel prior to the start of construction activities. The program should include information on sensitive species with potential to occur including identifying characteristics, the location of sensitive habitats in the vicinity of the Project along with a map showing their respective “no-disturbance” buffer zones, and what to do in the event a sensitive species is identified during the course of construction activities. A copy of the training plan should be maintained on-site, and an affidavit should be provided for all attendees to sign to document compliance with this measure.

BIO-3: Work Windows for Initiating Construction Activities. To minimize potential impacts to CRLF that may utilize upland habitat on-site temporarily during dispersal events, new ground disturbing activities (including grubbing) should be initiated between June 15 and October 15 to avoid the period when CRLF may be present in the uplands. All outdoor work should be performed during daylight hours only; no work should be performed within 30 minutes of sunrise or sunset.

If it is not feasible to initiate activities during this work window, the following additional measures (3b and 3c) should be implemented.

BIO-3b. Wet Weather Restriction. No work should occur when there is greater than a 70% chance of rain greater than one quarter inch in the forecast. Work should not resume until there is no rain forecasted. A qualified biologist should survey the site following any rain event to ensure that no CRLF have entered the work area.

BIO-3c: Daily Inspections. For any ground-disturbing activity occurring between October 15 and June 15, a daily inspection should be performed by a qualified biological monitor prior to the start of work each day. The monitor should inspect the entire work area, including under any stockpiled materials, vehicles, and any trenches or holes for the presence of CRLF. If found, the animal should be allowed to leave the area on its own. If the animal cannot leave the area on its own accord, USFWS must be contacted.

BIO-4: Pre-construction Surveys and Burrow Excavation. Pre-construction surveys for CRLF should be performed no less than 48 hours prior to the start of project activities (including construction, vegetation clearing, staging, and/or any other project-related activity). The survey should be performed by a qualified biologist with familiarity identifying CRLF and other special status species with potential to occur. All areas of the project site and adjacent buffer areas should be searched. Any suitable burrows (as determined by the qualified biologist) should be examined prior to excavating using either a camera probe (or other USFWS approved detection method); if clear, the burrow should be hand excavated immediately following under the direct supervision of a qualified biologist. If CRLF (or CTS) is found, work should be halted, and USFWS contacted. If possible, the animal should be allowed to leave the area on its own. If it does not leave on its own, all work should remain halted until the USFWS provides authorization for work to resume.

BIO-5: Wildlife Exclusion Fencing. Wildlife exclusion fencing should be maintained around the perimeter of the construction site throughout ground-disturbing activities (including grubbing). The fencing should be installed under the direction of a qualified biologist, and be at least 36 inches high, and trenched in at least 4 inches below the surface. Exit funnels should be installed every 300 feet. Periodic monitoring by a biological monitor should be performed to ensure the integrity of the fence is maintained to prevent CRLF from accessing the work area. All staging and stockpiled materials should be placed inside the exclusion fencing.

BIO-6: Biodegradable Erosion Control Materials. Tightly woven fiber netting or similar material should be used for erosion control or other purposes to ensure amphibian and reptile species do not get trapped. Plastic monofilament netting (erosion control matting) rolled erosion control products, or similar material should not be used. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

BIO-7: Exit Ramps. Trenches and holes should be covered and inspected daily for stranded animals. Trenches and holes deeper than one foot should contain escape ramps at a maximum slope of 2:1 to allow trapped animals to escape.

Please do not hesitate to contact me at driggs@solecology.com should you have questions concerning the above measures.

Respectfully,

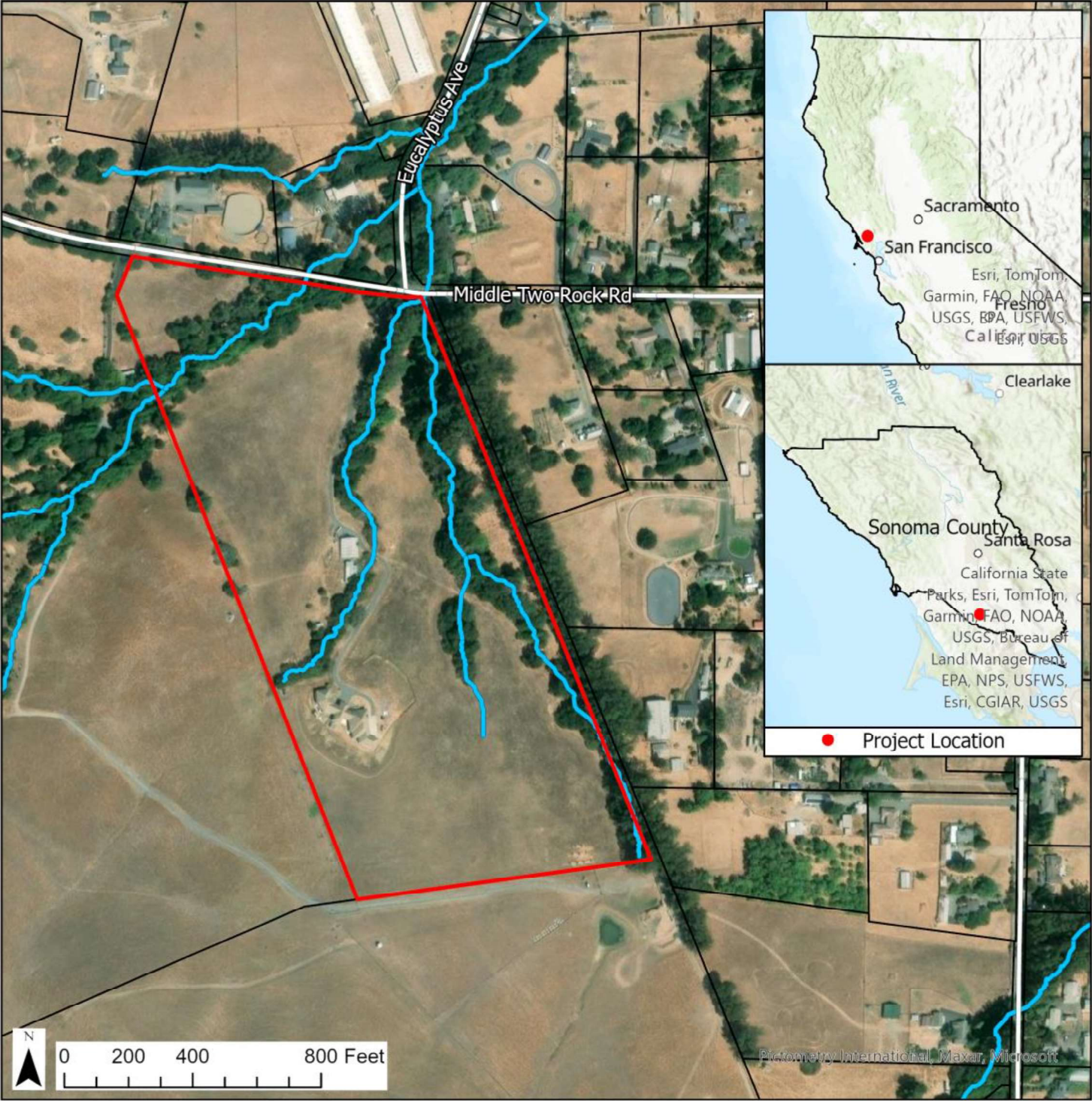
A handwritten signature in black ink, appearing to read 'Dana Riggs', with a horizontal line extending to the left.

Dana Riggs, Senior Biologist

Attachments: Attachment A – Project Figures
Attachment B – Site Photographs

Attachment A. Project Figures

Figure 1: Project Location
2485 Middle Two Rock Road, Sonoma County, CA

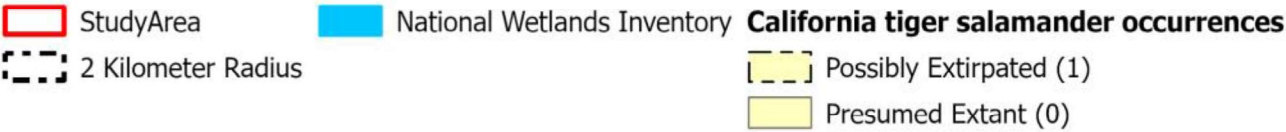
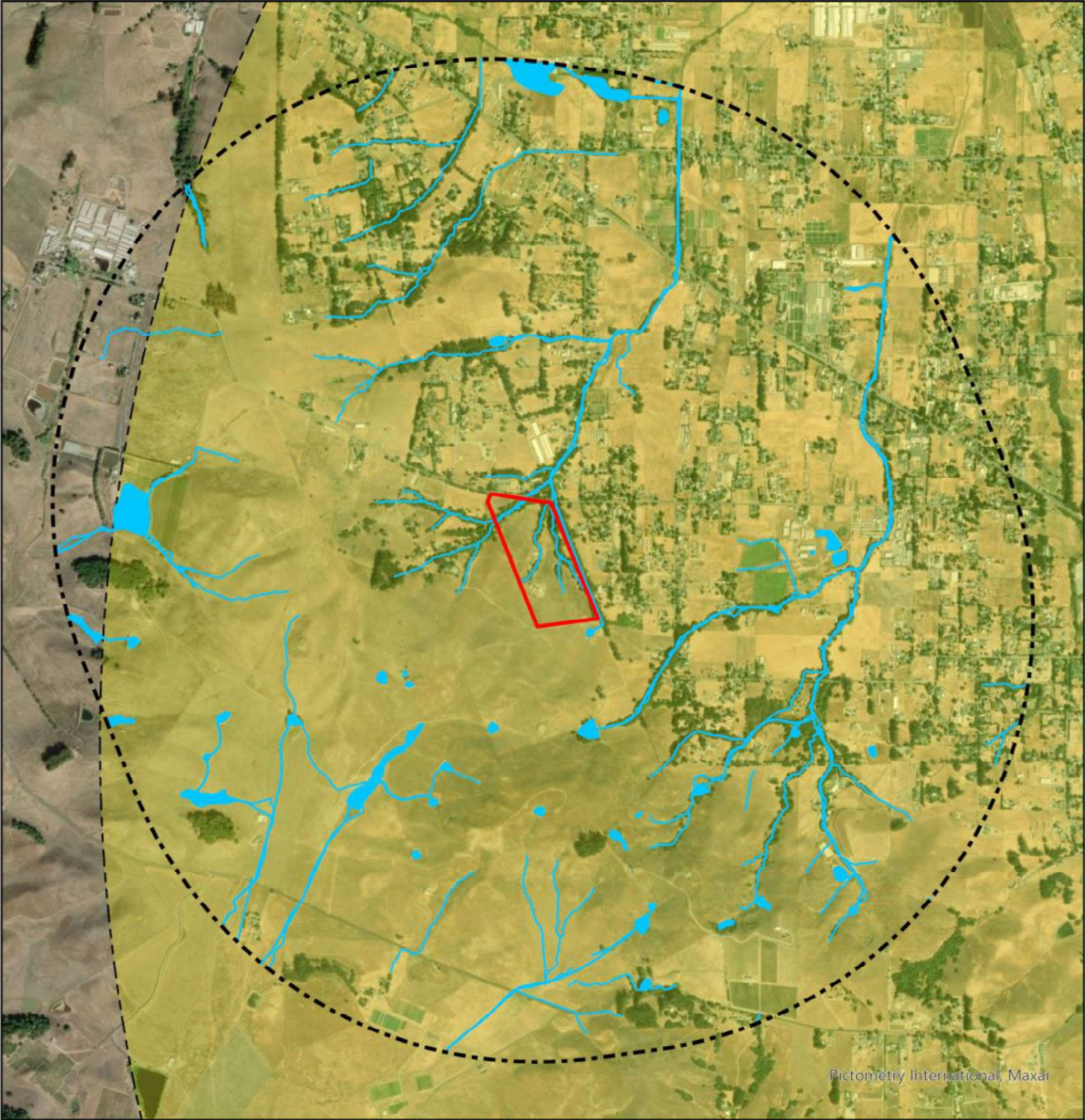


- Study Area
- Parcels
- Streams
- Streets

Figure 2: CRLF occurrences and Aquatic Habitat within 1 Mile of the Project Site
2485 Middle Two Rock Road, Sonoma County, CA



Figure 3: CTS occurrences and Aquatic Habitat within 2 Kilometers of the Project Site
2485 Middle Two Rock Road, Sonoma County, CA



Attachment B. Site Photographs



Representative photo of northwest-most stream. Lacked sufficient depth and stillness for successful CTS breeding.



Representative photo of central stream. Lacked sufficient depth and stillness for successful CTS breeding.



Infrequently, burrows with large openings were found on the Project Site



Infrequently, burrows with small openings were found on the Project Site.