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Attachment 3

Biological Technical Report

FINAL

Biological Technical Report

Potentia-Viridi Battery Energy Storage System Project

JANUARY 2025 – REVISED MAY 2025

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AMM	avoidance and minimization measure
BA	biological assessment
BESS	Battery Energy Storage System
BGEPA	Bald and Golden Eagle Protection Act
BO	biological opinion
BTR	Biological Technical Report
CDFW	California Department of Fish and Wildlife
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CZ	Conservation Zone
DCH	Designated Critical Habitat
DPS	distinct population segment
EACCS	East Alameda County Conservation Strategy
ECAP	East County Area Plan
ECOS	Environmental Conservation Online System
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESA	Environmentally sensitive area
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
HCP	habitat conservation plan
IPaC	Information for Planning and Consultation
ITP	Incidental Take Permit
JD	Jurisdictional Determination
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Program
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OHWM	ordinary high water mark
PBO	Programmatic Biological Opinion

Acronym/Abbreviation	Definition
PCE	primary constituent elements
PFMC	Pacific Fishery Management Council
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SP	Standard Permit
SSC	Species of Special Concern
SWANCC	Solid Waste Agency of Northern Cook County
SWHA	Swainson's hawk
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WEAP	Worker Environmental Awareness Program

Executive Summary

This Biological Technical Report (BTR) was prepared for Levy Alameda LLC for the proposed Potentia-Viridi Battery Energy Storage System (BESS) Project (Project). This BTR describes the existing conditions, regulatory setting, existing biological resources within the Project Study Area (PSA), and preliminary assessment of Project impacts.

The PSA is in eastern Alameda County, California. The PSA consists of the BESS facility and a generation tie (gen-tie) alignment to the southeast connecting the facility to the adjacent Pacific Gas & Electric (PG&E) Tesla Substation. The PSA is currently undeveloped. The PG&E Tesla substation is directly east; along the western Project boundary there are transmission lines running northeast to southwest; Patterson Pass Road follows the eastern boundary; there is a railroad line to the south and a gravel access road to the north. The gen-tie alignment connecting the BESS facility to the PG&E substation crosses Patterson Run (a seasonal stream channel). The lands comprising the PSA have been used for cattle grazing in the past, however, the only lands within the PSA currently being grazed are those along the gen-tie alignment between Patterson Pass Road and the western boundary of the PG&E Tesla Substation property. The nearest city is Tracy, approximately 2.5 miles to the east.

Federal, state, and local regulations or policies applicable to the Project include the following:

- Federal
  - Clean Water Act, Sections 404 and 401
  - Federal Endangered Species Act (FESA)
  - Migratory Bird Treaty Act (MBTA)
  - Bald and Golden Eagle Protection Act (BGEPA)
- State
  - Porter-Cologne Water Quality Control Act
  - California Endangered Species Act (CESA)
  - California Fish and Game Code (FGC)
  - California Environmental Quality Act (CEQA)
- Local
  - East Alameda County Conservation Strategy (EACCS)
  - Alameda County General Plan
- Alameda County Code of Ordinances

As part of the BTR, Dudek biologists conducted an updated desktop literature review and database search to identify potentially present special-status biological resources within the PSA and to supplement the Biological Constraints Analysis (Dudek 2023a) and update the September 2023 Biological Technical Report (Dudek 2023b). Dudek qualified biologists also conducted a series of biological field surveys in 2023 and 2024 to evaluate the PSA for special-status species and habitat. Surveys were conducted on March 31, May 16, and August 2 of 2023, January 18, April 12, May 24, and June 17, 2024. These surveys included reconnaissance-level biological field surveys, focused rare plant surveys, burrow mapping, protocol-level burrowing owl surveys, bumble bee habitat mapping, a California red-legged frog habitat assessment, California tiger salamander habitat assessment, and an aquatic resources delineation. The purpose of these surveys was to identify and characterize resources within the

PSA, with particular focus on the potential for occurrence of special-status plant and wildlife species and other sensitive resources.

There was only one vegetation community mapped on the PSA: wild oats and annual brome grassland. This vegetation community is characterized by an herbaceous layer dominated by non-native grass species including wild oats (*Avena* spp.), bromes (*Bromus* spp.), and barleys (*Hordeum* spp.). This habitat type covered the full extent of the PSA.

A formal aquatic resource delineation was conducted on January 18, 2024. No aquatic resources were present on the BESS facility portion of the PSA; however, the gen-tie alignment will cross over a seasonal stream (EPH-01, Patterson Run). Patterson Run is a potential Water of the United States, and the Project proponent has applied to the United States Army Corps of Engineers (USACE) for a Nationwide Permit under Section 404 of the Clean Water Act to cover minor construction-related impacts to Patterson Run.

A total of 18 special-status and rare plants identified from the literature review were determined to have potential to occur within the PSA. Three individuals of big tarplant (*Blepharizonia plumosa*) were observed within PSA at the southwest corner of the PG&E substation. No other special-status plants were observed during the surveys.

A total of 20 special-status wildlife species identified from the literature review were determined to have potential to occur within the PSA. A total of 6 special-status wildlife species are known to occur within the PSA, were observed or detected during field surveys, or have a moderate to high potential to occur on the PSA and could therefore be impacted by eventual Project implementation. Tricolored blackbird was observed foraging on the site and five other special-status wildlife species have a moderate or high potential to occur on the PSA, including California tiger salamander, California red-legged frog, golden eagle, northern harrier, burrowing owl, and white-tailed kite. Although Swainson's hawk have low potential to nest at the project site or vicinity, they were included in this analysis at the request of CEC and CDFW. No other special-status wildlife species were observed during the surveys. Suitable breeding habitat was identified for California tiger salamander and California red-legged frog within dispersal distance of the PSA, and Designated Critical Habitat for California red-legged frog overlaps with the PSA. Nesting birds are also expected to utilize habitat present within the PSA.

The Project and associated PSA fall within the boundaries of the EACCS, specifically within Conservation Zone (CZ) 10. The EACCS provides a framework for natural resource conservation and to streamline the environmental permitting process within the eastern portion of the county. The EACCS defines standardized mitigation ratios for each of the focal species to offset project impacts, based upon an evaluation of habitat quality within the PSA. Mitigation ratios for each covered species within the EACCS that have been identified during field surveys, or that have been assumed to be present, are then adjusted from the base 3:1 ratio based on habitat quality and species-specific calculators included in Appendix E of the EACCS. Total mitigation acreages for each species determined to be present through field surveys, or assumed to be present, may vary depending on the location(s) of compensatory mitigation land selected, habitat quality of mitigation land relative to habitat quality impacted by the project, and the total acres of habitat impacted by the Project. Final compensatory mitigation acreage would be based on habitat impact acreages calculated from final engineering designs approved for construction of the Project and the adjusted mitigation ratios for species requiring compensatory mitigation.

The Project will obtain applicable permits and other approvals from the California Energy Commission (CEC), USACE, United States Fish and Wildlife Service (USFWS), and Central Valley Regional Water Quality Control Board (CVRWQCB) and will minimize and mitigate impacts on natural resources to comply with the regulatory standards

of these agencies. These are the same regulatory standards applied by USFWS and the other environmental agencies in their review and approval of the EACCS. The Project will incorporate avoidance and minimization measures (AMMs) in compliance with EACCS guidelines. Development of the Project would not conflict with implementation of the EACCS. Further, the Project would provide compensatory mitigation for impacts to aquatic resources and EACCS covered species, determined, or assumed to be present within the PSA, through the acquisition of credits from existing mitigation banks or through establishing conservation easements on suitable lands.

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1 Introduction

Dudek is pleased to present Levy Alameda LLC with this Biological Technical Report (BTR) for the proposed Potentia-Viridi Battery Energy Storage System (BESS) Project (Project). This BTR describes the existing conditions, regulatory setting, and existing biological resources within the Project Study Area (PSA) and provides a preliminary analysis of Project impacts. As part of the BTR, Dudek biologists conducted an updated desktop literature review and database search specific to biological resources to supplement the Biological Constraints Analysis (Dudek 2023a) and update the September 2023 Biological Technical Report (Dudek 2023b). Dudek also performed additional biological field surveys during the 2023 and 2024 field seasons to supplement the prior reconnaissance-level biological field survey, including focused surveys for rare plants and burrows, focused habitat assessments for Crotch's bumble bee, and protocol-level surveys for burrowing owl. In addition, a focused habitat assessment for California red-legged frog was conducted for suitable and accessible aquatic features within 1 mile of the PSA, and a formal aquatic resources delineation was conducted to identify and map aquatic resources within the PSA. The purpose of these surveys was to identify and characterize resources within the PSA, with particular focus on the potential for occurrence of special-status plant and wildlife species and other sensitive resources. The *Project site* refers to the area that would be physically affected by construction activities associated with the Project (including temporary disturbance) and the Project layout. The PSA encompasses to the Project site as described above, but also includes a buffer around the generation tie (gen-tie) alignment, buffered areas around the Project site to capture resources within the limits of potential impact or required to be surveyed by species-specific survey protocols, and ponds located to the west of the Project site.

This BTR includes (1) a description of existing conditions on the site, (2) regulatory overview, (3) methods for biological studies, and (4) a description of any sensitive habitats or resources observed on the site. Details pertaining to the PSA are provided below:

- **County:** Alameda
- **Public Land Survey System:** Section 31; Township 2S; Range 4E
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle**: Midway
- **Latitude, Longitude (decimal degrees):** 37.710926°, -121.575397° (centroid)
- **APN:** 99b-7890-2-4 (BESS facility, ~~60.7~~69.1 acres plus buffer); 99B-7890-2-6, 99B-7885-12 (gen-tie alignment, ~~20.44~~32.7 acres including buffer)
- **Elevation Range (feet):** 383 to 523 feet above mean sea level (amsl)
- **PSA:** ~~88.2~~102 acres

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2 Project Setting

2.1 Project Description

The Potentia-Viridi BESS Project proposes the development of an up to 3,200 MWh of battery energy storage system and associated infrastructure across approximately ~~88~~ 102 acres (approximately ~~60~~58.8-acre BESS facility lease area and 10.3-acre survey buffer + approximately ~~6~~13.8-are gen-tie corridor which includes approximately ~~20~~18.9-acre associated survey buffer) (Appendix A: Figure 1, Project Location). The BESS facility would interconnect to the electrical grid via a new 500 kV gen-tie constructed from the project substation to the Point of Interconnection (POI) at the existing PG&E Tesla Substation. Construction and commission of the Project is expected to occur over approximately 24 months.

2.2 Regional Land Use Setting

The PSA is currently undeveloped, and the regional land use has remained largely unchanged since the 1980s based on aerial imagery (Google Earth Pro 2023). Relative to the proposed BESS facility lease area, the PG&E Tesla substation is about 0.25 miles east; high voltage transmission lines parallel the BESS facility lease area along the northwestern, northern, northeastern, and eastern boundaries; Patterson Pass Road roughly parallels the eastern boundary; the Western Pacific Railroad is about 0.1 miles southeast; and there is an existing gravel access road adjacent to the northern boundary. The gen-tie alignment connecting the BESS facility to the PG&E substation crosses Patterson Pass Road, Patterson Run (a seasonal stream channel), and generally proceeds southeast to the Point of Change of Ownership transmission structure, before turning east across the PG&E Tesla Substation property and then north into the substation boundary and POI. The BESS facility site and surrounding land have been used for cattle grazing in the past. However, the BESS facility lease area and PG&E Tesla Substation property have not been grazed recently, whereas the property crossed by the gen-tie between the BESS facility lease area and PG&E Tesla Substation Property is currently used as cattle pasture. The nearest city is Tracy, approximately 2.5 miles to the east.

2.3 Climate and Rainfall

The PSA is within a Mediterranean climate where annual temperatures range from 38.3°F to 92.6°F (WRCC 2023). According to the Tracy Pumping Plant (049001) Weather Station Gauge, yearly precipitation averages 12.03 inches, with the highest average rainfall recorded in January (2.54 inches) (WRCC 2023). The past winter season had higher than average rainfall.

2.4 Soil and Terrain

The PSA is relatively flat, with an approximate elevation of 383 to 523 feet amsl. According to the US Department of Agriculture (USDA) Natural Resources Conservation Service, three soil types are present: Linne clay loam, 3% to 15% slopes (65.65 acres); Linne clay loam, 15% to 30% slopes, MLRA 15 (2.80 acres); and Rincon clay loam, 0% to 3% slopes (19.75 acres) (USDA 2024). The Linne series consists of moderately deep, well drained soils that formed in material from soft shale and sandstone. The Rincon series consists of deep, well drained soils that formed

in alluvium from sedimentary rock. None of the three soil types mapped on site are included on the USDA list of hydric soils (USDA 2023a) commonly associated with wetlands or other waters.

2.5 Hydrology and Watershed

The PSA occurs within the North Diablo Range of the Alameda Creek Watershed (USGS 2023). According to the USFWS National Wetlands Inventory (NWI), there are several freshwater ponds, freshwater wetlands, and riverine aquatic features in the vicinity of the Project (USFWS 2023a; Appendix A: Figure 2, Biological Setting). The NWI is based on coarse aerial mapping and does not involve ground-truthing. The national hydrography dataset shows Patterson Run and one other drainage crossing the PSA from south to north. Patterson Run is a seasonal stream system that runs parallel to Patterson Pass Road, adjacent to the PSA. Patterson Run is classified in the NWI as a freshwater emergent wetland (USFWS 2023a). The second drainage is classified by the NWI as freshwater emergent wetland (USFWS 223a), however, there is no physical evidence of this drainage within the PSA either on aerial imagery or when surveyed on the ground.

3 Regulatory Setting

3.1 Federal

3.1.1 Clean Water Act, Section 404

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged and/or fill material into "Waters of the U.S." Activities in wetlands or waters for which a USACE permit may be required include, but are not limited, the placement of fill material due to development, land clearing involving relocation of soil, road construction, erosion control, mining, stockpiling excavation spoils, and utility line or pipeline construction. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid an impact) can include, to an extent, certain drainage channel maintenance activities involving the use of hand tools only or by positioning construction equipment outside of USACE jurisdiction and excavating without stockpiling in jurisdictional areas. Any person or public agency proposing to discharge dredged or fill material into Waters of the U.S., including jurisdictional wetlands, must obtain a Section 404 permit from USACE.

3.1.2 Clean Water Act, Section 401

Section 401 of the CWA provides states and authorized tribes with an important tool to help protect the water quality of federally regulated waters within their borders (i.e., waters of the state), in collaboration with federal agencies. EPA's regulations at 40 CFR 121 address CWA Section 401 certification. Under Section 401 of the CWA, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into water of the United States unless a CWA Section 401 water quality certification is issued, or certification is waived. States and authorized tribes where the discharge would originate are responsible for issuing water quality certifications. In cases where a state or tribe does not have authority, EPA is responsible for issuing certification. In making decisions to grant, grant with conditions, or deny certification requests, certifying authorities consider whether the federally licensed or permitted activity will comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants restrictions, and other appropriate water quality requirements of state or tribal law. A federal agency may not issue a license or permit for an activity that may result in a discharge into waters of the United States without a water quality certification or waiver (EPA 2023a). On June 9, 2022, proposed rule changes to CWA Section 401 were published (87 FR 35318 et seq.) and were finalized in November of 2023 (EPA 2023b). The changes include pre-filing meetings and statutory timeframes.

Implementation in California

The California State Water Resources Control Board (SWRCB) has authority over waters of the state, including wetlands, through Section 401 of the CWA, the Porter–Cologne Water Quality Control Act (Porter–Cologne Act), California Code of Regulations Section 3831(k), and the California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by SWRCB to the nine regional boards. The Central Valley Regional Water Quality Control Board has

authority for Section 401 compliance in the Project region. A request for Water Quality Certification is submitted to the RWQCB while an application is filed with USACE (EPA 2023a).

3.1.3 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended (16 USC 1531 et seq.), serves as the enacting legislation to list, conserve, and protect threatened and endangered species, and the ecosystems on which they depend, from extinction. In addition, for those wildlife species listed as federally endangered, FESA provides for the ability to designate critical habitat, defined as that habitat considered "essential to the conservation of the species" and that "may require special management considerations or protection."

Under FESA Section 7, if a project that would potentially result in adverse impacts to threatened or endangered species includes any action that is authorized, funded, or carried out by a federal agency, that agency must consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any such action is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat (DCH) for that species. FESA Section 9(a)(1)(B) prohibits the taking, possession, sale, or transport of any endangered fish or wildlife species. "Take" is defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532[19]). With respect to any endangered species of plant, Sections 9(a)(2)(A) and 9(a)(2)(B) prohibit the possession, sale, and import or export, of any such species, and prohibits any action that would "remove and reduce to possession any such species from areas under federal jurisdiction; maliciously damage or destroy any such species on any such area; or remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law." Pursuant to FESA Section 10(a)(1)(B), USFWS may issue a permit for the take of threatened or endangered species if such taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity" (USFWS 2023b).

Designated Critical Habitat

The FESA also enables USFWS to designate critical habitat, which is defined specific geographic areas, whether occupied by listed species or not, that contain "physical or biological features essential to the conservation of the species" and that "may require special management considerations or protection" (50 CFR 424.12). Designated critical habitat units, published in the Federal Register by USFWS, are often large and may contain areas that do not provide habitat for the species: only areas within the critical habitat units that support the species' *primary constituent elements* (PCEs) are subject to ESA consultation and analysis of critical habitat effects. PCE was a term introduced in the critical habitat designation regulations to describe aspects of ''physical or biological features.'' On May 12, 2014, the Services proposed to revise these regulations to remove the use of the term ''primary constituent elements'' and replace it with the statutory term ''physical or biological features'' (79 FR 27066). However, the shift in terminology does not change the approach used in conducting a ''destruction or adverse modification'' analysis, which is the same regardless of whether the original designation identified PCE, physical or biological features, or both (81 FR 7220, 2/11/16).

3.1.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the CFR. The MBTA is an international treaty for the conservation and

management of bird species that migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the CFR. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors) (USFWS 2023c).

3.1.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668 et seq.) provides for the protection of both bald and golden eagles. Specifically, BGEPA prohibits take of eagles, which is defined as any action that would "pursue, destroy, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" bald and golden eagles, including parts, nests, or eggs. The term "disturb" is further defined by regulation as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle, a decrease in productivity, or nest abandonment" (50 CFR 22.3). Under BGEPA, it is also illegal to "sell, purchase, barter, trade, import, or export, or offer for sale, purchase, barter, or trade, at any time or in any manner, any bald eagle or any golden eagle, or the parts, nests, or eggs" of these birds. Pursuant to 50 CFR 22.26, and as of the latest amendment to BGEPA in December 2016, a permit may be obtained that authorizes take of bald eagles and golden eagles where the take is "compatible with the preservation of the bald eagle and the golden eagle; is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot practicably be avoided" (USFWS 2023d).

3.2 State

3.2.1 Porter-Cologne Water Quality Control Act

As detailed above in Section 3.1.2, Clean Water Act, Section 401, the Porter–Cologne Act, CFGC Sections 1601-1607, delegates responsibility to SWRCB for water rights and water quality protection and directs the nine statewide RWQCBs to develop and enforce water quality standards within their jurisdiction. The Porter–Cologne Act requires any entity discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state to file a "report of waste discharge" with the appropriate RWQCB. The appropriate RWQCB then must issue a permit, referred to as a Waste Discharge Requirement. Waste Discharge Requirements implement water quality control plans and take into consideration the beneficial uses to be protected, the water quality objectives required for that purpose, other waste discharges, and the need to prevent nuisances (SWRCB 2023).

SWRCB defines a water of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]). As of April 2019, SWRCB has defined "wetland" to include the following (SWRCB 2023):

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state,
3. Artificial wetlands that meet any of the following criteria:
    a) Approved by an agency as compensatory mitigation for impacts to other Waters of the State, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b) Specifically identified in a Water Quality Control Plan as a wetland or other water of the state;

c) Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or

d) Greater than or equal to one acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation" (SWRCB 2023).

3.2.2 California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Wildlife (CDFW) has the responsibility of maintaining a list of threatened and endangered species. CESA prohibits the take of state-listed threatened or endangered animals and plants unless otherwise permitted pursuant to CESA. "Take" under CESA is defined as any of the following: "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (CFGC Section 86). Species determined by the state to be candidates for listing as threatened or endangered are treated as if listed as threatened or endangered and are, therefore, protected from take. Pursuant to CESA, a state agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species, or candidate species, could be potentially impacted by that project (CDFW 2023a).

3.2.3 California Fish and Game Code

Divisions of the California Fish and Game Code (CFGC) establish the basis of fish, wildlife, and native plant protections and management in the state.

3.2.3.1 California Fish and Game Code, Section 1940

Section 1940 of the CFGC requires CDFW to develop and maintain a vegetation mapping standard for the state. More than half of the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program

Natural vegetation communities are evaluated by CDFW and are assigned global (G), and state (S) ranks based on rarity of and threats to these vegetation communities in California. Sensitive natural communities are defined by CDFW as vegetation alliances with state ranks of S1–S3 (S1: critically imperiled, S2: imperiled, S3: vulnerable), as

identified in the 2010 List of Vegetation Alliances and Associations and subsequent updates. Natural communities with ranks of S1–S3 are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents. Additionally, all vegetation associations within the alliances with ranks of S1–S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities are considered to include vegetation communities listed in CDFW's California Natural Diversity Database (CNDDB) and communities listed in the California Natural Community List with a rarity rank of S1- S3 (CDFW 2023c).

3.2.3.2 Lake and Streambed Alteration Program

Under Sections 1600–1616 of the CFGC, CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined in the code as the "bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." In practice, CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider (CDFW 2023b).

3.2.3.3 Native Plant Protection Act

The Native Plant Protection Act was enacted in 1977 and is administered by CDFW, per CFGC Section 1900 et seq. The Native Plant Protection Act prohibits take of endangered, threatened, or rare plant species native to California, apart from special criteria identified in the CFGC. A "native plant" means a plant growing in a wild uncultivated state that is normally found native to the plant life of the state. A "rare" species can be defined as species that are broadly distributed but never abundant where found, narrowly distributed, or clumped yet abundant where found, and/or narrowly distributed or clumped and not abundant where found. If potential impacts are identified for a project activity, then consultation with CDFW, permitting, and/or other mitigation may be required (CLI 2023).

3.2.3.4 Nesting Migratory Birds and Raptors

Section 3503 of the CFGC states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

3.2.3.5 Non-game Mammals

CFGC Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take as stated in CFGC Section 4150.

3.2.3.6 Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the CFGC outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. On July 10, 2023, Senate Bill 147 (SB147) was signed into law and amends the Fish and Game Code to allow a 10-year permitting mechanism for a defined set of projects within the renewable energy, transportation, and water infrastructure sectors. Furthermore, it is the responsibility of CDFW to maintain viable populations of all native species. Toward that end, CDFW has designated certain vertebrate species as Species of Special Concern, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

3.2.4 California Environmental Quality Act

CEQA, PRC Section 21000 et seq., requires public agencies undertaking discretionary actions to approve a project to first determine whether a project may have a significant effect on the environment, and then to prepare an environmental impact report if there is substantial evidence that the project may have a significant effect on the environment. Where an environmental impact report has been prepared, CEQA further requires public agencies to adopt findings with respect to each significant effect that "changes or alterations have been required in, or incorporated, into the project which mitigate or avoid the significant effects on the environment; that those changes are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency; or that specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report" (PRC Section 21081[a]).

The California Natural Resources Agency has adopted regulations (i.e., guidelines) to implement CEQA. Pursuant to CEQA Guidelines Section 15380, protection is provided for federal and/or state-listed species, as well as species not listed federally or by the state that may be considered rare, threatened, or endangered. Species that meet these criteria can include candidate species, species proposed for listing, and Species of Special Concern (SSC). Plants listed in the California Native Plant Society (CNPS) Rare Plant Program are considered to meet CEQA's Section 15380 criteria as well. Section 15380 also addresses a potential situation in which a public agency is to review a project that may have a significant effect on, for example a candidate species, which has not yet been listed by USFWS or CDFW. Therefore, CEQA enables an agency to protect a species from significant project impacts until the respective government agencies have had an opportunity to list the species as protected, if warranted. Impacts to these species would therefore be considered significant, requiring mitigation (CDFW 2023c).

3.2.5 California Energy Commission – Assembly Bill 205

Assembly Bill (AB) 205 is an emergency regulation expanding the CEC's siting authority for renewable energy projects constructed on or before June 30, 2029. AB 205 was signed into law on June 30, 2022 and allows renewable and energy storage projects to apply for direct state permits through the CEC. CEC certification opt-in statute (specifically 25545.1(b)(1)) says "the issuance of a certificate by the commission for a site and related facility pursuant to this chapter shall be in lieu of any permit, certificate, or similar document required by any state, local, or regional agency [except California Coastal Commission, San Francisco Bay Conservation and Development

Commission, and State/Regional Water Quality Control Board] … for the use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency….”

The application for certification process is in lieu of CDFW 2081 ITP or CFGC Section 1600 et seq. LSAA. However, applications for both of these permits will be submitted to the CEC for informational purposes. The CEC Certification will include conditions and mitigation that would otherwise be requirements in these CDFW permits.

3.3 County of Alameda

3.3.1 East Alameda County Conservation Strategy

The County of Alameda (County), along with other local land use jurisdictions and resource agencies, developed the East Alameda County Conservation Strategy (EACCS) to provide a framework for natural resource conservation and to streamline the environmental permitting process within the eastern portion of the county (ICF 2010). The EACCS is not a formal Habitat Conservation Plan (HCP) in that it does not require local agencies to conserve species and habitat prior to approving projects that impact listed species and/or their habitat, nor does it have a corresponding programmatic incidental take permit from USFWS. Instead, it is intended to streamline state and local permitting by providing guidance on avoidance, minimization, and mitigation for project-level impacts on selected focal special-status species and sensitive habitats. USFWS and CDFW participated in the development of the Conservation Strategy with the intent that it would become the blueprint for all mitigation and conservation in the region. Both agencies still refer to the EACCS when reviewing project-level impacts on focal species and their habitat.

The EACCS includes standardized mitigation ratios for each of the focal species that can be used by local jurisdictions and resource agencies as guidance to determine appropriate mitigation to offset project impacts on focal species habitat. These are based on an evaluation of the habitat quality on a PSA scored using Focal Species-Impact/Mitigation Score Sheets[1] for each of the focal species assumed present or potentially present. Mitigation ratios are then calculated based on application of the same scoring sheet to the proposed mitigation site. Project-specific mitigation ratios may vary depending on the quality and location of the habitat being lost and the quality and location of proposed mitigation.

The EACCS includes avoidance and minimization measures (AMMs) for all focal species covered by the EACCS. These include general AMMs applicable to all focal species, as well as species- or taxon-specific AMMs. The standardized mitigation ratios discussed above are only valid if a project application is in compliance with all applicable AMMs. The general AMMs and project applicable specific AMMs are detailed below.

General

GEN - 01 Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and Avoidance and Minimization Measures (AMMs) that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.

GEN - 02 Environmental tailboard trainings will take place on an as - needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities.

[1] Available at http://www.eastalco-conservation.org/documents/eaccs_appe_oct2010.pdf.

Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

GEN - 03 Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these requirements, AMMs.

GEN - 04 The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).

GEN - 05 Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

GEN - 06 Off - road vehicle travel will be minimized.

GEN - 07 Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land - cover types, or during off - road travel.

GEN - 08 Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

GEN - 09 Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

GEN - 10 To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed - free straw.

GEN - 11 Pipes, culverts, and similar materials greater than four inches in diameter, will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.

GEN - 12 Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic mono - filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

GEN - 13 Stockpiling of material will occur such that direct effects to covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.

GEN - 14 Grading will be restricted to the minimum area necessary.

GEN - 15 Prior to ground disturbing activities in sensitive habitats, project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.

GEN - 16 Significant earth moving - activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1 - inch of rain or more).

GEN - 17 Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.

Amphibians: California tiger salamander, CRLF

AMPH-1. *Habitat: Streams, wetlands, ponds, vernal pools.*

- If aquatic habitat is present, a qualified biologist will stake and flag an exclusion zone prior to activities. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew). The exclusion zone will encompass the maximum practicable distance from the work site and at least 500 feet from the aquatic feature wet or dry.

AMPH-2. *Habitat: Riparian habitat and grasslands within 2-miles of aquatic habitat.*

- A qualified biologist will conduct preconstruction surveys prior to activities define a time for the surveys (before groundbreaking). If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFG approved relocation site.
- A Service - approved biologist should be present for initial ground disturbing activities.
- If the work site is within the typical dispersal distance (contact USFWS/CDFG for latest research on this distance for species of interest) of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work.
- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A qualified biologist possessing a valid ESA Section 10(a)(1)(A) permit or Service approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside fenced area.
- Work will be avoided within suitable habitat from October 15 (or the first measurable fall rain of 1" or greater, to May 1.

Golden Eagle

BIRD-1. *Habitat: Cliff and large trees surrounded by open grassland.*

- If an active nest is identified near a proposed work area work will be conducted outside of the nesting season (February 1 to September 1).
- If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no - activity zone will be established by a qualified biologist. The no - activity zone will be large enough to avoid nest abandonment and will at a minimum be 250 - feet radius from the nest.
- If an effective no - activity zone cannot be established in either case, an experienced golden eagle biologist will develop a site - specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the eagles, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the eagles.

Burrowing Owl

BIRD-2. *Habitat: Grasslands or ruderal areas with burrows.*

- If an active nest is identified near a proposed work area work will be conducted outside of the nesting season (March 15 to September 1).
- If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no - activity zone will be established by a qualified biologist. The no - activity zone will be large enough to avoid nest abandonment and will at a minimum be 250 - feet radius from the nest.
- If burrowing owls are present at the site during the non - breeding period, a qualified biologist will establish a no - activity zone of at least 150 feet.
- If an effective no - activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site - specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

Tricolored Blackbird

BIRD-3. *Habitat: Wetlands, ponds with emergent vegetation.*

- If an active nest colony is identified near a proposed work area work will be conducted outside of the nesting season (March 15 to September 1).

Mammals: San Joaquin Kit Fox, American Badger

MAMM-1. *Habitat: Grassland, generally with ground squirrel burrows.*

- If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the proposed work area and cannot be avoided during construction, qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFG. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 2011).
- Exclusion zones will be implemented following USFWS procedures (U.S. Fish and Wildlife Service 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or will be as follows: Potential Den—50 feet; Known Den—100 feet; Natal or Pupping Den—to be determined on a case - by - case basis in coordination with USFWS and CDFG.
- Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construction areas is active.

3.3.2 Alameda County General Plan

The County maintains a General Plan, which provides guidelines for development within the County. The PSA is located within the East County Area Plan (ECAP) (Alameda County 1994). General Plan policies that are relevant to the Project are outlined below.

Policy 123: Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as "Resource Management" or on lands adjacent to or otherwise contiguous with these lands to establish a continuous open space system in East County and to provide for long term protection of biological resources.

Policy 125: The County shall encourage preservation of areas known to support special status species.

Policy 126: The County shall encourage no net loss of riparian and seasonal wetlands.

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4 Methods

4.1 Key Definitions

Special-Status Species

For the purposes of this analysis, special plant species are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. These species fall into one or more of the following categories:

- Listed by the federal government under the FESA of 1973 or the State of California under the CESA of 1970 as endangered, threatened, or rare.
- A candidate for federal or state listing as endangered or threatened.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation.
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California; and
- Taxa strongly associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats).

Taxa considered to be "rare, threatened, or endangered in California" as defined by CDFW are assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:

- **CRPR 1A:** Plants presumed to be extinct in California.
- **CRPR 1B:** Plants that are rare, threatened, or endangered in California and elsewhere.
- **CRPR 2A:** Plants presumed to be extinct in California, but more common elsewhere.
- **CRPR 2B:** Plants that are rare, threatened, or endangered in California, but more common elsewhere.
- **CRPR 3:** Plants about which more information is needed (a review list).
- **CRPR 4:** Plants of limited distribution (a watch list).

Plants ranked as CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of CEQA Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis (CDFW 2018).

Special-status wildlife species include species that meet any of the following criteria (some species may meet several criteria):

- Listed, proposed for listing, or candidates for listing as threatened or endangered under FESA.
- Listed or candidates for listing as threatened or endangered under CESA.

- Designated as Species of Special Concern by the CDFW.
- Designated as a fully protected species by the California Fish and Game Code.
- Meet the definition of rare, threatened, or endangered as described in the CEQA Guidelines, Section 15380.

Sensitive Natural Communities

Natural vegetation communities are evaluated by CDFW and are assigned global (G), and state (S) ranks based on rarity of and threats to these vegetation communities in California. Sensitive natural communities are defined by CDFW as vegetation alliances with state ranks of S1–S3 (S1: critically imperiled, S2: imperiled, S3: vulnerable), as identified in the 2010 List of Vegetation Alliances and Associations and subsequent updates. Natural communities with ranks of S1–S3 are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents. Additionally, all vegetation associations within the alliances with ranks of S1–S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities are considered to include vegetation communities listed in CDFW's California Natural Diversity Database (CNDDB) and communities listed in the California Natural Community List with a rarity rank of S1- S3 (CDFW 2023d).

4.2 Database and Literature Review

Dudek conducted an initial database and literature review as part of the Biological Constraints Analysis drafted in April 2023 (Dudek 2023a). An updated database and literature review was conducted as part of the Biological Technical Report drafted in September 2023 (Dudek 2023b). To reflect recent changes in the Project site boundaries and new gen-tie alignment, updated database and literature reviews for the revised PSA were conducted in January 2024. Special-status biological resources present or potentially present within the PSA were identified through an extensive updated literature search using the following sources: USFWS Information for Planning and Consultation (IPaC) online tool (USFWS 2024), CDFW California Natural Diversity Database (CNDDB) (CDFW 2024), and California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2024). The Soil Survey Geographic Database for California (USDA 2024) was also reviewed to identify soil associations potentially supporting special-status plants (e.g., alkaline soils). Native plant community classifications used in this report follow a Manual of California Vegetation Online (CNPS 2023a) and California Natural Community List (CDFW 2023d). The search area for the IPaC query was based on the site boundary. The CNDDB and CNPS databases were queried for the nine U.S. Geological Survey (USGS) 7.5-minute quadrangles containing and immediately surrounding the site (Byron Hot Springs, Clifton Court Forebay, Union Island, Altamont, Midway, Tracy, Mendenhall Springs, Cedar Mountain, Lone Tree Creek). Database search results are presented in Appendix B, Database Search Results. Following the updated database review, Dudek biologists determined the potential for special-status plant and wildlife species to occur on site. Determinations were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range and nearest occurrence records of each species.

4.3 Field Surveys

Dudek qualified biologists conducted biological field surveys in 2023 and 2024 to evaluate the PSA for special-status species and habitat. These included reconnaissance surveys and focused surveys for rare plants, burrows, Crotch's bumble bee (*Bombus crotchii*) habitat, protocol-level burrowing owl surveys, and California tiger salamander (CTS) and California red-legged frog (*Rana draytonii*; CRLF) habitat assessments. Additionally, a formal aquatic resource delineation was conducted concurrently with the reconnaissance and focused surveys in 2024. The field surveys are summarized in Table 1 and discussed further below. Resumes for staff are included as Appendix C.

Table 1. Field Survey Summary

Date	Survey Type(s)	Biologists	Time	Survey Conditions
03/31/2023	Reconnaissance (original Project site boundary only, excludes gen-tie)	Emily Scricca Erin Fisher-Colton	9:30 a.m.–11:30 a.m.	58°F–61°F, 75%–90% cloud cover, 1–4 mph wind
05/16/2023	▪ Protocol-Level Botanical ▪ Focused Burrow Surveys ▪ Focused Crotch's Bumble Bee Habitat Assessment	Kelsey Higney Lorna Haworth	8:41 a.m.–11:15 a.m.	80°F–85°F, 0% cloud cover, 0–6 mph wind
08/02/2023	▪ Reconnaissance (gen-tie alignment only) ▪ Protocol-Level Botanical ▪ Focused Burrow Surveys ▪ Focused Crotch's Bumble Bee Habitat Assessment ▪ Protocol-level California Red-Legged Frog (CRLF) Habitat Assessment	Kelsey Higney Erin Fisher-Colton	9:23 a.m.–4:54 p.m.	71°F–80°F, 0% cloud cover, 5–20 mph wind
01/18/2024	▪ Reconnaissance (adjusted gen-tie alignment only) ▪ Protocol-Level Botanical (adjusted gen-tie alignment only) ▪ Focused Burrow Surveys (adjusted gen-tie alignment only) ▪ Focused Crotch's Bumble Bee Habitat Assessment (adjusted gen-tie alignment only) ▪ Aquatic Resources Delineation	Mikaela Bissell Erin Fisher-Colton	9:16 a.m.-2:30 p.m.	50°F–58°F, 80%-100% cloud cover, 1-4 mph wind
04/12/2024	▪ Protocol-level Burrowing Owl Survey – Pass 1 ▪ Follow-up burrow assessment for San Joaquin Kit Fox and American Badger ▪ Protocol-level rare plant survey	Mikaela Bissell Tara Johnson-Kelly	8:30 a.m. – 2:00 p.m.	55°F–60°F, 0%-10% cloud cover, 10-14 mph wind

Table 1. Field Survey Summary

Date	Survey Type(s)	Biologists	Time	Survey Conditions
05/03/2024	▪ Protocol-level Burrowing Owl survey – Pass 2	Kelsey Higney Tara Johnson-Kelly	7:00 a.m. – 12:00 p.m.	56°F–71°F, 0% cloud cover, 10-15 mph wind
05/24/2024	▪ Protocol-level Burrowing Owls Survey – Pass 3	Tara Johnson-Kelly Paul Keating	7:00 a.m. – 12:00 p.m.	57°F–64°F, 0%-10% cloud cover, 10 mph wind
06/17/2024	▪ Protocol-level Burrowing Owl Survey – Pass 4 ▪ Protocol-level rare plant survey	Paul Keating	3:00 p.m. – 7:00 p.m.	82°F–78°F, 0% cloud cover, 15-20 mph wind
12/12/2024	▪ Protocol-level winter Burrowing Owl Survey – Pass 1 ▪ Swainson's Hawk Habitat Survey/Protocol-level Nesting Survey ▪ Golden Eagle Habitat Survey/Protocol-level Nesting Survey	Paul Keating, Alex Freeman	7:30 a.m. – 12:00 p.m.	45°F–56°F, 90-100% cloud cover, 5-10 mph wind
01/04/2025	▪ Protocol-level winter Burrowing Owl Survey – Pass 2	Paul Keating	7:30 a.m. – 11:00 a.m.	40°F–53°F, 0%-10% cloud cover, 10-15 mph wind
01/11/2025	▪ Protocol-level winter Burrowing Owl Survey – Pass 3	Paul Keating	8:00 a.m. – 12:00 a.m.	41°F–60°F, 0%-5% cloud cover, 5-10 mph wind
01/31/2025	▪ Protocol-level winter Burrowing Owl Survey – Pass 4	Paul Keating	7:30 a.m. – 12:00 a.m.	47°F–55°F, 20%-75% cloud cover, 5-15 mph wind
03/20/2025	▪ Protocol-level Swainson's Hawk Survey ▪ Golden Eagle Protocol-level Nesting Survey	Paul Keating	7:30 a.m. – 2:00 p.m..	45°F–60°F, 0% cloud cover, 5-10 mph wind
03/27/2025	▪ Protocol-level Swainson's Hawk Survey	Paul Keating	7:00 a.m. – 10:00 a.m.	57°F–64°F, 5%-15% cloud cover, 5-15 mph wind
04/03/2025	▪ Protocol-level Swainson's Hawk Survey	Paul Keating	7:00 a.m. – 10:00 a.m.	44°F–62°F, 0% cloud cover, 5 mph wind
04/11/2025	▪ Protocol-level Swainson's Hawk Survey	Paul Keating	7:30 a.m. – 12:00 a.m.	58°F–70°F, 0% cloud cover, 5-10 mph wind
04/17/2025	▪ Protocol-level Swainson's Hawk Survey	Paul Keating	7:30 a.m. – 12:00 a.m.	53°F–67°F, 0% cloud cover, 5-10 mph wind
04/28/2025	▪ Protocol-level Swainson's Hawk Survey ▪ Golden Eagle Protocol-level Nesting Survey	Paul Keating	8:00 a.m. – 2:00 p.m.	53°F–69°F, 0% cloud cover, 5-15 mph wind

All plant species encountered during the field surveys were identified to lowest possible taxonomic rank and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR) follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2024). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2023), and common names follow the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2023b). Wildlife species detected during field surveys by sight, calls, tracks, scat, or another sign were recorded. Binoculars (8-times magnification) were used to identify observed wildlife. A list of observed plant and wildlife species is presented in Appendix D, Plant and Wildlife Species Compendium, and representative site photographs are presented in Appendix E, Photo Record.

4.3.1 Reconnaissance Surveys

A reconnaissance-level field survey was conducted on March 31, 2023, to identify vegetation communities and assess the original BESS Project site boundary and vicinity for suitable habitat for special-status plant and wildlife species. This survey was conducted on foot and by vehicle to provide complete visual coverage of the original Project site. No protocol-level surveys were conducted at this time.

A follow-up reconnaissance-level field survey was conducted for the updated PSA which included the BESS Project site and buffered gen-tie alignment of the Project area on August 2, 2023, in conjunction with the surveys for rare plants, burrows, and Crotch's bumble bee habitat. This survey was conducted on foot to identify vegetation communities in the updated PSA boundaries. During the August reconnaissance survey, a reconnaissance-level wetland assessment was done for the site. The focus was to determine if there were any potential jurisdictional waters on the site that would require further protocol jurisdictional delineations.

A second follow-up reconnaissance-level field survey was conducted for the adjusted buffered gen-tie alignment on January 18, 2024. This survey was conducted on foot to identify vegetation communities along the adjusted gen-tie alignment and included surveys for rare plants, burrows, and Crotch's bumble bee habitat within the adjusted buffered gen-tie alignment.

4.3.2 Protocol-Level Botanical Surveys

Protocol-level rare plant surveys were conducted on May 16, 2023, August 2, 2023, and January 18, April 12, and June 17, 2024, to identify special-status rare plant species within the updated PSA boundaries. Dudek qualified biologists surveyed the entire PSA on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated PSA boundaries and gen-tie alignment. Rare plants surveys were conducted in accordance with the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000), the Protocol for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), and the CNPS Botanical Survey Guidelines (CNPS 2001). Rare plants occurrences were mapped using ArcGIS Field Maps (Esri).

4.3.3 Focused Burrow Surveys

Focused burrow surveys were conducted on May 16, 2023, August 2, 2023, and January 18, 2024, to identify a variety of animal burrows within the updated PSA boundaries. Additional surveys to assess burrow suitability for San Joaquin kit fox and American badger were conducted on April 12, 2024. The subsequent assessment for San

Joaquin kit fox and American badger followed recommendations outlined in the *San Joaquin Kit Fox Survey Protocol for the Northern Range* (USFWS 1999). Dudek qualified biologists surveyed the entire PSA on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated PSA boundaries and gen-tie alignment. Burrows of all sizes were mapped using ArcGIS Field Maps (Esri).

4.3.4 Protocol-level Burrowing Owl Surveys

Surveys for western burrowing owl were conducted by Dudek qualified biologists on April 12, May 3, May 24, and June 17, 2024. Winter surveys were conducted on December 12, 2024, January 4, 11, and 31, 2025. Surveys followed recommended protocol outlined in Appendix D of the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys utilized data collected during the focused burrow surveys (Section 4.3.3) to walk transect no more than 20 meters apart within the PSA. Biologists documented any sight or sign of western burrowing owl during the survey.

4.3.5 Protocol-level Swainson's Hawk Surveys

Surveys for Swainson's hawk were conducted by Dudek qualified biologists on December 12, 2024, March 20, 27, April 3, 11, 17, and 28, 2025. Surveys followed recommended protocol outlined in *The recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk* Technical Advisory Committee, 2000). Although the protocol recommends surveys within 0.5 mile of an area, Dudek performed the surveys within 1 mile of the Study Area due to the lack of suitable nest tree abundance and to verify whether or not Swainson's hawk utilizes the greater project area. Surveys included an initial survey to assess potential nesting habitat and the presence of suitable stick nests, then a total of six additional surveys through the courtship, incubation, and fledging life stages. Surveys were conducted primarily by vehicle from accessible roads using binoculars and spotting scope.

4.3.6 Protocol-level Golden Eagle Surveys

Surveys for golden eagle were conducted by Dudek qualified biologists concurrently with the Swainson's hawk surveys described in Section 4.3.5 on December 12, 2024, March 20, 27, April 3, 11, 17, and 28, 2025. Surveys followed recommended protocol for ground-based surveys outlined in the *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al 2010). The survey buffer was 2 miles, where accessible. Surveys included an initial survey to assess potential nesting habitat and the presence of suitable stick nests, as well as visiting previously documented territories within the 2-mile buffer. Additional surveys were conducted in the courtship, incubation, nestling, and fledgling stages. Surveys included identification of vantage points overlooking the Study Area and observing raptor activity with the aid of binoculars and spotting scope. Vantage point observations were made on December 12, 2024, March 20, 2025, and April 28, 2025, for a minimum of 4 hours.

~~4.3.5~~4.3.7 Focused Crotch's Bumble Bee Habitat Assessment

Focused Crotch's bumble bee habitat assessments were conducted on May 16, 2023, August 2, 2023, and January 18, 2024, to identify foraging and nesting habitat for Crotch's bumble bees within the updated PSA boundaries. Dudek qualified biologists surveyed the entire PSA on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated PSA boundaries and gen-tie alignment. Bumble bee habitat was

identified following CDFW Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (CDFW 2023e), which includes plant species that provide floral (nectar) resources and nesting substrates such as bare ground, rodent burrows, thatched grass, or rock piles. Potential bumble bee floral resources and nesting substrates were mapped using ArcGIS Field Maps (Esri).

~~4.3.6~~4.3.8 Protocol-Level California Red-Legged Frog Habitat Assessment

A protocol-level habitat assessment for CRLF was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the PSA to identify potential aquatic breeding sites within dispersal distance of the PSA. Not all aquatic habitats within 1 mile were able to be surveyed due to access restrictions. Habitat assessments were conducted in accordance with the USFWS *Revised Guidance on Site Assessments and Field surveys for the California Red-legged Frog* (USFWS 2005). Aquatic features were coarsely mapped along top of bank using ArcGIS Field Maps (Esri).

~~4.3.7~~4.3.9 Protocol-Level California Tiger Salamander Habitat Assessment

Concurrently with the CRLF habitat assessment (4.3.6), a protocol-level habitat assessment for California tiger salamander was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the PSA to identify potential aquatic breeding sites within dispersal distance of the PSA. Not all aquatic habitats within 1.24 miles were able to be surveyed due to access restrictions. Habitat assessments were conducted in accordance with the USFWS *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003). Aquatic features were coarsely mapped along top of bank using ArcGIS Field Maps (Esri).

~~4.3.8~~4.3.10 Aquatic Resources Delineation

A preliminary wetland assessment was conducted during the reconnaissance survey on August 2, 2023, to generally identify and coarsely map aquatic resources that may require further protocol jurisdictional delineations. Dudek then conducted a complete aquatic resources delineation concurrent with the reconnaissance-level biological field survey on January 18, 2024, to identify and map the extent of aquatic resources within the entire PSA that are potentially subject to regulation under federal CWA Sections 401 and 404, CFGC Section 1602, or under the Porter-Cologne Act. The results of the aquatic resources delineation have been incorporated into this report. Representative photographs were collected for each of the aquatic resources (Appendix E, photo record) and wetland delineation datasheets were completed (Appendix ~~H~~F, Wetland Delineation Datasheets).

5 Results

5.1 Vegetation Communities

Only one vegetation community was mapped in the PSA: wild oats and annual brome grassland (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance; CNPS 2023a; Figure 2). This community, often referred to as California annual grassland, is characterized by an herbaceous layer dominated by non-native grass species including wild oats (*Avena* spp.), bromes (*Bromus* spp.), and barleys (*Hordeum* spp.). The herbaceous layer is less than 1.2 meters in height and cover is open to continuous (CNPS 2023a). Annual grassland covers the entire PSA outside of the aquatic features ~~(88.24 acres)~~.

5.2 Aquatic Resources

A formal aquatic delineation was conducted on January 18, 2024. There is one seasonal channel (EPH-01; 0.37 acre, 846.07 linear feet), Patterson Run, within the PSA where the along the gen-tie alignment, which parallels Patterson Pass Road (Figure 3). This seasonal channel flows southwest to northeast. The channel had moderate flow during the March 2023 and February 2024 surveys and was dry during the May and August 2023 surveys. One swale-like area was surveyed along the gen-tie alignment at the southwest corner of the PG&E substation. This feature exhibited cracked clay and sandy wash type soils during the August 2023 survey, with patchy grassland habitat along the margins and herbaceous plants such as dove weed (*Croton setiger*), curly dock (*Rumex crispus*), and big tarplant (*Blepharizonia plumosa*). However, the survey determined that this feature did not contain hydric soils, vegetation, or hydrology and, thus, is not a jurisdictional aquatic resource.

5.3 Observed Plant and Wildlife Species

A total of 42 plant species, consisting of 19 (45%) native species and 23 (55%) non-native species, were observed within or in the immediate vicinity of the PSA during the rare plant surveys and reconnaissance-level biological field surveys (Appendix D, Plant and Wildlife Species Compendium). A total of 20 native and 1 non-native wildlife species were recorded within or in the immediate vicinity of the PSA during the biological field surveys (Appendix D; Plant and Wildlife Species Compendium). Big tarplant was observed during the rare plant survey on August 2, 2023 (Refer to Section 5.4.1 for further information). No other special-status plant species were observed during the 2023 or 2024 surveys, and the surveys were coincident with the timing when many special-status plant species are detectable. A detailed account of special-status wildlife on site is provided in Section 5.4.2 below. Tricolored blackbird was observed foraging within the PSA during the January 18, 2024 site survey. No other special-status wildlife species or their sign were observed during the biological field surveys.

5.4 Special-Status Species

5.4.1 Special-Status Plants

Based on the updated literature review and database searches, a total of 42 special-status plants have been recorded within 5 miles of the PSA and/or within the 9 quadrangles in the vicinity of the PSA (Appendix A: Figure 4,

Special-Status Species Occurrences; Appendix ~~F~~G, Special-Status Species' Potential to Occur within the PSA) (CDFW 2024; CNPS 2024). Of these species, 24 were removed from further consideration due to lack of suitable habitat within or adjacent to the PSA, no known occurrences within 5 miles of the PSA, and/or because the PSA is outside of the species' known geographic or elevation range. An additional 7 species were determined to have a low potential to occur based on the lack of suitable microhabitat (e.g., mesic areas, serpentine soils) and recent occurrences in the site vicinity, including heartscale (*Atriplex cordulata* var. *cordulata*), lesser saltscale (*Atriplex minuscula*), big-scale balsamroot (*Balsamorhiza macrolepis*), Mt. Diablo fairy-lantern (*Calochortus pulchellus*), palmate-bracted bird's-beak (*Chloropyron palmatum*), California alkali grass (*Puccinellia simplex*), and saline clover (*Trifolium hydrophilum*). None of these species are further addressed in this report.

Eleven special-status plants have a moderate or high potential to occur or were directly observed: big tarplant (*Blepharizonia plumosa*), brittlescale (*Atriplex depressa*), Lemmon's jewelflower (*Caulanthus lemmonii*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), recurved larkspur (*Delphinium recurvatum*), spiny-sepaled button-celery (*Eryngium spinosepalum*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), San Joaquin spearscale (*Extriplex joaquinana*), showy golden madia (*Madia radiata*), shining navarretia (*Navarretia nigelliformis* ssp. *radians*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*) (Table 2 and Appendix G, Special-status Species Potential to Occur within the Project Study Area)~~D~~. All the special-status plant species are found in valley and foothill grassland, often with alkaline and/or clay soils.

Table 2. Special-Status Plant Species with Moderate or High Potential to Occur

Species Name	Common Name	Status (Federal/State/CRPR/EACCS)[1]	Potential to Occur[2]
Atriplex depressa	brittlescale	None/None/1B.2/No	Moderate
Blepharizonia plumosa	big tarplant	None/None/1B.1/C	Known
Caulanthus lemmonii	Lemmon's jewelflower	None/None/1B.2/No	Moderate
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	None/None/1B.1/C	Moderate
Delphinium recurvatum	recurved larkspur	None/None/1B.2/C	Moderate
Eryngium spinosepalum	spiny-sepaled button-celery	None/None/1B.2/No	Moderate
Eschscholzia rhombipetala	diamond-petaled California poppy	None/None/1B.1/No	Moderate
Extriplex joaquinana	San Joaquin spearscale	None/None/1B.2/C	Moderate
Madia radiata	showy golden madia	None/None/1B.1/No	Moderate
Navarretia nigelliformis ssp. *radians*	shining navarretia	None/None/1B.2/No	Moderate
Tropidocarpum capparideum	caper-fruited tropidocarpum	None/None/1B.1/No	High

Notes: Additional information on determining potential to occur is in Appendix ~~F~~G, Special-Status Species Potential to Occur within the Project study area.

[1] **Status:**

None= Not listed/no conservation status.

CRPR =California Rare Plant Rank. Plants ranked as CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of CEQA Guidelines Section 15380.

California Rare Plant Rank (CRPR) Status

1B: plants rare, threatened, or endangered in California and elsewhere.

Threat Rank

0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).

0.2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat).

C= 'Covered' under the East Alameda County Conservation Strategy (EACCS)

[2] **Potential to Occur:**

Known to Occur= Known occurrences recorded within the PSA.

High Potential to Occur: The species has not been documented in the PSA but is known to occur in the vicinity and species habitat is present.

Moderate Potential to Occur: The species has not been documented in the vicinity, but the PSA is within the known range of the species, and habitat for the species is present.

Protocol-Level Botanical Survey Results

Land surrounding the PSA is predominantly private property. As such, reference populations for focal plant species with moderate to high potential to occur were not available or were greater than 10 miles from the PSA. In addition to CNDDB records, Dudek biologists reviewed available herbarium records and research-grade observations documented in iNaturalist (Consortium of California Herbaria 2023 and iNaturalist 2023, respectively). Based on the review of available information, all focal plant species would have been evident and identifiable during the survey windows. Early-blooming species such as diamond-petalled California poppy and caper-fruited tropidocarpum were verified to be evident and identifiable in April based on regional collections (California Consortium of Herbaria, 2023). Protocol-level botanical surveys were conducted in May and August 2023, and in April and June 2024. The surveys coincided with the period when all special-status species would be evident and identifiable.

Three individuals of big tarplant were observed during protocol-level botanical surveys conducted on August 2, 2023 (Figure 5).

Big tarplant is an annual herb that endemic to California, with limited distribution throughout the state. This species has a CRPR rank of 1B.1 (rare, threatened or endangered in California and elsewhere), and is a covered species under the EACCS. This species prefers habitats in valley grassland vegetation communities, as well as in foothill woodlands and chaparral (Calflora 2023). Threats to this species include urbanization, disking, residential development, and encroachment by non-native plant species (CNPS 2023b).

Only one plant was flowering, therefore allowing a qualified Dudek botanist (Laura Burris) to definitively key the plant to species based on descriptions, measurements, and photos taken in the field. All three individuals are located near the southwest corner of the PG&E substation in an area of sparse grassland that shows evidence of drainage patterns from the surrounding hills, including cracked soils, reduced grass cover and increased scrub species cover, and increased bare ground.

5.4.2 Special-Status Wildlife

Based on the updated literature review and database searches, a total of 41 special-status wildlife species have been recorded within 5 miles of the Project site and/or within the 9 quadrangles in the vicinity of the PSA (Figure 4; Appendix ~~F~~G, Special-status Species Potential to Occur within the Project Study Area) (CDFW 2024; USFWS 2024). Of these species, 21 were removed from further consideration due to lack of suitable habitat within or adjacent to the PSA, no known occurrences within 5 miles of the PSA, and/or because the PSA is outside of the species' known geographic or elevation range. An additional 11 species were determined to have a low potential to occur based on the lack of suitable microhabitat (e.g., vernal pools, aquatic habitat, host plants), including Crotch's bumble bee (*Bombus* crotchii), western spadefoot (*Spea hammondii*), California glossy snake (*Arizona elegans occidentalis*), western pond turtle (*Emys marmorata*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), Blainville's horned lizard (*Phrynosoma blainvillii*), grasshopper sparrow (*Ammodramus savannarum*), short-eared owl (*Asio*

flammeus), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), and pallid bat (*Antrozous pallidus*). None of these species are further addressed in this report.

Nine special-status wildlife species were determined to have a moderate or high potential to occur within the PSA: California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), tricolored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). These special-status wildlife species are known to occur in open grassland habitats and are discussed in further detail below.

5.4.2.1 Crotch's Bumble Bee (*Bombus crotchii*)

Crotch's bumble bee is a state candidate for listing as endangered under CESA and is not covered under the EACCS. The species has low potential to occur within the PSA. The CBB occurs almost exclusively in California, currently primarily in the Central Valley, but has been described as having historically occupied grasslands and shrublands in southern to central California. Bumble bees are known to be generalist pollinators but have preferences based on flower color including purple, blue, and yellow. Specifically, this species is found in grasslands with food plant genera that include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum,* among others (USFS 2012). The queen flight season for this species is February to March, and the colony active period (highest detection probability) is April to August (CDFW 2023e). Additionally, suitable habitat may contain any of the following: 1) areas of grasslands and upland scrub that contain requisite habitat elements, such as small mammal burrows and forage plants; 2) potential nest habitat (late February through late October) containing underground abandoned small mammal burrows, perennial bunch grasses and/or thatched annual grasses, brush piles, old bird nests, dead trees or hollow logs; 3) overwintering sites (November through early February) utilized by mated queens in self-excavated hibernacula potentially in soft, disturbed soil, sandy, well-drained, or loose soils, under leaf litter or other debris with ground cover requisites such as barren areas, tree litter, bare-patches within short grass in areas lacking dense vegetation. There are no CNDDB records within 5 miles of the PSA (CDFW 2024). One occurrence is documented within a nine-quad search (Occurrence number 19). This occurrence of was documented in 1959 and the exact location of this occurrence was unknown and recorded to CNDDB to demonstrate the general vicinity (CDFW, 2024).

Crotch's Bumble Bee Focused Habitat Assessment Survey Results

Focused Crotch's bumble bee habitat assessments were conducted on May 16 and August 2, 2023, and January 18, 2024. Scattered floral resources were observed including lupines (*Lupinus* spp.), Mexican whorled milkweed (*Asclepias fascicularis*), and exserted Indian paintbrush (*Castilleja exserta*), along with potential nesting substrates such as bare cracked soil, small rocky areas, and small rodent burrows. Both *Lupinus* sp. and *Asclepias* sp. are example food plants utilized by this species (Williams et al. 2014). No bumble bee species were seen during the field surveys, however, presence is assumed due to suitable foraging floral resource presence.

5.4.2.2 California Tiger Salamander (*Ambystoma californiense*)

The central California distinct population segment (DPS) of California tiger salamander is a federally and state threatened species and is covered under the EACCS. This species has moderate potential to occur within the PSA. This species is found in annual grassland, valley-foothill hardwood, and valley-foothill riparian habitats and breeds in vernal pools, ephemeral pools, stock ponds, and (infrequently) along streams and human-made water bodies if

predatory fishes are absent. The nearest documented occurrence is approximately 1.6 miles southwest of the PSA from 2012 (Occ. No. 1003), but there are numerous other records within 5 miles of the PSA (CDFW 2024). The habitat on the PSA is suitable upland refuge and dispersal habitat for this species, consisting of grassland with small mammal burrows. Two nearby stock ponds provide suitable aquatic breeding habitat approximately 0.3 miles from the PSA (Figure 6). No California tiger salamanders were observed during the field surveys, but this species is extremely difficult to detect without focused surveys in accordance with USFWS and CDFW-sanctioned protocols (USFWS and CDFG 2003).

A protocol-level habitat assessment for California tiger salamander was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the PSA to identify potential aquatic breeding sites within dispersal distance of the PSA. Three aquatic features were assessed for habitat suitability for CTS: Patterson Run, a seasonal stream paralleling Patterson Pass Road, and two stock ponds approximately 0.3 miles northwest (Pond 1) and west (Pond 2) of the PSA (Figure 6). Of these aquatic features, Ponds 1 and 2 were determined to provide high-quality breeding habitat for California tiger salamander. Neither of these features would be impacted by the proposed project. Patterson Run lacked large pools suitable for breeding. No CTS were observed during the field surveys or habitat assessment. Grasslands surrounding the aquatic features, including within the PSA, contain suitable upland refuge and overland migration habitat.

5.4.2.3 California Red-Legged Frog (*Rana draytonii*)

California red-legged frog (CRLF) is a federally threatened species and a California Species of Special Concern and is covered under the EACCS. The PSA is also located within critical habitat for California red-legged frog (refer to Section 5.6.1; 75FR12816 12959). The species has a moderate potential to occur within the PSA. This species is found in lowland streams, wetlands, riparian woodlands, and livestock ponds with dense, shrubby, or emergent vegetation and deep, still, or slow-moving water. They will use adjacent upland habitats for refuge during dry seasons. The nearest documented occurrences are approximately 1.5 miles east, south, and west of the PSA (Occ. Nos. 822 from 2001, 1079 from 2008, 1759 from 2012, and 44 from 1993); there are numerous other records within 5 miles of the PSA (CDFW 2024). The habitat on the PSA is suitable upland refuge and dispersal habitat for this species, consisting of abundant grassland with small mammal burrows.

A protocol-level habitat assessment for CRLF was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the PSA to identify potential aquatic breeding sites within dispersal distance of the PSA. Three aquatic features were assessed for habitat suitability for CRLF: Patterson Run, a seasonal stream paralleling Patterson Pass Road, and two stock ponds approximately 0.3 miles northwest (Pond 1) and west (Pond 2) of the PSA (Figure 6; Appendix ~~G~~H, CRLF Habitat Assessment Datasheets). Of these aquatic features, only Pond 2 was determined to provide high-quality breeding habitat for CRLF, consisting of a large, deep stock pond with perennial water and a large quantity of emergent vegetation (bulrush [*Schoenoplectus* sp.] along with alkali bulrush [*Bolboschoenus maritimus*]) and surrounded by grazed grassland. Patterson Run lacked large pools suitable for breeding but could provide non-breeding aquatic habitat when water is present or dispersal habitat. Pond 1 lacked suitable emergent or margin vegetation and would not provide breeding habitat. No CRLF were observed during the field surveys or habitat assessment.

5.4.2.4 Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird (nesting colony) is state threatened and a California Species of Special Concern that is covered under the EACCS and is known to forage within the PSA. This species was observed during the field survey on

January 18, 2024, foraging in the grassland within the gen-tie buffer area. Tricolored blackbird nests colonially near freshwater, often in emergent wetlands of cattail or tule, but will also nest in dense, thorny vegetation such as Himalayan blackberry (*Rubus armenicus*) or thistles (*Cirsium* spp., *Silybum* spp., etc.). A desktop level habitat assessment was conducted for suitable breeding habitat potential within 0.5 miles of the PSA, and aquatic habitat within 0.5 miles was visited in the field concurrently with the CTS habitat assessment. Per the CDFW CNDDB database, there has not been any documented occurrences of this species within 0.5 miles. The National Wetland Inventory (NWI) has mapped data of the following three features that have been evaluated for tricolored blackbird breeding habitat suitability:

- **PUBHh** – Approximately 0.40 miles west of the PSA there is a 0.21-acre feature mapped by NWI categorized as a freshwater pond PUBHh [(P) Palustrine; (UB) unconsolidated bottom; (H) permanently flooded; (h) diked/impounded] (NWI, 2024). On March 31, 2023, Dudek biologist Emily Scricca conducted an evaluation of this aquatic feature. Representative photos were captured of this feature and display a lack of suitable foliage required for this species to nest (Appendix E, Photo Record).

- **PUBHh** – Approximately 0.46 miles northwest of the PSA there is a 0.24-acre feature mapped by NWI categorized as a freshwater pond PUBHh. On March 31, 2023, Dudek biologist Emily Scricca conducted an evaluation of this aquatic feature, and this feature presented similar lacking suitable nesting species required for this species to nest. Representative photos were captured of this feature (Appendix E, Photo Record).

- **PEM1A –** Approximately 0.25 miles northwest of the PSA there is a 5.00- acre feature mapped by NWI categorized as a freshwater emergent wetland PEM1A [(P) palustrine; (EM) emergent; (1) persistent; (A) temporary flooded] (NWI, 2024). On January 18, 2024, Dudek biologist Erin Colton-Fisher conducted an evaluation of this aquatic feature for habitat suitability for tricolored blackbird. Representative photos were captured of this feature display a lack of standing water and suitable nesting foliage required for this species (Appendix E, Photo Record).

Tricolored blackbird forage in grasslands, woodlands, and in agricultural areas. The nearest documented occurrence is 1.8 miles east of the PSA, a historical record from 1998 (Occ. No. 418), and six occurrences are recorded within 5 miles of the PSA as recently as 2015 (CDFW 2024). The six documented occurrences of tricolored blackbird within a five-mile radius from the PSA are detailed below:

- **Occurrence number 989:** This occurrence of tricolored blackbird was northwest of the PSA within a five-mile radius and documented in 1993. The observation notes for this occurrence detail that a breeding colony was observed in tall green mustard. No nearby aquatic features are visible through satellite imagery on Google Earth and CNDDB notes document that this occurrence was an approximate location. The following year, 1994, no tricolored blackbirds were observed at this location. Coordinates: (37.7218, -121.6874).

- **Occurrence number 842:** This occurrence of tricolored blackbird was northwest of the PSA within a five-radius and documented in 2005. The observation notes for this occurrence detail that the habitat was comprised of milk thistle, mustard, and poison hemlock in a wet meadow. Records indicate that groups of 25-30 nesting birds were observed on June 04, 2005. The wet meadow was eventually drained in 2008 and no observations were documented from 2008 through 2014. Coordinates: (37.7398, -121.6714)

- **Occurrence number 436:** This occurrence of tricolored blackbird was southeast of the PSA within a five-mile radius and documented in 2015. The observation notes for this occurrence detail that the habitat consisted of grasslands with freshwater emergent wetlands and seeps. The vegetation that was dominate in the freshwater emergent wetlands entail dense cattails and nettles. This differs from the PSA due to the freshwater emergent wetlands within 0.5 miles lacking dense suitable nesting vegetation. Per this occurrence record, tricolored blackbird was documented in this area as an explosive test site from 100's nesting in 1993 to observing 800 birds in 2015. Coordinates: (37.65680, -121.52776)

- **Occurrence number 418:** This occurrence of tricolored blackbird is the closest occurrence of this species in proximity to the PSA within a five-mile radius and was documented in 1998. The observation notes for this occurrence detail that the habitat consisted of patches of milk thistle with cattle presence, however, no suitable habitat was present in 2011. In 1998, approximately 1,500 individual tricolored blackbirds were observed coming and going with food and/or fecal sacs being carried by adults. A secondary site visit on April 17, 2011, revealed that 0 individual tricolored blackbirds were observed within the area documented in 1998. Coordinates: (37.71521, -121.53471)

- **Occurrence number 235:** This occurrence of tricolored blackbird was southeast of the PSA within a five-mile radius and documented in 1992. The observation notes of this occurrence detail that the habitat consisted of an artificially impounded pond grown over with a heavy stand of cattails (*Typha* sp). This observation habitat differs from the PSA due to lacking heavy stands of nesting vegetation. The observation notes also detail that 3 individual male tricolored blackbirds were within a group of nesting redwinged blackbirds and that nesting habitat was assumed. Coordinates: (37.69438, -121.51829)

- **Occurrence number 190:** This occurrence of tricolored blackbird was southeast of the PSA within a five-mile radius and documented in 1992. The observation notes of this occurrence detail that the habitat was within non-native annual grassland. The colony that was observed was split into two parts. The first colony was in a patch of Italian thistle near a creek. The second colony was in a patch of mustard approximately 0.2 miles away from the first colony. Approximately 45 individual tricolored blackbirds were observed nesting between the two locations on May 01, 1992. Folow up site visits occurred on the following dates: April 16, 2011; April 17, 2011; and April 20, 2014. Of the site visits, no individuals were observed spread between the two previous colony sites. Coordinates: 37.74481, -121.64051

Although this species was observed foraging on the PSA, it is unlikely to form a nesting colony as there is no suitable nesting habitat present within the PSA. Further, data on tricolored nesting on lands surrounding the PSA provided by Westervelt Ecological Services (2024) shows that tricolored blackbird are not utilizing the aquatic habitat nearest to the PSA. Aquatic habitat within 0.5 mile of the PSA does not include stands of emergent vegetation or dense riparian vegetation that provide suitable nesting substrates preferred by this species (Shuford et al, 2008) (refer to photographs in Appendix E). Additionally, although this species may also utilize upland vegetation for nesting (Cook and Toft 2005), they prefer dense stands of vegetation that offer protection from predators. The grasslands within the PSA are dominated by bromes and wild oat, and do not contain appropriate stands of vegetation for nesting colonies. Other than one observation of this species utilizing the PSA for winter foraging, this species has not been observed within the PSA during regular surveys associated with burrowing owl, which occurred every three weeks during the bird nesting season. Thus, although this species may utilize the PSA for foraging, it does not breed within the PSA.

5.4.2.5 Golden Eagle (*Aquila chrysaetos*)

Golden eagle is federally protected by the Bald and Golden Eagle Protection Act and is a California fully protected species that is covered under the EACCS with moderate potential to occur within the PSA. The golden eagle was formerly considered common within suitable habitats in California (Grinnell and Miller 1944) and is now considered an uncommon resident throughout California (Garrett and Dunn 1981). This species requires rolling foothills, mountain terrain, and wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops (Zeiner et al. 1990). In central California, the golden eagle nests primarily in open grasslands and oak savannah and, to a lesser degree, in oak woodlands and open shrublands (Hunt et al. 1995, 1999). The PSA has a vegetation community of wild oats and annual brome along with an ephemeral drainage located in the southeast. The project site lacks mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops. The only trees onsite that may provide potential nesting locations for golden eagle are concentrated in the southeastern portion of the PSA along Patterson Run. However, these trees are relatively short in stature, located within a low-lying area associated with the channel of Patterson Run, and do not contain raptor nests. An assessment of potentially suitable golden eagle nesting habitat was conducted within 2 miles of the PSA, where access and land ownership allowed. Potentially suitable nesting habitat within 2 miles of the PSA includes trees associated with residences, transmission towers, and vegetation associated with Patterson run south of the PSA. While some stick nests were observed within transmission towers, they were most likely associated with ravens (*Corvus corax*). Additionally, most of the potentially suitable nesting habitat is blocked from visual range of the PSA by terrain. No golden eagles were observed during the nest habitat assessment.

The nearest documented occurrence is approximately 4.9 miles south of the PSA from 2014, a record of a nest in a tower (Occ. No. 323; CDFW 2024). There are a total of 14 documented occurrences of golden eagle occurring in a USGS nine quad search surrounding the PSA (CDFW 2024). Of the 14 documented occurrences of golden eagle occurring, 5 occurrences have been documented within a 10-mile radius of the project site.

- **Occurrence No. 71** located approximately 8.25 miles northwest from the project site – nest was found on north-facing slope on a 40 ft valley oak located mid-slope in a canyon with mixed riparian habitat and was documented to occur in 2000.

- **Occurrence No. 324.** Located approximately 6 miles south from the project site. Comments recorded in CNDDB state that there "may" have been a nest located within power poles and comments state a need for field work. Occurrence was documented in 1998.

- **Occurrence No. 323.** located approximately 4.9 miles southeast of the project site - record of a nest in a tower, described in above text. Occurrence was documented in 2014. (Figure 4, Special-Status Species Occurrences).

- **Occurrence. No 124** located approximately 5.04 miles southeast of the project site and nesting substrate was located on a power pole. Occurrence was last seen in 1996, and the surrounding topography shows steep bluffs from aerial imagery, which is lacking on the project site.

- **Occurrence No. 147** located approximately 9.75 miles northwest of the project site and nest was located within blue oak savannah and annual grazed grassland within a protected watershed. Comments state that coordinates provided to CDFW are erroneous and do not represent nest site. This occurrence offers

potential to occur outside a 10-mile radius from the project site due to that reasoning. Observance of occurrence was documented in 2006.

The remaining 9 occurrences documented of golden eagle within the USGS 9 quad search are concentrated to occur near Los Vaqueros Reservoir approximately 11 miles northwest of the PSA. The Los Vaqueros Reservoir provides high quality suitable nesting habitat for this species due to having a steep bluff terrain, various nesting locations, and a reservoir resource to support this species. The grassland foraging habitat on the PSA is of moderate quality, with low-quality nesting habitat provided by transmission towers surrounding the site and the trees associated with Patterson Run. ~~No eagles or potential nests were observed during the field surveys.~~

Golden Eagle Survey Results

Ground-based eagle surveys were conducted on December 12, 2024, March 20 and April 28, 2025. Previous studies conducted by USGS staff associated with the Altamont Pass Wind Resource Area have identified two potential golden eagle territories within 2 miles of the PSA. One territory south of the PSA contains a nesting pair known as the Midway Pair) approximately 1 mile south of the PSA (Wiens and Kolar 2021; Wiens and Kolar 2023). This pair utilizes a nest in riparian vegetation along Patterson Run, adjacent to Patterson Pass Road. A second pair (known as the Jess Ranch Pair) was observed attempting to construct a nest in a transmission tower approximately 0.4 miles north of the PSA in 2023; however, the nest was destroyed by high winds and the pair did not rebuild or return. This territory is not considered active currently. Eagle surveys conducted in 2024 and 2025 per ground-based survey protocol outlined in Pagel 2010, confirmed that no eagle nest was established in the transmission tower north of the PSA. 2025 surveys also confirmed that the nest approximately 1 mile south of the Study Area was active with the adults perched in the nest tree adjacent to a large stick nest.

5.4.2.6 Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a candidate for listing as a protected species under the CESA, and is also covered under the EACCS with moderate potential to occur on the PSA. This species nests and forages in grassland, open scrub, and agricultural lands that contain ground squirrel burrows or burrow surrogates (e.g., concrete debris piles, culverts, riprap) for nesting and shelter. There are three documented occurrences adjacent or overlapping with the PSA, from 1982, 2002, and 2006 (Occ. Nos. 48, 468, and 1229). Multiple other documented occurrences are within 5 miles of the PSA, most recently from 2015 (CDFW 2024).

Focused Burrow Survey Results

Focused burrow surveys were conducted on May 16 and August 2, 2023, and January 18, 2024, to identify a variety of animal burrows within the updated PSA boundaries, including for burrowing owl. There is abundant grassland habitat within the PSA, but it is currently of moderate suitability for burrowing owls because it lacks extensive ground squirrel burrows and the vegetation is generally tall and dense (burrowing owls prefer areas with short, sparse vegetation). Burrows present on the site were generally small and not suitable for burrowing owls. Higher-quality habitat with low, grazed vegetation and ground squirrel colonies were observed throughout the surrounding landscape. No burrowing owls were observed during the field surveys.

Protocol-level Burrowing Owl Survey Results

Protocol-level burrowing owl surveys were conducted on April 12, May 3, May 24, and June 17, 2024. Results of the focused burrow survey were used to identify areas of potential breeding habitat (burrows). No burrowing owls or their sign were observed during the field surveys. In general, CDFW considers sites occupied if BUOW and/or their sign (e.g. burrows with whitewash, feathers, pellets, prey debris) have been observed on the site in the last 3 years, therefore, based on the lack of documented occurrences and survey results, this species is not present within the PSA.

Winter burrowing owl surveys were conducted on December 12, 2024, January 4, 11, and 31, 2025. No burrowing owl activity was noted during the winter burrowing owl surveys.

5.4.2.7 Northern Harrier (*Circus hudsonius*)

Northern harrier is a California Species of Special Concern that is not covered under the EACCS with a moderate potential to occur within the PSA. This species nests in open wetlands (such as wet meadows, old fields, and marshes) and in dry grassland and grain fields, and forages in open habitats including grassland, scrub, rangelands, and emergent wetlands. The nearest documented occurrence is approximately 2.2 miles northeast of the PSA from 2001 (Occ. No. 49; CDFW 2024). There is moderate-quality grassland habitat on the PSA of sufficient height and density for nesting. No northern harriers were observed during the field surveys.

5.4.2.8 White-Tailed Kite (*Elanus leucurus*)

White-tailed kite is a California fully protected species that is not covered under the EACCS with a low potential to occur within the PSA. This species nests in woodland, riparian, and individual trees near open land, and forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savannah, and disturbed lands. The nearest documented occurrence is approximately 3.7 miles south of the PSA, a historical record from 1996 (Occ. No. 152; CDFW 2024). There is moderate-quality grassland habitat present within the PSA, with a few scattered cottonwood trees (*Populus* sp.) associated with Patterson Run suitable for nesting. No raptor nests were noted within the trees associated with Patterson Run during any of the site surveys. No white-tailed kites were observed during the field surveys.

5.4.2.9 Swainson's hawk (*Buteo swainsonii*)

Swainson's hawk is a California state threatened species that is not covered under the EACCS with a low potential for nesting and foraging within the PSA. Swainson's hawks are primarily a grassland bird, but they are also found in sparse shrubland and small, open woodlands (Bechard et al. 2010). In Central California, Swainson's hawks are primarily associated with grain and hay croplands that mimic native grasslands with respect to prey density and availability (Esetep 1989, Babcock 1995). Within a USGS nine quad search, a total of 85 occurrences of Swainson's hawk have been reported. Within a 10-mile radius of the PSA, a total of 59 occurrences of Swainson's hawk have been reported (CDFW 2024). Most of the documented observations within 5 miles are located approximately 4 miles or greater north and east of the PSA, primarily east of the Diablo Range (CDFW 2024). Four occurrences of this species are documented within 5 miles, but none are closer than 3.8 miles to the PSA. The occurrence located approximately 3.8 miles northeast of the PSA is a historic record documented in 1994 (CDFW 2024). Additionally, information provided by CDFW (2024) coincides with ebird records and shows this species overflying the PSA and sometimes displaying courtship behavior.

An assessment of potentially suitable nesting habitat within 0.5 mile of the PSA was conducted in December 2024. Potential nesting habitat within 0.5 mile of the PSA includes trees associated with residences, transmission towers, and riparian vegetation associated with Patterson Run south of the PSA. No raptor stick nests were noted in any of this habitat during the nest habitat assessment. Although the PSA presents grassland foraging habitat for this species, suitable nesting habitat within 0.5 mile of the PSA is limited and includes trees associated with homes and development. Trees onsite are short in stature and do not provide high quality nesting substrates for raptors. No Swainson's hawks or raptor stick nests were observed during field surveys.

Protocol-level Swainson's Hawk Survey Results

Protocol-level Swainson's hawk surveys were conducted in December 2024, and March and April 2025. Swainson's hawk was noted overflying the project site and to the east of the project site. No courtship or nesting behavior was observed during any of the survey visits.

5.4.2.10 American Badger (*Taxidea taxus*)

American badger is a California Species of Special Concern and is covered under the EACCS, with moderate potential to forage within the PSA. This species occurs on dry, open, treeless areas such as grasslands, coastal scrub, agriculture, and pastures, especially with friable soils for burrowing. The nearest documented occurrences are approximately 0.2 miles north (Occ. No. 520 from 2014) and south (Occ. No. 250, unknown date prior to 2004) of the PSA, with multiple other records within 5 miles of the PSA, the most recent from 2015 (CDFW 2024). Although there is abundant moderate-quality grassland for foraging, no suitable den habitat was documented within the PSA during the focused burrow surveys, as described below.

Focused Burrow Survey Results

Focused burrow surveys were conducted on May 16 and August 2, 2023, January 18, 2024, and additional burrow assessment was conducted during protocol-level burrowing owl surveys on April 12, May 3, May 24, and June 17, 2024, to identify a variety of animal burrows within the updated PSA boundaries, including for American badger. Several large burrow tailings were observed on the eastern side of the PSA along Patterson Pass Road, evidence of highly suitable soils for burrowing and hunting. Burrows were also investigated for sign of American badger occupancy, including prey remains, scat, tracks, and claw/scratch marks. The burrows were not greater than 4 inches in diameter and are associated with active ground squirrel colonies and are not suitable denning structures for American badgers. No American badgers or their sign were observed during the field surveys.

5.4.2.11 San Joaquin Kit Fox (*Vulpes macrotis mutica*)

San Joaquin kit fox is a federally endangered and state threatened species and is covered under the EACCS, with low potential to occur on the PSA. This species occurs on grassland and scrublands, oak woodland, alkali sink scrubland, vernal pools, and alkali meadows. The PSA is in the northern range of this species, in the S1 (Alameda, Contra Costa, and San Joaquin Counties) San Joaquin kit fox satellite population recovery area (USFWS 2010), where there have been no confirmed observations since 2002 (USFWS 2020). Extensive surveys using scent dogs between 2001 and 2003 did not detect any San Joaquin kit foxes in surveyed portions of Alameda County (Smith et al. 2006).

The nearest documented occurrence is approximately 0.3 miles southwest of the PSA, a historical record from 1984 (Occ. No. 6); multiple other historical records are within 5 miles of the PSA, all prior to 1992 (CDFW 2024). Although there is abundant moderate-quality grassland present on the site, none of the burrows onsite are suitable for this species (see burrow survey results, below), and it is highly unlikely this species utilizes the PSA for denning habitat.

Focused Burrow Survey Results

Focused burrow surveys were conducted on May 16 and August 2, 2023, January 18, 2024, and additional burrow assessment was conducted during protocol-level burrowing owl surveys on April 12, May 3, May 24, and June 17, 2024, to identify a variety of animal burrows within the updated PSA boundaries, including for San Joaquin kit fox. Several large burrow tailings were observed on the eastern side of the PSA along Patterson Pass Road, evidence of highly suitable soils for burrowing. Burrows were also investigated for sign of San Joaquin kit fox occupancy, including prey remains, scat, tracks, and claw/scratch marks. The burrows onsite were not greater than 4 inches in diameter and are associated with active ground squirrel colonies and are not suitable denning structures for San Joaquin kit fox. No San Joaquin kit fox or their sign were observed during the field surveys.

5.5 Nesting Birds

The PSA provides habitat for nesting birds protected by the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC). Red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), and American kestrel (*Falco sparverius*), and other bird species were observed foraging on site and the vicinity. While no nests were observed during the surveys, there are suitable trees along Patterson Pass Road, transmission towers for large raptors and ravens, and grassland for ground-nesting species such as western meadowlark (*Sturnella neglecta*).

5.6 Other Sensitive Resources

5.6.1 Designated Critical Habitat

Designated Critical Habitat (DCH) is designated by USFWS when a species is federally listed and represents areas of the species' range (or potential range) that contain essential features for the species' conservation (USFWS 2017). There is DCH for multiple species within 5 miles of the PSA; however, only DCH for CRLF overlaps with the Study Area (Appendix A: Figure 5, Critical Habitat and Essential Fish Habitat).

California Red-Legged Frog

There is DCH for CRLF overlapping the PSA and extending to the north and southwest (USFWS 2023e), in areas of undeveloped or rural agricultural lands. Critical habitat for CRLF consists of four primary constituent elements (PCEs), which support different components of the species' life history, as last updated by USFWS in 2010 (75 FR 12816-12959):

1. Aquatic Breeding Habitat: Standing bodies of fresh water including natural and manmade (e.g., stock) ponds, slow-moving streams, pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in most years.

2. **Aquatic Non-Breeding Habitat:** Freshwater aquatic habitats that may not hold water long enough for the species to complete its aquatic life cycle, but which provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult CRLF. These may include breeding habitat as described above, as well as plunge pools within intermittent creeks, seeps, quiet water refugia within streams, and flowing springs.
3. **Upland Habitat**: Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to 1 mi (1.6 km), depending on surrounding landscape and dispersal barriers. Upland habitat may include grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance with structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.
4. **Dispersal Habitat:** Accessible upland or riparian habitat within and between occupied locations within a minimum of 1 mi (1.6 km) of each other and that support movement between such sites. Dispersal habitat includes various natural or moderately altered habitats (such as agricultural fields) that do not contain dispersal barriers. Dispersal habitat does not include moderate- to high-density urban or industrial developments, nor does it include large (>50 ac) lakes or reservoirs.

PCEs 3 and 4 (upland and dispersal habitat) are present on the PSA, and PCEs 1 and 2 (aquatic breeding and non-breeding habitat) are present within dispersal distance (1 mile) of the PSA.

5.6.2 Essential Fish Habitat

Essential Fish Habitat (EFH) on the west coast is managed by the National Oceanic and Atmospheric Administration (NOAA) and the Pacific Fishery Management Council (PFMC) under the Magnuson-Stevens Act of 1976 to protect habitat for federally managed fish species across life stages (NOAA 2021). EFH is broadly mapped as the geographic area wherein a fish species may occur at any time in its life and is designated at the watershed level of the USGS 4th field hydrologic unit to account for variability in freshwater habitats over time (PFMC 2014, 2022). Thus, mapped EFH may encompass terrestrial habitats that do not currently provide appropriate conditions for target fish species but are within the same watershed as the species' known distribution and may become suitable habitat as environmental conditions change (e.g., droughts, floods, etc.).

The PSA overlaps with designated freshwater EFH for Pacific coast salmon. Specifically, the Pacific Salmon Fishery Management Plan (PFMC 2014, 2022) identifies freshwater EFH for Chinook salmon (*Oncorhynchus tshawytscha*) in the San Joaquin Delta hydrologic unit (HUC-8 18040003), which includes the PSA within the Old River watershed. Freshwater EFH for Chinook salmon consists of four major activities: (1) spawning and incubation; (2) juvenile rearing; (3) juvenile migration corridors; and (4) adult migration corridors and adult holding habitat (PFMC 2014, 2022). Chinook salmon EFH includes all freshwater habitat currently or historically occupied in Washington, Oregon, Idaho, and California (PFMC 2014, 2022). There are currently no aquatic habitats with flowing water suitable for salmonids within the PSA.

5.6.3 Sensitive Natural Communities

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities include vegetation communities listed in

CDFW's California Natural Diversity Database (CNDDB; CDFW 2024) and communities listed in the California Natural Community List (CDFW 2023d) with a rarity rank of S1, S2, or S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable). Additionally, all vegetation associations within the alliances with ranks of S1–S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible. There are no sensitive natural communities within the PSA.

5.6.4 Wildlife Corridors and Habitat Linkages

Wildlife movement corridors have been recognized by federal and state agencies as important habitats worthy of conservation. Wildlife corridors provide migration channels seasonally (i.e., between winter and summer habitats), and provide non-migrant wildlife the opportunity to move within their home range for food, cover, reproduction, and refuge. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as steppingstones for dispersal.

The PSA does not overlap with any California Essential Habitat Connectivity Areas (CDFW 2014). but is considered part of the large contiguous Natural Landscape Block that extends from Alameda County south through the Diablo Range and Southern Coastal Ranges, terminating north of the Transverse Ranges (CDFW 2017). Given that the existing vegetation is surrounded on three sides by similar annual grassland habitat and is close to the existing PG&E substation, the PSA likely provides movement habitat for local wildlife but is not recognized as an important regional wildlife corridor by any state agency or jurisdiction and is of limited linkage value on a landscape scale. Furthermore, although local wildlife may utilize the PSA as movement habitat, regional connectivity is highly limited by Patterson Pass Road, an unnamed gravel road directly to the north of the PSA, Interstates (I) 580 and I-5 to the north and east, respectively, and the railroad south of the PSA. Thus, the project would not impose significant barrier to wildlife movement.

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6 Summary of Findings

6.1 Biological Impact Overview

The Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. Incorporation of mitigation measures ensures that these impacts will be less than significant.

A total of 1 special-status plant species and 6 special-status wildlife species are known to occur within the PSA, were observed or detected during field surveys, or have a moderate to high potential to occur on the PSA and could therefore be impacted by eventual Project implementation. Big tarplant was observed on the site. Tricolored blackbird was observed foraging on the site and five other special-status wildlife species have a moderate or high potential to occur on the PSA, including California tiger salamander, California red-legged frog, golden eagle, northern harrier, burrowing owl, and white-tailed kite. Special-status plant and wildlife resources may be subject to agency jurisdiction pursuant to regulations under FESA, CESA, California FGC, CEQA guidelines, the Alameda County General Plan, and the EACCS. Species-specific AMMs will be provided for all special-status species to reduce potential impacts to less than significant under CEQA.

The Project would not have a substantial adverse effect on any sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

No CDFW sensitive natural communities were identified within the PSA, and no impacts are anticipated.

Designated Critical Habitat for California red-legged frog overlaps with the PSA. Removal of upland refuge and dispersal habitat associated with construction of the BESS site will be mitigated through purchase of appropriate credits at an agency-approved mitigation bank.

The PSA overlaps with designated freshwater EFH for Pacific coast salmon. Specifically, the Pacific Salmon Fishery Management Plan (PFMC 2014, 2022) identifies freshwater EFH for Chinook salmon (*Oncorhynchus tshawytscha*) in the San Joaquin Delta hydrologic unit (HUC-8 18040003), which includes the PSA within the Old River watershed. There are currently no aquatic habitats with flowing water suitable for salmonids within the PSA and no impacts are anticipated.

The Project could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Incorporation of mitigation measures ensures that these impacts will be less than significant.

A USACE-level jurisdictional delineation of aquatic resources was conducted in January 2024. There are no aquatic resources present on the BESS facility portion of the PSA. The gen-tie alignment crosses one seasonal channel (EPH-01, Patterson Run), which parallels Patterson Pass Road and flows southwest to northeast on a seasonal basis. AMMs, including obtaining a CWA Section 404 Nationwide Permit from the USACE and CWA Section 401 Water Quality Certification from the CVRWQCB, are recommended to reduce potential impacts to less than significant under CEQA.

The Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

Undeveloped grasslands on the PSA may provide nursery and dispersal habitat for wildlife species. According to the California Essential Habitat Connectivity Project, the PSA does not overlap with any California Essential Habitat Connectivity Areas (CDFW 2014) but is considered part of a Natural Landscape Block (CDFW 2017). Given that the existing vegetation is surrounded on three sides by similar open, undeveloped annual grassland habitat and is close to the existing PG&E substation, the PSA likely provides habitat value but is of limited linkage value in the landscape. The PSA plan and recommended avoidance and minimization measures to protect special-status species ensure this impact is less than significant.

The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

There are no tree preservation policies or ordinances in Alameda County. The Alameda County General Plan and Code of Ordinances have policies for protecting riparian, wetland, and watercourse habitats. The PSA plan and recommended avoidance and minimization measures to protect aquatic resources ensure this impact is less than significant.

The Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Incorporation of mitigation measures ensures that the Project will not conflict with the EACCS.

The EACCS provides a framework for natural resource conservation and to streamline the environmental permitting process within the eastern portion of the county. The PSA is in Conservation Zone (CZ) 10 of the EACCS. This CZ emphasizes conservation priorities that may conflict with the Project implementation, such as protection of all big tarplant occurrences, protection of critical habitat for California red-legged frog (including annual grasslands near ponds), and protection and restoration of Patterson Run. The impacts to the EACCS CZ-10 from Project development are a very small percentage of the inventory of those lands in CZ-10.

The Project will obtain applicable permits and other approvals from USFWS, USACE, CDFW, and RWQCB, and will minimize and mitigate impacts on natural resources to comply with the regulatory standards of these agencies. These are the same regulatory standards applied by USFWS and the other environmental agencies in their review and approval of the EACCS. The Project will adhere to AMMs that comply or exceed EACCS guidelines, so development of this PSA will not conflict with implementation of the EACCS, and Project effects on EACCS Covered Species, if present, would be avoided and minimized. Further, the Project will provide compensatory mitigation for impacts to aquatic resources and specific EACCS covered species through the acquisition of credits from existing mitigation banks and other compensatory mitigation.

The EACCS defines standardized mitigation ratios for each of the focal species to be utilized by local jurisdictions and resource agencies to determine the level of mitigation necessary to offset project impacts. These are based upon an evaluation of the habitat quality on the PSA scored using species-specific “habitat units.” Mitigation ratios are then calculated based on the acreage of habitat affected, the location of the site, and the species-specific mitigation ratio table (Appendix ~~H~~I, EACCS Score Sheets). Total mitigation acreages may vary depending on the location of selected mitigation areas the total habitat acreage affected by the Project.

6.2 Regulations and Permitting Overview

Federal: USACE, USFWS

- Under FESA, USFWS regulates species listed as threatened or endangered, including DCH. Since the Project "may affect" several federally listed species and their habitat, formal consultation with USFWS should be initiated to identify the appropriate FESA permitting pathway.
  - Section 7 consultation would occur if a federal CWA Section 404 were required (see next bullet). Section 7 of the FESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat critical to such species' survival. To ensure that its actions do not result in jeopardy to listed species or in the adverse modification of critical habitat, each federal agency must consult with USFWS and/or NMFS regarding actions that may affect listed species, including issuance of CWA Section 404 permits by USACE. Consultation begins when the federal agency submits a written request for initiation to USFWS or NMFS, along with the agency's biological assessment (BA) of its proposed action, and when USFWS or NMFS accepts that biological assessment as complete. If USFWS or NMFS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under FESA. Otherwise, USFWS or NMFS must prepare a written biological opinion (BO) describing how the agency's action will affect the listed species and its critical habitat.
  - Section 10 consultation would occur if there were no federal land, funding, or authorization (e.g., CWA permit issuance) required. Private landowners, corporations, state agencies, local agencies, and other nonfederal entities must obtain a Section 10(a)(1)(B) incidental take permit for take of federally listed fish and wildlife species "that is incidental to, but not the purpose of, otherwise lawful activities." Section 10(a)(1)(B) incidental take permits are issued upon completion of an approved habitat conservation plan (HCP).
- USFWS regulates the take of golden eagle under BGEPA. If a golden eagle nest became established on or within 0.5 miles of the PSA and there was reasonable likelihood that the Project would result in take (including disturbance resulting in nest abandonment), the applicant would need to obtain an eagle incidental take permit.
- Federal waters of the United States are regulated through Section 404 of the CWA and fall under the authority of USACE. For impacts to waters of the United States, permitting would be achieved through a technical study and a USACE verified Aquatic Resources Delineation, and either through a Nationwide Permit (NWP) (i.e., for impacts less than or equal to 0.5 acres, 300 linear feet), or through a Standard Permit (SP) such as an individual permit.

State: CDFW, CEQA, RWQCB

- Under the CESA, CDFW regulates species listed as threatened or endangered. Note that unlike the FESA, CESA does not include indirect impacts (e.g., habitat degradation, harassment, harm) in its definition of "take." In addition, compliance with the CFGC Section 1900 as it relates to the NPPA, Section 3503 regulating "take" of nesting migratory birds and raptors as designated by the MBTA, and Section 4150 regulating the "take" of non-game mammals, including bat species, apply to state-listed and other species. Additionally, CFGC Section 1940 requires sensitive habitat and sensitive natural communities that have

the potential to impacted by a project, to be addressed through the CEQA process (see below). If the Project potentially impacts a listed special-status species and/or suitable habitat of that species that may potentially occur and/or are known to occur in the PSA, then CESA permitting may be achieved through a technical study and the preparation this BRA, CFGC Section 2081 Incidental Take Permit (ITP), and/or through CFGC Section 1602 Lake and Streambed Alteration Agreement (LSAA).

- Pursuant to CEQA Guidelines Section 15380, protection is provided for federal and/or state-listed species, as well as species not listed federally or by the state that may be considered rare, threatened, or endangered. Under the CEQA guidelines, protection is also provided to aquatic resources and surface waters. Species that meet these criteria can include "candidate species," species "proposed for listing," and "SSC." Plants listed in the CNPS Rare Plant Program are considered to meet CEQA's Section 15380 criteria as well. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible. CEQA must be completed prior to the issuance of any federal or state permits.
- SWRCB has authority over waters of the state, including wetlands, through Section 401 of the CWA, as well as the Porter–Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. In California CWA Section 404 and Porter–Cologne Act compliance are achieved through an Aquatic Resources Delineation (preferably USACE verified), and Section 404 permitting with the RWQCB and obtaining WQC and/or a WDR for impacts to waters of the state. Note that aquatic resources may meet criteria for both waters of the United States and waters of the state.

Local: Alameda County

- The EACCS provides a framework for natural resource conservation and helps streamline the environmental permitting process within the eastern portion of Alameda County. The EACCS defines standardized mitigation ratios for each of the focal species to be utilized by local jurisdictions and resource agencies to determine the level of mitigation necessary to offset project impacts. These are based upon an evaluation of the habitat quality on the PSA scored using species-specific "habitat units." Mitigation ratios are then calculated based on the acreage of habitat affected, the location of the site, and the species-specific mitigation ratio table. The EACCS also provides approved mitigation measures for focal species covered under the plan, along with general biological AMMs applicable to all projects. Although not an HCP per se, the EACCS was developed with the intention of streamlining the FESA regulatory process and could therefore facilitate the formal consultation process with USFWS described above, especially if Section 10 is identified as the only permitting mechanism.
- The General Plan includes limited policies to help preserve and restore biological resources and aquatic resources throughout Alameda County. The PSA is not overlaid with any special designations according to the General Plan and is designated "Large Parcel Agriculture," so most of the policies related to preservation and restoration of habitat do not directly apply. The limited policies that do apply focus on protection and mitigation of watercourses and riparian areas. General Plan compliance as it relates to these resources is expected to be achieved through the CEQA process.

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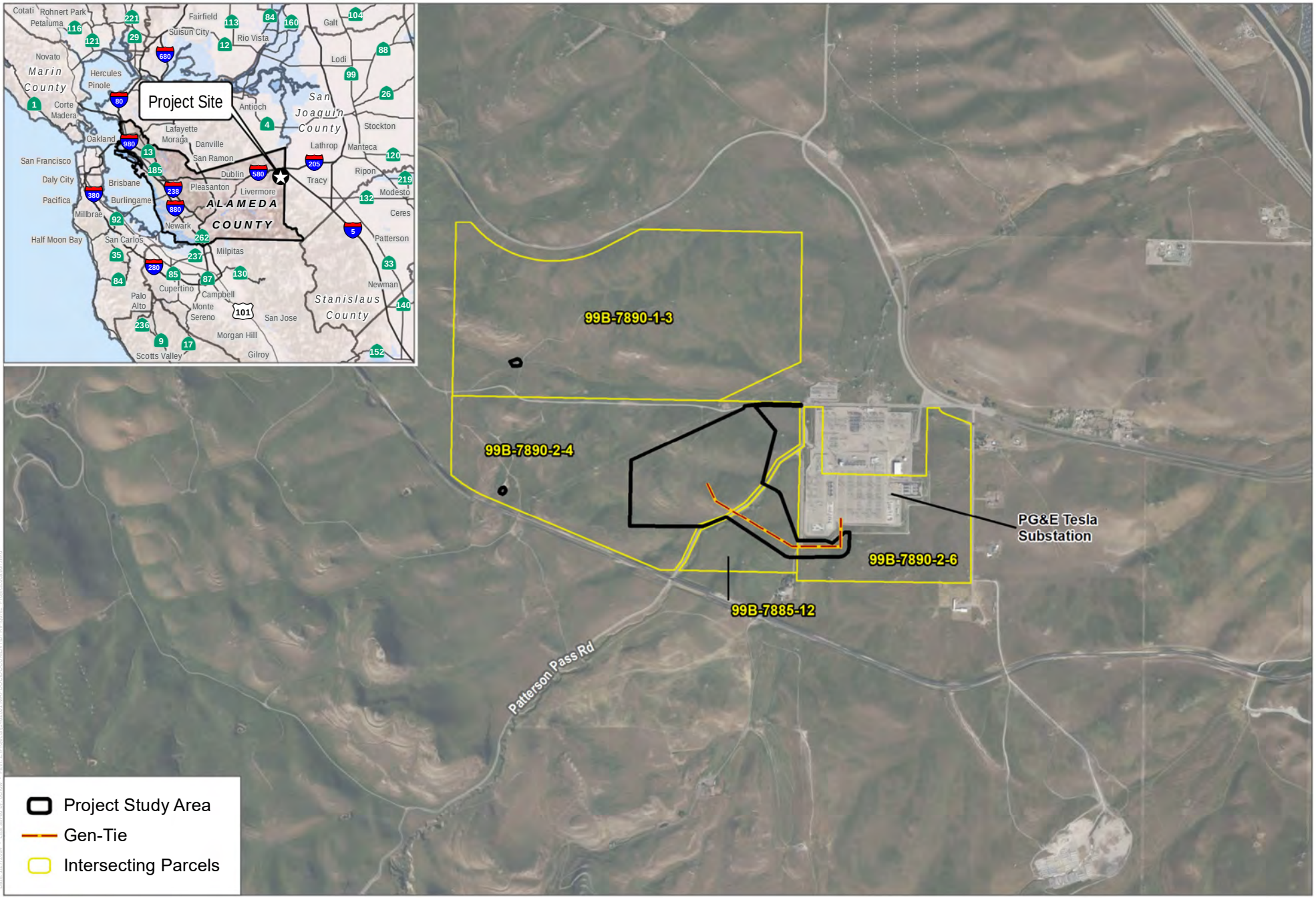
Appendix A
Figures 1–6



SOURCE: Bing Maps 2024, Open Street Map 2019

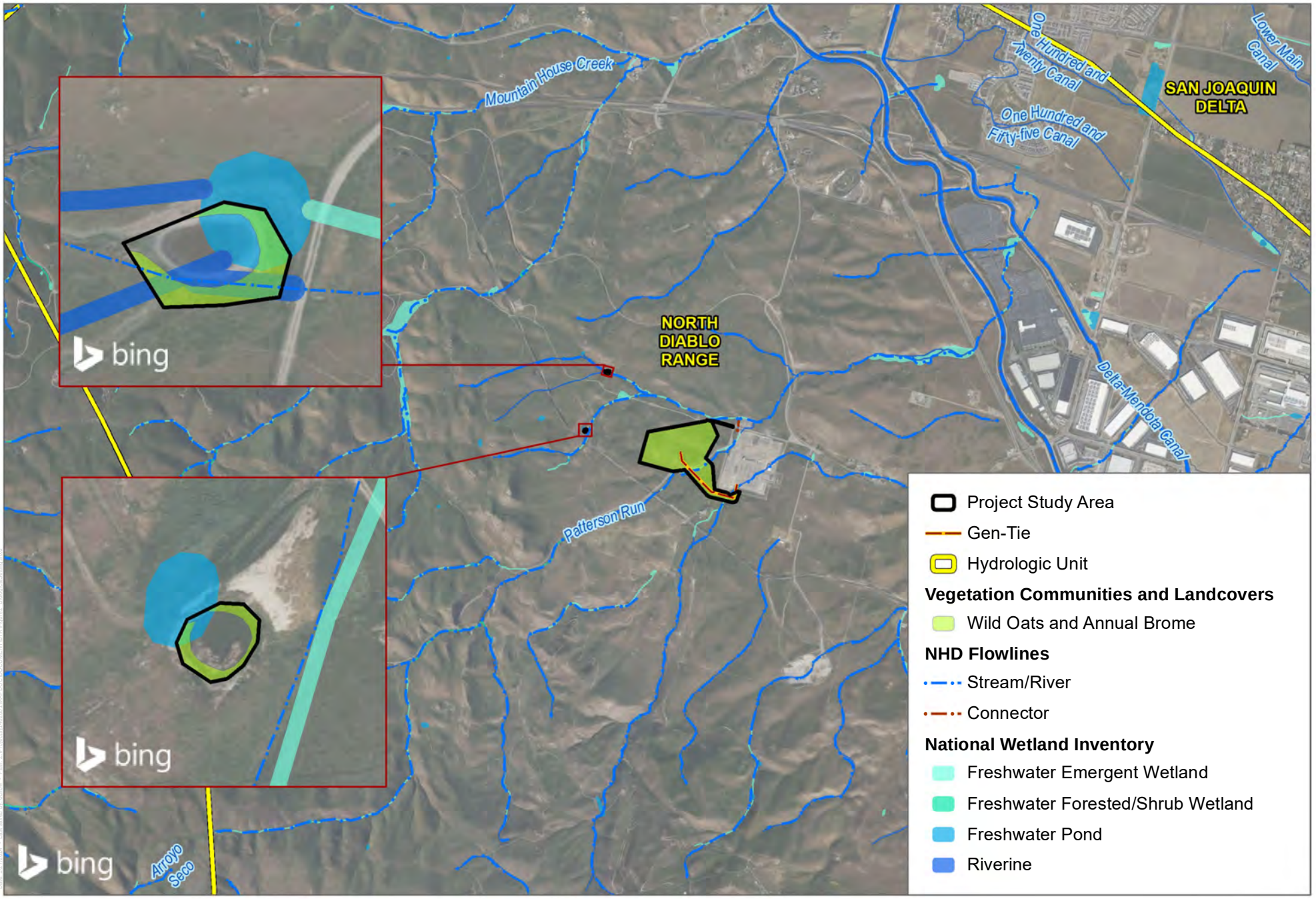
DUDEK

0 1,000 2,000 Feet

FIGURE **1**

Project Location

Biological Technical Report for the Potentia-Viridi Battery Energy Storage System Project, Alameda County, CA



SOURCE: Bing Maps 2024, Open Street Map 2019, USFWS 2019, USGS 2019

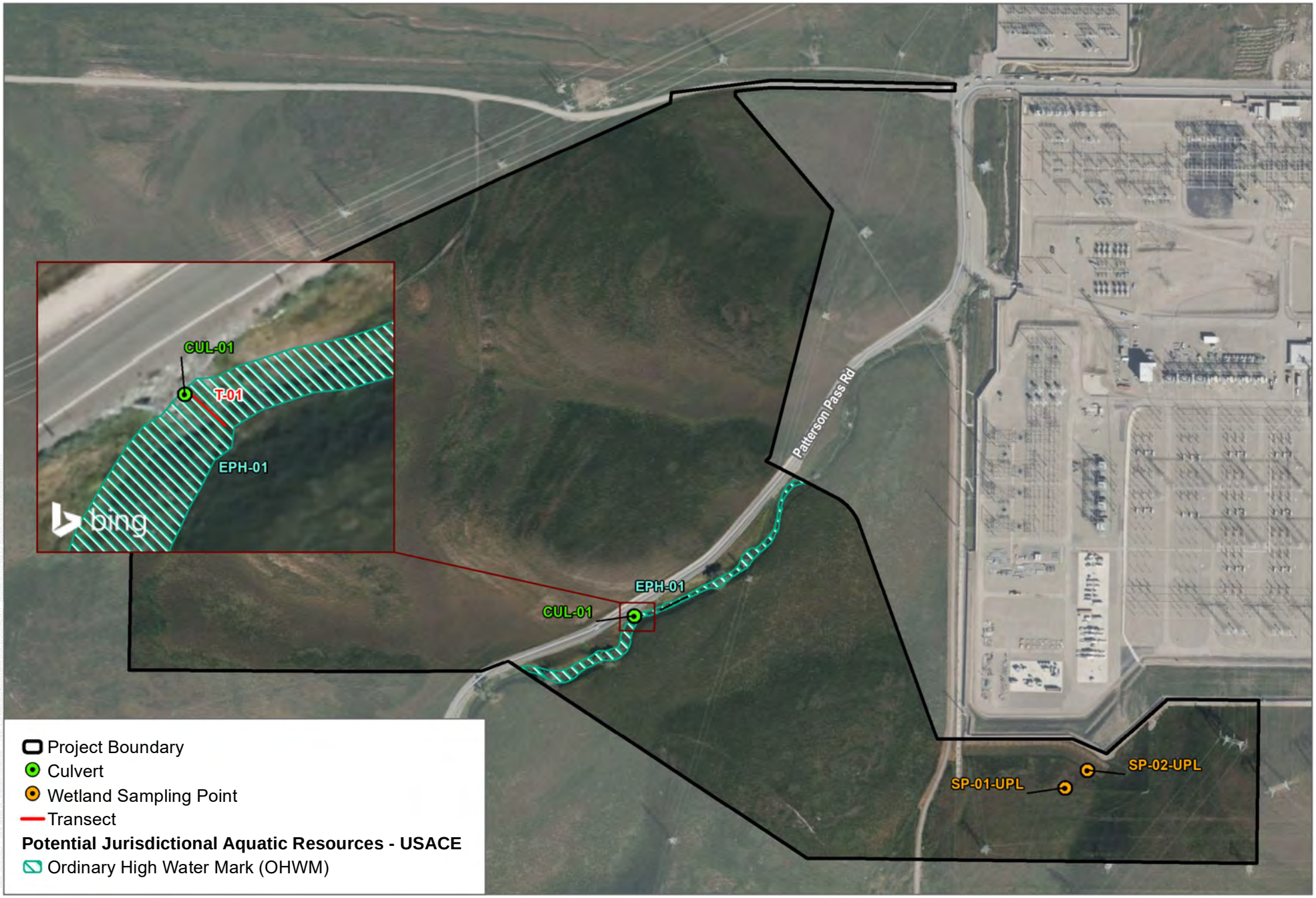
DUDEK

0 0.5 1 Miles

FIGURE **2**

Biological Setting

Biological Technical Report for the Potentia-Viridi Battery Energy Storage System Project, Alameda County, CA



SOURCE: Bing Maps (accessed 2024); Open Streets Map 2019

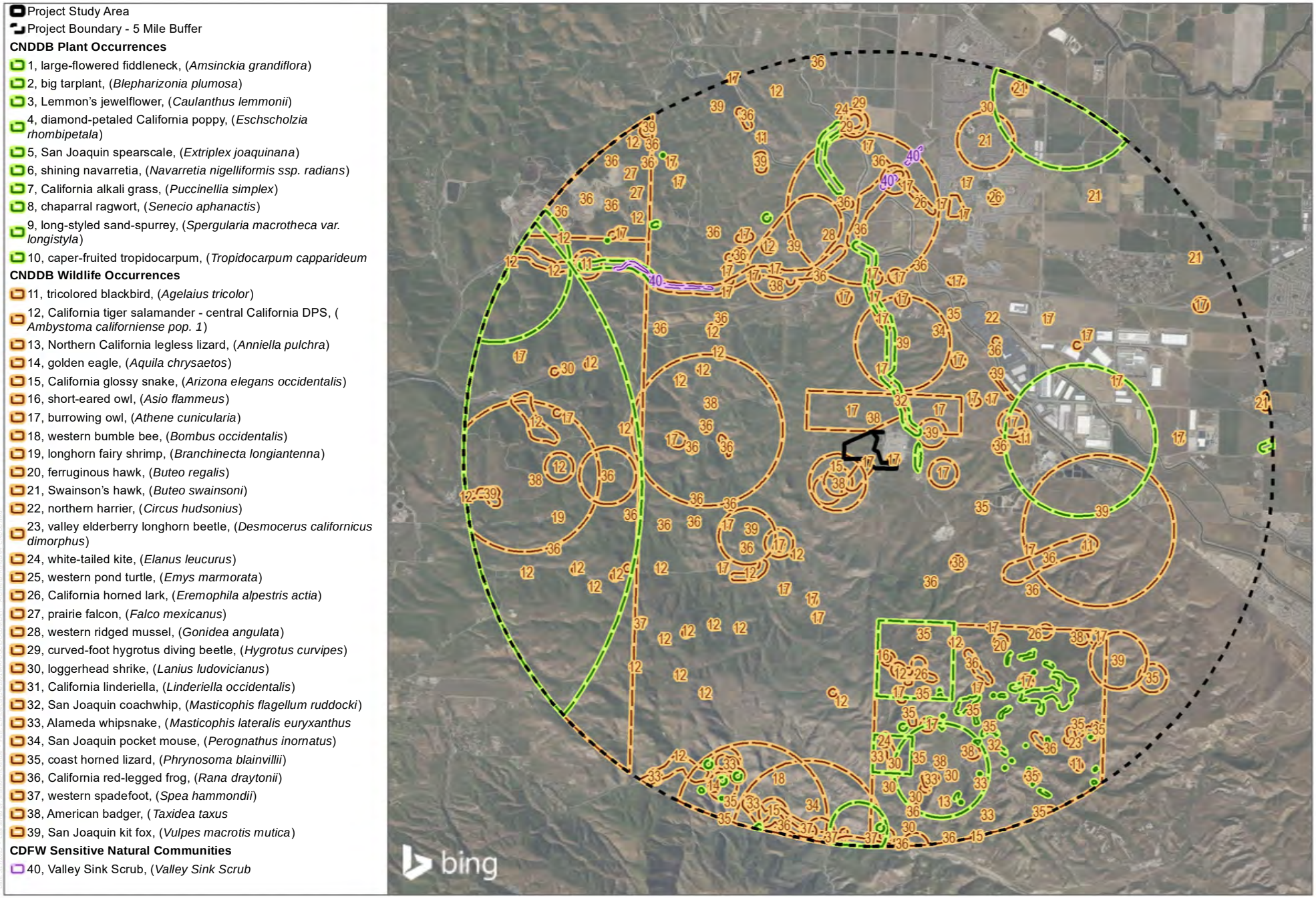
DUDEK

0 200 400 Feet

FIGURE 3

Aquatic Resources Delineation

Potentia-Viridi BESS Project



SOURCE: Bing Maps 2022; CA Dept. of Fish and Wildlife 2021

CONFIDIENTIAL

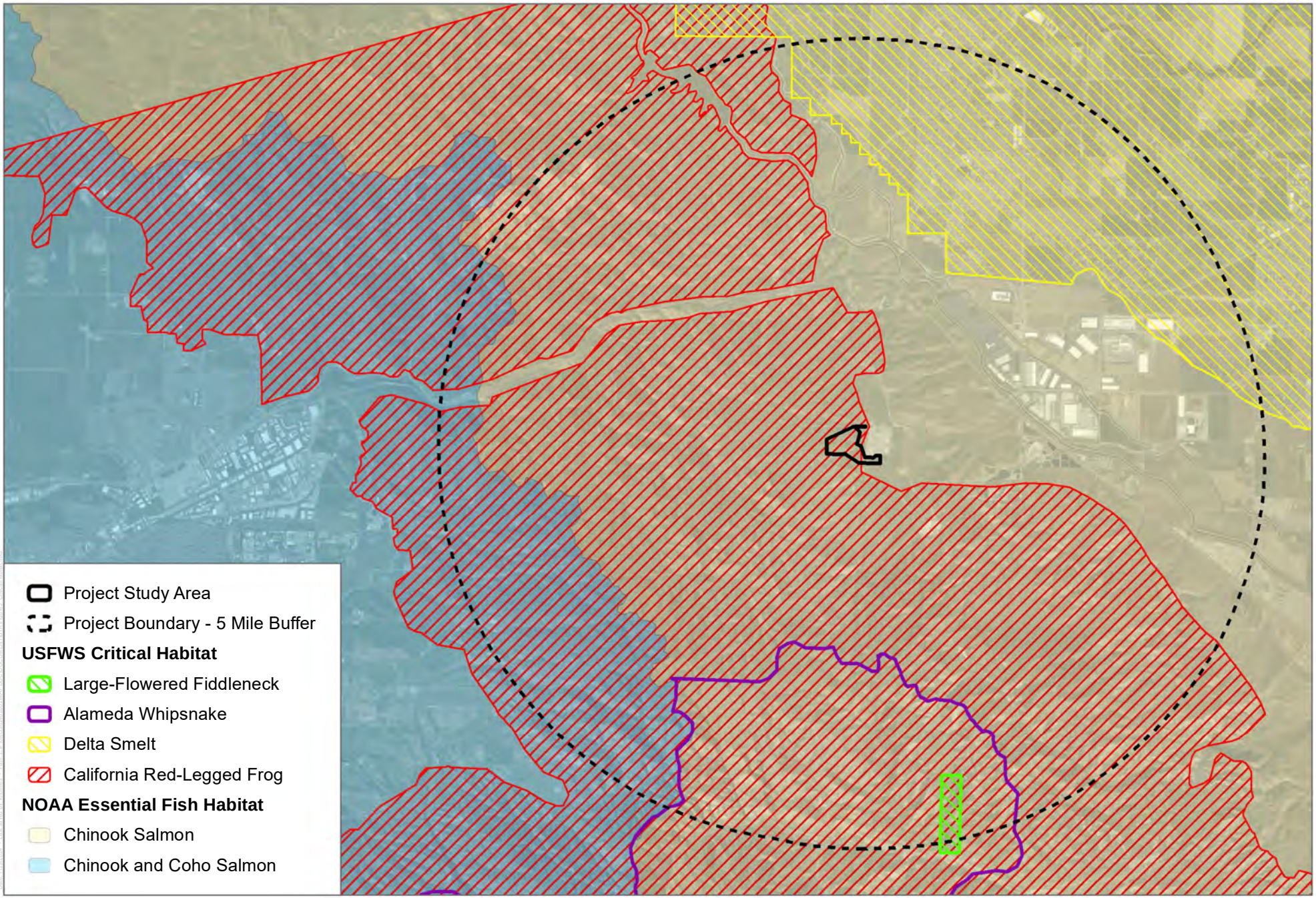
DUDEK

0 0.75 1.5 Miles

FIGURE 4

Special-Status Species Occurrences

Biological Technical Report for the Potentia-Viridi Battery Energy Storage System Project, Alameda County, CA



SOURCE: Bing Maps 2022, USFWS 2022, NOAA 2021

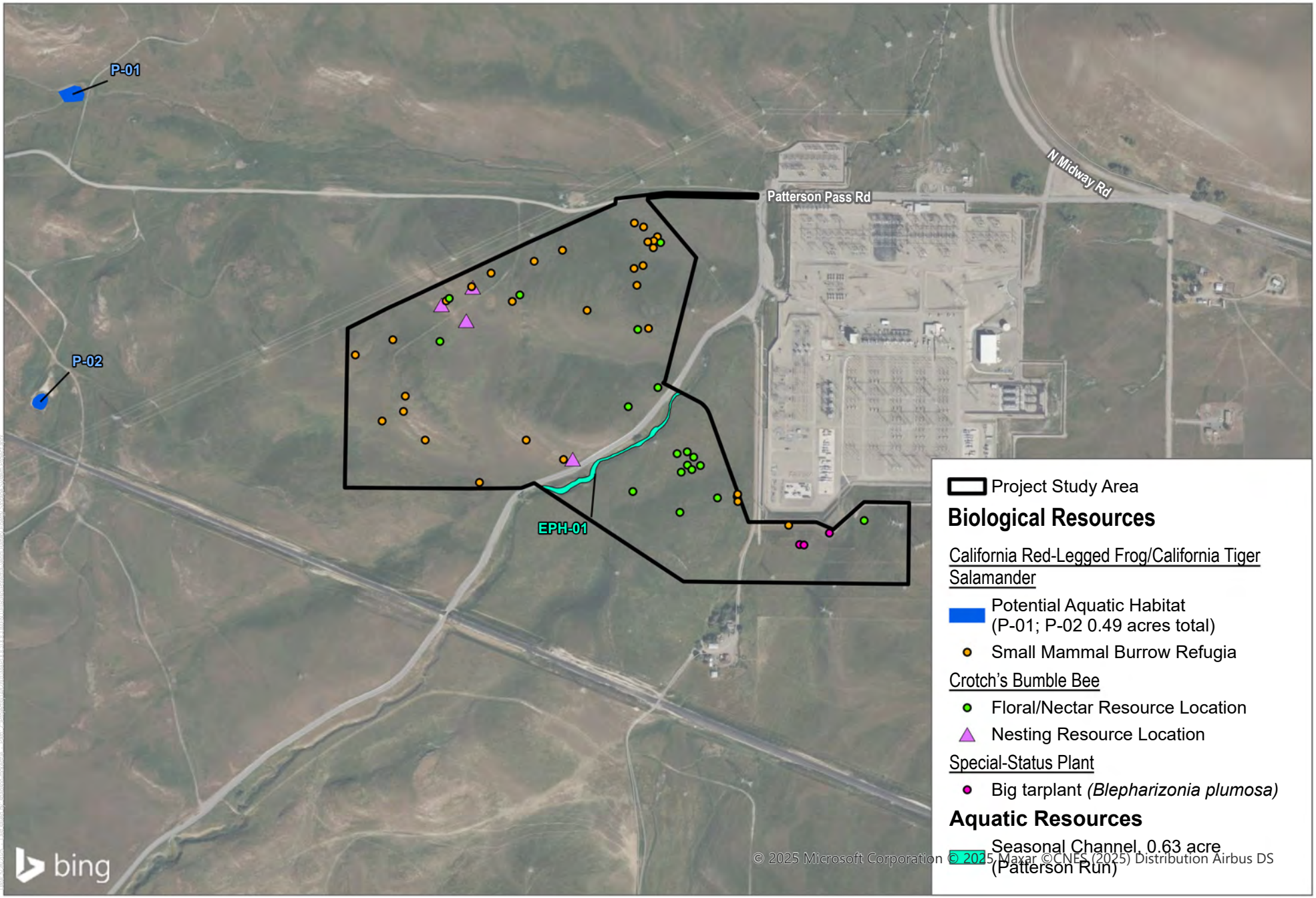
DUDEK

0 0.75 1.5 Miles

FIGURE 5

Critical Habitats

Potentia-Viridi Battery Energy Storage System Project



SOURCE: Bing Maps 2022, Open Street Map 2019, USGS 2022

DUDEK

0 415 830 Feet

FIGURE 6

Biological Survey Results

Potentia-Veridi Battery Energy Storage System Project

Appendix B
Database Search Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Byron Hot Springs (3712176) OR Clifton Court Forebay (3712175) OR Union Island (3712174) OR Altamont (3712166) OR Midway (3712165) OR Tracy (3712164) OR Mendenhall Springs (3712156) OR Cedar Mtn. (3712155) OR Lone Tree Creek (3712154))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Allium sharsmithiae Sharsmith's onion	PMLIL02310	None	None	G2	S2	1B.3
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Amsinckia grandiflora large-flowered fiddleneck	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arctostaphylos manzanita ssp. laevigata Contra Costa manzanita	PDERI04273	None	None	G5T2	S2	1B.2
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S2	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Branchinecta longiantenna longhorn fairy shrimp	ICBRA03020	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Caulanthus lemmonii Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Chlorogalum pomeridianum var. minus dwarf soaproot	PMLIL0G042	None	None	G5T3	S3	1B.2
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
Chloropyron palmatum palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Cirsium fontinale var. campylon Mt. Hamilton thistle	PDAST2E163	None	None	G2T2	S2	1B.2
Clarkia concinna ssp. automixa Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Deinandra bacigalupii Livermore tarplant	PDAST4R0V0	None	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	AMAFD03061	None	None	G4T1	S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eryngium spinosepalum spiny-sepaled button-celery	PDAPI0Z0Y0	None	None	G2	S2	1B.2
Eschscholzia rhombipetala diamond-petaled California poppy	PDPAP0A0D0	None	None	G1	S1	1B.1
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Fritillaria falcata talus fritillary	PMLIL0V070	None	None	G2	S2	1B.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Hesperolinon breweri Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hoita strobilina Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
Hygrotus curvipes curved-foot hygrotus diving beetle	IICOL38030	None	None	G2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Leptosyne hamiltonii Mt. Hamilton coreopsis	PDAST2L0C0	None	None	G2	S2	1B.2
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Madia radiata showy golden madia	PDAST650E0	None	None	G3	S3	1B.1
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
Masticophis flagellum ruddocki San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S3	SSC
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Melospiza melodia pop. 1 song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Perognathus inornatus San Joaquin pocket mouse	AMAFD01060	None	None	G2G3	S2S3	
Phacelia phacelioides Mt. Diablo phacelia	PDHYD0C3Q0	None	None	G2	S2	1B.2
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G4	S4	SSC
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GX	SX	1A
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G2	S2	1B.2
Rana boylii pop. 4 foothill yellow-legged frog - central coast DPS	AAABH01054	Threatened	Endangered	G3T2	S2	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Ravenella exigua chaparral harebell	PDCAM020A0	None	None	G2	S2	1B.2
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Spea hammondii western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Spergularia macrotheca var. longistyla long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Sylvilagus bachmani riparius riparian brush rabbit	AMAEB01021	Endangered	Endangered	G5T1	S2	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S1	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tropidocarpum capparideum caper-fruited tropidocarpum	PDBRA2R010	None	None	G1	S1	1B.1
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S3	
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S3	

Record Count: 93

CNPS Rare Plant Inventory

Search Results

61 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3712154:3712164:3712165:3712155:3712156:3712166:3712174:3712175:3712176**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	 © 2005 Barry Breckling
Allium sharsmithiae	Sharsmith's onion	Alliaceae	perennial bulbiferous herb	Mar-May	None	None	G2	S2	1B.3	Yes	1980-01-01	 © 2017 John Doyen
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	(Mar)Apr-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2015 Zoya Akulova
Androsace elongata ssp. *acuta*	California androsace	Primulaceae	annual herb	Mar-Jun	None	None	G5? T3T4	S3S4	4.2		1994-01-01	 © 2008 Aaron Schusteff
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar(Apr)	None	None	G5T2	S2	1B.2	Yes	1984-01-01	 © 2019 Susan McDougall
Aspidotis carlotta-halliae	Carlotta Hall's lace fern	Pteridaceae	perennial rhizomatous herb	Jan-Dec	None	None	G3	S3	4.2	Yes	1994-01-01	No Photo Available
Astragalus tener var. *tener*	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available

Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01
Atriplex coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	None	None	G3	S3	1B.2	Yes	2001-01-01
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	None	None	G3T2	S2	1B.1	Yes	1994-01-01
Chlorogalum pomeridianum var. *minus*	dwarf soaproot	Agavaceae	perennial bulbiferous herb	May-Aug	None	None	G5T3	S3	1B.2	Yes	1994-01-01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©1998 Dean Wm. Taylor

No Photo Available

No Photo Available

No Photo Available

No Photo Available


© 1997 Dean Wm Taylor

Chloropyron molle ssp. *hispidum*	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Cirsium fontinale var. *campylon*	Mt. Hamilton thistle	Asteraceae	perennial herb	(Feb)Apr-Oct	None	None	G2T2	S2	1B.2	Yes	1974-01-01	No Photo Available
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	No Photo Available
Clarkia concinna ssp. *automixa*	Santa Clara red ribbons	Onagraceae	annual herb	(Apr)May-Jun(Jul)	None	None	G5?T3	S3	4.3	Yes	1994-01-01	No Photo Available
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Deinandra bacigalupii	Livermore tarplant	Asteraceae	annual herb	Jun-Oct	None	CE	G1	S1	1B.1	Yes	2001-01-01	No Photo Available
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	None	None	G3T3	S3	1B.2	Yes	1984-01-01	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
Eriogonum umbellatum var. *bahiiforme*	bay buckwheat	Polygonaceae	perennial herb	Jul-Sep	None	None	G5T3	S3	4.2	Yes	2001-01-01	No Photo Available
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1980-01-01	No Photo Available
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1980-01-01	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff

Fritillaria falcata	talus fritillary	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Aaron Schusteff
Galium andrewsii ssp. *gatense*	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	None	None	G5T3	S3	4.2	Yes	1994-01-01	 © 2021 Steve Matson
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Christopher Bronny
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Hoita strobilina	Loma Prieta hoita	Fabaceae	perennial herb	May-Jul(Aug-Oct)	None	None	G2?	S2?	1B.1	Yes	2001-01-01	 © 2004 Janell Hillman
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game

Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1994-01-01	 © 2010 Aaron Schusteff
Leptosyne hamiltonii	Mt. Hamilton coreopsis	Asteraceae	annual herb	Mar-May	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©2012 Aaron Schusteff
Lessingia tenuis	spring lessingia	Asteraceae	annual herb	May-Jul	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2020 Keir Morse
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	Yes	1988-01-01	No Photo Available
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial deciduous shrub	(Apr)May-Sep(Oct)	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2017 Keir Morse
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	None	None	G3G4	S3S4	3.2	Yes	1974-01-01	 © 2008 Aaron Arthur
Microseris sylvatica	sylvan microseris	Asteraceae	perennial herb	Mar-Jun	None	None	G4	S4	4.2	Yes	2001-01-01	No Photo Available
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
Navarretia nigelliformis ssp. *radians*	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	G4T2	S2	1B.2	Yes	1994-01-01	No Photo Available
Phacelia phacelioides	Mt. Diablo phacelia	Hydrophyllaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©2019 Steve Matson

Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.2	Yes	1984-01-01	No Photo Available
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	None	None	GX	SX	1A	Yes	1974-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
Ravenella exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2		1994-01-01	No Photo Available
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	 © 2005 Dean Wm Taylor
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Showing 1 to 61 of 61 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 24 January 2024].

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Alameda County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

NAME	STATUS
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) Masticophis lateralis euryxanthus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5524	Threatened
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus** Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi** Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi** Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Large-flowered Fiddleneck *Amsinckia grandiflora** Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5558	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE

California Red-legged Frog Rana draytonii https://ecos.fws.gov/ecp/species/2891#crithab	Final

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ( )
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data ( )
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

probability of presence breeding season survey effort no data

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

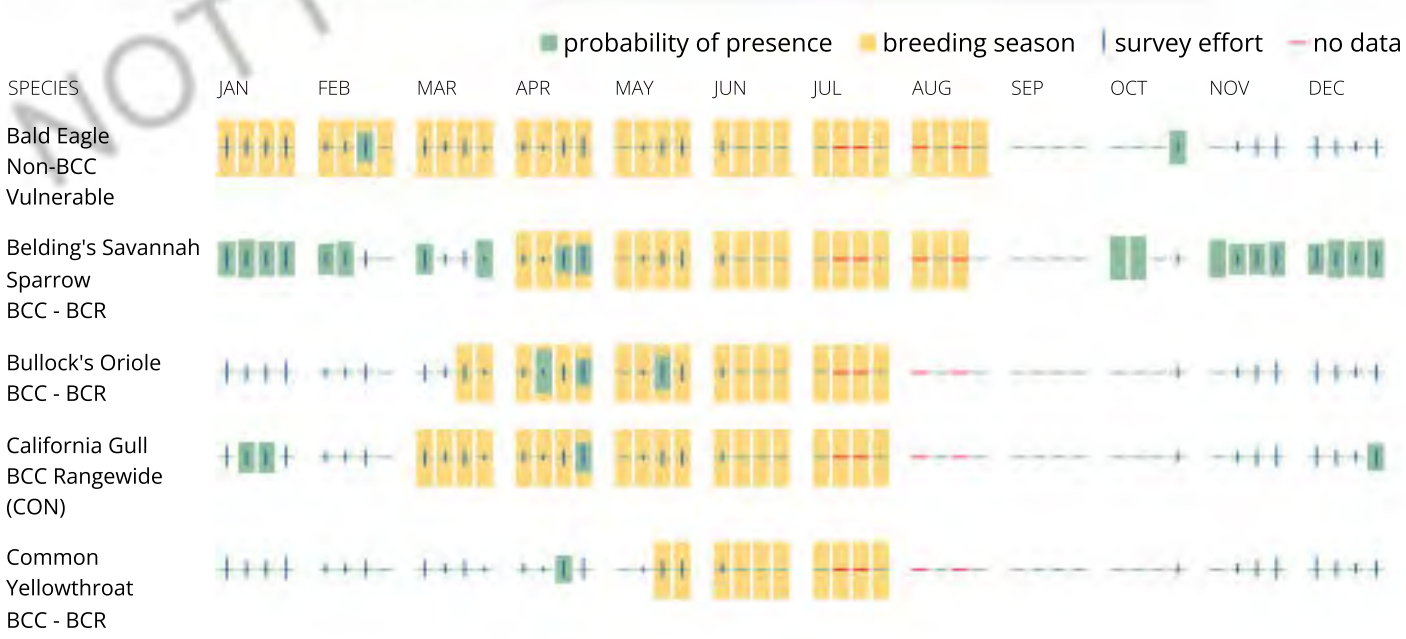
Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ( )
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data ( )
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which

means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C

FRESHWATER POND

- PUBHh
- PUSA

RIVERINE

R4SBC
R4SBA
R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Alameda Area, California

Potentia-Viridi BESS Site

January 24, 2024

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

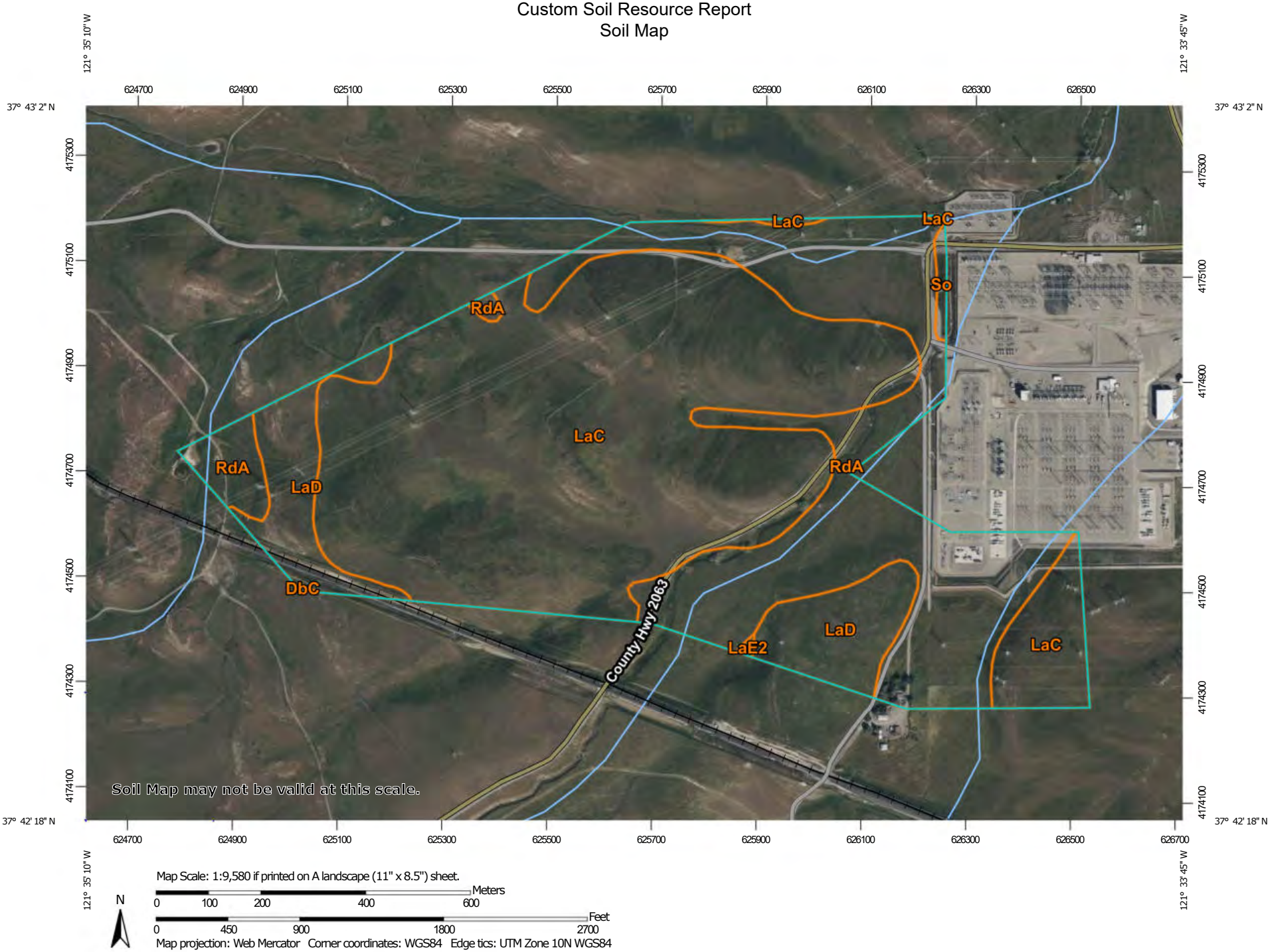
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:9,580 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Alameda Area, California
Survey Area Data: Version 17, Sep 11, 2023

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

Date(s) aerial images were photographed: Mar 9, 2022—Mar 11, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DbC	Diablo clay, 7 to 15 percent slopes	0.1	0.0%
LaC	Linne clay loam, 3 to 15 percent slopes	144.4	59.1%
LaD	Linne clay loam, 15 to 30 percent slopes, MLRA 15	23.9	9.8%
LaE2	Linne clay loam, 30 to 45 percent slopes, eroded	0.2	0.1%
RdA	Rincon clay loam, 0 to 3 percent slopes	75.0	30.7%
So	Sycamore silt loam, 0 to 2 percent slopes, MLRA 14	1.0	0.4%
Totals for Area of Interest		**244.5**	**100.0%**

Map Unit Descriptions

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

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

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

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Alameda Area, California

DbC—Diablo clay, 7 to 15 percent slopes

Map Unit Setting

National map unit symbol: hb36
Elevation: 300 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Diablo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from shale and siltstone

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 42 inches: silty clay
H3 - 42 to 50 inches: silty clay
H4 - 50 to 54 inches: bedrock

Properties and qualities

Slope: 7 to 15 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY008CA - Hills <20"ppt
Hydric soil rating: No

Minor Components

Altamont
Percent of map unit: 5 percent
Hydric soil rating: No

Pescadero
Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Linne
Percent of map unit: 5 percent
Hydric soil rating: No

LaC—Linne clay loam, 3 to 15 percent slopes

Map Unit Setting
National map unit symbol: hb3l
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Farmland of statewide importance

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

Description of Linne

Setting
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile
H1 - 0 to 36 inches: clay loam
H2 - 36 to 40 inches: bedrock

Properties and qualities
Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY008CA - Hills <20"ppt
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

LaD—Linne clay loam, 15 to 30 percent slopes, MLRA 15

Map Unit Setting

National map unit symbol: 2w63l
Elevation: 110 to 1,560 feet
Mean annual precipitation: 13 to 22 inches

Mean annual air temperature: 59 to 61 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Linne

Setting

Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

Ap - 0 to 9 inches: clay loam
A1 - 9 to 14 inches: clay loam
A2 - 14 to 29 inches: clay loam
AC - 29 to 32 inches: sandy clay loam
Ck - 32 to 36 inches: fine sandy loam
Cr - 36 to 51 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 35 to 50 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R015XY013CA - Loamy Mountains <20"ppt
Hydric soil rating: No

Minor Components

Diablo

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Ecological site: R015XD001CA - CLAYEY
Hydric soil rating: No

Altamont

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave
Hydric soil rating: Yes

Haploxerolls, landslides

Percent of map unit: 1 percent
Landform: Landslides, slumps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

LaE2—Linne clay loam, 30 to 45 percent slopes, eroded

Map Unit Setting

National map unit symbol: hb3n
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Linne and similar soils: 85 percent

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

Description of Linne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 36 inches: clay loam
H2 - 36 to 40 inches: bedrock

Properties and qualities

Slope: 30 to 45 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R014XD092CA - CLAYEY HILLS
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

RdA—Rincon clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hb4j
Elevation: 10 to 600 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Rincon

Setting

Landform: Valley floors, fans
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 52 inches: sandy clay
H3 - 52 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Hydric soil rating: No

Pleasanton

Percent of map unit: 5 percent
Hydric soil rating: No

San ysidro

Percent of map unit: 5 percent
Hydric soil rating: No

So—Sycamore silt loam, 0 to 2 percent slopes, MLRA 14

Map Unit Setting

National map unit symbol: 2xcbh
Elevation: 310 to 380 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 336 to 349 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Sycamore

Setting

Landform: Alluvial fans, flood-plain steps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 7 inches: silt loam
Akg - 7 to 18 inches: silt loam
ACkg - 18 to 30 inches: silt loam
Ckg1 - 30 to 44 inches: silt loam

Ckg2 - 44 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.2 to 0.5 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: Very high (about 12.5 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R014XG918CA - Loamy Fan
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Yolo

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

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Appendix C
Staff Resumes

Plant Species

Vascular Species

Eudicots

AMARANTHACEAE – AMARANTH FAMILY

* *Amaranthus albus* – prostrate pigweed

APOCYNACEAE – DOGBANE FAMILY

Asclepias fascicularis – Mexican whorled milkweed

ASTERACEAE – SUNFLOWER FAMILY

Blepharizonia plumosa – big tarplant
* *Carduus pycnocephalus* – Italian plumeless thistle
* *Centaurea calcitrapa* – red star-thistle
* *Centaurea solstitialis* – yellow star-thistle
* *Cynara cardunculus* – cardoon
* *Grindelia squarrosa* – curlycup gumweed

Holocarpha virgata – yellowflower tarweed

Isocoma acradenia – alkali goldenbush
* *Lactuca serriola* – prickly lettuce

Lasthenia sp. – unidentified goldfield species
* *Silybum marianum* – blessed milkthistle

Xanthium spinosum – spiny cocklebur

BORAGINACEAE – BORAGE FAMILY

Amsinckia intermedia – common fiddleneck

Heliotropium curassavicum – salt heliotrope

Plagiobothrys canescens – valley popcornflower

BRASSICACEAE – MUSTARD FAMILY

* *Brassica nigra* – black mustard

CHENOPODIACEAE – GOOSEFOOT FAMILY

* *Atriplex prostrata* – fat hen

Atriplex sp. – unidentified Atriplex species
* *Salsola tragus* – prickly Russian thistle

CONVOLVULACEAE – MORNING-GLORY FAMILY

* *Convolvulus arvensis* – field bindweed

EUPHORBIACEAE – SPURGE FAMILY

Croton setiger – dove weed

FABACEAE – LEGUME FAMILY

Lupinus microcarpus – valley lupine

Lupinus sp. – unidentified lupine species

Trifolium sp. – unidentified clover species

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – longbeak stork's bill

Erodium cicutarium – redstem stork's bill

LAMIACEAE – MINT FAMILY

* *Marrubium vulgare* – horehound

MALVACEAE – MALLOW FAMILY

Malvella leprosa – alkali mallow

OROBANCHACEAE – BROOM-RAPE FAMILY

Castilleja exserta – exserted Indian paintbrush

POLYGONACEAE – BUCKWHEAT FAMILY

* *Rumex crispus* – curly dock

SALICACEAE – WILLOW FAMILY

Populus fremontii – Fremont cottonwood

VERBENACEAE – VERVAIN FAMILY

Verbena lasiostachys – western vervain

Monocots

CYPERACEAE – SEDGE FAMILY

Bolboschoenus maritimus – salt marsh bulrush

Eleocharis sp. – unidentified spikerush species

POACEAE – GRASS FAMILY

* *Avena fatua* – wild oat
* *Bromus diandrus* – ripgut brome
* *Bromus rubens* – red brome

Distichlis spicata – salt grass

* *Festuca perennis* – perennial rye grass

Festuca sp. – unidentified fescue species

* *Hordeum murinum* – mouse barley
* *Poa bulbosa* – bulbous bluegrass
* *Polypogon monspeliensis* – annual rabbitsfoot grass

THEMIDACEAE – BRODIAEA FAMILY

Brodiaea elegans – harvest brodiaea

Dipterostemon capitatus – bluedicks

Triteleia laxa – Ithuriel's spear

Wildlife Species

Amphibians

Frogs

HYLIDAE – TREEFROGS

Pseudacris sierra – Sierran treefrog

Birds

Blackbirds, Orioles and Allies

ICTERIDAE – BLACKBIRDS

Agelaius phoeniceus – red-winged blackbird

Agelaius tricolor – tricolored blackbird

Sturnella neglecta – western meadowlark

Falcons

FALCONIDAE – CARACARAS AND FALCONS

Falco sparverius – American kestrel

Finches

FRINGILLIDAE – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Tyrannus verticalis – western kingbird

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis – red-tailed hawk

Jays, Magpies and Crows

CORVIDAE – CROWS AND JAYS

Corvus corax – common raven

Larks

ALAUDIDAE – LARKS

Eremophila alpestris – horned lark

New World Vultures

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura –turkey vulture

Pigeons and Doves

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

Shorebirds

CHARADRIIDAE – LAPWINGS AND PLOVERS

Charadrius vociferus – killdeer

Starlings and Allies

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

Waterfowl

ANATIDAE – DUCKS, GEESE, AND SWANS

Anas platyrhynchos – mallard

Lophodytes cucullatus – hooded merganser

Wood Warblers and Allies

PARULIDAE – WOOD-WARBLERS

Setophaga coronata – yellow-rumped warbler

New World Sparrows

PASSERELLIDAE – NEW WORLD SPARROWS

Passerculus sandwichensis – savannah sparrow

Mammals

Canids

CANIDAE – WOLVES AND FOXES

Canis latrans – coyote

Squirrels

SCIURIDAE – SQUIRRELS

Otospermophilus beecheyi – California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

Sceloporus occidentalis – western fence lizard

* signifies introduced (non-native) species

Appendix D

Plant and Wildlife Species Compendium

Photo 1. Non-native annual grasslands, March 2023.

Photo 2. Non-native annual grasslands and site topography, March 2023.

Photo 3. Exposed bedrock within non-native annual grasslands, March 2023.

Photo 4. Rocky outcrops that may provide nesting habitat for native bumble bees, March 2023.

Photo 5. Stock pond (Pond 1) west of the Project site, March 2023.

Photo 6. Stock pond (Pond 2) west of the Project site, March 2023.

Photo 7. Pond 1 at the start of August 2023, with very little water remaining.

Photo 8. Pond 2 at the start of August 2023, with considerable water remaining.

Photo 9. Patterson Run (EPH-01) with moderate flow in March 2023.

Photo 10. Patterson Run (EPH-01) with dry streambed at the start of August 2023.

Photo 11. Patterson Run (EPH-01) with moderate flow in January 2024.

Photo 12. Patterson Run (EPH-01), deep channel near Patterson Pass Road in January 2024.

Photo 13. Non-native annual grassland habitat on the generation-tie alignment, August 2023.

Photo 14. Example of a small mammal burrow with large soil tailing present on the Project site, August 2023.

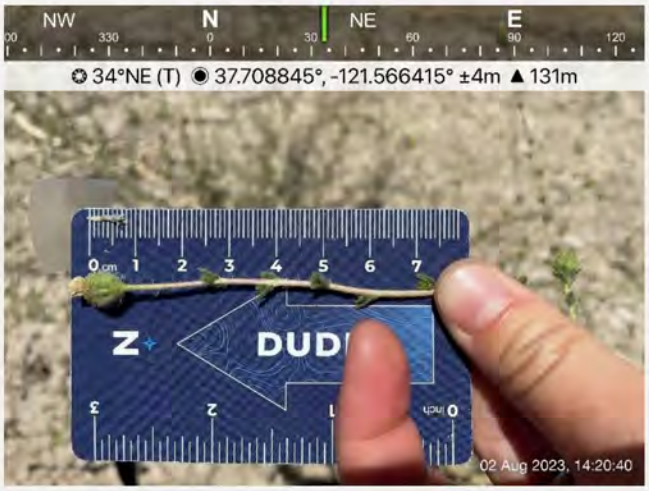

Photo 15. Sample of big tarplant, *Blepharizonia plumosa*, blooming in August 2023.

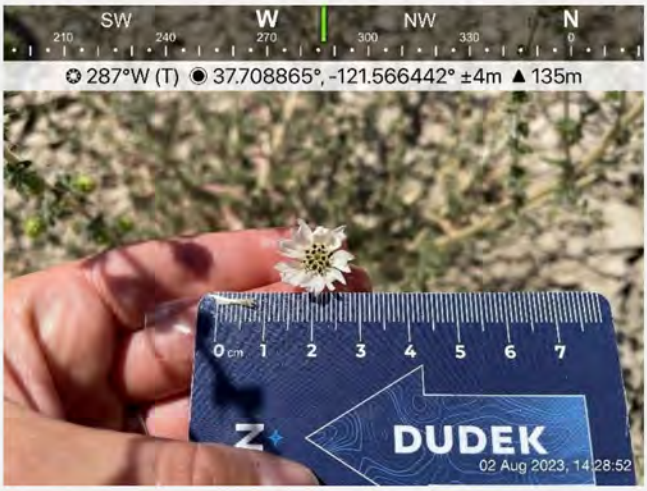

Photo 16. Flower of big tarplant, *Blepharizonia plumosa*, August 2023.

Photo 17. Grassland wash/swale microhabitat surrounding the big tarplant, near the southwest corner of the PG&E substation.

Photo 18. Similar grassland wash/swale microhabitat surrounding two additional big tarplants found on the Project site.

Appendix E
Photo Record

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Plants				
Allium sharsmithiae	Sharsmith's onion	None/None/1B.3/No	Chaparral, Cismontane woodland; Rocky, Serpentinite/perennial bulbiferous herb/Mar–May/1,310–3,935	**Not expected to occur.** The site is outside of the species' known elevation range.
Amsinckia grandiflora	large-flowered fiddleneck	FE/SE/1B.1/No	Cismontane woodland, Valley and foothill grassland/annual herb/(Mar)Apr–May/885–1,800	**Not expected to occur.** The site is outside of the species' known elevation range.
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	None/None/1B.2/No	Chaparral (rocky)/perennial evergreen shrub/Jan–Mar (Apr)/ 1,410–3,605	**Not expected to occur.** The site is outside of the species' known elevation range.
Astragalus tener var. *tener*	alkali milk-vetch	None/None/1B.2/No	Playas, Valley and foothill grassland (adobe clay), Vernal pools; Alkaline/annual herb/Mar–June/5–195	**Not expected to occur.** The site is outside of the species' known elevation range.
Atriplex cordulata var. *cordulata*	heartscale	None/None/1B.2/No	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy); Alkaline (sometimes)/annual herb/Apr–Oct/0–1,835	**Low potential to occur.** Valley and foothill grassland is present but generally lacking sandy soils. No documented occurrences within 5 miles of the Project Study Area (PSA) (CDFW 2024).
Atriplex depressa	brittlescale	None/None/1B.2/No	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools; Alkaline, Clay/annual herb/Apr–Oct/5–1,045	**Moderate potential to occur.** Suitable valley and foothill grassland present with clay soils. The nearest documented occurrence is approximately 5 miles northwest of the PSA from 2003 (Occ. No. 28; CDFW 2024).
Atriplex minuscula	lesser saltscale	None/None/1B.1/No	Chenopod scrub, Playas, Valley and foothill grassland; Alkaline, Sandy/annual herb/May–Oct/50–655	**Low potential to occur.** Valley and foothill grassland is present but generally lacking sandy soils. No documented occurrences within 5 miles of the PSA (CDFW 2024).
Balsamorhiza macrolepis	big-scale balsamroot	None/None/1B.2/No	Chaparral, Cismontane woodland, Valley and foothill grassland; Serpentinite (sometimes)/perennial herb/Mar–June/150–5,100	**Low potential to occur.** Valley and foothill grassland present but lacks serpentine soils preferred by this species. No documented occurrences within 5 miles of the PSA (CDFW 2024).
Blepharizonia plumosa	big tarplant	None/None/1B.1/Yes	Valley and foothill grassland; Clay (usually)/annual herb/July–Oct/ 100–1,655	**Known to occur.** Three individuals were found on the PSA near the southwest corner of the PG&E substation during the rare plant survey on August 8, 2023. Suitable valley and foothill grassland with clay loam soils present. The nearest documented occurrence is approximately 0.25 mile east of the PSA from 2003 (Occ. No. 15; CDFW 2024).
Calochortus pulchellus	Mt. Diablo fairy-lantern	None/None/1B.2/No	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland/perennial bulbiferous herb/Apr–June/100–2,755	**Low potential to occur.** Valley and foothill grassland present but lacks wooded and brushy slope microhabitat preferred by this species. No documented occurrences within 5 miles of the PSA (CDFW 2024).
Caulanthus lemmonii	Lemmon's jewelflower	None/None/1B.2/No	Pinyon and juniper woodland, Valley and foothill grassland/annual herb/Feb–May/260–5,180	**Moderate potential to occur.** Suitable valley and foothill grassland present. The nearest documented occurrence is approximately 3.5 miles south of the PSA, a historical record from 1938 (Occ. No. 35; CDFW 2024).
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	None/None/1B.1/Yes	Valley and foothill grassland (alkaline)/annual herb/May–Oct(Nov)/ 0–755	**Moderate potential to occur.** Suitable valley and foothill grassland present with clay soils. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Chlorogalum pomeridianum var. *minus*	dwarf soaproot	None/None/1B.2/No	Chaparral (serpentinite)/perennial bulbiferous herb/May–Aug/ 1,000–3,280	**Not expected to occur.** The site is outside of the species' known elevation range.
Chloropyron molle ssp. *hispidum*	hispid salty bird's-beak	None/None/1B.1/No	Meadows and seeps, Playas, Valley and foothill grassland; Alkaline/annual herb (hemiparasitic)/June–Sep/5–510	**Not expected to occur**. The site lacks damp alkaline soils preferred by this species. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Chloropyron palmatum	palmate-bracted bird's-beak	FE/SE/1B.1/Yes	Chenopod scrub, Valley and foothill grassland; Alkaline/annual herb (hemiparasitic)/May–Oct/15–510	**Low potential to occur.** Valley and foothill grassland is present but the Pescadero soils preferred by this species are only a minor component of the soils on the PSA. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Cirsium fontinale var. *campylon*	Mt. Hamilton thistle	None/None/1B.2/No	Chaparral, Cismontane woodland, Valley and foothill grassland; Seeps, Serpentinite/perennial herb/(Feb)Apr–Oct/330–2,915	**Not expected to occur.** The site lacks serpentine soils preferred by this species. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Deinandra bacigalupii	Livermore tarplant	None/SE/1B.1/Yes	Meadows and seeps (alkaline)/annual herb/June–Oct/490–605	**Not expected to occur.** The site lacks suitable meadow seep habitats preferred by this species. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	None/None/1B.2/No	Chaparral (openings), Cismontane woodland (mesic), Coastal scrub/perennial herb/Apr–June/640–3,590	**Not expected to occur.** The site lacks suitable chaparral, woodland, or scrub habitat for this species. There are no documented occurences within 5 miles of the PSA (CDFW 2024).
Delphinium recurvatum	recurved larkspur	None/None/1B.2/Yes	Chenopod scrub, Cismontane woodland, Valley and foothill grassland; Alkaline/perennial herb/Mar–June/10–2,590	**Moderate potential to occur.** There is suitable valley and foothill grassland with alkaline soils present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Eryngium spinosepalum	spiny-sepaled button-celery	None/None/1B.2/No	Valley and foothill grassland, Vernal pools/annual/perennial herb/ Apr–June/260–3,195	**Moderate potential to occur**. There is suitable valley and foothill grassland present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Eschscholzia rhombipetala	diamond-petaled California poppy	None/None/1B.1/No	Valley and foothill grassland (alkaline, clay)/annual herb/Mar–Apr/ 0–3,195	**Moderate potential to occur.** There is suitable valley and foothill grassland with alkaline clay soils present. The nearest documented occurrence is approximately 3.4 miles south of the PSA from 2012 (Occ. No. 9; CDFW 2024).
Extriplex joaquinana	San Joaquin spearscale	None/None/1B.2/Yes	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland; Alkaline/annual herb/Apr–Oct/5–2,735	**Moderate potential to occur**. There is suitable valley and foothill grassland with alkaline soils present. The nearest documented occurrence is approximately 3.8 miles northwest of the PSA from 2015 (Occ. No. 117; CDFW 2024).
Fritillaria falcata	talus fritillary	None/None/1B.2/No	Chaparral, Cismontane woodland, Lower montane coniferous forest; Serpentinite, Talus (often)/perennial bulbiferous herb/Mar–May/ 985–5,000	**Not expected to occur.** The site is outside of the species' known elevation range.
Helianthella castanea	Diablo helianthella	None/None/1B.2/No	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky (usually)/perennial herb/Mar–June/195–4,265	**Not expected to occur.** No suitable forest, woodland, or chaparral habitats present, and only a single small rocky outcrop area within the PSA. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Hesperolinon breweri	Brewer's western flax	None/None/1B.2/No	Chaparral, Cismontane woodland, Valley and foothill grassland; Serpentinite (usually)/annual herb/May–July/100–3,100	**Not expected to occur.** No suitable chaparral or woodland habitat present, and no serpentine soils. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	None/None/1B.2/No	Marshes and swamps (freshwater)/perennial rhizomatous herb (emergent)/June–Sep/0–395	**Not expected to occur.** No suitable freshwater marsh or swamp habitat present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Hoita strobilina	Loma Prieta hoita	None/None/1B.1/No	Chaparral, Cismontane woodland, Riparian woodland; Mesic, Serpentinite (usually)/perennial herb/May–July (Aug–Oct)/100–2,820	**Not expected to occur.** No suitable chaparral or woodland habitat present, and no serpentine soils. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Legenere limosa	legenere	None/None/1B.1/No	Vernal pools/annual herb/Apr–June/5–2,885	**Not expected to occur.** Vernal pools absent. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Leptosyne hamiltonii	Mt. Hamilton coreopsis	None/None/1B.2/No	Cismontane woodland (rocky)/annual herb/Mar–May/1,800–4,265	**Not expected to occur.** The site is outside of the species' known elevation range.
Lilaeopsis masonii	Mason's lilaeopsis	None/SR/1B.1/No	Marshes and swamps (brackish, freshwater), Riparian scrub/perennial rhizomatous herb/Apr–Nov/0–35	**Not expected to occur.** The site is outside of the species' known elevation range.
Limosella australis	Delta mudwort	None/None/2B.1/No	Marshes and swamps (brackish, freshwater), Riparian scrub; Streambanks (usually)/perennial stoloniferous herb/May–Aug/0–10	**Not expected to occur.** The site is outside of the species' known elevation range.
Madia radiata	showy golden madia	None/None/1B.1/No	Cismontane woodland, Valley and foothill grassland/annual herb/ Mar–May/80–3,985	**Moderate potential to occur.** Suitable valley and foothill grassland present with clay soils. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Malacothamnus hallii	Hall's bush-mallow	None/None/1B.2/No	Chaparral, Coastal scrub/perennial deciduous shrub/ (Apr)May–Sep(Oct)/35–2,490	**Not expected to occur.** No chaparral or coastal scrub habitat present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Navarretia nigelliformis ssp. *radians*	shining navarretia	None/None/1B.2/No	Cismontane woodland, Valley and foothill grassland, Vernal pools; Clay (sometimes)/annual herb/(Mar)Apr–July/215–3,280	**Moderate potential to occur.** Suitable valley and foothill grassland present with clay soils. The nearest documented occurrence is approximately 2.1 miles south of the PSA, a historical record from 1997 (Occ. No. 61; CDFW 2024).
Phacelia phacelioides	Mt. Diablo phacelia	None/None/1B.2/No	Chaparral, Cismontane woodland; Rocky/annual herb/Apr–May/ 1,640–4,490	**Not expected to occur.** The site is outside of the species' known elevation range.
Plagiobothrys glaber	hairless popcornflower	None/None/1A/No	Marshes and swamps (coastal salt), Meadows and seeps (alkaline)/annual herb/Mar–May/50–590	**Not expected to occur.** No suitable coastal salt or alkaline meadow habitat present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Puccinellia simplex	California alkali grass	None/None/1B.2/No	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; Alkaline, Flats, Lake Margins, Vernally Mesic/annual herb/Mar–May/5–3,050	**Low potential to occur.** Valley and foothill grassland is present, but with limited mesic areas. The nearest documented occurrence is approximately 4.4 miles northwest of the PSA, a historical record from 1958 (Occ. No. 41; CDFW 2024).
Ravenella exigua	chaparral harebell	None/None/1B.2/No	Chaparral (rocky, usually serpentinite)/annual herb/May–June/ 900–4,100	**Not expected to occur.** The site is outside of the species' known elevation range.
Senecio aphanactis	chaparral ragwort	None/None/2B.2/No	Chaparral, Cismontane woodland, Coastal scrub; Alkaline (sometimes)/annual herb/Jan–Apr (May)/50–2,620	**Not expected to occur.** No suitable chaparral, woodland, or coastal scrub habitat present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	None/None/1B.2/No	Marshes and swamps, Meadows and seeps; Alkaline/perennial herb/Feb–May/0–835	**Not expected to occur**. No suitable marsh or meadow habitats present. The nearest documented occurrences are approximately 3.2 miles northwest and north of the PSA, both historical records (Occ. Nos. 5 and 6; CDFW 2024).
Trifolium hydrophilum	saline clover	None/None/1B.2/No	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools/annual herb/Apr–June/0–985	**Low potential to occur.** Valley and foothill grassland is present, but with limited mesic areas. There are no documented occurences within 5 miles of the PSA (CDFW 2024).
Tropidocarpum capparideum	caper-fruited tropidocarpum	None/None/1B.1/No	Valley and foothill grassland (alkaline hills)/annual herb/Mar–Apr/ 5–1,490	**High potential to occur.** Suitable valley and foothill grassland with alkaline soils present. The nearest documented occurrence is 0.3 mile northeast, a historical record from 1933 (Occ. No. 3). Three additional historical records are within 5 miles of the PSA (Occ. Nos. 1, 4, 11). The nearest recent occurrence is approximately 3.0 miles northwest of the PSA from 2019 (Occ. No. 27; CDFW 2024).
Wildlife				
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/SCE/—/No	Open grassland and scrub communities supporting suitable floral resources.	**Moderate potential to occur.** Grassland contains scattered floral resources and nesting substrates (bare/cracked ground, small rodent burrows, small rocky areas). There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Bombus occidentalis	western bumble bee	None/SCE/—/No	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease	**Not expected to occur.** The PSA is outside of the currently known range for this species (CDFW 2023e), and the nearest documented occurrence, approximately 4 miles south of the PSA, is from 1951 (Occ. No. 232; CDFW 2024).
Branchinecta longiantenna	longhorn fairy shrimp	FE/None/—/Yes	Sandstone outcrop pools, alkaline grassland vernal pools, and pools within alkali sink and alkali scrub communities	**Not expected to occur.** Vernal pools absent. Documented occurrences are recorded in the Byron Hot Springs and Altamont quads to the northeast and east of the PSA, but specific locations are not available (CDFW 2024).
Branchinecta lynchi	vernal pool fairy shrimp	FT/None/—/Yes	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	**Not expected to occur.** Vernal pools absent. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT/None/—/No	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*)	**Not expected to occur.** No blue elderberry host plants present in the PSA.
Lepidurus packardi	vernal pool tadpole shrimp	FE/None/—/No	Ephemeral freshwater habitats including alkaline pools, clay flats, vernal lakes, vernal pools, and vernal swales	**Not expected to occur.** Vernal pools absent. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FC/None/—/No	Wind-protected tree groves with nectar sources and nearby water sources	**Not expected to occur.** No tree groves present on the PSA to provide shelter. There are no documented occurrences within 5 miles of the PSA (CDFW 2024), and there are no known overwintering sites in the vicinity (Xerces 2016).
Fishes				
Acipenser medirostris pop. 1	green sturgeon - southern DPS	FT/None/—/No	Spawns in deep pools in large, turbulent, freshwater rivers; adults live in oceanic waters, bays, and estuaries	**Not expected to occur.** No suitable aquatic habitat present.
Hypomesus transpacificus	Delta smelt	FT/SE/—/No	Sacramento–San Joaquin Delta; seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay	**Not expected to occur.** The PSA is outside of the known range for this species.
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	FT/None/—/Yes	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead	**Not expected to occur.** No suitable aquatic habitat present.
Spirinchus thaleichthys	longfin smelt	FC/ST/—/No	Aquatic, estuary	**Not expected to occur.** The PSA is outside of the known range for this species.
Thaleichthys pacificus	eulachon	FT/None/—/No	Found in Klamath River, Mad River, and Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries	**Not expected to occur.** No suitable aquatic habitat present.
Amphibians				
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	FT/ST, WL/—/Yes	Annual grassland, valley–foothill hardwood, and valley–foothill riparian habitats; vernal pools, other ephemeral pools, and (uncommonly) along stream courses and man-made pools if predatory fishes are absent	**High potential to occur.** Abundant suitable grassland habitat with small mammal burrows present on the PSA with aquatic breeding habitat available within dispersal distance. The nearest documented occurrence is approximately 1.6 miles southwest of the PSA from 2012 (Occ. No. 1003); there are numerous other records within 5 miles of the PSA (CDFW 2024).
Rana boylii pop. 4	foothill yellow-legged frog - central coast DPS	FPT/SE/—/Yes	Rocky streams and rivers with open banks in forest, chaparral, and woodland	**Not expected to occur.** No suitable rocky stream habitat present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Rana draytonii	California red-legged frog	FT/SSC/—/Yes	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	**High potential to occur.** Abundant suitable grassland habitat with small mammal burrows present on the PSA with aquatic breeding habitat available within dispersal distance. The nearest documented occurrences are approximately 1.5 miles east, south, and west of the PSA (Occ. Nos. 822 from 2001, 1079 from 2008, 1759 from 2012, and 44 from 1993); there are numerous other records within 5 miles of the PSA (CDFW 2024).
Spea hammondii	western spadefoot	None/SSC/—/No	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	**Low potential to occur.** Abundant suitable grassland habitat present, but there are no vernal pools or other ephemeral pools on the site. The nearest documented occurrence is approximately 3.6 miles southwest of the PSA from 2017 (Occ. No. 630; CDFW 2024).
Reptiles				
Anniella pulchra	northern California legless lizard	None/SSC/—/No	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	**Not expected to occur.** Valley-foothill grassland is abundant but PSA lacks moist sandy soils for burrowing. The nearest documented occurrences are approximately 4.2 miles south of the PSA from 2004 and 2000 (Occ. Nos. 11 and 128; CDFW 2024).
Arizona elegans occidentalis	California glossy snake	None/SSC/—/No	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	**Low potential to occur.** Abundant grassland habitat present but with limited loose soils available. The nearest documented occurrence is a historical record from 1984 that overlaps with the PSA (Occ. No. 6; CDFW 2024).

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Emys marmorata	western pond turtle	None/SSC/—/No	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	**Low potential to occur.** Patterson Run provides low-quality habitat. There are two stock ponds that may provide suitable aquatic habitat but are approximately 0.3 mile from the PSA. Suitable upland habitat present throughout the PSA. The nearest documented occurrence is approximately 3.2 miles north of the PSA, a historical record from 1989 (Occ. No. 128; CDFW 2024).
Masticophis flagellum ruddocki	San Joaquin whipsnake	None/SSC/—/No	Open, dry, treeless areas including grassland and saltbush scrub	**Low potential to occur**. Abundant grassland present with small mammal burrows for refuge, but limited open ground for hunting. The nearest documented occurrence is approximately 0.4 mile northeast of the PSA, a historical record from 1996 (Occ. No. 61; CDFW 2024).
Masticophis lateralis euryxanthus	Alameda whipsnake	FT/ST/—/Yes	Open areas in chaparral and scrub habitat; also adjacent grassland, oak savanna, and woodland	**Not expected to occur.** No suitable chaparral or scrub habitat present. The nearest documented occurrence is approximately 4 miles south of the PSA, a historical record of unknown age (Occ. No. 119; CDFW 2024).
Phrynosoma blainvillii	coast horned lizard	None/SSC/—/No	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	**Low potential to occur.** Grassland habitat is abundant but has limited open areas for sunning and limited loose soils available. The nearest documented occurrence is approximately 1.3 miles southeast of the PSA, a historical record from 1992 (Occ. No. 575; CDFW 2024).
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST/—/Yes	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	**Not expected to nest, known to forage.** This species was observed during the field survey in January 2024. However, there is no suitable nesting habitat present on the PSA. There is low-quality nesting habitat at a stock pond approximately 0.5 mile west. Abundant grassland habitat for foraging present. The nearest documented occurrence is 1.8 miles east of the PSA, a historical record from 1998 (Occ. No. 418). Several other occurrences are recorded within 5 miles of the PSA, as recent as 2015 (CDFW 2024).
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/—/No	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	**Low potential to nest or forage**. Open grassland is present but lacks suitable shrubs for perching. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Aquila chrysaetos (nesting and wintering)	golden eagle	None/FP, WL/—/Yes	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	**Low potential to nest, moderate potential to winter/forage**. Transmission towers adjacent to the site provide low-quality nesting habitat. Abundant grassland foraging habitat present. The nearest documented occurrence is approximately 4.9 miles south of the PSA from 2014, a record of a nest in a tower (Occ. No. 323; CDFW 2024).
Asio flammeus (nesting)	short-eared owl	BCC/SSC/—/No	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	**Low potential to nest or forage.** Suitable grassland habitat present for nesting and foraging, but at the edge of known current breeding range in California. The nearest documented occurrence is approximately 2.6 miles south of the PSA, a historical record from 1995 (Occ. No. 15; CDFW 2024).
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC/—/Yes	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	**Moderate potential to nest or forage**. Grassland habitat is abundant but has limited ground squirrel burrows and short grazed vegetation within the PSA. There are 3 documented occurrences adjacent or overlapping with the PSA, from 1982, 2002, and 2006 (Occ. Nos. 48, 468, and 1229). Multiple other documented occurrences are within 5 miles of the PSA, most recently from 2015 (Occ. No. 47; CDFW 2024).
Buteo swainsoni (nesting)	Swainson's hawk	None/ST/—/No	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	**Low potential to nest or forage.** Open grassland with isolated trees available for foraging and nesting, but the PSA is at the edge of the nesting range of the

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				species. The nearest documented occurrence is approximately 4.8 miles northeast of the PSA from 2003 (Occ. No. 1228; CDFW 2024).
Circus hudsonius (nesting)	northern harrier	BCC/SSC/—/No	Nests in open wetlands (marshy meadows, wet lightly grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	**Moderate potential to nest or forage.** Suitable open grassland habitat present. The nearest documented occurrence is approximately 2.2 miles northeast of the PSA from 2001 (Occ. No. 49; CDFW 2024).
Elanus leucurus (nesting)	white-tailed kite	None/FP/—/No	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	**Moderate potential to nest or forage.** Suitable open grassland habitat present with limited individual trees nearby. The nearest documented occurrence is approximately 3.7 miles south of the PSA, a historical record from 1996 (Occ. No. 152; CDFW 2024).
Gymnogyps californianus	California condor	FE/FP, SE/—/No	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees (Sequoiadendron giganteus); forages in relatively open habitats where large animal carcasses can be detected	**Not expected to nest or forage.** The PSA is outside of the known range for this species.
Haliaeetus leucocephalus (nesting and wintering)	bald eagle	FPD/FP, SE/—/No	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	**Not expected to nest or forage.** No forested habitat or large water bodies in the PSA or vicinity. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Lanius ludovicianus (nesting)	loggerhead shrike	None/SSC/—/No	Nests and forages in open habitats with scattered shrubs, trees, or other perches	**Low potential to nest or forage.** Open grassland habitat is present for foraging, but PSA has limited perches and lacks scattered shrubs or brush for nesting. The nearest documented occurrence is approximately 3.9 miles west of the PSA from 2015 (Occ. No. 113; CDFW 2024).
Melospiza melodia ("Modesto" population)	song sparrow ("Modesto" population)	None/SSC/—/No	Nests and forages in emergent freshwater marsh, riparian forest, vegetated irrigation canals and levees, and newly planted valley oak (Quercus lobata) restoration sites	**Not expected to nest or forage.** No suitable riparian, marsh, or other wet habitats present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/—/No	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	**Not expected to nest or forage.** No high-quality riparian vegetation present on the PSA. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Mammals				
Antrozous pallidus	pallid bat	None/SSC/—/No	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	**Low potential to occur.** Abundant grassland habitat present for foraging, but PSA has limited trees and nearby structures for roosting. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC/—/No	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	**Not expected to occur.** No suitable forest or riparian habitat for foraging, and no suitable structures or caves for roosting present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Eumops perotis californicus	western mastiff bat	None/SSC/—/No	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	**Not expected to occur.** No suitable chaparral, scrub, or forest habitat for foraging, and no suitable cliffs for roosting present. There are no documented occurrences within 5 miles of the PSA (CDFW 2024).
Sylvilagus bachmani riparius	riparian brush rabbit	FE/SE/—/No	Dense thickets of wild rose, willows, and blackberries growing along the banks of San Joaquin and Stanislaus Rivers	**Not expected to occur.** The PSA is outside of the known range for this species.
Taxidea taxus	American badger	None/SSC/—/Yes	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	**High potential to occur.** Suitable dry open grassland present with evidence of friable soils and burrowing activity near Patterson Pass Road. The nearest documented occurrences are approximately 0.2 mile north (Occ. No. 520 from 2014) and south (Occ. No. 250, unknown date prior to 2004; CDFW 2024). Multiple other records are within 5 miles of the PSA, the most recent from 2015 (CDFW 2024).

Table E-1. Special-Status Species' Potential to Occur within the Project Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR/ EACCS Coverage)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST/—/Yes	Grasslands and scrublands, including those that have been modified; oak woodland, alkali sink scrubland, vernal pool, and alkali meadow	**Moderate potential to occur.** Suitable open grassland present with evidence of friable soils and burrowing activity near Patterson Pass Road. The nearest documented occurrence is approximately 0.3 mile southwest of the PSA, a historical record from 1984 (Occ. No. 6; CDFW 2024). Multiple other historical records are within 5 miles of the PSA, all prior to 1992 (CDFW 2024).

Sources: CDFW 2024, 2023e; Xerces 2016.
Notes:
Federal Status
FC: Federally listed as a candidate species.
FE: Federally listed as endangered.
FT: Federally listed as threatened.
FPD: Federally listed as protected designation.
None: No federal status.
State Status
FP: State listed as fully protected.
SE: State listed as endangered.
SR: State listed as rare.
SSC: State species of special concern.
ST: State listed as threatened.
None: No state status
California Rare Plant Rank (CRPR) Status
1B: plants rare, threatened, or endangered in California and elsewhere.
2B: plants rare, threatened, or endangered in California but more common elsewhere.
Threat Rank
0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
0.2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat).
0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).
None: No conservation status.
East Alameda County Conservation Strategy (EACCS)
No: Not covered
Yes: Covered
Potential for Occurrence Ranks
Known to Occur: Known occurrences recorded within the PSA.
High Potential to Occur: The species has not been documented in the PSA but is known to occur in the vicinity and species habitat is present.
Moderate Potential to Occur: The species has not been documented in the vicinity, but the PSA is within the known range of the species, and habitat for the species is present.
Low Potential to Occur: The species has not been documented in the vicinity and the PSA is within the known range of the species, but habitat for the species is of low quality.
Not Expected to Occur: The PSA is outside the known range of the species, and habitat for the species is either absent or of low quality.

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References

Xerces (Xerces Society for Invertebrate Conservation). 2016. State of the Monarch Butterfly Overwintering Sites in California. Report prepared for the U.S. Fish and Wildlife Service. Portland, Oregon: Xerces Society for Invertebrate Conservation. June 2016.

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Appendix F

Wetland Delineation Forms

~~Special-Status Species Potential to Occur within the Project Study Area~~

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists:

Fisher-Colton	Erin	Higney	Kelsey
(Last name)	**(first name)**	**(Last name)**	**(first name)**
(Last name)	**(first name)**	**(Last name)**	**(first name)**

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.710245, -121.571128.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: N/A Maximum depth: N/A

Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A

☐ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20 ft
Depth at bank full: 2 ft
Stream gradient: low

Are there pools (circle one)? YES ☐ NO ☑
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Runs and glides. No cobbles, some downed logs and branches in the streambed.
Little slope present. Wide, relatively slow flows when filled.

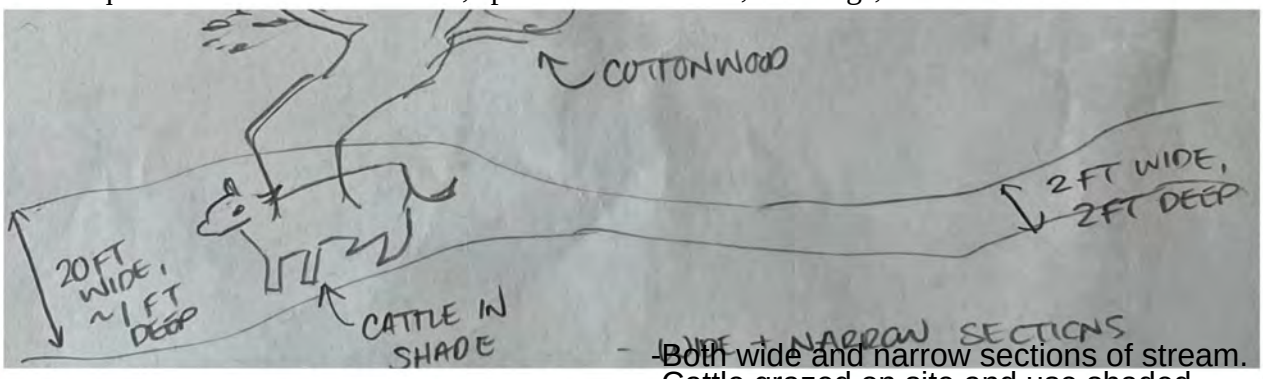
Vegetation: emergent, overhanging, dominant species:
Populus fremontii, Salix sp., Avena sp. upland grassland

Substrate: silt/clay

Bank description: Completely covered in grass (Avena fatua, Bromus sp.); 30-45 degree slope from OHWM.
Some banks deeply incised to streambed.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: between March and May (variable)

Other aquatic habitat characteristics, species observations, drawings, or comments:



-Both wide and narrow sections of stream.
-Cattle grazed on site and use shaded streambed to rest.
-Dry in May, but was flowing in March.

Labeled as "Patterson Run"

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists:

Fisher-Colton	Erin	Higney	Kelsey
(Last name)	**(first name)**	**(Last name)**	**(first name)**
(Last name)	**(first name)**	**(Last name)**	**(first name)**

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.716578, -121.583643.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 55 meters x 29 meters Maximum depth: ~1 meter

Vegetation: emergent, overhanging, dominant species: Amaranthus albus, Distichlis spicata, Elymus sp., Bromus rubra, Festuca sp., Polypogon monspeliensis

Substrate: mud/silt

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: contained limited water on 8/2/23
☐ ☑

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: N/A
Depth at bank full: N/A
Stream gradient: N/A

Are there pools (circle one)? YES ☐ NO ☐
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: N/A

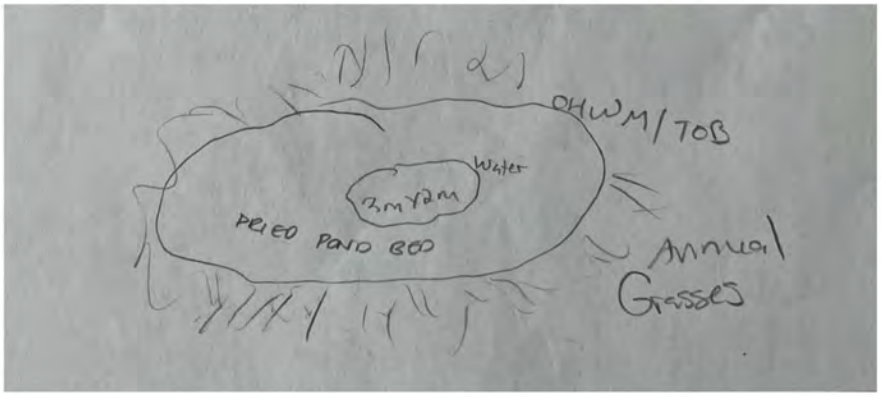
Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Bank description: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A

Other aquatic habitat characteristics, species observations, drawings, or comments:



Stock pond slightly west-northwest of Project site
This feature was full to OHWM in Mar 2023; water remaining in Aug 2023 ~3m x 2m

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists: Fisher-Colton (Last name) Erin (first name); Higney (Last name) Kelsey (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.711060, -121.584215.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 32 meters x 29 meters Maximum depth: ~2 meter

Vegetation: emergent, overhanging, dominant species: _____
Bulrush sp., closer to bank is Polypogon monspeliensis, Atriplex prostrata, Rumex crispus, Heliotrope curassavicum, Bolboschoenus maritimus

Substrate: mud/silt

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: well-filled in August 2023
☑ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: N/A
Depth at bank full: N/A
Stream gradient: N/A

Are there pools (circle one)? YES ☐ NO ☐
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: N/A

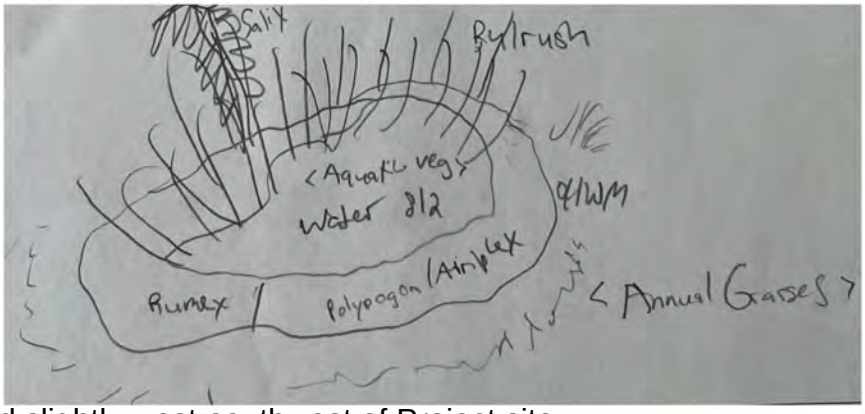
Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Bank description: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A

Other aquatic habitat characteristics, species observations, drawings, or comments:



Stock pond slightly west-southwest of Project site
This feature was full to OHWM in Mar 2023

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix G

Special-Status Species Potential to Occur within the Project Study Area

~~CRLF Habitat Assessment Datasheets~~

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists:

Fisher-Colton	Erin	Higney	Kelsey
(Last name)	**(first name)**	**(Last name)**	**(first name)**
(Last name)	**(first name)**	**(Last name)**	**(first name)**

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.710245, -121.571128.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: N/A Maximum depth: N/A

Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A

☐ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20 ft
Depth at bank full: 2 ft
Stream gradient: low

Are there pools (circle one)? YES ☐ NO ☑
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Runs and glides. No cobbles, some downed logs and branches in the streambed.
Little slope present. Wide, relatively slow flows when filled.

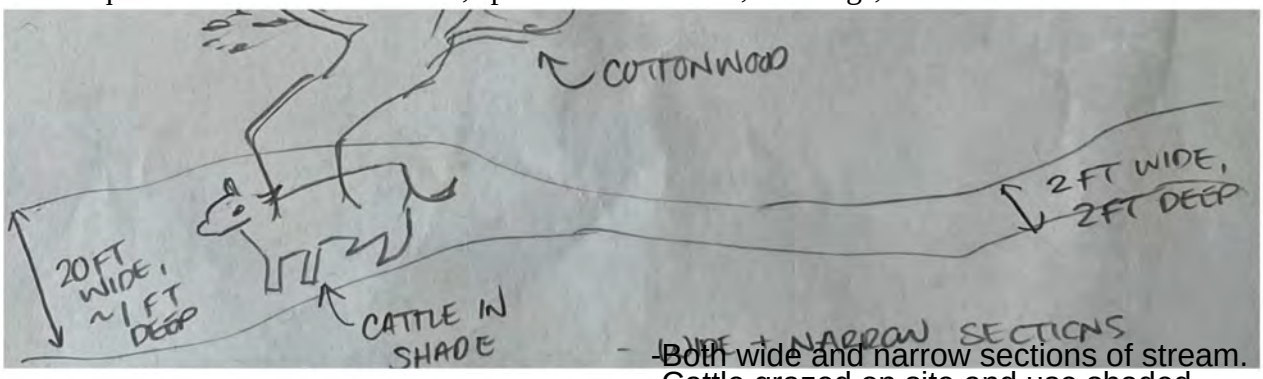
Vegetation: emergent, overhanging, dominant species:
Populus fremontii, Salix sp., Avena sp. upland grassland

Substrate: silt/clay

Bank description: Completely covered in grass (Avena fatua, Bromus sp.); 30-45 degree slope from OHWM.
Some banks deeply incised to streambed.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: between March and May (variable)

Other aquatic habitat characteristics, species observations, drawings, or comments:



-Both wide and narrow sections of stream.
-Cattle grazed on site and use shaded streambed to rest.
-Dry in May, but was flowing in March.

Labeled as "Patterson Run"

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists: Fisher-Colton (Last name) Erin (first name) Higney (Last name) Kelsey (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.710245, -121.571128.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: N/A Maximum depth: N/A

Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A
☐ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20 ft
Depth at bank full: 2 ft
Stream gradient: low

Are there pools (circle one)? YES ☐ NO ☑
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Runs and glides. No cobbles, some downed logs and branches in the streambed.

Little slope present. Wide, relatively slow flows when filled.

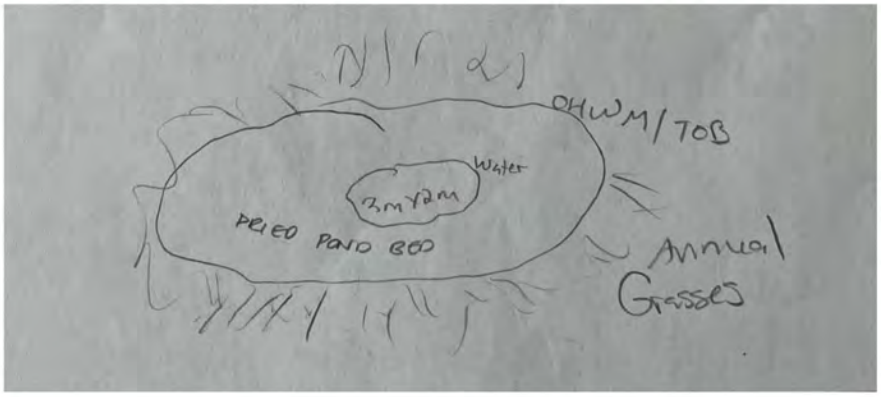
Vegetation: emergent, overhanging, dominant species: _____
Populus fremontii, Salix sp., Avena sp. upland grassland

Substrate: silt/clay

Bank description: Completely covered in grass (Avena fatua, Bromus sp.); 30-45 degree slope from OHWM.
Some banks deeply incised to streambed.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: between March and May (variable)

Other aquatic habitat characteristics, species observations, drawings, or comments:



Stock pond slightly west-northwest of Project site
This feature was full to OHWM in Mar 2023; water remaining in Aug 2023 ~3m x 2m

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists: Fisher-Colton (Last name) Erin (first name) Higney (Last name) Kelsey (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.710245, -121.571128.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: N/A Maximum depth: N/A

Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A
☐ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20 ft
Depth at bank full: 2 ft
Stream gradient: low

Are there pools (circle one)? YES ☐ NO ☑
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Runs and glides. No cobbles, some downed logs and branches in the streambed.

Little slope present. Wide, relatively slow flows when filled.

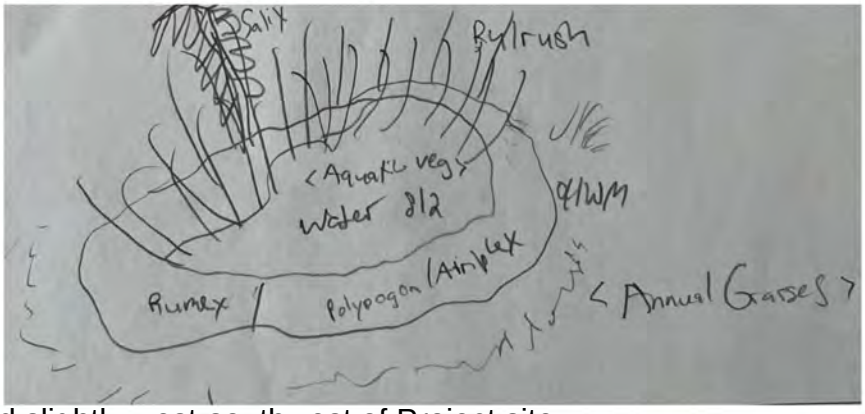
Vegetation: emergent, overhanging, dominant species: _____
Populus fremontii, Salix sp., Avena sp. upland grassland

Substrate: silt/clay

Bank description: Completely covered in grass (Avena fatua, Bromus sp.); 30-45 degree slope from OHWM.
Some banks deeply incised to streambed.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: between March and May (variable)

Other aquatic habitat characteristics, species observations, drawings, or comments:



Stock pond slightly west-southwest of Project site
This feature was full to OHWM in Mar 2023

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 08/02/2023
(mm/dd/yyyy)

Site Assessment Biologists: Fisher-Colton (Last name) Erin (first name) Higney (Last name) Kelsey (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Mulqueeney Ranch; Alameda County, CA; 37.710245, -121.571128.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Potentia-Viridi BESS
Brief description of proposed action:
Battery energy storage system and generation tie

1) Is this site within the current or historic range of the CRF (circle one)? YES☑ NO☐

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES☐ NO☑
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: N/A Maximum depth: N/A

Vegetation: emergent, overhanging, dominant species: N/A

Substrate: N/A

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: N/A
☐ ☐

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 20 ft

Depth at bank full: 2 ft

Stream gradient: low

Are there pools (circle one)? YES ☐ NO ☑

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Runs and glides. No cobbles, some downed logs and branches in the streambed.

Little slope present. Wide, relatively slow flows when filled.

Vegetation: emergent, overhanging, dominant species: _____

Populus fremontii, Salix sp., Avena sp. upland grassland

Substrate: silt/clay

Bank description: Completely covered in grass (Avena fatua, Bromus sp.); 30-45 degree slope from OHWM.

Some banks deeply incised to streambed.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: between March and May (variable)

Other aquatic habitat characteristics, species observations, drawings, or comments:

Necessary Attachments:

1. All field notes and other supporting documents See BTR.
2. Site photographs See BTR Attachment E.
3. Maps with important habitat features and species location See BTR Attachment 1, Figure 3.

Appendix H

CRLF Habitat Assessment Datasheets
~~EACCS Mitigation Score Sheets~~

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-1 . Impact/Mitigation Scoring for big tarplant in the EACCS study area.

Big tarplant	**5**	**4**	**3**	**2**	**1**	**0**	**Score**
Conservation Zones	Inside CZ6 or CZ10	Inside CZ5 or CZ9	--	--	--	Other CZ	5
Elevation	Below 2,000 feet	--	--	--		Above 2,000 feet	5
Land covers impacted/ mitigated	Annual grassland, native grassland	--	--	--	--	All others	5
Soils present in impact area	Clay, Clay-loam	--	--	--	--	others	5
Within EBCNPS Priority Plant Protection Area	Yes	--	No	--	--	--	5
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	1
Total Score							26
Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-12. Habitat quality of the impact site and the mitigation site would be scored using this table.							

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-2. Impact/Mitigation Scoring for California red-legged frog in the EACCS study area.

California red-legged frog	5	4	3	2	1	0	Score
Closest suitable breeding habitat to site	On-site	< 1-mile	>1-mile but < 2-miles	--	--	Greater than 2-miles	3
Is there occupied habitat within 2-miles of site?	Yes	--	--	No	--	--	3
Aquatic land covers impacted/ mitigated	Wetland, Ponds, Stream/River	--	--	--	--	All others; none	5
Upland land covers impacted/ mitigated	Riparian, Grassland, Oak woodland, Rural residential	Chaparral/ Scrub	Conifer woodland	Cultivated ag, ruderal	--	All others; none	5
Elevation	Below 3,500 feet	--	--	--	--	Above 3,500 feet	5
Presence of ground squirrels or other burrowing mammals	On site	< 0.25-mile of site	> 0.25 but ≤ 0.5 miles	> 0. 5 but ≤ 1.0 miles	> 1.0 but ≤ 1.5 miles	> 1.5 miles	5
Presence of bullfrogs or non-native fish in aquatic resources on site	No	--	Low numbers and not all aquatic habitats are occupied	--	Yes, occurring in high numbers	--	0
Create a new barrier between breeding and upland habitat	Documented breeding location	--	Potential breeding location	--	--	No	3
Protect linkage between breeding and upland habitat	Documented breeding location	--	Potential breeding location	--	--	No	0
Inside East San Francisco Bay core recovery area	Yes					No	0
Inside designated Critical Habitat	Yes	--	--	--	--	No	5
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	0
Total Score							34

Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-7. Habitat quality of the impact site and the mitigation site would be scored using this table.

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-3. Impact/Mitigation Scoring for California tiger salamander in the EACCS study area.

California tiger salamander	5	4	3	2	1	0	Score
Closest suitable breeding habitat to site	On-site	Within 500 feet	Between 501 – 1,600 feet	Between 1,601 –2,050 feet	Between 2051–6,900 feet	Greater than 6,900 feet	3
Is there occupied habitat within 6,900 feet of site?	Yes	--	--	No	--	--	2
Aquatic land covers impacted/ mitigated	Wetland, Ponds	--	Stream/River	--	--	All others; none	0
Upland land covers impacted/ mitigated	Grassland, Oak woodland, Rural residential	Chaparral/ Scrub	Riparian	Conifer woodland	ruderal without refugia habitat	All others; none	5
Elevation	Below 3,700 feet	--	--	--	--	Above 3,700 feet	5
Presence of ground squirrels/pocket gophers	On site	Within 1,350 feet of site	Between >1,351 but <2,650 feet	Between >2,651 bu <5,300 feet	Between >5,301 but <7,900 feet	> 7,901 feet from site	5
Presence of bullfrogs or non-native fish in aquatic resources on site	No	--	Low number; not all aquatic habitats occupied	--	Yes, occurring in high numbers	--	0
Create a new barrier between breeding and upland habitat	Documented breeding location	--	Potential breeding location	--	--	No	3
Protect linkage between breeding and upland habitat	Documented breeding location	--	Potential breeding location	--	--	No	0
Inside designated Critical Habitat	Yes	--	--	--	--	No	0
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	1
Total Score							24
Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-8. Habitat quality of the impact site and the mitigation site would be scored using this table.							

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-4. Impact/Mitigation Scoring for golden eagle in the EACCS study area.

Golden eagle	**5**	**4**	**3**	**2**	**1**	**0**	**Score**
Presence of golden eagle nest within 1.0-mile of site	Yes	--	--	--	--	No	0
Land covers impacted/ Mitigated	Grassland, Oak woodland	Chaparral and scrub, ruderal	Cultivated ag	Rural residential, Conifer woodland	--	All others	5
Presence of ground squirrels	On site	Within 0.25-mile of site	> 0.25 but ≤ 1.0 mile	≥ 1 mile	--	--	5
Wind turbines within 0.5-mile of site	No	--	--	--	Yes	On-site	0
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	1
Total Score							11
Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-10. Habitat quality of the impact site and the mitigation site would be scored using this table.							

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-5. Impact/Mitigation Scoring for San Joaquin kit fox and America badger in the EACCS study area.

San Joaquin kit fox/American badger	**5**	**4**	**3**	**2**	**1**	**0**	**Score**
Impact/ Mitigation occurs in:	CZ5CZ6/CZ7/ CZ9/CZ10	--	—CZ4 or CZ13	--	—CZ2, CZ3, CZ11, CZ12	--	5
Land covers impacted/ mitigated	Grassland, Rural residential	Chaparral/ Scrub	Oak woodland, Cultivated Ag	Seasonal wetlands, Orchard	, ruderal	All others	5
Average Slope	0-5%	> 5 but < 10%	≥ 10 but < 25%	≥25%	--	All others	4
Presence of ground squirrels	On site	Within 0.25-mile of site	Within 0.5-mile of site	--	--	Further away	5
Linkages and movement	Creation or removal of potential linkage across barrier (e.g. culvert under freeway)	Land adjacent to potential linkage on both sides of barrier (e.g., culvert under freeway)	Land adjacent to potential linkage on one side of barrier (e.g., culvert under freeway)	Land not adjacent to key linkage for species.	--	--	2
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	1
Total Score							22
Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-11. Habitat quality of the impact site and the mitigation site would be scored using this table.							

Appendix G.
Action Area (Impact) Mitigation Scoring Sheets

Table G-6. Impact/Mitigation Scoring for tricolored blackbird in the EACCS study ar ea.

Tricolored blackbird	**5**	**4**	**3**	**2**	**1**	**0**	**Score**
Documented tricolored blackbird nest colony within 0.5-mile of site during previous 3-years.	Yes	--	--	--	--	No	1
Acres of emergent vegetation that could support nesting TRBL	>5	3-5	1-3	0.25 – 1	<0.25	0	0
Acres of foraging habitat within 2-miles colony site	>1000	501-1000	251-500	100-250	<100	0	1
On parcels with an approved management plan for this species.	Yes	--	--	--	No	--	0
Total Score							2
Note: The ratio of mitigation to impact depends on the location of the mitigation. The acres of mitigation for a given project would be determined using the ratios shown in Table 3-10. Habitat quality of the impact site and the mitigation site would be scored using this table.							

Appendix I

EACCS Mitigation Score Sheets

~~Wetland Delineation Forms~~

Potentia Viridi

OHWM DATA SHEET

Project: BESS Facility Date: 01/18/24 Feature ID: EPH-01

Investigator(s): MRB & ECF Transect ID: T-01

Site Location:

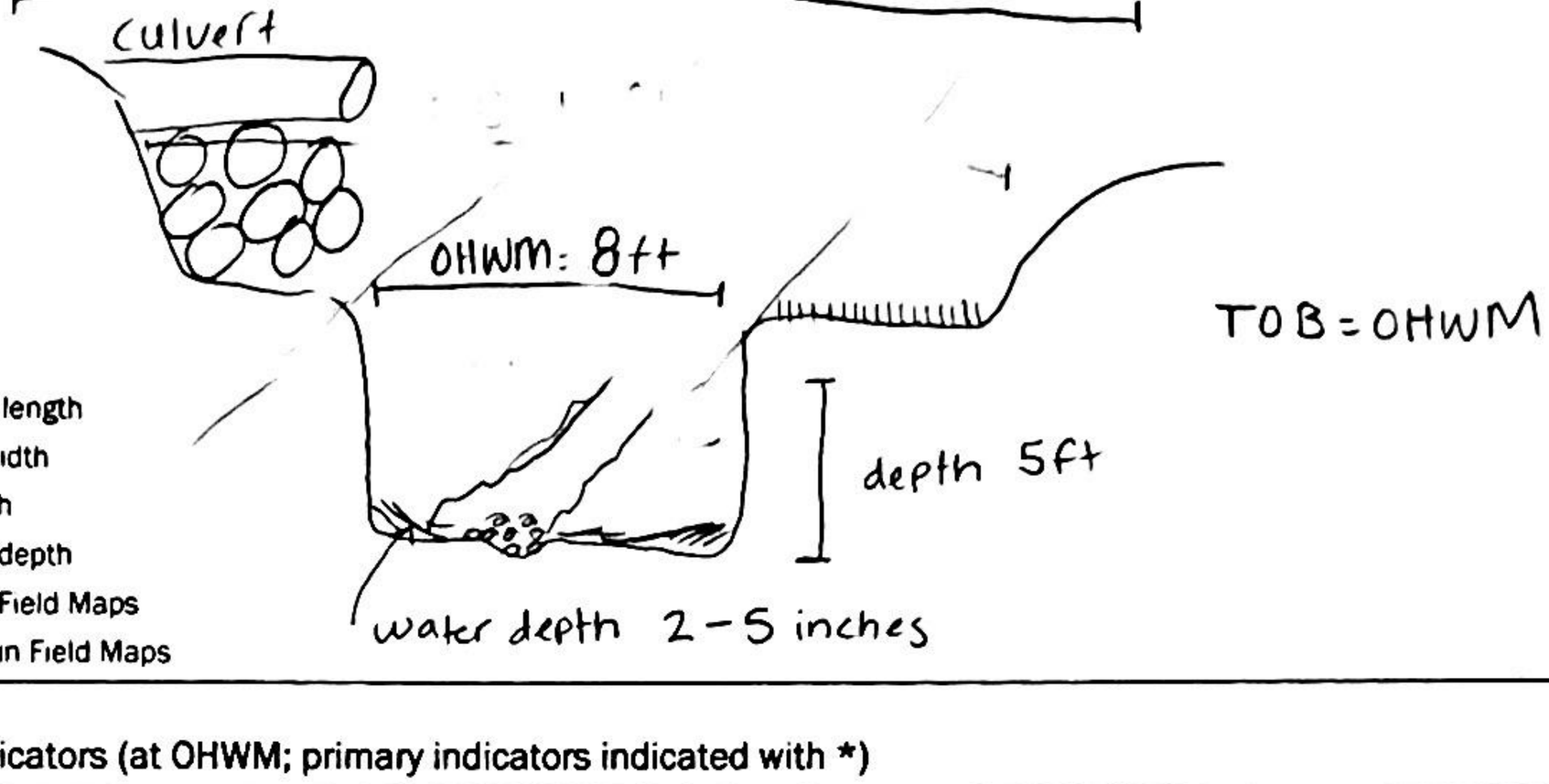
Alameda County, northwest portion of site

Stream Flow: ☒ Ephemeral ☐ Intermittent ☐ Perennial ☐ Controlled/Other

Transect (cross-section) drawing(s):

View Facing: S

View Facing: ☐ upstream ☑ downstream



☑ Transect length
☑ OHWM width
☑ TOB width
☑ Channel depth
☑ Photo in Field Maps
☐ Mapped in Field Maps

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☐ Natural line impressed on the bank
- ☒ Shelving
- ☐ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☐ Wracking
- ☒ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☐ Bed and banks
- ☐ Water staining
- ☒ Change in plant community and/or cover*

☐ Break in Slope at OHWM*: ☒ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

Soil Texture

	Clay/Silt (%)	Sand (%)	Gravel (%)	Cobbles (%)	Boulders (%)
Above OHWM	30	30	10	5	25
Below OHWM	70	20	10	-	-

Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	15%	5%	80%
Below OHWM	0	0	5%	95%

Veg Stage: ☐ Early (herbs & seedlings) ☑ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
Silybum marianum Centaurea solstitialis Centaurea calcitrapa Senescent grasses Brassica sp. Erodium cicutarium	Senescent grasses	None

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

Culvert & Roadside

Hydrology:		Riparian:
☒ Flowing water	Min. depth: 2 inches	☒ No
☐ Standing water	Max. depth: 5 inches	☐ Yes ☐ Continuous ☐ Intermittent
☐ Saturated	Avg. depth:	
☐ Dry		

Checklist of resources used to evaluate OHWM:

☒ Aerial photography	☒ Vegetation maps	☐ Other:
☒ GPS unit	☒ Geologic/soil maps	
☐ Rainfall data	☐ Gage data	
☐ Topographic maps	☐ LiDAR	

Other drawings (aerial view):

None

Connectivity notes:

None

Other forms related to this feature: ☐ Yes ☒ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Potentia-Viridi BESS Facility Project City/County: Tracy/Alameda County Sampling Date: 01/18/24

Applicant/Owner: Levy Alameda LLC State: CA Sampling Point: SP-01-UPL

Investigator(s): Mikaela Bissell & Erin Fisher-Colton Section, Township, Range: S31, T2S, R4E

Landform (hillslope, terrace, etc.): Plains Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C Lat: 37.708653 Long: -121566808 Datum: WGS84

Soil Map Unit Name: Linne clay loam, 3-15% slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Marubium vulgare	15	Y	FACU
2. Croton setiger	25	Y	UPL
3. Grindelia sp.	5%	N	FACW
4. Avena barbata	5%	No	UPL
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	5	x 2 =	10
FAC species	_____	x 3 =	_____
FACU species	15	x 4 =	60
UPL species	30	x 5 =	150
Column Totals:	50 (A)		220 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: SP-01-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					clay loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: clay

Depth (inches): 9

Hydric Soil Present? Yes _____ No ✔

Remarks:

No redox observed, soils appear disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

C9: Aerial imagery does not display 5 or more years of saturation.

Attachment 4

Revised Section 3.2, Biological Resources

3.2 Biological Resources

This section describes the potential effects the construction, operation, and decommissioning activities associated with the Project may have on biological resources at and in the vicinity of the Project site. The information presented is based on a site-specific biological technical report and readily available resources provided online. The evaluation of biological resources includes the following elements:

- Section 3.11.1 describes the existing environment that could be affected, including a regional overview, wetlands, habitats, species, vegetation, and biological survey results;
- Section 3.11.2 provides an overview of the regulatory setting related to soils;
- Section 3.11.3 identifies potential environmental impacts that may result from Project construction, operation, maintenance, and decommissioning;
- Section 3.11.4 discusses cumulative effects
- Section 3.11.5 identifies mitigation measures that should be considered during Project construction, operation, maintenance, and decommissioning;
- Section 3.11.6 presents laws, ordinances, regulations, and standards (LORS) applicable to soils;
- Section 3.11.7 identifies regulatory agency contacts;
- Section 3.11.8 describes permits required for the Project related to geologic resources; and
- Section 3.11.9 provides references used to develop this section.

This section describes the existing biological resource conditions of the Potentia-Viridi Battery Energy Storage System (BESS) Project (Project) site and vicinity, identifies associated regulatory standards, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Project. The biological resources described in this section have been compiled from a literature review of databases, maps, general plans, biological reconnaissance conducted in March and August 2023, as well as focused species/resource surveys conducted throughout spring and summer 2023 and 2024 by Dudek biologists. Biologist's credentials, as well as occurrence record data used for the preparation of this section is located in the following appendices:

- Appendix 3.2A - Biological Technical Report, prepared by Dudek, ~~July 2024~~revised January 2025
- Appendix 3.2B Resumes of Applicant's Biologists
- Appendix 3.2C CNDDB Forms
- Appendix 3.2D – Nationwide Permit Pre-Construction Notification Supplemental Information, prepared by Integral Consulting Inc., June 2024
- Appendix 3.2E – Incidental Take Permit Application, prepared by Stantec, July 2024
- Appendix 3.2F – 1602 Lake and Streambed Alteration Agreement Application, prepared by Stantec, July 2024
- Appendix 3.2G – Nitrogen Deposition Model

3.2.1 Affected Environment

The ~~Project~~ BESS facility would be constructed on an approximately ~~70~~ 69~~-~~acre parcels in the northeastern portion of unincorporated Alameda County, California. The Project is located at 17257 Patterson Pass Road within Assessor

Parcel Numbers (APN) 99B-7890-002-04 (BESS facility) and 99B-7890-2-4, 99B-7890-2-6, 99B-7885-12 (gen-tie alignment; Alameda County 2024).

The Project site refers to the area that would be physically affected by construction activities associated with the Project, including the location of permanent structures as well as staging and other temporary disturbance areas described in Section 2, Project Description. For the purposes of the biological surveys, the Study Area (approximately ~~96~~ 102 acres) encompasses the Project site as well as a 50-ft buffer surrounding the BESS site and the gen-tie alignment. The Study Area for focused species surveys was expanded per protocol and where necessary to capture nearby resources. Focused survey methods are described below in Section 3.2.1.5, Biological Surveys.

The Study Area is a mostly undeveloped area adjacent and directly west of the PG&E Tesla substation (referred to as Altamont Pass Wind Substation on some maps) on Patterson Pass Road. Patterson Pass Road runs through the Study Area northeast to southwest from the substation. Patterson Run (a seasonal stream channel) runs along the eastern border of Patterson Pass Road. The Study Area is bordered to the north by a dirt-gravel access road. The Altamont Corridor Express railway runs northwest to southwest through the southwest portion of the Study Area. Two PG&E transmission line corridors cross the Study Area. One transmission corridor runs northeast to southwest through the northern portion. The second transmission corridor runs north-northeast to south-southwest through the southeastern portion of the Study Area. Elevation in the Study Area ranges from approximately 403 to 536 feet above mean sea level (Google Earth Pro 2024).

Land use surrounding the Study Area consists of The Altamont Pass Wind Resource Area occurring to the west (including north- and southwest; Hull 2012; Thelander and Rugge 2000). Most of the Study Area and surrounding area consists of rolling hills and grasslands intermittently used for livestock grazing (ICF 2010).

3.2.1.1 Regional Overview

The Study Area is mostly undeveloped, and the regional land use has remained largely unchanged since the 1980s based on aerial imagery (Google Earth Pro 2024). The Study Area is located in the east-northeastern portion of Alameda County, California. Regionally, the Study Area occurs at the foot of the Altamont Pass near the San Joaquin Valley. The Study Area occurs approximately 2.5 miles west of the City of Tracy, southwest of where Interstate 205 intersects and becomes Interstate 580. Patterson Run is a seasonal stream system that runs parallel to Patterson Road through the Study Area, flows in a northerly direction, and eventually terminates approximately 2.3 miles northeast of the Study Area in agricultural land just north of the Delta Mendota Canal. (EPA 2024). The Study Area is located on the Midway, California, U.S. Geological Survey 7.5-minute map on Section 31; Township 2S; Range 4E. The Principal Meridian (centroid) of the Study Area is at latitude 37.710926°, -121.575397°.

The Study Area occurs within a Mediterranean climate where annual temperatures range from 38.3°F to 92.6°F (WRCC 2023). According to the Tracy Pumping Plant (049001) Weather Station Gauge, yearly precipitation averages 12.03 inches, with the highest average rainfall recorded in January (2.54 inches) (WRCC 2023). The past winter season has had higher than average rainfall.

3.2.1.2 Significant Regional Wetlands and Protected Areas

The National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), and the Environmental Protection Agency (EPA) Waters GeoViewer (2.0) were reviewed to identify wetland or hydrologic features (USFWS 2024, USGS 2024, EPA 2024). ~~Figure 3.2-7 depicts the mapped wetland and hydrologic features at and within the Study Area vicinity.~~

Protected areas were determined through a review of the California Protected Area Database (CPAD) and California Conservation Easement Database (CCED) mapping tools (CPAD 2024) as well as the East Alameda County Conservation Strategy (ICF 2010) and the Data Basin (Data Basin 2024). Protected areas are depicted graphically in Figure 3.2-1, Protected Areas.

3.2.1.2.1 Hydrologic Features

The Study Area occurs within the North Diablo Range of the Alameda Creek Watershed (USGS 2024). According to the NWI there are several freshwater ponds, freshwater wetlands, and riverine aquatic features in the vicinity of the Project. The NWI mapped resources are based on coarse aerial mapping and do not involve ground-truthing. The NHD and EPA show Patterson Run and one other unnamed stream system crossing the Study Area running from south to north within the northern portion of the Project site. Both streams are classified in NWI as having portions of Riverine (R4SBC) and Freshwater Emergent Wetland (PEM1A). Patterson Run is a seasonal stream system that runs parallel to Patterson Road through the Study Area and connects to the California Aqueduct systems to the north (EPA 2024).

In January 2024, Dudek biologists conducted a jurisdictional delineation to determine the accuracy of the NWI/NHD data and the presence/absence of potentially jurisdictional resources throughout the Study Area (Appendix 3.2A, Biological Technical Report). The formal wetland delineation was performed in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and results are included as part of Appendix 3.2A.

3.2.1.2.2 Protected Areas

The California Protected Areas Database (CPAD) is a database that includes lands that are owned and protected for open space purposed by over 1,000 public agencies or non-profit organizations. CPAD includes national, state, or regional parks, forests, preserves and wildlife areas. It also includes large and small urban parks; land trust preserves and special district open space lands (CPAD 2024).

A review of the CPAD and California Conservation Easement Database (CCED) confirmed that there are several protected areas or conservation easements within a 5-mile radius of the Study Area. Figure 3.2-1 depicts protected areas identified within a 10-mile radius of the Project. A description of the CPAD and CCED identified areas that occur within the 10-mile buffer of the Project is provided below.

CPAD

Mendoza Ranch

The nearest protected area is the Contra Costa Water District's Mendoza Ranch (Unit ID 49792), located approximately 1-mile northwest of the Project site.

CCED

The CCED is a database that defines boundaries of easements and deed-base restrictions on private lands. These lands may be actively farmed, grazed, forested, or held as nature preserves and typically have no public access (CPAD 2024). The following easements were mapped within 10 miles of the Project:

Haera Mitigation Bank

The nearest mapped conservation easement is the Wildlife Heritage Foundation Haera Mitigation Bank (CCED ID 2073), located adjacent to and north of Project site.

Two Sisters Conservation Area

The second nearest conservation easement is the Two Sisters Conservation Area (CCED ID 12132) directly south of the Project site.

East Alameda County Conservation Strategy (EACCS)

The Study Area is covered under the EACCS. Alameda County, along with the Golden Gate Audubon Society and several private wind energy companies, are currently developing a regional conservation plan for the wind resource area. This area is located in the northeastern part of Alameda County, extending to the Contra Costa and San Joaquin County lines on the north and east, and through the Altamont Hills to the west. The East Alameda County Conservation Strategy is intended to provide an effective framework to protect, enhance, and restore natural resources in eastern Alameda County, while improving and streamlining the environmental permitting process for impacts resulting from infrastructure and development projects (ICF 2010).

The Study Area is mapped in the EACCS within the Wind Resource Area: This area has special designation due to existing wind energy facilities and the intention to continue to develop and utilize wind resources in the future. This designation is primarily to facilitate real estate disclosures about existing wind energy facilities and the potential for future wind facility uses. The designation also restricts changes in land use that are incompatible with future wind energy generation (ICF 2010).

Data Basin - East Bay Botanical Priority Protection Areas (CNPS)

The Study Area is located within the East Bay Chapter Area (EBCA). The EBCA supports a unique congregation of ecological conditions and native plants. The collision of floristic protection and economic growth conceived the Botanical Priority Protection Areas Project (BPPA) and fortified intra-chapter collaboration between the Plant Science and Conservation arms of the East Bay Chapter of the California Native Plant Society (CNPS; Data Basin 2024). The Study Area is within the East Bay Botanical Priority Protection Area S.

3.2.1.3 Sensitive Habitat Types and Critical Habitat

Sensitive habitat types and critical habitats within a 5-mile radius of the Project are shown in Figure 3.2-2, Sensitive Habitat Types, and Figure 3.2-3, Critical Habitats. The descriptions of the sensitive and critical habitats identified are described below.

3.2.1.3.1 Sensitive Habitat Types

CDFW defines sensitive habitats as plant communities that have limited distributions, high wildlife value, include sensitive species, or are particularly vulnerable to disturbance. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in the California Natural Diversity Database (CDFW 2024a). Currently, CDFW publishes the California Sensitive Natural Communities List online (CDFW 2024b Vegetation rarity ranking is based on a rank calculated developed by NatureServe. Vegetation maps were taken

from the CDFW Vegetation Classification Reports and Maps (CDFW 2024c). CDFW's Vegetation Program considers vegetation alliances with state ranks of S1-S3 as sensitive vegetative habitats. CDFW considers species or natural communities with one of the following NatureServe rankings as sensitive: Global (G)/State (S); Presumed Extinct (X); Possibly Extinct (G/S H); Critically Imperiled (G/S 1); Imperiled (G/S 2); Vulnerable (G/S 3). CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible. The following six sensitive natural communities occur within the nine surrounding quads: Alkali Meadow, Alkali Seep, Northern Claypan Vernal Pool, Valley Needlegrass Grassland, Great Valley Oak Riparian Forest, and Sycamore Alluvial Woodland. There are no sensitive natural communities mapped within the Study Area.

3.2.1.3.2 Critical Habitat

Critical habitats are designated areas occupied by the species at the time it was listed that contain the physical or biological features that are essential to the conservation of endangered and threatened species. In designated critical habitat, U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) consider the following requirements of the species:

> "Space for individual and population growth, and for normal behavior; nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing offspring; and, generally, any habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (USFWS 2017)."

There is DCH for multiple species within 5 miles of the Study Area (Figure 3.2-3).

California Red-Legged Frog: There is DCH for CRLF overlapping the Study Area and extending to the north and southwest (USFWS 2023a), in areas of undeveloped or rural agricultural lands. Critical habitat for CRLF consists of four primary constituent elements (PCEs), which support different components of the species' life history, as last updated by USFWS in 2010 (75 FR 12816-12959):

1. Aquatic Breeding Habitat: Standing bodies of fresh water including natural and manmade (e.g., stock) ponds, slow-moving streams, pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in most years.
2. Aquatic Non-Breeding Habitat: Freshwater aquatic habitats that may not hold water long enough for the species to complete its aquatic life cycle, but which provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult CRLF. These may include breeding habitat as described above, as well as plunge pools within intermittent creeks, seeps, quiet water refugia within streams, and flowing springs.
3. Upland Habitat: Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to 1 mi (1.6 km), depending on surrounding landscape and dispersal barriers. Upland habitat may include grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance with structural features such as boulders, rocks, and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.
4. Dispersal Habitat: Accessible upland or riparian habitat within and between occupied locations within a minimum of 1 mi (1.6 km) of each other and that support movement between such sites. Dispersal habitat includes various natural or moderately altered habitats (such as agricultural fields) that do not contain dispersal barriers. Dispersal habitat does not include moderate- to high-density urban or industrial developments, nor does it include large (>50 ac) lakes or reservoirs.

PCEs 3 and 4 (upland and dispersal habitat) are present on the Study Area, and PCEs 1 and 2 (aquatic breeding and nonbreeding habitat) are present within dispersal distance (1 mile) of the Study Area.

Alameda Whipsnake: There is DCH for Alameda whipsnake (*Masticophis lateralis euryxanthus*) approximately 2.5 miles south of the Study Area (USFWS 2023b). This species is not expected to occur within or near the Study Area due to a lack of suitable chaparral or scrub habitat.

Delta Smelt: There is DCH for Delta smelt (*Hypomesus transpacificus*) in Old River approximately 3 miles northeast of the Study Area (USFWS 2023c). This species is not expected to occur within or near the Study Area due to being outside of the known range of the species and due to a lack of suitable aquatic habitat.

Large-Flowered Fiddleneck: There is DCH for large-flowered fiddleneck (*Amsinckia grandiflora*) approximately 4.5 miles south of the Study Area (USFWS 2023d). This species is not expected to occur within the Study Area due to being outside of the known elevation range of the species.

3.2.1.3.2.1 Essential Fish Habitat

Essential Fish Habitat (EFH) on the west coast is managed by the National Oceanic and Atmospheric Administration (NOAA) and the Pacific Fishery Management Council (PFMC) under the Magnuson-Stevens Act of 1976 to protect habitat for federally managed fish species across life stages (NOAA 2023). EFH is broadly mapped as the geographic area wherein a fish species may occur at any time in its life and is designated at the watershed level of the USGS 4th field hydrologic unit to account for variability in freshwater habitats over time (PFMC 2014, 2022). Thus, mapped EFH may encompass terrestrial habitats that do not currently provide appropriate conditions for target fish species but are within the same watershed as the species' known distribution and may become suitable habitat as environmental conditions change (e.g., droughts, floods, etc.).

Pacific coast salmon: The Study Area overlaps with designated freshwater EFH for Pacific coast salmon. Specifically, the Pacific Salmon Fishery Management Plan (PFMC 2014, 2022) identifies freshwater EFH for Chinook salmon (*Oncorhynchus tshawytscha*) in the San Joaquin Delta hydrologic unit (HUC-8 18040003), which includes the Study Area within the Old River watershed. Freshwater EFH for Chinook salmon consists of four major activities: (1) spawning and incubation; (2) juvenile rearing; (3) juvenile migration corridors; and (4) adult migration corridors and adult holding habitat (PFMC 2014, 2022). Chinook salmon EFH includes all freshwater habitat currently or historically occupied in Washington, Oregon, Idaho, and California (PFMC 2014, 2022).

There is additional designated EFH for both Chinook and coho salmon (*Oncorhynchus kisutch*) in the San Francisco Bay hydrologic unit (HUC-8 18050004) approximately 3.5 miles southwest of the Study Area. There is no EFH for central California coast steelhead (*Oncorhynchus mykiss irideus*) within 5 miles of the Study Area (NOAA 2005). There are currently no aquatic habitats with flowing water suitable for salmonids within the Study Area.

3.2.1.4 Regional Sensitive or Special-status Species

Appendix 3.2A contains a list of special-status species found within the 9 surrounding quads of the Study Area during literature review. This appendix includes the status designation for each species, habitat types that may support these species in the regional vicinity, a determination of potential for these species to occur within the Study Area, and a rationale for the occurrence determination. Sensitive or special-status species meet at least one or more of the following criteria:

- Regional species listed as threatened or endangered that have special requirements under the federal Endangered Species Act (FESA) (USFWS 1973);
- Regional species listed as threatened or endangered that have special requirements under the California Endangered Species Act (CESA) (Fish and Game Code, Section 2050 seq.);
- Other non-listed sensitive and special-status species, including California Native Plant Society (CNPS) CRPR 1-4 species, CDFW Species of Special Concern (SSC), CDFW Fully Protected (FP) species, and other CDFW Special Animals.

The CNDDB was used in preparing Appendix 3.2A. The results of the special-status species identified during the biological reconnaissance, protocol-level rare plant survey, California red-legged frog (CRLF) and California tiger salamander (CTS) Habitat assessments, focused burrow and protocol-level burrowing owl surveys are discussed in Sections 3.2.1.5. Figure 3.2-4, (CONFIDENTIAL) Special-Status Species Occurrence Records, depicts the special-status plant and wildlife species known to occur within a 10-mile radius of the Project area. No special-status species are known to occur in the Study Area.

3.2.1.5 Biological Surveys

In March 2023, Dudek biologists conducted vegetation mapping and a general biological reconnaissance of the Study Area. Focused surveys were conducted throughout 2023, and 2024 by Dudek biologists to determine the presence/absence of various special-status species. Specifically, Protocol-Level Rare Plant, CRLF and CTS Habitat Assessment surveys, protocol-level burrowing owl surveys were conducted within the Study Area. The focused habitat assessment for CRLF and CTS was conducted for suitable and accessible aquatic features within 1 mile of the Study Area. Dudek biologists conducted additional protocol-level surveys for golden eagle, Swainson's hawk, and rare plants in 2025. Further, Dudek conducted a jurisdictional delineation in January 2024 to assess potentially jurisdictional features within the Study Area. Table 3.2-1 lists the dates, conditions, and focus for each survey.

Table 3.2-1. Schedule of Surveys

Date	Survey Type(s)	Biologists	Time	Survey Conditions
03/31/2023	Reconnaissance (original Project site boundary only, excludes gen-tie)	Emily Scricca; ~~EFC~~Erin Fisher-Colton	9:30 a.m.–11:30 a.m.	58°F–61°F, 75%–90% cloud cover, 1–4 mph wind
05/16/2023	▪ Protocol-Level Botanical ▪ Focused Burrow Surveys	Kelsey Higney; Lorna Haworth	8:41 a.m.–11:15 a.m.	80°F–85°F, 0% cloud cover, 0–6 mph wind
08/02/2023	▪ Reconnaissance (gen-tie alignment only) ▪ Protocol-Level Botanical ▪ Focused Burrow Surveys	Kelsey Higney; ~~EFC~~Erin Fisher-Colton	9:23 a.m.–4:54 p.m.	71°F–80°F, 0% cloud cover, 5–20 mph wind

Table 3.2-1. Schedule of Surveys

Date	Survey Type(s)	Biologists	Time	Survey Conditions
	▪ Protocol-level California Red-Legged Frog (CRLF) and California Tiger Salamander (CTS) Habitat Assessment			
01/18/2024	▪ Reconnaissance (adjusted gen-tie alignment only) ▪ Protocol-Level Botanical (adjusted gen-tie alignment only) ▪ Focused Burrow Surveys (adjusted gen-tie alignment only) ▪ Aquatic Resources Delineation	Mikaela BissellB; ~~EFC~~Erin Fisher-Colton	9:16 a.m.-2:30 p.m.	50°F–58°F, 80%-100% cloud cover, 1-4 mph wind
04/12/2024	▪ Protocol-level Burrowing Owl Survey – Pass 1 ▪ Follow-up burrow assessment for San Joaquin Kit Fox and American Badger ▪ Protocol-level rare plant survey	Mikaela BissellB, ~~TJ-K~~ara Johnson-Kelly	8:30 a.m. – 2:00 p.m.	55°F–60°F, 0%-10% cloud cover, 10-14 mph wind
05/03/2024	▪ Protocol-level Burrowing Owl ~~survey~~ Survey – Pass 2	~~KH~~Kelsey Higney, ~~TJ-K~~Tara Johnson-Kelly	7:00 a.m. – 12:00 p.m.	56°F–71°F, 0% cloud cover, 10-15 mph wind
05/24/2024	▪ Protocol-level Burrowing Owls Survey – Pass 3	~~TJ-K, PK~~Tara Johnson-Kelly, Paul Keating	7:00 a.m. – 12:00 p.m.	57°F–64°F, 0%-10% cloud cover, 10 mph wind
06/17/2024	▪ Protocol-level Burrowing Owl Survey – Pass 4 ▪ Protocol-level rare plant survey	Paul Keating~~PK~~	3:00 p.m.–7:00 p.m.	82°F–78°F, 0% cloud cover, 15-20 mph wind
12/12/2024	▪ Protocol-level winter Burrowing Owl Survey – Pass 1 ▪ Swainson's Hawk Habitat Survey/Protocol-level Nesting Survey ▪ Golden Eagle Habitat Survey/Protocol-level Nesting Survey	Paul Keating, Alex Freeman	7:30 a.m. – 12:00 p.m.	45°F–56°F, 90-100% cloud cover, 5-10 mph wind
01/04/2025	Protocol-level winter Burrowing Owl Survey – Pass 2	Paul Keating	7:30 a.m. – 11:00 p.m.	40°F–53°F, 0%-10% cloud cover, 10-15 mph wind
01/11/2025	Protocol-level winter Burrowing Owl Survey – Pass 3	Paul Keating	7:30 a.m. – 11:00 p.m.	41°F–60°F, 0%-5% cloud cover, 5-10 mph wind

Table 3.2-1. Schedule of Surveys

Date	Survey Type(s)	Biologists	Time	Survey Conditions
01/31/2025	Protocol-level winter Burrowing Owl Survey – Pass 4	Paul Keating	7:30 a.m. – 12:00 a.m.	47°F–55°F, 20%-75% cloud cover, 5-15 mph wind
03/20/2025	Protocol-level Swainson's Hawk Survey Golden Eagle Protocol-level Nesting Survey	Paul Keating	7:30 a.m. – 10:00 a.m.	45°F–60°F, 0% cloud cover, 5-10 mph wind
03/27/2025	Protocol-level Swainson's Hawk Survey Protocol-level Rare Plant Survey	Paul Keating	7:00 a.m. – 1:00 p.m.	57°F–64°F, 5%-15% cloud cover, 5-15 mph wind
04/03/2025	Protocol-level Swainson's Hawk Survey	Paul Keating	7:00 a.m. – 10:00 a.m.	44°F–62°F, 0% cloud cover, 5 mph wind
04/11/2025	Protocol-level Swainson's Hawk Survey	Paul Keating	7:30 a.m. – 12:00 a.m.	58°F–70°F, 0% cloud cover, 5-10 mph wind
04/17/2025	Protocol-level Swainson's Hawk Survey	Paul Keating	7:30 a.m. – 12:00 a.m.	53°F–67°F, 0% cloud cover, 5-10 mph wind
04/28/2025	Protocol-level Swainson's Hawk Survey Golden Eagle Protocol-level Nesting Survey	Paul Keating	8:00 a.m. – 12:00 p.m.	53°F–69°F, 0% cloud cover, 5-15 mph wind

Notes: CRLF = California red-legged frog; CTS = California tiger salamander. Where more than one biologist is indicated, surveys were performed jointly.
~~Personnel: ES = Emily Scricca; EFC = Erin Fisher-Colton; KH = Kelsey Higney; LH = Lorna Haworth; MB = Mikaela Bissell; TJ-K = Tara Johnson-Kelly; PK = Paul Keating~~

Reconnaissance Survey

- **Vegetation Mapping.** On March 31, 2023, Dudek Biologists Emily Scricca and Erin Fisher-Colton mapped vegetation communities directly from the field utilizing the Esri ArcGIS Field Maps application. The Field Maps application applies satellite coordinates to an aerial view of the Study Area. Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS, and a GIS coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present within the Study Area was determined. Native plant community classifications used in this report follow the Habitat Classification System for CDFW Natural Communities (CDFW 2024b) and California Native Plant Society's A Manual of California Vegetation (Sawyer et al. 2009). The initial mapping of the Study Area used an approximately 0.25-acre minimum mapping unit for vegetation community polygons (i.e., clusters of particular vegetation types smaller than 0.25 acres were not necessarily mapped separately from the surrounding, larger vegetation community).
- A follow-up reconnaissance-level field survey was conducted for the updated Study Area that included the Project site and buffered gen-tie alignment of the Project area on August 2, 2023, in conjunction with the surveys for rare plants, and burrows. This survey was conducted on foot to identify vegetation communities in the updated Study Area boundaries.
- **Biological Survey.** The potential for occurrences of special-status plant and wildlife species, resulting from the literature review, were assessed in relation to the Study Area and available habitat. All plant and wildlife species encountered during the reconnaissance survey were documented in a notebook and using Esri

ArcGIS Field Maps. A comprehensive list of all plant and wildlife species observed is included in Appendix 3.2A.

- Aquatic Resources. During the August 2, 2023, reconnaissance survey, a reconnaissance-level wetland assessment was conducted in the Study Area. The focus was to determine if there were any potential jurisdictional waters on the site that would require further protocol jurisdictional delineations.

Jurisdictional Delineation and Updated Jurisdictional Delineation.

In January 2024, Dudek biologists conducted a formal jurisdictional wetlands delineation within the Study Area. All areas identified as being potentially subject to the jurisdiction of USACE, RWQCB, and CDFW were field-verified and mapped. The wetlands delineation was performed in accordance with the methods prescribed in the 1987 Wetlands Delineation Manual (USACE 1987), the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008), and the ACOE and Environmental Protection Agency Rapanos Guidance (USACE and EPA 2008). Methods and results of the formal aquatic resources delineations are summarized in Section 3.2.2.2.9 *Impacts to Wetlands and Waters of the United States*

Rare Plant Surveys

Protocol-level rare plant surveys were conducted on May 16 and August 2, 2023, ~~and~~ April 12 and June 17, 2024, and March 20, 2025, to identify special-status rare plant species within the updated Study Area boundaries. Dudek qualified biologists surveyed the entire Study Area on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated Study Area boundaries and gen-tie alignment. Rare plants surveys were conducted in accordance with the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000), the Protocol for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), and the CNPS Botanical Survey Guidelines (CNPS 2001). Rare plants occurrences were mapped using ArcGIS Field Maps (Esri).

All plant species encountered during the field were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (formerly California Native Plant Society List) follow the California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2024a). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2024), and common names follow the California Natural Communities list (CDFW 2024b) or the United States Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2023).

Focused Burrow Surveys

Focused burrow surveys were conducted on May 16 and August 2, 2023, to identify a variety of animal burrows within the updated Study Area boundaries. Additional surveys to assess burrow suitability for San Joaquin kit fox and American badger were conducted on April 12, 2024. The subsequent assessment for San Joaquin kit fox and American badger followed recommendations outlined in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Dudek qualified biologists surveyed the entire Study Area on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated Study Area boundaries and gen-tie alignment. Burrows of all sizes were mapped using ArcGIS Field Maps (Esri). Burrows present on the site were generally small and not suitable for burrowing owls. Higher-quality habitat with low, grazed vegetation and ground squirrel colonies were observed throughout the surrounding landscape.

Protocol-level Burrowing Owl Survey

Surveys for western burrowing owl were conducted by Dudek qualified biologists on April 12, May 3, May 24, and June 17, 2024. Follow-up wintering burrowing owl surveys were conducted on December 12, 2024, and January 4, ~~and~~ 11, and 31, 2025. Surveys followed recommended protocol outlined in Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). Surveys utilized data collected during the focused burrow surveys (Section 4.3.3) to walk transect no more than 20 meters apart within the Study Area. Biologists documented any sight or sign of western burrowing owl during the survey.

Protocol-Level California Red-Legged Frog Habitat Assessment

A protocol-level habitat assessment for CRLF was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the Study Area to identify potential aquatic breeding sites within dispersal distance of the Study Area. Not all aquatic habitats within 1 mile were able to be surveyed due to access restrictions. Habitat assessments were conducted in accordance with the USFWS Revised Guidance on Site Assessments and Field surveys for the California Red-legged Frog (USFWS 2005). Aquatic features were coarsely mapped along top of bank using ArcGIS Field Maps (Esri). Surveys determined that there is abundant suitable grassland habitat with small mammal burrows present on the Study Area with aquatic breeding habitat available within dispersal distance.

Protocol-Level California Tiger Salamander Habitat Assessment

Concurrently with the CRLF habitat assessment (4.3.6), a protocol-level habitat assessment for California tiger salamander was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the STUDY AREA to identify potential aquatic breeding sites within dispersal distance of the STUDY AREA. Not all aquatic habitats within 1.24 miles were able to be surveyed due to access restrictions. Habitat assessments were conducted in accordance with the USFWS Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS 2003). Aquatic features were coarsely mapped along top of bank using ArcGIS Field Maps (Esri).

Protocol-Level Swainson's Hawk Survey

Surveys for Swainson's hawk were conducted by Dudek qualified biologists on December 12, 2024, March 20, 27, April 3, 11, 17, and 28, 2025. Surveys followed recommended protocol outlined in *The recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk* Technical Advisory Committee, 2000). Although the protocol recommends surveys within 0.5 mile of an area, Dudek performed the surveys within 1 mile of the Study Area due to the lack of suitable nest tree abundance and to verify whether Swainson's hawk utilizes the greater project area. Surveys included an initial survey to assess potential nesting habitat and the presence of suitable stick nests, then a total of six additional surveys through the courtship, incubation, and fledging life stages. Surveys were conducted primarily by vehicle from accessible roads using binoculars and spotting scope.

Protocol-Level Golden Eagle Survey

Surveys for golden eagle were conducted by Dudek qualified biologists concurrently with the Swainson's hawk surveys described in Section 4.3.5 on December 12, 2024, March 20, 27, April 3, 11, 17, and 28, 2025. Surveys followed recommended protocol for ground-based surveys outlined in the *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al 2010). The survey buffer was 2 miles, where

accessible. Surveys included an initial survey to assess potential nesting habitat and the presence of suitable stick nests, as well as visiting previously documented territories within the 2-mile buffer. Additional surveys were conducted in the courtship, incubation, nestling, and fledgling stages. Surveys included identification of vantage points overlooking the Study Area and observing raptor activity with the aid of binoculars and spotting scope. Vantage point observations were made on December 12, 2024, March 20, 2025, and April 28, 2025, for a minimum of 4 hours. Prior golden eagle data/observations and survey methods were discussed with Heather Beeler, USFWS Eagle Permit Coordinator on April 14, 2025.

3.2.1.6 Nitrogen Deposition Model

A nitrogen deposition analysis was performed to assess the Proposed Project's operational impact on biological resources within 6 miles of the Project site. During operation, there would be emissions of oxides of nitrogen (NOx) from the testing, maintenance, and emergency use of two diesel backup generators. These emissions would result in nitrogen deposition around the Project site. The Proposed Project would include two Rolls Royce generators rated at 4,680 horsepower each. Each generator is fitted with an ecoCUBE with a selective catalytic reduction (SCR), diesel particulate filter (DPF), and diesel oxidation catalyst allowing the generators to meet the U.S. EPA Tier 4 standard. In order to determine the potential impacts during operation, the American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model (AERMOD) Version 23132 was used to model the concentration of nitrogen around the project site using wet and dry deposition algorithms. The emissions from the generators were estimated assuming compliance with the U.S. EPA Tier 4 standard and operation of up to 200 hours per year (100 hours for maintenance and testing and 100 hours for emergency use) (BAAQMD 2022). Ammonia (NH_3) is a product of combustion with equipment having SCR equipment. As the generators are equipped with SCR, emissions of NH_3 were estimated and added to the NOx emissions for total nitrogen emissions. Principal parameters of this modeling are presented in Table 3.2-2.

Table 3.2-2. AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest 3-year meteorological data (2013–2016) for the Livermore Station from BAAQMD were downloaded and then input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the Auer method for classifying a site as urban or rural as specified in US EPA's 40 CFR Part 51, Appendix W, the rural dispersion option was selected.
Terrain Characteristics	The terrain in the vicinity of the modeled Project site is generally hilly. The elevation of the modeled site is about 125 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
Elevation Data	Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution.
Emission Sources and Release Parameters	Air dispersion modeling of nitrogen from the emergency generators was conducted using emissions estimated using the CalEEMod and a spreadsheet model. The emergency generators were modeled as point sources.

Table 3.2-2. AERMOD Principal Parameters

Parameter	Details
Source Release Characterizations	The following source parameters were assumed: Generator 1, release height 16.5 feet, exit temperature 966.2°F, stack diameter of 2.3 feet, and gas exit flow rate of 24,791 cubic feet per minute (CFM); and Generator 2, release height 16.5 feet, exit temperature 966.2°F, stack diameter of 2.3 feet, and gas exit flow rate of 24,791 cubic feet per minute (CFM).
Receptors	A cartesian plant boundary was established with the following distances: 25 meter spacing out to 100 meters; 50 meter spacing out to 300 meters; 100 meter spacing out to 700 meters; 200 meters spacing out to 1,500 meters; 400 meter spacing out to 3,000 meters; 750 meter spacing out to 6,300 meters; 1,300 meter spacing out to 16,300 meters.
Gas Deposition	The land use in the region is currently mixed but primarily agricultural or rural/undeveloped. The "Land Use Category" of "2 – Agricultural Land" in AERMOD was selected.
NOx to NO_2 Conversion	A 100 percent conversion of NOx and NH_3 into atmospherically derived nitrogen (Tier 1).
Gas and Particle Deposition	Nitric Acid was assumed for the gas deposition parameters as it has a strong affinity for impacts to soils and vegetation. The default deposition velocity and parameters (pollutant reactivity factor and seasons) were assumed. The following gas deposition parameters were assumed: ▪ Pollutant Diffusivity in Air: 0.1628 cm^2/s ▪ Pollutant Diffusivity in Water: 2.98E-05 cm^2/s ▪ Cuticular Resistance: 100,000 s/cm ▪ Henry's Law Constant: 8E-08 $Pa\text{-}m^3/mol$

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; BAAQMD = Bay Area Air Quality Management District; cm^2/s = centimeters squared per second; $Pa\text{-}m^3/mol$ = pascal-meters cubed per mole; NH_3 = ammonia; NOx = oxides of nitrogen; s/cm = seconds per centimeter.
See Appendix 3.2G for additional information.

The AERMOD model calculates atmospheric deposition of nitrogen by calculating the wet and dry fluxes of total nitrogen. This deposition is accomplished by using a resistance model for the dry deposition part, and by assigning particle phase washout coefficients for the wet removal process from rainout. As discussed above, depositional parameters for HNO3 are input into the model to calculate the deposition of nitrogen. AERMOD sums the results of the wet and dry nitrogen deposition to produce annual deposition rates in units of grams per square meter (g/m^2) for the entire 5-year meteorological period modeled, which are converted to kilograms per hectare per year (kg/ha/yr) for comparison to critical loads of nitrogen for biological resources within 6 miles of the Project site.

3.2.1.~~7~~6 Land Cover Types and Vegetation Communities

The Study Area consists of mostly undeveloped lands, with a mix of non-native vegetation communities and non-vegetated land covers (Figure 3.2-5, Vegetation Communities and Land Cover Types). Only one vegetation community was mapped in the Study Area: wild oats and annual brome grassland *(Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance; CNPS 2024b). The remainder of the Study Area comprises disturbed/barren and urban/developed land cover types, as well as one aquatic land cover. These vegetation community and land covers are described in further detail below and are summarized in Table 3.2-~~2~~3.

Table 3.2-~~2~~3. Vegetation Communities and Land Cover Types in the Study Area

Vegetation Communities and Land Cover Types	Project Site (acres)	Gen-tie Line and 50-Foot Study Area Buffer (acres)	Total Study Area (acres)
Native Vegetation Communities			
N/A	–	–	–
Non-Native Vegetation Communities and Land Covers			
Wild oats and annual brome grassland	68.8~~457.29~~	29.29~~36.87~~	~~94.16~~98.13
Disturbed/Barren	0.16	~~0.6~~21.57	1.73~~0.78~~
Urban/Developed	0.2~~00~~.59	1.3807	1.5~~866~~
Aquatic – Patterson Run	0.0~~05~~	0.69~~32~~	0.69~~37~~
~~*Subtotal*~~	~~57.7~~	~~39.19~~	~~96.89~~
Total	~~69.59~~57.7	32.62~~9.19~~	~~96.89~~102

Note: the Study Area includes a buffer and thus is larger than the proposed Project area.

3.2.1.~~7~~6.1 Wild Oats and Annual Brome Grassland

Only one vegetation community was mapped in the Study Area: wild oats and annual brome grassland (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance; CNPS 2024b; Figure 3.2-5). This community, often referred to as California annual grassland, is characterized by an herbaceous layer dominated by non-native grass species including wild oats (*Avena* spp.), bromes (*Bromus* spp.), and barleys (Hordeum spp.). The herbaceous layer is less than 1.2 meters in height and cover is open to continuous (CNPS 2024b).

3.2.1.~~7~~6.2 Disturbed/Barren

Disturbed/Barren land covers consist of areas that have been disturbed, either through natural events such as landslides, shallow soils, or soil chemical composition, or through anthropogenic influence such as grading, herbicide use, or other earthwork. Disturbed/barren areas within the study area include areas treated with herbicide adjacent to the PG&E Tesla substation. This land cover does not typically support vegetation with the exception of sparse ruderal species.

3.2.1.~~7~~6.3 Urban/Developed

Urban/Developed land covers generally consist of human-made structures, including roadways. Urban/developed land covers within the Study Area consists largely of Patterson Pass Road, the railroad, and portions of the PG&E Tesla substation. This land cover does not typically support native vegetation.

3.2.1.~~7~~6.4 Aquatic Resources – Patterson Run

A formal aquatic delineation was conducted on January 18, 2024. There is one seasonal channel (EPH-01; 0.37 acres, 846.07 linear feet), Patterson Run, within the Study Area where the BESS facility site connects to the gen-tie alignment, paralleling Patterson Pass Road. This seasonal channel flows southwest to northeast and is a potential Water of the United States. The channel had moderate flow during the March 2023 and February 2024 surveys and was dry during the May and August 2023 surveys.

3.2.1.87 Sensitive and Special-Status Species

Endangered, rare, or threatened species, as defined in CEQA Guideline 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status species" in this document and include 1) endangered or threatened species recognized in the context of the CESA and/or FESA; 2) plant species with a California Rare Plant Rank (CNPS 2024a) (ranks 1 and 2); 3) California Species of Special Concern (SSC) and Watch List (WL) species, as designated by CDFW (CDFW 2024f); 4) wildlife that are Fully Protected species, as described in California Fish and Game Code Sections 4700 and 3511; 5) Birds of Conservation Concern as designated by USFWS (2021); and 6) plant and wildlife species that are "covered" under the East Alameda County Conservation Strategy (Alameda County 1994). Refer to Section 3.2.5 for a full explanation of these relevant laws, ordinances, and regulations.

Dudek biologists evaluated the regional special-status plant and wildlife species against observed conditions on the study are to determine the potential for each species to occur. Habitat requirements, occurrence determinations, and rationale for occurrence determination are included in Appendix 3.2A. The potential for each special-status species to occur was evaluated according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found onsite.
- **Present.** Species was observed on site or within the Study Area

3.2.1.87.1 Special-status Plant Species

Special-status plant surveys were conducted in 2023 and 2024 to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guideline 15380 (14 CCR 15000 et seq.). A list of all special-status plant species known to occur in the vicinity of the Study Area (and the surrounding nine topographic quadrangles) including their habitat requirements, potential to occur onsite, and survey observations, is provided in Appendix B of the Biological Technical Report, Special-Status Plant Species Potential To Occur Table (Appendix 3.2A). This appendix provides evaluations for each of the special-status species' occurrence in the Study Area vicinity and their potential to occur based on known range, habitat associations, preferred soil substrate, life form, elevation, and blooming period. Special-status plant species that have low potential or are not expected to occur are not further analyzed in this document because no direct, indirect, or cumulative impacts are expected based on the negative surveys and evaluation that these species do not have a moderate or high potential to occur onsite.

A total of 42 special-status and rare plants were identified from the literature review. Of these, eleven (11) had moderate (9 species) or high (1 species) potential to occur or were known (1 species) to occur on the Study Area: *big tarplant* (Blepha*rizonia plumosa*), brittlescale (*Atriplex depressa*), Lemmon's jewelflower (*Caulanthus lemmonii*),

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), recurved larkspur (*Delphinium recurvatum*), spiny-sepaled button-celery (*Eryngium spinosepalum*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), San Joaquin spearscale (*Extriplex joaquinana*), showy golden madia (*Madia radiata*), shining navarretia (*Navarretia nigelliformis* ssp. *radians*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*).

Surveys conducted in May and August 2023, and April 2024 were timed to coincide with the bloom period of potentially occurring plant species. Of the 11 species with potential to occur, one was documented within the Study Area: big tarplant. The surveys were times appropriately to capture all potentially occurring species, including early blooming species such as diamond-petaled poppy and caper-fruited tropidocarpum. Although no reference populations of diamond-petaled poppy are accessible due to being on protected government land (Lawrence Livermore Lab property), past herbarium records and Calflora records document the species being evident and identifiable in the same elevation in the months of April and May (Calflora 2024; CCH 2024). Thus, if this species was present within the Study Area, it would have been observed. A follow-up survey for early blooming plant species was conducted in March 2025. No special-status plants were documented in the Study Area at that time.

Three individuals of big tarplant were observed in the Study Area, at the southwest corner of the PG&E Tesla substation. ~~No other special-status plants were observed during the surveys.~~ Big tarplant is an annual herb that endemic to California, with limited distribution throughout the state. This species has a CRPR rank of 1B.1 (rare, threatened or endangered in California and elsewhere), and is a covered species under the EACCS. This species prefers habitats in valley grassland vegetation communities, as well as in foothill woodlands and chaparral (Calflora 2023). Threats to this species include urbanization, disking, residential development, and encroachment by non-native plant species (CNPS 2024c).

~~Suitable valley~~Valley and foothill grassland with clay loam soils suitable for big tarplant are present within the Study Area. The nearest documented occurrence is approximately 0.25 miles east of the Study Area from 2003 (Occ. No. 15; CDFW 2023e). Only one plant was flowering, therefore allowing a qualified Dudek botanist (Laura Burris) to definitively key the plant to species based on descriptions, measurements, and photos taken in the field. All three individuals are located near the southwest corner of the PG&E Tesla substation in an area of sparse grassland that shows evidence of ephemeral drainage and/or swale patterns from the surrounding hills, including cracked soils, reduced grass cover and increased scrub species, and increased bare ground. Figure 3.2-6, Biological Survey Results, shows the location of the big tarplant within the Study Area.

3.2.1.8~~7~~.2 Special-Status Wildlife Species

A list of all special-status wildlife species known to occur in the vicinity of the Study Area (and surrounding nine quadrangles) and wildlife species covered under the East Alameda County Conservation Strategy, including their habitat requirements, potential to occur in the Study Area, and survey observations, are provided in Appendix 3.2A. A total of 54 special-status wildlife species were identified from the literature review. Special-status species with a low potential to occur (11 species) or species that are not expected to occur (32 species) are excluded from further discussion in this report, except for tricolored blackbird (Aegelus tricolor), which has no potential to nest, but was observed foraging within the Study Area during the winter, and Swainson's hawk (*Buteo swainsoni*), which has a low potential for nesting within the Study Area but may forage in the Study Area and is discussed in more detail at the request of commenting agencies. Eleven (11) had moderate (7 species) or high (3 species) potential to occur or were known (1 species) to occur on the Study Area: Crotch's bumble bee (*Bombus crotchii*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), San Joaquin kit fox (*Vulpes macrotis mutica*), prairie falcon (*Falco mexicanus*), ferruginous hawk (*Falco*

mexicanus), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), American badger (*Taxidea taxus*), and California horned lark (*Eremophila alpestris actia*).

One special-status wildlife species weas observed during the surveys. The California horned lark is listed as a Watch List species by CDFW. Additionally, suitable breeding habitat was identified for California tiger salamander and California red-legged frog within dispersal distance of the Study Area, and Designated Critical Habitat for California red-legged frog overlaps with the Study Area. Nesting birds are also expected to utilize habitat present on the Study Area. The locations of these biological resources documented in the Study Area, are depicted in Figure 3.2.6. Full species descriptions are included in the Biological Technical Report (Appendix 3.2A).

3.2.1.87.3 Other Special-Status Bird Species

The Migratory Bird Treaty Act (MBTA; 16 USC 703 et seq.), as amended, prohibits the intentional take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so. In December 2017, Department of the Interior Principal Deputy Solicitor Jorjani issued a memorandum (M-37050) that interprets the MBTA's "take" prohibition to apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs. Unintentional or accidental take is not prohibited. Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

3.2.1.87.4 Golden Eagle

The golden eagle is a state fully protected species and a CDFW watchlist (WL) species. This species is also protected by the federal Bald and Golden Eagle Protection Act. Dudek biologists determined that the potential for this species to nest within the Study Area is low, but moderate potential for winter foraging.

The golden eagle is a year-round, diurnally active species that is a permanent resident and migrant throughout California. Golden eagles are more common in northeast California and the Coast Ranges than in Southern California and the deserts. Foraging habitat for this species includes open habitats with scrub, grasslands, desert communities, and agricultural areas.

Golden eagles breed from January through August, with peak breeding activity occurring from February through July. Nest building can occur almost any time during the year. This species nests on cliffs, rock outcrops, large trees, and artificial structures such as electrical transmission towers, generally near open habitats used for foraging (Katzner et al. 2020). Golden eagles commonly build, maintain, and variably use multiple alternative nest sites in their breeding territories, routinely refurbishing and reusing individual nests over many years. Generally, the nests are large platforms composed of sticks, twigs, and greenery that are often 10 feet across and 3 feet high (Zeiner et al. 1990a). Pairs may build more than one nest and attend to them prior to laying eggs (Katzner et al. 2020). Each pair can have up to 10 nests, but only 2 to 3 are generally used in rotation from one year to the next. Some pairs use the same nest each year, and others use alternate nests year after year, and still others apparently nest only every other year. Succeeding generations of eagles may even use the same nest (Katzner et al. 2020).

Transmission towers in and adjacent to the site provide low-quality nesting habitat. Grassland foraging habitat is present in the Study Area. Potentially suitable nesting habitat occurs west of the Study Area along the Altamont

Pass. Birds that may forage near the site may attract eagles. The nearest documented occurrence is approximately 4.9 miles south of the Study Area from 2014, a record of a nest in a tower (Occ. No.323; CDFW 2024a).

Previous studies conducted by USGS staff associated with the Altamont Pass Wind Resource Area have identified two potential golden eagle territories within 2 miles of the PSA. One territory south of the PSA contains a nesting pair known as the Midway Pair) approximately 1 mile south of the PSA (Wiens and Kolar 2021; Wiens and Kolar 2023). This pair utilizes a nest in riparian vegetation along Patterson Run, adjacent to Patterson Pass Road. A second pair (known as the Jess Ranch Pair) was observed attempting to construct a nest in a transmission tower approximately 0.4 miles north of the PSA in 2023; however, the nest was destroyed by high winds and the pair did not rebuild or return. This territory is not considered active currently. Eagle surveys conducted in 2024 and 2025 per ground-based survey protocol outlined in Pagel 2010, confirmed that no eagle nest was established in the transmission tower north of the PSA. 2025 surveys also confirmed that the nest approximately 1 mile south of the Study Area was active with the adults perched in the nest tree adjacent to a large stick nest.

3.2.1.87.5 California Red-Legged Frog

California red-legged frog is federally listed as threatened, a California Species of Special Concern, and is covered under the EACCS. This species occurs from sea level to elevations near 5,000 feet. It has been extirpated from 70% of its former range and now is found primarily in coastal drainages of Central California, from Marin County south to northern Baja California, and in isolated drainages in the Sierra Nevada, northern Coast, and northern Transverse Ranges. Breeding habitat includes freshwater pools and backwaters within streams and creeks, ponds, marshes, springs, and lagoons. They also frequently breed in artificial impoundments such as stock ponds (USFWS 2002). During the nonbreeding season, California red-legged frogs need moist areas in which to take refuge from the heat and predators, such as intermittent or ephemeral streams with dense riparian vegetation, overhanging banks, and rootwads; springs or spring boxes; rodent burrows; and damp leaf litter in riparian woodlands (Ford et al. 2013). USFWS (2002) considers freshwater habitat and associated upland habitat within 1 mile as red-legged frog breeding, foraging, and dispersal habitat. The breeding period for this species is July through September.

A protocol-level habitat assessment for CRLF was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the PSA to identify potential aquatic breeding sites within dispersal distance of the Study Area. Three aquatic features were assessed for habitat suitability for CRLF: Patterson Run, a seasonal stream paralleling Patterson Pass Road, and two stock ponds approximately 0.3 miles northwest (Pond 1) and west (Pond 2) of the Study Area. Of these aquatic features, only Pond 2 was determined to provide high-quality breeding habitat for CRLF, consisting of a large, deep stock pond with perennial water and a large quantity of emergent vegetation (bulrush [*Schoenoplectus* sp.] along with alkali bulrush [*Bolboschoenus maritimus*]) and surrounded by grazed grassland. Patterson Run lacked large pools suitable for breeding, and Pond 1 lacked suitable emergent or marginal vegetation. No CRLF were observed during the field surveys or habitat assessment. The nearest documented occurrences are approximately 1.5 miles east, south, and west of the Study Area (Occ. Nos. 822 from 2001, 1079 from 2008, 1759 from 2012, and 44 from 1993); there are numerous other records within 5 miles of the Study Area (CDFW 2024a). The habitat in the Study Area is highly suitable as overland migration and aestivation/refuge habitat for this species, consisting of abundant grassland with small mammal burrows to provide refuge.

3.2.1.87.6 California Tiger Salamander

The central California distinct population segment (DPS) of California tiger salamander is federally and state listed as threatened and is covered under the EACCS. This species has high potential to occur on the Study Area. CTS are

found in annual grassland, valley-foothill hardwood, and valley-foothill riparian habitats and breeds in vernal pools, ephemeral pools, stock ponds, and (infrequently) along streams and human-made water bodies if predatory fishes are absent.

A protocol-level habitat assessment for CTS was conducted on August 2, 2023, for suitable aquatic habitats identified within, and in the vicinity of, the Study Area to identify potential aquatic breeding sites within dispersal/upland refuge distance of the Study Area. Three aquatic features were assessed for habitat suitability for CTS: Patterson Run, a seasonal stream paralleling Patterson Pass Road, and two stock ponds approximately 0.3 miles northwest (Pond 1) and west (Pond 2) of the Study Area. Of these aquatic features, ponds 1 and 2 were determined to provide high-quality breeding habitat for CTS, consisting of a large, deep stock pond with perennial water and a large quantity of emergent vegetation (bulrush [*Schoenoplectus* sp.] along with alkali bulrush [*Bolboschoenus maritimus*]) and surrounded by grazed grassland. Patterson Run lacked large pools suitable for breeding, The habitat in the Study Area is suitable as overland migration and aestivation/refuge habitat for this species, consisting of abundant grassland with small mammal burrows to provide refuge. Two nearby stock ponds provide suitable aquatic breeding habitat approximately 0.3 miles from the Study Area. The nearest documented occurrence is approximately 1.6 miles southwest of the Study Area from 2012 (Occ. No. 1003), but there are numerous other records within 5 miles of the Study Area (CDFW 2024a). No California tiger salamanders were observed during the field surveys, but this species is extremely difficult to detect without focused surveys in accordance with USFWS and CDFW-sanctioned protocols (USFWS and CDFG 2003).

3.2.1.8~~7~~.7 San Joaquin Kit Fox

San Joaquin kit fox is a federal and state threatened species endemic to California and is a covered species under the EACCS. This species occurs only on the San Joaquin Valley floor, surrounding foothills and ranges, and smaller, adjacent valleys, from northern Ventura and Santa Barbara Counties north to Contra Costa and San Joaquin counties. The Study Area is in the northern range of this species, in the S1 (Alameda, Contra Costa, and San Joaquin Counties) San Joaquin kit fox satellite population recovery area (USFWS 2010), where there have been no confirmed observations since 2002 (USFWS 2020). Extensive surveys using scent dogs between 2001 and 2003 did not detect any San Joaquin kit foxes in surveyed portions of Alameda County (Smith et al. 2006).

San Joaquin kit fox occurs in arid lands with scattered shrubby vegetation underlain by loose-textured, sandy soils suitable for burrowing and supporting primary prey (e.g., kangaroo rats [*Dipodomys* sp.]). Occupied communities and land covers include valley sink scrub, valley saltbush scrub, upper Sonoran subshrub scrub, annual grassland, grazed grasslands, petroleum fields, and urban areas in the southern portion of their range; valley sink scrub, interior coast range saltbush scrub, upper Sonoran subshrub scrub, annual grassland, and the remaining native grasslands in the central portion of their range; and annual grassland and valley oak woodland in the northern part of their range (USFWS 1998).

The nearest documented occurrence is approximately 0.3 mile southwest of the Study Area, a historical record from 1984 (Occ. No. 6; CDFW 2024a). Multiple other historical records are within 5 miles of the Study Area, all prior to 1992 (CDFW 2024a). Suitable open grassland is present with evidence of friable soils and burrowing activity near Patterson Pass Road. Although there is moderate-quality grassland present in the Study Area, none of the burrows onsite are suitable for this species (see burrow survey results, below), and it is highly unlikely this species utilizes the Study Area for denning habitat.

Focused burrow surveys were conducted on May 16 and August 2, 2023, and January 18, 2024, and additional burrow assessment was conducted during protocol-level burrowing owl surveys on April 12, May 3, May 24, and

June 17, 2024, to identify a variety of animal burrows within the Study Area, including for San Joaquin kit fox. Several large burrow tailings were observed on the eastern side of the Study Area along Patterson Pass Road, were investigated for sign of San Joaquin kit fox occupancy, including prey remains, scat, tracks, and claw/scratch marks. The burrows onsite were not greater than 4 inches in diameter and are associated with active ground squirrel colonies and are not suitable denning structures for San Joaquin kit fox. No San Joaquin kit fox or their sign were observed during the field surveys.

3.2.1.8~~7~~.8 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a California Fully Protected species. It inhabits herbaceous and open cismontane habitats (Zeiner et al. 1990a). It is commonly associated with certain types of agricultural areas (Grinnell and Miller 1944). This species is a year-round resident in coastal and valley lowlands, and forages in open grasslands, meadows, farmlands, and emergent wetlands. It will also use marginal habitats such as freeway edges and medians when foraging for voles and mice. Nests are constructed in a variety of trees, with coast live oak perhaps the most common, and placed high in the crown on thin branches (Peeters and Peeters 2005). Riparian areas adjacent to open space areas are also typically used for nesting, and kites prefer dense, broad-leafed deciduous trees for nesting and night roosting (Brown and Amadon 1968). They also nest in young redwoods (*Sequoia sempervirens*) and mid-sized Douglas firs (*Pseudotsuga menziesii*) in Northern California.

There is moderate-quality grassland habitat present in the Study Area for foraging, with a few scattered cottonwood trees (*Populus* sp.) suitable for nesting. No white-tailed kites were observed during the field surveys. The nearest documented occurrence is approximately 3.7 miles south of the Study Area, a historical record from 1996 (Occ. No.152; CDFW 2024a).

3.2.1.8~~7~~.9 Western Burrowing Owl

Burrowing owl is a candidate for listing as a protected species under the CESA ~~California species of special concern~~ that occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama. In California, it is a year-round resident of lowlands throughout much of the state; these resident populations may be augmented by migrants from other parts of western North America in the winter (Gervais et al. 2008). Burrowing owls require habitat with three basic attributes: open, well-drained terrain; short, sparse vegetation; and underground burrows or burrow surrogates such as culverts, concrete debris piles, or riprap (Klute et al. 2003). They occupy grasslands, deserts, sagebrush scrub, agricultural areas (including pastures and untilled margins of cropland), earthen levees and berms, coastal uplands, and urban vacant lots, as well as the margins of airports, golf courses, and roads. This species also prefers sandy soils with higher bulk density and less silt, clay, and gravel (Lenihan 2007).

Focused burrow surveys were conducted on May 16 and August 2, 2023, and January 18, 2024, and ~~conducted in 2023~~ determined there is grassland habitat, but it is currently of moderate suitability for burrowing owls because it lacks extensive ground squirrel burrows, and the vegetation is generally tall and dense (burrowing owls prefer areas with short, sparse vegetation). Burrows present on the site were generally small and not suitable for burrowing owls. Higher-quality habitat with low, grazed vegetation and ground squirrel colonies were observed throughout the surrounding landscape. No burrowing owls were observed during the field surveys. There are 3 documented occurrences adjacent or overlapping with the Study Area, from 1982, 2002, and 2006 (Occ. Nos. 48, 468, and 1229). Multiple other documented occurrences are within 5 miles of the Study Area, most recently from 2015 (Occ. No. 47; CDFW 2024a).

Protocol-level burrowing owl breeding surveys were conducted on April 12, May 3, May 24, and June 17, 2024. Results of the focused burrow survey were used to identify areas of potential breeding habitat (burrows) and to assess whether burrowing owl were utilizing breeding habitat within the Study Area. No burrowing owls or their sign were observed during the field surveys. This species is not present within the Study Area.

3.2.1.87.10American Badger

American badger is a California species of special concern that occurs throughout California except for the extreme northwestern coastal area (Zeiner et al. 1990b) and higher elevations of the Sierra Nevada. This species prefers dry, open, treeless areas, grasslands, coastal scrub, agriculture, and pastures, especially with friable soils (Zeiner et al. 1990b). This species is considered somewhat tolerant of human activities (Zeiner et al. 1990b).

The Study Area includes suitable dry open grassland present with evidence of friable soils and burrowing activity near Patterson Pass Road. The nearest documented occurrences are approximately 0.2 miles north (Occ. No. 520 from 2014) and south (Occ. No. 250, unknown date prior to 2004; CDFW 202e). Multiple other records are within 5 miles of the Study Area, the most recent from 2015 (CDFW 2024a).

Focused burrow surveys were conducted on May 16 and August 2, 2023, and January 18, 2024, and additional burrow assessment was conducted during protocol-level burrowing owl surveys on April 12, May 3, May 24, and June 17, 2024, to identify a variety of animal burrows within the Study Area boundaries, including for American badger. Several large burrow tailings were observed on the eastern side of the Study Area along Patterson Pass Road, evidence of highly suitable soils for burrowing and hunting. Burrows were investigated for sign of American badger occupancy, including prey remains, scat, tracks, and claw/scratch marks. The burrows were not greater than 4 inches in diameter and are associated with active ground squirrel colonies and are not suitable denning structures for American badgers. No American badgers or their sign were observed during the field surveys.

3.2.1.8.11 Crotch's Bumble Bee

Crotch's bumble bee is a state candidate for listing as endangered under CESA and is not covered under the EACCS. The species has low moderate potential to occur within the Study Area. The CBB occurs almost exclusively in California, currently primarily in the Central Valley, but has been described as having historically occupied grasslands and shrublands in southern to central California. Bumble bees are known to be generalist pollinators but have preferences based on flower color including purple, blue, and yellow. Specifically, this species is found in grasslands with food plant genera that include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum*, among others (USFS 2012).

There are no CNDDB records within 5 miles of the PSA (CDFW 2024). One occurrence is documented within a nine-quad search (Occurrence number 19). This occurrence of was documented in 1959 and the exact location of this occurrence was unknown and recorded to CNDDB to demonstrate the general vicinity (CDFW, 2024).

Focused Crotch's bumble bee habitat assessments were conducted on May 16 and August 2, 2023, and January 18, 2024. Scattered floral resources were observed including lupines (*Lupinus spp.*), Mexican whorled milkweed (*Asclepias fascicularis*), and exserted Indian paintbrush (*Castilleja exserta*), along with potential nesting substrates such as bare cracked soil, small rocky areas, and small rodent burrows. Both Lupinus sp. and Asclepias sp. are example food plants utilized by this species (Williams et al. 2014). No bumble bee species were seen during the field surveys, however, presence is assumed due to suitable foraging floral resource presence.

3.2.1.8.12 Tricolored Blackbird

Tricolored blackbird (nesting colony) is state threatened and a California Species of Special Concern that is covered under the EACCS and is known to forage within the Study Area. This species was observed during the field survey on January 18, 2024, foraging in the grassland within the gen-tie buffer area. Tricolored blackbird nests colonially near freshwater, often in emergent wetlands of cattail or tule, but will also nest in dense, thorny vegetation such as Himalayan blackberry (*Rubus armenicus*) or thistles (*Cirsium* spp., *Silybum* spp., etc.). A desktop level habitat assessment was conducted for suitable breeding habitat potential within 0.5 miles of the Study Area, and aquatic habitat within 0.5 miles was visited in the field concurrently with the CTS habitat assessment. There are six documented CNDDB occurrences for this species within 5 miles of the site.

Other than one observation of this species utilizing the Study Area for winter foraging, this species was not observed within the Study Area during other surveys in 2024 and 2025. Thus, although this species may utilize the Study Area for occasional foraging, it does not breed within the Study Area.

3.2.1.8.12 Swainson's Hawk

Swainson's hawk is a California state threatened species that is not covered under the EACCS with a low potential for nesting and foraging within the Study Area. Swainson's hawks are primarily a grassland bird, but they are also found in sparse shrubland and small, open woodlands (Bechard et al. 2010). In Central California, Swainson's hawks are primarily associated with grain and hay croplands that mimic native grasslands with respect to prey density and availability (Esetep 1989, Babcock 1995). Within a USGS nine quad search, a total of 85 occurrences of Swainson's hawk have been reported. Within a 10-mile radius of the Study Area, a total of 59 occurrences of Swainson's hawk have been reported (CDFW 2024). Most of the documented observations are north and east of the PSA, primarily east of the Diablo Range (CDFW 2024). Four occurrences of this species are documented within 5 miles, but none are closer than 3.8 miles to the Study Area. The occurrence located approximately 3.8 miles northeast of the Study Area is a historic record documented in 1994 (CDFW 2024).

Although the Study Area presents grassland foraging habitat for this species, suitable nesting habitat within 0.5 mile of the Study Area is limited and includes trees associated with homes and development. Trees onsite are short in stature and do not provide high quality nesting substrates for raptors. No Swainson's hawks or raptor stick nests were observed during field surveys.

3.2.1.98 Wildlife Corridors and Habitat Linkages

Wildlife movement corridors have been recognized by federal and state agencies as important habitats worthy of conservation. Wildlife corridors provide migration channels seasonally (i.e., between winter and summer habitats), and provide non-migrant wildlife the opportunity to move within their home range for food, cover, reproduction, and refuge. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as steppingstones for dispersal.

The Study Area does not overlap with any California Essential Habitat Connectivity Areas (CDFW 2014). but is considered part of the large contiguous Natural Landscape Block that extends from Alameda County south through the Diablo Range and Southern Coastal Ranges, terminating north of the Transverse Ranges (CDFW 2017). Given that the existing vegetation is surrounded on three sides by similar annual grassland habitat and is close to the

existing PG&E Tesla substation, the Study Area likely provides movement habitat for local wildlife but is not recognized as an important regional wildlife corridor by any state agency or jurisdiction and is of limited linkage value on a landscape scale. Furthermore, although local wildlife may utilize the Study Area as movement habitat, regional connectivity is highly limited by Patterson Pass Road, an unnamed gravel road directly to the north of the Study Area, Interstates (I) 580 and I-5 to the north and east, respectively, and the railroad south of the PSA. Thus, the Project would not impose significant barrier to wildlife movement.

3.2.2 Regulatory Setting

Federal, state, and local laws, ordinances, regulations, and standards (LORS) related to biological resources were reviewed for applicability to the Project. These are detailed in Section 3.4.6, Laws, Ordinances, Regulations, and Standards.

3.2.3 Environmental Analysis

Potential direct and indirect impacts to biological resources were evaluated to determine the permanent and temporary effects of construction and operation of the proposed Project. Results from the field surveys, habitat evaluations and literature review were evaluated to address the potential for presence of sensitive biological resources within the Study Area were presented in the prior section.

Section 3.2.2, contained herein, identifies the biological resources that may be affected directly or indirectly and may have temporary or permanent impacts. These impact categories are defined as follows:

Direct. The California Environmental Quality Act (CEQA) defines direct impacts as those that result from the project and occur at the same time and place. Project related activities, such as alteration, disturbance or destruction of biological resources are considered a direct impact. Direct impacts for this Project are those associated with the grading and development of the BESS facility site.

Indirect. CEQA defines indirect impacts are impacts that are caused by the project but do not occur at the same time but rather at different but a reasonably foreseeable future time. Indirect impacts associated with the proposed Project include effects to biological or aquatic resources as a result of dust, noise, vibration, or potential erosion.

Permanent. All impacts that result in the irreversible removal of biological resources are considered permanent. Permanent impacts for the proposed Project include the conversion of land for the BESS facility site and associated access facilities.

Temporary. Temporary impacts are considered to have reversible effects on biological resources. Temporary impacts associated with the proposed Project include tension/pulling sites along the gen-tie right of way, and other work associated with temporary access along the gen-tie line.

3.2.3.1 Significance Criteria

Factors typically used to evaluate the significance of project-related impacts are set forth in Appendix G CEQA. Appendix G is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to determine whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration.

As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive. Significant biological impacts resulting from the GESC Project were assessed by the following criteria:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, threatened, candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on federal or state protected WOTUS [waters of the United States] (including wetlands) as defined by Sections 404 and 401 of the 1972 Amendments to the Federal Water Pollution Control Act, commonly known as the Clean Water Act, or the Porter-Cologne Act, either through direct removal, filling, hydrological alteration, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory native wildlife corridors or impede the use of wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, NCCP [natural community conservation plan], or other approved local, regional, or state habitat conservation plan.
- Threaten to eliminate a plant or animal community.

CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if the species is not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

3.2.3.2 Impact Evaluation

Impact 3.2-1 Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, threatened, candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by CDFW or USFWS?

Special-status Plants

One special-status plant, the big tarplant, was observed during the 2023 focused botanical surveys.

Permanent and temporary impacts to three individuals of big tarplant could occur from construction of the proposed Project through direct harm and/or habitat loss. Impacts could include the destruction of individual plants identified or new plants that may become established prior to ground disturbance. This is a **potentially significant impact.**

To reduce potential impacts to less than significant, **MM-BIO-1** will be implemented, including identification and flagging of the extant population for complete avoidance during construction of the gen-tie line, and supplemental measures if complete avoidance is not feasible.

Special-status Wildlife

Permanent and temporary direct impacts to special-status wildlife could occur from construction of the proposed Project through direct harm or habitat loss (see Figure 3.2-8). Indirect impacts to sensitive wildlife could include construction-related dust, soil erosion, and water runoff decreasing or permanently altering habitat suitability. Special-status wildlife species that could occur within the Study Area and be impacted directly or indirectly by project implementation include: Crotch's bumble bee (*Bombus crotchii*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), tricolored blackbird (*Agelaius tricolor*), San Joaquin kit fox (*Vulpes macrotis mutica*), prairie falcon (*Falco mexicanus*), ferruginous hawk (*Falco mexicanus*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), American badger (*Taxidea taxus*), and California horned lark (*Eremophila alpestris actia*).

Crotch's bumble bee. Focused Crotch's bumble bee habitat assessments determined that suitable foraging floral resources are present within the Study Area and that while no bumble bee species were seen during the field surveys, their presence is assumed. Direct impacts to suitable habitat for this species consists of the permanent removal of approximately ~~57~~ 60.7 acres of non-native grassland habitat, which provides foraging habitat where floral resources are present. Indirect impacts from construction-related dust, soil erosion, and water runoff decreasing or permanently altering habitat suitability, or operational impacts such as lighting or landscape irrigation are not expected to impact potentially suitable habitat for this species or the use of surrounding land by this species. The loss of ~~57~~ 60.7 acres of potentially suitable non-native grassland habitat is considered a **potentially significant impact**.

Golden Eagle. The Study Area provides grassland foraging habitat, and transmission towers in and adjacent to the site provide low-quality nesting habitat. In addition, potentially suitable nesting habitat occurs west of the Study Area along the Altamont Pass and birds that may forage near the site may attract eagles. Potential direct impacts to golden eagles may occur during Project construction if construction activities commence during the avian breading season of February through August through direct take or nest failure should they be nesting within 1 mile of the Project area, such as the Midway Pair located one mile south of the Study Area. Direct impacts to suitable habitat for golden eagles consist of the permanent removal of approximately ~~57~~ 60.7 acres of non-native grassland habitat, which provides foraging habitat for this species. These impacts are considered **potentially significant**.

The new facility will include multiple structures that range in height from 7 to 185 feet tall. The tallest structure is the poles associated with the generator tie facilities at 185 feet above ground level. Factors that affect the risk of collision include weather conditions, behavior of the species of bird, and design and location of the line or tower. Most collisions involve nocturnal migrants flying at night in inclement weather and low-visibility conditions. Collisions typically occur when migrating birds collide with tall, guyed television or radio transmission towers (APLIC 2016). Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over topographic features or when inclement weather forces the birds closer to the ground. Based on the Project's design and location, operations are likely to result in less-than-significant impacts from potential collisions.

The Project also includes electric conducting wires; electrocutions could occur when a bird simultaneously contacts two conductors of different phases or contacts a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these components. On a 138-kW transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds if recommended horizontal and vertical spacing (55 – 76 inches) are used for conductor separation according to the Avian Power Line Interaction Committee (APLIC 2006). As such, operation of the Project would not result in adverse impacts to wildlife from electrocution.

Burrowing Owl. Annual grassland habitat within the project site provides potential nesting and foraging habitat for burrowing owl although protocol surveys within the Study Area determined that burrowing owl is not present. Focused burrow surveys determined that grassland habitat available in the Study Area is currently of moderate suitability for burrowing owls because it lacks extensive ground squirrel burrows, and the vegetation is generally tall and dense (burrowing owls prefer areas with short, sparse vegetation). Direct impacts could include mortality or injury to owls or destruction of burrows/nests if nesting in or adjacent to a construction site prior to ground-disturbing activities. In addition, loud construction activities could cause an adult owl to abandon an active nest that is in close proximity to construction, which could lead to nest failure. This impact would be **potentially significant**.

Swainson's Hawk. The Study Area presents grassland foraging habitat for this species, although suitable nesting habitat within 0.5 mile of the Study Area is limited to trees associated with homes and development. Trees onsite are short in stature and do not provide high quality nesting substrates for raptors and no Swainson's hawks or raptor stick nests were observed during field surveys. Direct impacts could include mortality or injury to Swainson's hawks or destruction of nests if nesting in or adjacent to a construction site prior to ground-disturbing activities. In addition, loud construction activities could cause an adult hawk to abandon an active nest that is near construction, which could lead to nest failure. This impact would be **potentially significant**.

Tricolored blackbird. The Study Area presents grassland foraging habitat for this species. Suitable nesting habitat is not present and no direct or indirect impacts to breeding are anticipated, and no direct take of this species would occur. Permanent conversion of 60.7 acres of non-native grassland to developed land cover may reduce the availability of insect prey within foraging range of known nesting areas within 5 miles. However, this species was observed foraging onsite in winter in a mixed species flock once in three years, indicating that it is an uncommon visitor to the Study Area. Temporary impacts to grassland habitat along the gen-tie line where this species was observed foraging in winter 2024 would be restored to pre-project conditions. Habitat fragmentation would not be significant due to the proximity of the Study Area to already-developed areas including the Tesla Substation. Indirect impacts to breeding colonies are not anticipated based on the distance of construction and operational activities from breeding habitat, and terrain between the Study Area and known breeding locations within 5 miles. Impacts would be considered less than significant.

Other Nesting and Migratory Birds and Birds of Prey (including northern harrier, white-tailed kite, prairie falcon, ferruginous hawk, and California horned lark). Like other undeveloped/natural sites, the Study Area contains opportunities for birds of prey (raptors) and other avian species to nest. Native nesting bird species with potential to occur within the Project Boundary are protected by California Fish and Game Code Sections 3503 and 3503.5, and by the federal MBTA (16 USC 703–711). Section 3503 provides that it is unlawful to take, possess, or needlessly destroy the active nests or eggs of any bird in California; Section 3503.5 protects all raptors and their eggs and active nests; and the MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of native migratory bird species throughout the United States. Recently, the Department of Interior ruled that the MBTA should apply only to "affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs," and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities. However, that ruling is now under review as a revision to the MBTA that would include prohibitions to incidental take.

Direct impacts to suitable habitat for these species consist of the permanent removal of approximately ~~57~~ 60.7 acres of non-native grassland habitat, which provides nesting, foraging, migration, and refuge habitat to many of these species. Vegetation clearing of suitable habitat within the general avian breeding season of February through August may result in direct take avian species or an active nest. Construction activities conducted during the breeding season would be **potentially significant**.

As described above for golden eagle, the Project also includes new towers and transmission lines that could result in avian collisions or electrocution. However, based on the Project's design and location, operations are likely to result in less-than-significant impacts from potential collisions and electrocutions.

San Joaquin Kit Fox and America Badger. No San Joaquin kit fox or American badger or their sign were observed during field surveys or burrow surveys in the Study Area. The Study Area includes suitable dry open grassland present with evidence of friable soils and burrowing activity near Patterson Pass Road. The burrows onsite were not greater than 4 inches in diameter and are associated with active ground squirrel colonies and are not suitable denning structures for either San Joaquin kit fox or American badger. Direct impacts to suitable habitat for these species consist of the permanent removal of approximately ~~57~~ 60.7 acres of non-native grassland habitat, which provides potential habitat for these species. Construction activities could temporarily displace these species if present or could become trapped in uncovered trenches if left open overnight or if the contractor does not provide suitable egress. These impacts would be **potentially significant**.

California Red-Legged Frog. The Project area provides highly suitable habitat for overland migration and aestivation/refuge habitat for this species, consisting of abundant grassland with small mammal burrows to provide refuge, and the entirety of the Project site is in designated CRLF Critical Habitat. No CRLF were observed during the field surveys or habitat assessment. Based on this habitat assessment, usage of the site as upland refuge and dispersal for CRLF is assumed. Construction of the Project would permanently remove approximately ~~38~~ 60.7 acres of suitable upland dispersal and refuge habitat for CRLF. This would be a **significant** impact.

California Tiger Salamander. The Project area provides highly suitable habitat for overland migration and aestivation/refuge habitat for this species, consisting of abundant grassland with small mammal burrows to provide refuge. No CTS were observed during the field surveys or habitat assessment. Based on this habitat assessment, usage of the site as upland refuge and dispersal for CTS is assumed. Construction of the Project would permanently remove approximately ~~38~~ 60.7 acres of suitable upland dispersal and refuge habitat for CTS. This would be a **significant** impact.

Indirect Impacts

Construction: During construction activities, indirect impacts to sensitive wildlife could include construction-related dust, soil erosion, and water runoff decreasing or permanently altering habitat suitability. Without construction-related minimization measures to control dust, erosion, and runoff, and without compliance with National Pollutant Discharge Elimination System (NPDES) requirements, indirect impacts to riparian resources and upland communities could occur. However, standard construction BMPs to control dust, erosion, and runoff, including straw bales and silt fencing, would be implemented to minimize these adverse effects. If these indirect impacts decrease the quantity or quality of potentially suitable wildlife habitat for special-status species, this could be a **potentially significant** impact. ~~Additionally, implementation of MM-BIO-2 through MM-BIO-11 to reduce direct impacts to special-status wildlife species would also contribute to the reduction of indirect impacts to less than significant with mitigation.~~

Operation: Following construction, the proposed use would not create emissions to air, and would not require water. Operational water will be limited to water necessary for landscape irrigation and to supply on-site fire hydrants. The BESS and all associated equipment will be remotely monitored and controlled. Qualified technicians would visit the site approximately 1-2 times per month to conduct routine inspections and maintenance as well as semi-annual and annual services. Periodically, batteries and various components may be replaced or renewed to ensure optimal performance.

The Project site contains undeveloped grassland with a railroad to the south, and major freeways to the north and east. Operations of the BESS Facility will produce some additional noise in the area, as described in Section 3.7, Noise. As previously noted, each power block associated with the Project would contain ancillary equipment. Such equipment is not known to cause off-site ground vibration nor airborne low-frequency noise during normal operations.

Sources of light in the Study Area and vicinity come from rural residents, the PG&E Tesla Substation, and red safety lights related to wind turbines visible along the horizon to the west. No street lighting exists along nearby highways or local roadways; however, intermittent/temporary lighting from cars and trucks are present along nearby highways (i.e., I-580 and I-205) and local roadways, including Patterson Pass Road. The Project would introduce new light sources into the existing nighttime environment such as facility lighting for safety and security purposes.

Permanent, operational lighting would only be in areas where it is required for safety, security, or operations. Low-elevation (i.e., less than 14 feet) controlled security lighting would be installed at the Project substation and around the BESS yard, in accordance with applicable governmental requirements listed in Section 3.13.6.2, State, including requirements set forth in the California Building Code (Title 24, Part 1), California Electrical Code (Title 24, Part 3), and California Energy Code (Title 24 Part 6). Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. Portable lighting may be used occasionally and temporarily for maintenance activities during operations, such as emergency work that must occur at night. Care would be taken to prevent undue light pollution from the nighttime security lighting. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto nearby properties, compliant with applicable codes and regulations.

The Project does not propose installing any new structure lighting as part of the proposed gen-tie line, except for aviation lighting and /or marking that may be required for some structures. Upon completion of final design, if necessary, the Applicant would file with the Federal Aviation Administration (FAA) for official study and determination of lighting and/or marking requirements for these structures. Aviation lights are manufactured with focused beacons that direct light upward and outward without illuminating nearby areas directly below the lights, and no visible reflected light would be visible from the ground surface. Any aviation lighting required for the Project would be consistent with similar, existing aviation lighting in the vicinity.

Use of emergency backup generators onsite would introduce a new source of nitrogen deposition. The modeling showed that the highest nitrogen loading from operation of the project will be located just outside the southern boundary as shown in Figure 3.2-9 and Appendix 3.2G. The maximum nitrogen loading directly adjacent to the source is 2.75 kg/ha/yr. The nitrogen load reduces significantly with distance from the source, and is less than 1 kg/ha/yr at the closest freshwater pond approximately 0.4 mile west of the Project site.

As previously discussed, the area consists of grassland and the nitrogen loading from the Project is below the critical load for that species (Table 3.2-4). Similarly, the nitrogen loading beyond this maximum point of impact is well below any critical loads for other biological resources surveyed, including the California red-legged frog, California tiger salamander, crotch's bumble bee, big tarplant, birds, and aquatic resources found (Patterson Run). Although critical nitrogen loads for all biological resources have not been firmly established, a value of 5 kg/ha/yr is typically used to analyze nitrogen deposition to these resources (Weiss 2006). While there may be other biological species within 6 miles of the project site that are not listed here, the annual nitrogen deposition is well below the maximum impact area indicated above and would not be above other species' critical nitrogen loads.

Table 3.2-4. Critical Nitrogen Loads for Biological Resources within 6 miles of the Project Site

Biological Resource	Critical Nitrogen Loads (kg/ha/yr)
California grasslands	5-10
Freshwater wetlands	2.7-13
Riparian forest	10-20

Source: Pardo et al 2011.
Notes: kg/ha/yr = kilogram per hectare per year.

The maximum Project impacts of nitrogen deposition rates for all resources would be XX kg/ha/yr immediately adjacent to the sources within the boundaries of the Project site. The resources nearest the sources consist solely of non-native California grassland. The quantity of nitrogen deposition from the Project emissions on vegetation would, in practice, be less than the model results because the assumptions modeled are inherently conservative (e.g., assuming the emergency backup generators are running at the same time). The nitrogen deposition would also be distributed incrementally throughout a year and not all nitrogen added to the soil during each deposition event would be available for plant use because of losses associated with soil processes. As a result, operation of the Project's emergency backup generators would not lead to nitrogen deposition levels that exceed critical thresholds associated with significant impacts to natural vegetation communities and special status species in the vicinity of the Project site. Therefore, operation of the Project's emergency backup generators would result in **less than significant** impacts to natural vegetation communities and special status species within 6 miles of equipment operation.

~~Due to the proposed use of light-grey steel finishes, Project site components may have the potential to induce glare, which could result in a safety concern or nuisance to travelers and residents. As such, implementation MM-VIS-1 is required. As set forth in Section 3.13.5, Mitigation Measures, below, MM-VIS-1 requires the Applicant to prepare and implement a Surface Treatment Plan for new aboveground structural elements associated with the Project substation, BESS and PCS enclosures, and gen-tie line. The Surface Treatment Plan would require that the finishes on all new transmission and other structures with metal surfaces will be non-reflective/non-specular. The Surface Treatment Plan would also address any non-steel structural elements associated with Project components. Color finishes would be selected according to their ability to reduce the aesthetic impact associated with contrast with the surrounding landscape.~~

For the reasons discussed above, the Project operations would not create a new source of substantial light or glare that would adversely affect the use of surrounding land by wildlife. Impacts would be **less than significant**.

Decommissioning: The Project's BESS facility is anticipated to have an approximately 25-year lifespan. At the end of the facility's useful life, the Project would undergo decommissioning in accordance with an approved Decommissioning Plan. As part of the decommissioning activities, all site improvements that are no longer in use and cannot be repurposed will be removed from the Project site and the lands and associated easement areas would be restored to a substantially similar condition in which they existed. Since the site would be restored to a condition similar to pre-Project activities, impacts related to ~~light and glare~~wildlife would be less than significant and no mitigation would be required for decommissioning activities.

3.2.3.3 Mitigation Measures

Complete details of proposed mitigation measures are provided in Section 3.2.5. Compliance with mitigation measure BIO-1 would ensure impacts to special-status plant species would be reduced to a less-than-significant level through complete avoidance of the big tarplant population.

Compliance with mitigation measure BIO-2 would provide general avoidance and minimization measures to reduce potential adverse effects to all special-status wildlife during construction of the Project including proper delineation of work sites and worker environmental training. Implementation of BIO-2 would reduce potential general construction impacts to a less-than-significant level.

Implementation of mitigation measures BIO-3 and BIO-4 would reduce potential adverse effects to CRLF and CTS that utilize the site as upland refuge and overland migration habitat during construction of the Project, and provide for compensatory mitigation for the permanent removal of approximately ~~57~~ 60.7 acres of upland critical habitat for CRLF, and upland and dispersal habitat for CTS, through the purchase of in-kind habitat credits at a USFWS- and CDFW-approved mitigation bank or turnkey mitigation property.

Implementation of BIO-5 which involves preconstruction surveys for nesting birds (during the nesting season February through August), including tricolored blackbird, would avoid and/or minimize potential impacts to these species reducing potential impacts to less than significant.

Implementation of BIO-6 which includes avoidance and minimization measures to avoid or minimize potential adverse effects to golden eagle that may utilize the project site for hunting and foraging, would avoid and/or minimize potential impacts to golden eagle reducing potential impacts to less than significant.

Implementation of BIO-7 which includes pre-construction surveys for nesting Swainson's hawk within 0.5 mile of the Study Area where accessible, and avoidance of hawks durign nesting season, would avoid and/or minimize potential impacts to Swainson's hawk reducing potential impacts to less than significant.

Implementation of mitigation measure BIO-8 would reduce impacts to burrowing owl by requiring pre-construction nesting bird surveys and avoidance of occupied burrowing owl nest locations. Implementation of mitigation measure BIO-9 provides for compensatory mitigation for similar habitat to the approximately ~~57~~ 60.7 acres of foraging and potential breeding and overwintering habitat that would be removed. This habitat will be preserved through the purchase of in-kind habitat credits at a CDFW-approved mitigation bank. Taken together, implementation of these mitigation measures would reduce potential impacts to less than significant.

Implementation of BIO-10, which involves avoidance of San Joaquin Kit Fox dens, exclusions, avoidance measures for trenches and pipes, would reduce potential impacts to San Joaquin Kit Fox and American badger, to less than significant.

Implementation of BIO-11 would reduce impacts to Crotch's bumble bee through pre-construction surveys and avoidance buffers and would reduce impacts to a less than significant level.

~~Protocol-level habitat assessment for CRLF and CTS determined that there is suitable grassland habitat with small mammal burrows present on the Study Area and aquatic breeding habitat available within dispersal distance. Additionally, the entirety of the Project site is in CRLF Critical Habitat. Focused burrow surveys did not identify suitable burrow habitat for San Joaquin kit fox or American badger; however, both species could utilize the Study~~

Area for overland migration and prey resources. Protocol-level surveys for burrowing owl did not identify any active breeding within the Study Area, though ground squirrel burrows within the Study Area provide suitable burrow habitat. Focused surveys for the remaining special-status species were not conducted because there are no accepted protocols for surveys. The remaining special status species with at least moderate potential to occur are non-burrow dwelling bird species that could utilize the Project site for ground nesting, foraging, and a migration corridor. Therefore, direct impacts through direct mortality or modification of habitat could occur to CRLF, CTS, American badger, burrowing owl, golden eagle, other raptors, and nesting birds, which would be considered significant.

Direct impacts to suitable habitat for these species consist of the permanent removal of approximately 57 acres of non-native grassland habitat, which provides nesting, foraging, migration, and refuge habitat to many of these species. Vegetation clearing of suitable habitat within the general avian breeding season of February through August may result in direct take of this species or an active nest, which would be considered significant. Project implementation of MM-BIO-2 through MM-BIO-11 would reduce potential impacts to less than significant.

A Protocol-Level CRLF and CTS Habitat Assessment was conducted in 2023 to determine potential habitat in the Study Area. Surveys determined that there is suitable grassland habitat with small mammal burrows present on the Study Area with aquatic breeding habitat available within dispersal distance. Based on this habitat assessment, usage of the site as upland refuge and dispersal for CRLF and CTS is assumed. Construction of the Project would permanently remove approximately 38 acres of suitable upland dispersal and refuge habitat for CRLF and CTS. Compensatory mitigation described in MM-BIO-5 would reduce these impacts to less than significant with mitigation.

Nesting Birds and Raptors

Like other undeveloped/natural sites, the Study Area contains opportunities for birds of prey (raptors) and other avian species to nest. Native nesting bird species with potential to occur within the Project Boundary are protected by California Fish and Game Code Sections 3503 and 3503.5, and by the federal MBTA (16 USC 703–711). Section 3503 provides that it is unlawful to take, possess, or needlessly destroy the active nests or eggs of any bird in California; Section 3503.5 protects all raptors and their eggs and active nests; and the MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of native migratory bird species throughout the United States. Recently, the Department of Interior ruled that the MBTA should apply only to "affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs," and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities. However, that ruling is now under review as a revision to the MBTA that would include prohibitions to incidental take.

Potential direct impacts to nesting birds may occur during Project construction if construction activities commence during the avian breading season of February through August through direct take or nest failure, which would be considered significant. To avoid potential Project-related impacts to nesting birds, implementation of MM-BIO-2 would reduce potential impacts to less than significant with mitigation.

Construction activities could temporarily displace birds, small mammals, reptiles, and amphibians that burrow or nest within the Study Area. Specific construction activities that could cause adverse impacts to these species and other special-status wildlife with a potential to occur onsite include:

Removal of vegetation on the construction laydown area

~~Ground-dwelling animals could become trapped in uncovered trenches if left open overnight or if the contractor does not provide suitable egress for special-status wildlife species~~

~~Impacts on nesting birds could occur if construction activities take place adjacent to natural habitat during the avian nesting season.~~

~~Temporary adverse impacts could be associated with increased noise from construction or incidental incursions into nesting habitat~~

~~CDFW has defined nesting bird season as February 1 – August 15.~~

~~The new facility will include multiple structures that range in height from 7 to 185 feet tall. The tallest structure is the poles associated with the generator tie facilities at 185 feet above ground level. Most collisions involve nocturnal migrants flying at night in inclement weather and low-visibility conditions. Collisions typically occur when migrating birds collide with tall, guyed television or radio transmission towers (APLIC 2016). Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over topographic features or when inclement weather forces the birds closer to the ground. Based on the Project's design and location, operations are likely to result in less-than-significant impacts from potential collisions.~~

~~Bird collisions with electric conducting wires occur when birds are unable to see the lines, especially during fog or rain events. Factors that affect the risk of collision include weather conditions, behavior of the species of bird, and design and location of the line.~~

~~Electrocutions occur when a bird simultaneously contacts two conductors of different phases or contacts a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these components. On a 138-kW transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds if recommended horizontal and vertical spacing (55 – 76 inches) are used for conductor separation according to the Avian Power Line Interaction Committee (APLIC 2006). As such, operation of the Project would not result in adverse impacts to wildlife from electrocution.~~

~~Combined with the presence of existing high voltage lines on three sides of the Study Area and implementation of avoidance and minimization measures, the construction of the additional gen-tie line will not constitute a significant addition to overhead lines in the area. Impacts as a result of installation of the gen-tie line to migratory birds and raptors will be less than significant with mitigation. Mitigation measures for special-status wildlife are discussed in further detail in Section 3.2.5.~~

Impact 3.2-2 Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.?

As currently designed, the proposed Project would result in ~~44.44~~60.7 acres ~~(5.86 acres temporary and 38.58 acres permanent)~~of permanent ~~of~~ direct impacts to non-native vegetation communities and land covers through the removal of vegetation and grading of land to construct the proposed battery energy storage system facilities. Project-related impacts to non-native vegetation communities and land covers are not considered significant because they are not considered sensitive natural communities by CDFW.

There are no sensitive natural communities mapped within the Project footprint and thus, there would be **no impact** to sensitive natural communities.

Impact 3.2-3 Would the project have a substantial adverse effect on federal or state protected WOTUS (including wetlands) as defined by Sections 404 and 401 of the 1972 Amendments to the Federal Water Pollution Control Act, commonly known as the Clean Water Act, or the Porter-Cologne Act, either through direct removal, filling, hydrological alteration, or other means?

The results of the 2024 jurisdictional delineation identified Patterson Run, a seasonal drainage, as potentially jurisdictional under Sections 404 and 401 of the CWA and 1600 of the CFGC, due to the presence of an Ordinary High-Water Mark, and seasonal flow. Patterson Run is located within the gen-tie alignment. Figure 3.2-7, Potential Jurisdictional Aquatic Resources – USACE, depicts the water features detected on the Project site during the jurisdictional delineations.

The results of the 2024 aquatic resources delineation performed by Dudek biologists concluded that there is approximately 0.37 acres of non-wetland waters in the Study Area, within the review area for the generator tie lines. Table 3.2-~~3~~ 5 summarized the jurisdictional aquatic resources within the Study Area.

Table 3.2-~~3~~5. Summary of Jurisdictional Aquatic Resources within the Study Area

Jurisdiction	Project Boundary (acres/linear feet)	Study Area (acres/linear feet)	Total (acres/linear feet)
Waters of the United States (RWQCB)			
Non-Wetland Waters			
Patterson Run OHWM	N/A	0.37/846	0.37/846
Waters of the State (RWQCB) Total*	**N/A**	**0.37/846**	**0.37/846**
Waters of the State (CDFW)			
Non-Wetland Waters			
Patterson Run OHWM	N/A	0.37/846	0.37/846

Notes:
ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; OHWM = ordinary high-water mark; CDFW = California Department of Fish and Wildlife
* Totals may not sum due to rounding.

Direct impacts to Patterson Run include placement of riprap within the drainage associated with outfall improvements, and construction of a new transmission access pass across the drainage for construction and operation access to the gen-tie line, Project impacts to Patterson Run may require permitting from the USACE and RWQCB. State permits such as Streambed Alteration Agreement would be covered under the California Energy Commission's certification opt-in process under Assembly Bill 205.

With implementation of **MM-BIO-09**, temporary and permanent adverse impacts to potentially jurisdictional waters would be less than significant with mitigation.

Indirect Impacts

Construction-related indirect impacts may include inadvertent spillover impacts outside of the construction footprint, dust accumulation on adjacent native habitats, chemical spills, stormwater erosion and sedimentation, and increased wildfire risk. To reduce fugitive dust resulting from Project construction and to minimize adverse air quality impacts, the Project would employ dust control measures in accordance with the Air Quality Management District's Rules 401 and 403.2, which would limit the amount of fugitive dust generated during construction.

The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of Best Management Practices (BMPs) to control stormwater run-on and runoff from construction work sites. The California Energy Commission (CEC) would also require the Applicant to implement a drainage, erosion, and sediment control plan (DESCP) to reduce the impact of run-off during construction, operation, maintenance, and decommissioning. Erosion control facilities to be shown on the final grading plan would control and contain erosion-induced silt deposits and provide for the safe discharge of silt free stormwater into existing and proposed storm drain facilities during the rainy season (October 1 to April 15) after rough grading has been completed. The Project would include stormwater detention and LID features, constructed in compliance with the Stormwater Technical Guidance Manual.

The LID features would consist of bioretention basins consisting of permeable gravel with a perforated underdrain pipe, overlain by a permeable bioretention soil mix. A riser outlet structure would allow for overflow of excessive stormwater flows. With the exception of the southwest Project boundary, ten stormwater outlets would be constructed around the perimeter of the facility. These outlets would include riprap to further reduce (in addition to the bioretention basins) off-site stormwater flow velocities. Minimal off-site stormwater flow velocities would prevent off-site erosive scour of sediments, which in turn would prevent siltation of downstream water bodies, off-site flooding, and off-site exceedance of stormwater drainage facilities. As a result, no water quality impacts would occur as a result of non-stormwater discharges.

Example BMPs to employ on site during construction to reduce potential indirect impacts to sensitive and protected resources to less than significant include the following:

- Sediment and erosion control measures would be developed and implemented in accordance with RWQCB Construction General Permit requirements to reduce the potential for the Project to result in increased siltation of, or release of pollutants into creeks and their tributaries.
- The footprint of disturbance would be limited to the maximum extent feasible, such as limiting access to via pre-existing access routes to the greatest extent possible. Parking, staging, storage, excavation, and disposal site locations would be confined to the smallest areas possible and be positioned at previously disturbed areas to the greatest extent practical.
- To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 2 feet deep would be covered with tarp, plywood, or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep-walled trenches to allow for animals to escape. Before such holes or trenches are backfilled, they would be thoroughly inspected for trapped animals. If trapped animals are observed, escape ramps or structures would be installed immediately to allow escape. If the trapped animal is injured and cannot use escape ramps or structures, a qualified biologist would be contacted to identify the appropriate next steps.

- All construction pipes, culverts, and similar structures that are stored at the construction site for one or more overnight periods would be thoroughly inspected for burrowing owls and nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved. An option is to cap the ends of any stored pipes to prevent any animals from entering. If an animal is discovered inside a pipe, that section of pipe would not be moved until the Project biologist or designated representative has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated out of harm's way by an approved biologist.

Impact 3.2-4 Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory native wildlife corridors or impede the use of wildlife nursery sites?

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The Study Area does not overlap with any California Essential Habitat Connectivity Areas (CDFW 2014) but is considered part of the large contiguous Natural Landscape Block that extends from Alameda County south through the Diablo Range and Southern Coastal Ranges, terminating north of the Transverse Ranges (CDFW 2017). Given that the existing vegetation is surrounded on three sides by similar annual grassland habitat and is close to the existing PG&E Tesla substation, the Study Area likely provides movement habitat for local wildlife but is not recognized as an important regional wildlife corridor by any state agency or jurisdiction and is of limited linkage value on a landscape scale.

No significant direct or indirect permanent impacts would occur on wildlife movement or use of native wildlife nursery sites associated with Project activities. Existing habitat linkages and wildlife corridor functions would remain intact while construction activities are conducted and following Project completion. Construction activities would not likely result in permanent impacts to wildlife movement because no new structures that would impede wildlife movement are proposed.

During construction activities, temporary disturbance to local species may occur, but would not substantially degrade the quality or use of the vegetation communities in the vicinity. Some indirect impacts to localized wildlife movement could occur during construction activities due to construction-related noise. However, this impact would be temporary and would not be expected to significantly disrupt wildlife movement during and following construction activities.

Therefore, direct and indirect impacts on wildlife corridors and migratory routes resulting from the proposed Project would be **less than significant**.

Impact 3.2-5 Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

There are no tree preservation policies or ordinances in Alameda County. The Alameda County General Plan and Code of Ordinances have policies for protecting riparian, wetland, and watercourse habitats. The recommended avoidance and minimization measures to protect aquatic resources ensure this impact is **less than significant**.

Impact 3.2-6 Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The EACCS provides a framework for natural resource conservation and to streamline the environmental permitting process within the eastern portion of the county. The PSA is in Conservation Zone (CZ) 10 of the EACCS. This CZ emphasizes conservation priorities that may conflict with the Project implementation, such as protection of all big tarplant occurrences, protection of critical habitat for CRLF (including annual grasslands near ponds), and protection and restoration of Patterson Run. The impacts to the EACCS CZ-10 from Project development are a very small percentage of the inventory of those lands in CZ-10.

The Project would obtain applicable permits and other approvals from USFWS, USACE, CDFW, and RWQCB, and will minimize and mitigate impacts on natural resources to comply with the regulatory standards of these agencies. These are the same regulatory standards applied by USFWS and the other environmental agencies in their review and approval of the EACCS. The Project would adhere to AMMs that comply or exceed EACCS guidelines, so development of this PSA will not conflict with implementation of the EACCS, and Project effects on EACCS Covered Species, if present, would be avoided and minimized. Further, the Project would provide compensatory mitigation for impacts to aquatic resources and specific EACCS covered species through the acquisition of credits ~~from existing mitigation banks and other compensatory mitigation~~ through purchase and long-term conservation of mitigation property located in the immediate vicinity of the Project.

The EACCS defines standardized mitigation ratios for each of the focal species to be utilized by local jurisdictions and resource agencies to determine the level of mitigation necessary to offset project impacts. These are based upon an evaluation of the habitat quality on the Study Area scored using species-specific “habitat units.” Mitigation ratios are then calculated based on the acreage of habitat affected, the location of the site, and the species-specific mitigation ratio table. Total mitigation acreages may vary depending on the location of selected mitigation areas the total habitat acreage affected by the Project.

3.2.4 Cumulative Effects

Cumulative effects on biological resources because of past, present, and reasonably foreseeable future actions, in combination with the Project, would mainly result from loss of habitat and habitat disturbance and degradation. A cumulative impact refers to a project’s incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the facility (Public Resource Code [PRC] Section 21083; 14 CRR 15064[h], 16065[c], 15130, and 15355). As with the proposed Project, each of the cumulative projects presented in Chapter 3, Environmental Analysis, Table 3-2, Cumulative Projects, would be subject to a variety of statutes and administrative frameworks that require mitigation for impacts on biological resources. As such, the analysis presented herein is conducted qualitatively and in the context that the cumulative projects would fully mitigate any impacts to biological resources.

As of May 2025, a portion of the gen-tie line area has been cleared, compacted, and graveled as part of the Mulqueeney Wind Project’s staging area and underground gen-tie corridor. It is assumed that the Mulqueeney Wind Project obtained all necessary federal, State, and local permits required to clear the staging area and, as part of those permit requirements, would be required to restore these disturbed areas back to pre-construction conditions. Construction activities on the Mulqueeney Wind Project would likely be complete prior to the commencement of

construction of the Potennetia-Virdi BESS Project. As such, a conservative analysis that the Potentia-Viridi Project would disturbedisturb native areas that would need to be restored was assumed for this cumulative analysis.

Special-status Species

The proposed Project would result in the permanent loss and temporary disturbance of grassland habitat for special-status wildlife as discussed in Section 3.2.3, including foraging habitat for raptors, western burrowing owl, and tricolored blackbird. Other cumulative projects considered also impact similar vegetation communities, resulting in a net regional loss of grassland habitat. Without mitigation and conservation planning, cumulative effects to these species may result in population declines and reduced genetic viability. The framework of the EACCS provide regional conservation planning and coordinated avoidance, minimization, and mitigation for covered species, which reduces potential cumulative impacts.

With implementation of mitigation measures identified in Section 3.2.5 (Avoidance and Minimization Measures), including avoidance of direct take of protected species and preservation of offsite grassland habitat, the project would not make a cumulative contribution to significant cumulative impacts on biological resources in the region.

Aquatic Resources

Cumulative impacts to wetlands and other waters of the U.S. and/or State could alter regional and downstream hydrology. Proposed impacts to Patterson Run include installation of a new stormwater basin outfall and a low-water crossing. These impacts are small and would not alter the flow of water through the system. Additionally, the impacts would be fully mitigated with preservation of similar habitat as described in Section 3.2.5 (Avoidance and Minimization Measures). Thus, the project would not result in cumulatively considerable contribution to the regional loss of wetlands and waters functions and values.

Wildlife Corridors and Habitat Connectivity

As described in Section 3.2.1 (Affected Environment), the region provides important connectivity between larger habitat blocks. Cumulative development could impair landscape permeability and increase the risk of wildlife vehicle collisions. The proposed Project is located in close proximity to existing development and roadways and will not introduce additional roadway. Wildlife movement would be preserved in the open grassland to the south, west, and north of the Study Area. By grouping development at the Tesla Substation, potential cumulative impacts to wildlife movement is reduced. Thus, development and implementation of the project would not result in a cumulative impact to wildlife corridors and habitat connectivity.

-Cumulative impacts from the Project are expected to be **less than significant**.

3.2.5 Avoidance and Minimization Measures

The following section describes the measures that are intended to avoid and minimize potential adverse effects of the Project to biological resources. Measures for special-status species covered by the EACCS adhere to avoidance and minimization measures detailed in Table 3-2 of the EACCS (ICF 2010). A Biological Resources Mitigation Implementation and Minimization Plan will be prepared prior to construction that outlines how the Applicant will implement the mitigation and protection measures developed specifically for the Project through consultation.

3.2.5.1 Minimization Measures for Construction and Decommissioning

The following section presents avoidance, minimization, and mitigation measures to avoid, minimize, or mitigate impacts to all special-status plant and wildlife species and other sensitive biological or aquatic resources during the construction and decommissioning phase of the proposed Project.

MM-BIO-1 Special-status Plant Species Avoidance. Complete avoidance of the population of big tarplant will reduce potential impacts to less than significant.

a. Prior to construction, a botanist familiar with big tarplant will identify and flag the extant population onsite for complete avoidance.
b. Environmentally sensitive area fencing and appropriate signage should be installed at a minimum of 20 feet from the edge of the big tarplant population. The Project should avoid performing any construction-related activities within this environmentally sensitive area.

MM-BIO-2 Implement General Measures to Reduce Effects on EACCS Focal Species. Implementation of applicable general avoidance and minimization measures will reduce potential adverse effects to EACCS special-status wildlife during construction of the Project (ICF 2010).

a. GEN-01: Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and Avoidance and Minimization Measures (AMMs) that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.
b. GEN-02: Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.
c. GEN-03: Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these requirements, AMMs.
d. GEN-04: The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).
e. GEN-05: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
f. GEN-06: Off-road vehicle travel will be minimized.
g. GEN-07: Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land-cover types, or during off-road travel.
h. GEN-08: Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
I. GEN-09: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

j. GEN-10: To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.

k. GEN-11: Pipes, culverts and similar materials greater than four inches in diameter, will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.

l. GEN-12: Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

m. GEN-13: Stockpiling of material will occur such that direct effects to covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.

n. GEN-14: Grading will be restricted to the minimum area necessary.

o. GEN-15: Prior to ground disturbing activities in sensitive habitats, project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.

p. GEN-16: Significant earth moving-activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1-inch of rain or more).

q. GEN-17: Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.

MM-BIO-3 Implement Amphibian Avoidance and Minimization Measures-1 and -2 of the EACCS to Reduce Effects during construction on CTS and CRLF. Implementation of applicable amphibian avoidance and minimization measures will reduce potential adverse effects to EACCS-covered amphibians that utilize the site as upland refuge and overland migration habitat during construction of the Project (ICF 2010).

a. If aquatic habitat is present, a qualified biologist will stake and flag an exclusion zone prior to activities. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew). The exclusion zone will encompass the maximum practicable distance from the work site and at least 500 feet from the aquatic feature wet or dry (EACCS AMPH-1).

~~a~~b. A qualified biologist will conduct preconstruction surveys prior to activities define a time for the surveys (before groundbreaking). If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFW approved relocation site.

~~b~~c. A Service-approved biologist should be present for initial ground disturbing activities.

~~c~~d. Barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work.

~~d~~e. No monofilament plastic will be used for erosion control.

~~e~~f. Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.

~~f~~g. A qualified biologist possessing a valid ESA Section 10(a)(1)(A) permit or USFWS approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside fenced area.

~~g~~h. Work will be avoided within suitable habitat from October 15 (or the first measurable fall rain of 1" or greater) to May 1.

MM-BIO-4 Compensatory Mitigation for the removal of CRLF and CTS upland and dispersal habitat. To mitigate for the permanent removal of approximately ~~57~~ 60.7 acres of upland critical habitat for CRLF, and upland and dispersal habitat for CTS, similar habitat will be preserved through the purchase of in-kind habitat credits at a USFWS- and CEC/CDFW-approved mitigation bank or turnkey mitigation property. The standardized base mitigation ratios detailed in the EACCS for CTS and CRLF is 3:1 (acres preserved: acres removed) (ICF 2010). This base ratio can be modified using the Mitigation Score Sheets provided in Appendix A of the EACCS (ICF 2010). Based on existing conditions in the Study Area and distance from breeding habitat for these species, permanent impacts will be mitigated at ratios no less than ~~1.9~~3:1 for CTS and ~~2.3~~3:1 for CRLF (Appendix 3.2E). Thus, no less than 182.1 acres of in-kind habitat credits will be purchased from an approved mitigation bank or established at a turn-key mitigation property. The final ratio for mitigation of permanent impacts will be decided in consultation with USFWS and CEC with CDFW consultation.

MM-BIO-5 Pre-Construction Nesting Bird Surveys and Avoidance**.** To the extent practicable, construction activities shall avoid the migratory bird nesting season (typically February 1 through August 31) to reduce any potential significant impact to birds that may be nesting in the Study Area.

a. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the Project Boundary and within 500 feet of all impact areas must be conducted to determine the presence/absence of protected migratory birds and active nests.

b. The avian nesting survey shall be performed by a qualified wildlife biologist within 72 hours prior to the start of construction in accordance with the Migratory Bird Treaty Act (16 USC 703-712) and California Fish and Game Code Sections 3503, 3503.5, and 3513.

c. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans, along with an appropriate buffer established around the nest.

d. If any active nests are observed during surveys, the nest area shall be demarcated in the field with flagging and stakes or construction fencing, and mapped on the construction plans along with a species appropriate buffer established by a qualified biologist. The buffer distance will range from 25 to 500 feet dependent upon factors such as topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests should be established in the field with flagging, fencing, or other appropriate barriers and should be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. The qualified biologist should be responsible for monitoring all nests that are found within the Project Study Area once construction work is initiated. Nests should be monitored within the following distances until the final nest outcome is determined (i.e., fledged or failed):

- 150 feet for passerines and other non-raptors
- 500 feet for raptors and owls

- 250 feet for occupied burrowing owl burrows
- 500 feet for federally and/or state-listed species unless otherwise specified in MM-BIO-6, MM-BIO-7, and MM-BIO-8.

e. If the qualified biologist determines that the recommended buffer may not avoid disturbance that could cause a nest failure, the biologist should recommend additional measures (e.g., increased buffer width, noise or visual barriers, work intervals, stopping work as needed, or allowing only specific work types). These measures should be implemented on a case-by-case basis to minimize impacts to nesting birds and may be based on site-specific conditions and work requirements. The qualified biologist should use behavioral cues that indicate nest disturbance (e.g., time off the nest, hesitation approaching the nest, incessant chattering, bill swiping, or other unusual behavior) to determine the buffer's effectiveness. All potential sources of nest disturbance should be assessed and documented, including non-construction activities (e.g., interspecific, and conspecific interactions and depredation) and non-Project-related activities (e.g., traffic and recreational activities).

f. If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest should be halted as needed until the Project biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged, limitations on construction activities that generate substantial vibration and/or noise levels, and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

~~g. If an active burrowing owl nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no-activity zone will be established by a qualified biologist. The no-activity zone will be large enough to avoid nest abandonment and will at a minimum be 250-feet radius from the nest (EACCS AMM BIRD-2).~~

~~h. If burrowing owls are present at the site during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet (EACCS AMM BIRD-2).~~

~~i. If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls (EACCS AMM BIRD-2).~~If an active nest colony of tricolored blackbird is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1) (EACCS AMM BIRD-3).

MM-BIO-6 Implement the EACCS Bird Avoidance and Minimization Measure BIRD-1 to avoid impacts to golden eagle, as follows. Implementation of applicable avoidance and minimization measures will avoid potential adverse effects to golden eagle that may utilize the project site for hunting and foraging (ICF 2010).~~Pre-Construction Golden Eagle Surveys and Avoidance:~~

a. Pre-construction surveys for nesting golden eagle will be conducted within 2 miles of the Study Area where accessible. The survey will be performed by a qualified biologist familiar with golden eagle biology and will follow recommendations outlined in the *USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al. 2010).

~~a~~b. If nesting golden eagles are determined to be present within the Study Area or within ~~0.5~~2 miles of the Study Area during construction of the Project, work should be conducted outside of the nesting season (February 1 to September 1).

~~b~~c. If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no-activity zone should be established by a qualified biologist. The no-activity zone should be large enough to avoid nest abandonment and alleviate any impacts (e.g., noise, dust) and should be a minimum of ~~250~~ 500 feet and up to 1 mile from the nest. On-going monitoring by a qualified biologist may be required to ensure no impacts to this species and its habitat.

~~c~~d. If an effective no-activity zone cannot be established in either case, an experienced raptor biologist should develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the eagles, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the eagles.

MM-BIO-7 Pre-Construction Swainson's Hawk Surveys and Avoidance. Implementation of the following pre-construction survey and nest avoidance buffers will avoid potential adverse effects to Swainson's hawk that may breed in the project vicinity:

a) Pre-construction surveys for nesting Swainson's hawk will be conducted within 0.5 mile of the Study Area where accessible. The survey will be performed by a qualified biologist familiar with Swainson's hawk biology and will follow recommendations outlined in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (SHTAC 2000).

b) If active Swainson's hawk nests are identified, an avoidance buffer of 0.5 mile shall be established around active nests consistent with the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California (CDFG 1994). No construction within avoidance buffers shall be allowed until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). If it is not feasible to maintain a 0.5-mile buffer for an active Swainson's hawk nest to reasonably accommodate construction, maintenance, or decommissioning activities, the established buffer distance may be reduced through coordination with CDFW. Project activities within the reduced buffer shall be monitored at the discretion of a qualified biologist and based on coordination with CDFW.

MM-BIO-8 Implement EACCS Bird Avoidance Measure 2 (BIRD-2) to avoid impacts to western burrowing owl, as follows. Implementation of applicable EACCS Burrowing Owl avoidance and minimization measures will avoid potential adverse effects to western burrowing that may utilize the project site as breeding or over-wintering habitat during construction of the Project (ICF 2010).

a) If an active nest is identified near a proposed work area work will be conducted outside of the nesting season (March 15 to September 1).

b) If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a no - activity zone will be established by a qualified biologist. The no -

activity zone will be large enough to avoid nest abandonment and will at a minimum be 250 - feet radius from the nest.

c) If burrowing owls are present at the site during the non - breeding period, a qualified biologist will establish a no - activity zone of at least 150 feet.

d) If an effective no - activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site - specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owl.

MM-BIO-9 Compensatory Mitigation for the removal of western burrowing owl habitat. To mitigate for the permanent removal of approximately 60.7 acres of foraging and potential breeding and overwintering habitat for western burrowing owl, similar habitat will be preserved through the purchase of in-kind habitat at a turnkey mitigation property or purchase of credits at a mitigation bank or. Because burrowing owl is not a covered species in the EACCS, there is no standardized ratio for mitigation currently. However, based on the abundant availability of habitat within the surrounding region and the relatively small acreage being permanently removed from the regional grassland complex, a ratio of no less than 1:1 (acres preserved: acres removed) is anticipated to adequately offset impacts to potential breeding and foraging habitat. Thus, no less than 60.7 acres of in-kind habitat will be preserved at a turnkey mitigation property or credits will be purchased from an approved bank. Upland CTS and CRLF credits described in MM-BIO-4 may be used for burrowing owl habitat if this species is present at the turnkey mitigation property or mitigation bank. The final ratio for mitigation of permanent impacts will be decided in consultation with CEC with CDFW consultation.

MM-BIO-10 Implement EACCS Mammal Avoidance and Minimization Measure-1 (MAMM-1) to avoid impacts to San Joaquin Kit Fox. Implementation of applicable mammal avoidance and minimization measures will avoid potential adverse effects to EACCS-covered mammals that may utilize the project site during construction of the Project (ICF 2010).

a. If potential dens are present, their disturbance and destruction will be avoided.
b. If potential dens are located within the proposed work area and cannot be avoided during construction, qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 2011).
c. Exclusion zones will be implemented followoing USFWS procedures (USFWS 1999) or the latest USFWS procedures avaialble at the time. The redius of these zones will follow current standards or will be as follows: Potential Den 50 feet; Known Den 100 feet; Natal or Pupping Den – to be determined on a cas by case basis in coordination with USFWS and CDFW.
d. Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construciton area is active.

MM-BIO-11 Implement pre-construction surveys and avoidance buffers for proposed-listed bumble bee species. Pre-construction bumble-bee surveys and avoidance buffers conducted per the recommendations outlined in CDFW's Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW 2023) will avoid potential impacts to these species by preventing direct harm.

a) The pre-construction survey will be performed by a biologist with expertise in surveying for bumble bees and include at least three (3) survey passes that are not on sequential days or in the same week, preferably spaced two to four weeks apart. The timing of these surveys shall coincide with the Colony Active Period (April 1 through August 31 for Crotch bumble bee). Surveys shall occur at least 1 hour after sunrise and 2 hours before sunset. Surveys will not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors will wait at least 1 hour following rain. Optimal surveys are when there are sunny to partly sunny skies that are greater than 60° Fahrenheit. Surveys may be conducted earlier if other bees or butterflies are flying. Surveys shall not be conducted when it is windy (i.e., sustained winds greater than 8 mph). Within non-developed habitats, the biologist shall look for nest resources suitable for bumble bee use. Ensuring that all nest resources receive 100% visual coverage, the biologist shall watch the nest resources for up to five minutes, looking for exiting or entering worker bumble bees. Worker bees should arrive and exit an active nest site with frequency, such that their presence would be apparent after five minutes of observation. If a bumble bee worker is detected, then a representative shall be identified to species. Biologists should be able view several burrows at one time to sufficiently determine if bees are entering/exiting them depending on their proximity to one another. It is up to the discretion of the biologist regarding the actual survey viewshed limits from the chosen vantage point which would provide 100% visual coverage; this could include a 30- to 50-foot-wide area. If a nest is suspected, the surveyor can block the entrance of the possible nest with a sterile vial or jar until nest activity is confirmed (no longer than 30 minutes).

b) If nest resources occupied by Crotch bumble bee are detected within the construction area, no construction activities shall occur within 100 feet of the construction zone, or as determined by a qualified biologist through evaluation of topographic features or distribution of floral resources. The nest resources will be avoided for the duration of the Crotch bumble bee nesting period (February 1 through October 31). Outside of the nesting season, it is assumed that no live individuals would be present within the nest as the daughter queens (gynes) usually leave by September, and all other individuals (original queen, workers, males) die. The gyne is highly mobile and can independently disperse to outside of the construction footprint to proposed open space or other suitable areas beyond that have suitable hibernacula resources. Because construction will have occurred in the area outside of the occupied nesting resources, no suitable habitat will be present in the impact area, and it is assumed that new queens will disperse to habitat outside of the construction area.

c) If the nest resources cannot be avoided, as outlined in this measure, the project applicant will consult with CEC and CDFW regarding the need to obtain an Incidental Take Permit.

d) In the event an Incidental Take Permit is needed, mitigation for direct impacts to Crotch bumble bee will be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the Project, or as otherwise determined through the Incidental Take Permit process. Mitigation will be

accomplished either through off-site conservation or through a mitigation bank or turnkey mitigation property. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate will be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source will be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount will be established following the completion of a Project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record will take into account all management activities required in the Incidental Take Permit to fulfill the requirements of the conservation easement(s), which are currently in review and development.

3.2.5.2 Minimization Measure for Site Restoration

Over the long term, once the Project facilities are no longer needed, the structures will be removed the Project area will be restored to approximate preconstruction conditions. Because rehabilitation of the site is not expected to occur for approximately 35 years, a draft conceptual plan may be included as part of the Biological Resources Mitigation Implementation and Minimization Plan. This draft plan can then be updated at a later date (but no more than 1 year prior to closure). A formal rehabilitation plan for the Project facility closure will be developed by the Project owner and submitted to the CEC Compliance Manager at least 1 year prior to facility closure. The facility closure restoration plan will include the following sections and details:

- Goals and objectives of the restoration
- A description of methods employed to achieve the restoration goals and objectives
- Success criteria used to determine whether the restoration was successful
- A monitoring and maintenance program, including details on remedial measures
- A description of annual reporting
- A restoration implementation and monitoring timeline and schedule of planned activities.

3.2.6 Laws, Ordinances, Regulations, and Standards

The following subsections within Section 3.2.6 describe the laws, ordinances, regulations, and standards (LORS) that apply to potential impacts on biological resources in the Project area and list the agencies responsible for enforcing the regulations. A summary of the applicable federal, state, and local LORS is provided in Table 3.2-46.

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Table 3.2-~~4~~6. Summary of the Applicable Federal, State, and Local LORS

LORS	Requirements/Applicability	~~Administering Agency~~Opt-In Application Reference	Conformance Discussion
Federal			
Federal ESA (16 USC 1531 et seq.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Applicants for projects that could results in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS.	Sections 3.2.1.7 and 3.2.5.1~~USFWS~~	Federally threatened and endangered plants and animals analyzed. Avoidance, minimization, and mitigation measures include preconstruction surveys, avoidance buffers, timing restrictions, and take authorization from the USFWS.
MBTA (16 USC 703 to 711)	Protects all migratory birds, including nests and eggs	Section 3.2.1.7.1 ~~USFWS~~Page 3.2-13 and 3.2-31	Pre-construction surveys and avoidance buffers for active nests will prevent impacts to nesting migratory birds.
Bald and Golden Eagle Protection Act (16 USC 668)	Specifically protects bald and golden eagles from harm or trade in parts of these species	~~USFWS~~Pages 3.2-22 and 3.2-31	Pre-construction surveys and avoidance buffers to prevent take of eagles.
State			
CESA (Fish and Game Code Section 2050 et seq.)	Species listed under this act cannot be “taken” or harmed, except under specific permit. Take in the context of CEQA means to hunt, pursue, kill, or capture as well as any other actions that may result in an adverse impact when attempting to take a listed species.	Sections 3.2.1.7 and 3.2.5.1~~CEC, CDFW~~	State threatened and endangered plants and animals analyzed. Avoidance, minimization, and mitigation measures include preconstruction surveys, avoidance buffers, timing restrictions, and take authorization from the CEC/CDFW.
Fish and Game Code Section 3511	Describes bird species, primarily raptors that are FP (Fully Protected). FP birds may not be taken or possessed, except under specific permit requirements.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	No take of FP bird species is anticipated.
Fish and Game Code Section 3503	States that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	Preconstruction surveys and avoidance buffers prevent impacts to nesting birds.
Fish and Game Code Section 3503.5	It is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation made pursuant thereto.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	Preconstruction surveys and avoidance buffers prevent impacts to nesting raptors.
Fish and Game Code Section 3513	It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	Preconstruction surveys and avoidance buffers prevent imacts to migratory birds.
Fish and Game Code Sections 351, 4700, 5050, and 5515	Lists bird, mammal, amphibian, reptile, and fish species that are FP in California	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	FP species discussed. No take of FP species anticipated.
NPPA Fish and Game Code Sections 1900 et seq.	The Native Plant Protection Act (NPPA) lists threatened, endangered, and rare plants listed by the State.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	No threatened, endangered, or rare plants anticipated to occur. Preconstruction surveys and avoidance buffers provide further protection.
Fish and Wildlife Code Sections 1900 et seq.	Lists endangered or rare native plants of the State and establishes criteria for determining rarity or listing status.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	No endangered or rare plants present. Preconstruction surveys and avoidance buffers prevent potential impacts to rare plant species.
Title 14 CCR, Sections 670.2 and 670.5	Lists animals designated as threatened or endangered in California	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	State threatened and endangered plants and animals analyzed. Avoidance, minimization, and mitigation measures include preconstruction surveys, avoidance buffers, timing restrictions, and take authorization from the CEC/CDFW.
CFG Code Sections 1601-1607	Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels without a permit from CDFW.	Sections 3.2.1.7 and 3.2.5.1~~CDFW~~	Permit from CEC/CDFW will be in hand prior to impacts to Patterson Run.

Table 3.2-~~4~~6. Summary of the Applicable Federal, State, and Local LORS

LORS	Requirements/Applicability	~~Administering Agency~~Opt-In Application Reference	Conformance Discussion
CEQA PRC Section 15380	CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.	Sections 3.2.1.7 and 3.2.5.1~~CEC~~	Environmental resources analyzed using CEC criteria.
Warren Alquist Act PRC 25000, et seq.	A CEQA-equivalent process implemented by the CEC.	Sections 3.2.1.7 and 3.2.5.1~~CEC~~	Environmental resources analyzed using CEC criteria.
California Assembly Bill 205	Emergency regulation expanding the CEC's siting authority for renewable energy projects. Allows certification in lieu of CDFW 2081 ITP or CFGC Section 1600 et seq. LSAA.	All Sections~~CEC~~	Take authorization and LSAA to be coordinated with CEC with input from CDFW.

3.2.6.1 Federal LORS

3.2.6.1.1 Federal ESA (16 United States Code [USC] 153 et seq.)

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species, and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and to provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. The FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under the FESA, it is unlawful to "take" any listed species, and "take" is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

The FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement.

3.2.6.1.2 MBTA (16 USC 703 to 711)

The Migratory Bird Treaty Act (16 USC 703 et seq.), as amended (MBTA), prohibits the intentional take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so. In December 2017, Department of the Interior Principal Deputy Solicitor Jorjani issued a memorandum (M-37050) that interprets the MBTA's "take" prohibition to apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs. Unintentional or accidental take is not prohibited. Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

3.2.6.1.3 Bald and Golden Eagle Protection Act (16 USC 668)

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, includes their parts, nests, or eggs. The Act provides criminal penalties for person who "take, possess, sell, purchase, bater, offer to sell, transport, export or import, at any time or any manner, any bald eagle… [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, kill, wound, capture, trap, collect, molest or disturb."

3.2.6.2 State LORS

The following local laws, ordinances, and regulations apply to projects that occur within the state of California and are subject to state jurisdiction.

3.2.6.2.1 CESA

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050–2068) provides protection and prohibits take of plant, fish, and wildlife species listed by the State of California. Unlike the FESA, under the CESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to the FESA and is prohibited for both listed and candidate species. Take authorization may be obtained by a project applicant from the California Department of Fish and Wildlife (CDFW) under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

3.2.6.2.2 Fish and Game Code

Sections 3500, 3511, and 3513

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of CDFW to maintain viable populations of all native species. Toward that end, CDFW has designated certain vertebrate species as Species of Special Concern, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Section 5901

Section 5901 of the California Fish and Game Code makes it unlawful to construct or maintain any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream. Fish are defined in Section 45 as a wild fish, mollusk, crustacean, invertebrate, or amphibian, or part, spawn, or ovum of any of those animals.

Section 5937

Section 5937 of the California Fish and Game Code requires that the owner of any dam must allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around, or through the dam, to keep in good condition any fish that may be planted or exist below the dam. During the minimum flow of water in any river or stream, permission may be granted by CDFW to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam to keep in good condition any fish

that may be planted or exist below the dam, when, in the judgment of CDFW, it is impracticable or detrimental to the owner to pass the water through a fishway.

Section 1600–1616

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of a definable bed and banks and existing fish or wildlife resources. CDFW takes jurisdiction to the top of bank of the stream or the limit of the adjacent riparian vegetation, which may include oak woodlands in canyon bottoms. Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but reemerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an ordinary high-water mark (OHWM) to be claimed as jurisdictional. CDFW does not have jurisdiction over ocean or shoreline resources.

Under California Fish and Game Code Sections 1600–1616, CDFW has the authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake. CDFW also has the authority to regulate work that will deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects. Applications to CDFW must include a complete, certified California Environmental Quality Act (CEQA) document.

3.2.6.2.3 California Native Plant Protection Act

The Native Plant Protection Act of 1977 (see Section 1900 et seq. of the California Fish and Game Code) directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare," and to protect endangered and rare plants from take. The CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, the CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the CESA as threatened species but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the Project proponent.

3.2.6.2.4 Porter–Cologne Water Quality Control Act

Pursuant to provisions of the Porter–Cologne Water Quality Control Act (Porter–Cologne Act), the RWQCBs regulate discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code Section 13260[a]). The State Water Resources Control Board defines a water of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]). As of April 2019, the State Water Resources Control Board has narrowed its definition of a water of the state to include the following (SWRCB 2019):

1. Natural wetlands
2. Wetlands created by modification of a surface water of the state
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration

b. Specifically identified in a water quality control plan as a wetland or other water of the state
c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape
d. Greater than or equal to 1 acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation" (SWRCB 2019). If a CWA Section 404 permit is not required for a project, the RWQCB may still require a permit (waste discharge requirements) for impacts to waters of the state under the Porter–Cologne Act.

3.2.6.2.5 Plants and Animals of California Declared to be Endangered or Threatened (Title 14, CCR, Sections 670.2 and 670.5

These codes list plants and animals designated as threatened or endangered in California. State SSC is a category conferee by CDFW of those species that are indicators of regional habitat change or are considered potential future protected species. These species do not have any species legal status but are intended by CDFW for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

3.2.6.2.6 CEQA (PRC Section 15380)

CEQA requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. CEQA also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

The State of California CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW has developed a list of "Special Species" as "a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status." This is a broader list than those species that are protected under the FESA, CESA, and other California Fish and Game Code provisions, and includes lists developed by other organizations, including, for example, the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management Sensitive Species and USFWS Birds of Special Concern, are also included on the CDFW Special Species list. Additionally, CDFW has concluded that plant species listed as California Rare Plant Rank 1 and 2 by the California Native Plant Society, and potentially some California Rare Plant Rank 3 plants, are covered by CEQA Guidelines Section 15380.

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service."

3.2.6.2.7 Warren Alquist Act (PRC Section 25000, et seq.)

The AFC process is a certified regulatory process pursuant to the Warren-Alquist Act and, therefore, fulfills the requirements of CEQA. CEQA is codified in the California PRC, Section 2100-2118.1. Guidelines for implementation of CEQA are codified in the California Code of Regulations (CRR), Sections 15000-15387.

3.2.6.2.8 California Energy Commission – Assembly Bill 205

Assembly Bill (AB) 205 is an emergency regulation expanding the CEC's siting authority for renewable energy projects constructed on or before June 30, 2029. AB 205 was signed into law on June 30, 2022, and allows renewable and energy storage projects to apply for direct state permits through the CEC. CEC certification opt-in statute (specifically 25545.1(b)(1)) says "the issuance of a certificate by the commission for a site and related facility pursuant to this chapter shall be in lieu of any permit, certificate, or similar document required by any state, local, or regional agency [except California Coastal Commission, San Francisco Bay Conservation and Development Commission, and State/Regional Water Quality Control Board] … for the use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency…."

The application for certification process is in lieu of CDFW 2081 ITP or CFGC Section 1600 et seq. LSAA. However, applications for both of these permits will be submitted to the CEC for informational purposes. The CEC Certification will include conditions and mitigation that would otherwise be requirements in these CDFW permits.

3.2.6.3 Local LORS

The Project would conform to all local requirements. The following local laws, ordinances, and regulations apply to projects that occur within the County of Alameda and East Alameda County Conservation Strategy

3.2.6.3.1 East Alameda County Conservation Strategy

The County of Alameda (County) developed the East Alameda County Conservation Strategy (EACCS) to provide a framework for natural resource conservation and to streamline the environmental permitting process within the eastern portion of the county (ICF 2010). The EACCS is not a formal Habitat Conservation Plan (HCP) in that it does not require local agencies to conserve species and habitat prior to approving projects that impact listed species and/or their habitat, nor does it have a corresponding programmatic incidental take permit from USFWS. Instead, it is intended to streamline state and local permitting by providing guidance on avoidance, minimization, and

mitigation for project-level impacts on selected focal special-status species and sensitive habitats. Because the EACCS does not have corresponding permits, individual projects may need to implement different or more avoidance, minimization, and mitigation measures than what is outlined therein. To avoid this from happening, USFWS and CDFW participated in the development of the Conservation Strategy with the intent that it would become the blueprint for all mitigation and conservation in the region. Both agencies still refer to the EACCS when reviewing project-level impacts on focal species and their habitat. The EACCS includes standardized mitigation ratios for each of the focal species that can be used by local jurisdictions and resource agencies as guidance to determine appropriate mitigation to offset project impacts on focal species habitat. These are based on an evaluation of the habitat quality on a Study Area scored using Focal Species- Impact/Mitigation Score Sheets1 for each of the focal species assumed present or potentially present. Mitigation ratios are then calculated based on application of the same scoring sheet to the proposed mitigation site. Project specific mitigation ratios may vary depending on the quality and location of the habitat being lost and the quality and location of proposed mitigation.

The EACCS includes avoidance and minimization measures (AMMs) for all focal species covered by the EACCS These include general AMMs applicable to all focal species, as well as species- or taxon-specific AMMs. The standardized mitigation ratios discussed above are only valid if a project application is in compliance with all applicable AMMs.

3.2.6.3.2 Alameda County General Plan

The County maintains a General Plan, which provides guidelines for development within the County. The Study Area is located within the East County Area Plan (ECAP) (Alameda County 1994). General Plan policies that are relevant to the Project are outlined below.

Policy 123: Where site-specific impacts on biological resources resulting from a proposed land use outside the Urban Growth Boundary are identified, the County shall encourage that mitigation is complementary to the goals and objectives of the ECAP. To that end, the County shall recommend that mitigation efforts occur in areas designated as "Resource Management" or on lands adjacent to or otherwise contiguous with these lands to establish a continuous open space system in East County and to provide for long term protection of biological resources.

Policy 125. The County shall encourage preservation of areas known to support special status species.

Policy 126. The County shall encourage no net loss of riparian and seasonal wetlands.

3.2.6.3.3 Alameda County Code of Ordinances

The County addresses management of watercourses in the Alameda County Code of Ordinances (Alameda County 2022). Below are the existing regulations relative the Project to protect watercourses.

Chapter 13.12 – Watercourse Protection

13.12.090 – Requirements.

No person shall commit or cause to be committed any of the following acts, unless a written permit has first been obtained from the director of public works:

A. Discharge into or connect any pipe or channel to a watercourse;

B. Modify the natural flow of water in a watercourse;

C. Carry out development within a setback, as defined in Article V of this chapter;

D. Deposit in, plant in, or remove any material from a watercourse including its banks, except as required for necessary maintenance;

E. Construct, alter, enlarge, connect to, change, or remove any structure in a watercourse; or

F. Place any loose or unconsolidated material along the side of or within a watercourse or so close to the side

G. as to cause a diversion of the flow, or to cause a probability of such material being carried away by stormwaters passing through said watercourse.

(Prior gen. code § 7-201.0)

3.2.7 Permit and Permit Schedule

Permits and mitigation plans required prior to construction will be the responsibility of the qualified biologist assigned by the Applicant.

3.2.8 Agency Contacts

Table 3.2-~~5~~ 7 lists regulatory agency contacts for biological and aquatic resources for this Project.

Table 3.2-57. Regulatory Agency Contacts for Biological Resources

Natural Resource	Agency	Contact Information
State-listed species	CEC CDFW- ~~Region 3,~~ Bay Delta Region (Region 3)	707.428.2002; askbdr@wildlife.ca.gov
Federally listed species	USFWS- Pacific Southwest Region (Region 8), Sacramento Fish and Wildlife Office	Ryan Olah, 916.414.6623, ryan_olah@fws.gov Jason Hanni, 916-414-6600, Jason_hanni@fws.gov
~~Mitigation Measures for Construction Phase~~ ~~TBD~~ ~~TBD~~ Waters of the United States	USACE – California Delta Section	Matthew Di Loreto, 916-557-7882, Matthew.j.diloreto@usace.army.mil
Waters of the State	RWQCB – Central Valley Region (Region 5)	Jenna Yang, 916-464-4764, jenna.yang@waterboards.ca.gov

3.2.9 References

Alameda County. 1994. *East County Area Plan: A Portion of the Alameda County General Plan. Volume 1: Goals, Policies and Programs.* Adopted by the Board of Supervisors May 5, 1994. Last amended November 2000. Accessed August 2023. http://acgov.org/cda/planning/generalplans/documents/EastCountyAreaPlancombined.pdf.

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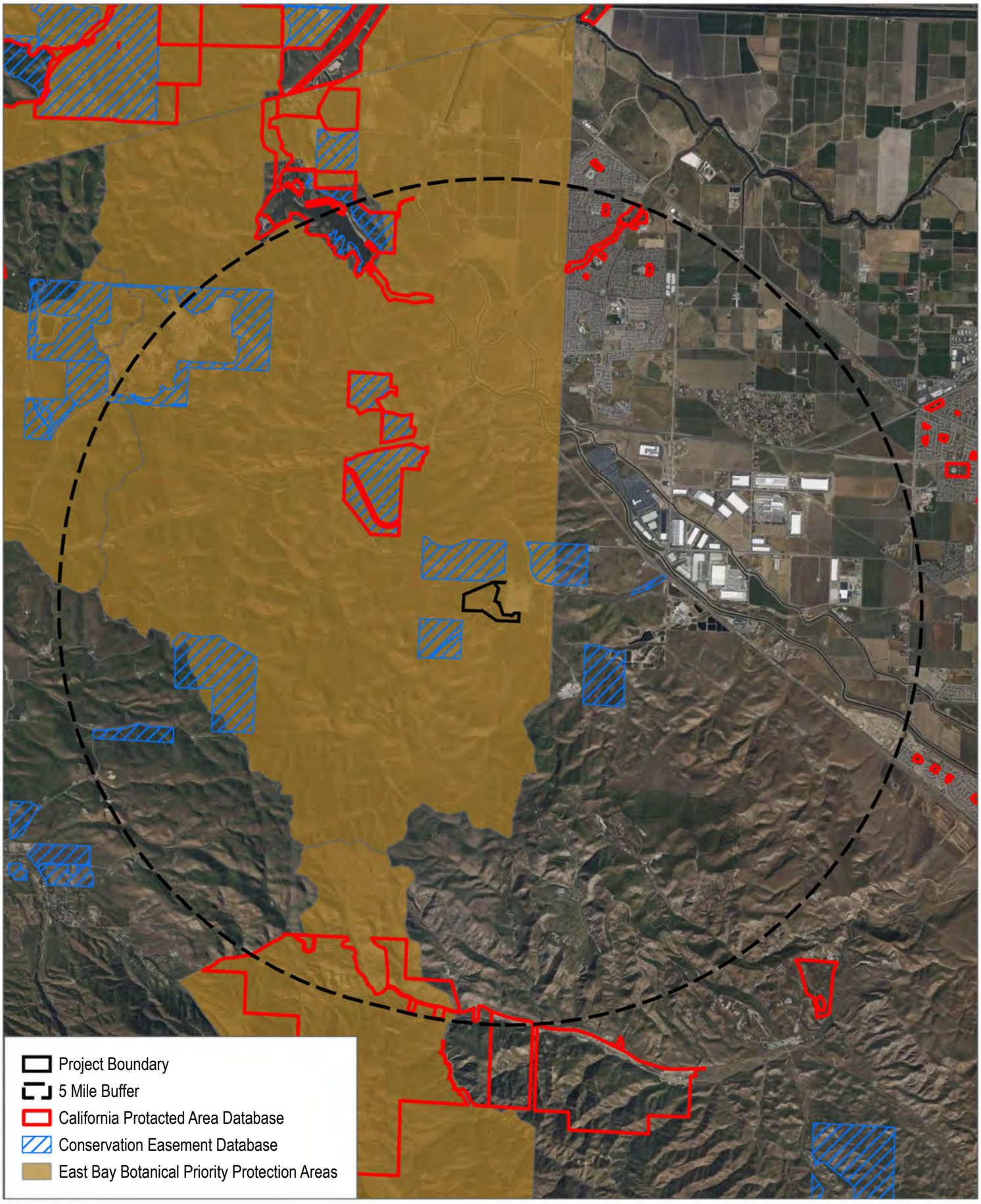

SOURCE: CPAD 2024; CCED 2024; CNPS 2024

DUDEK

0 4,000 8,000 Feet

FIGURE 3.2-1

Protected Areas

Potentia-Viridi Battery Energy Storage System Project

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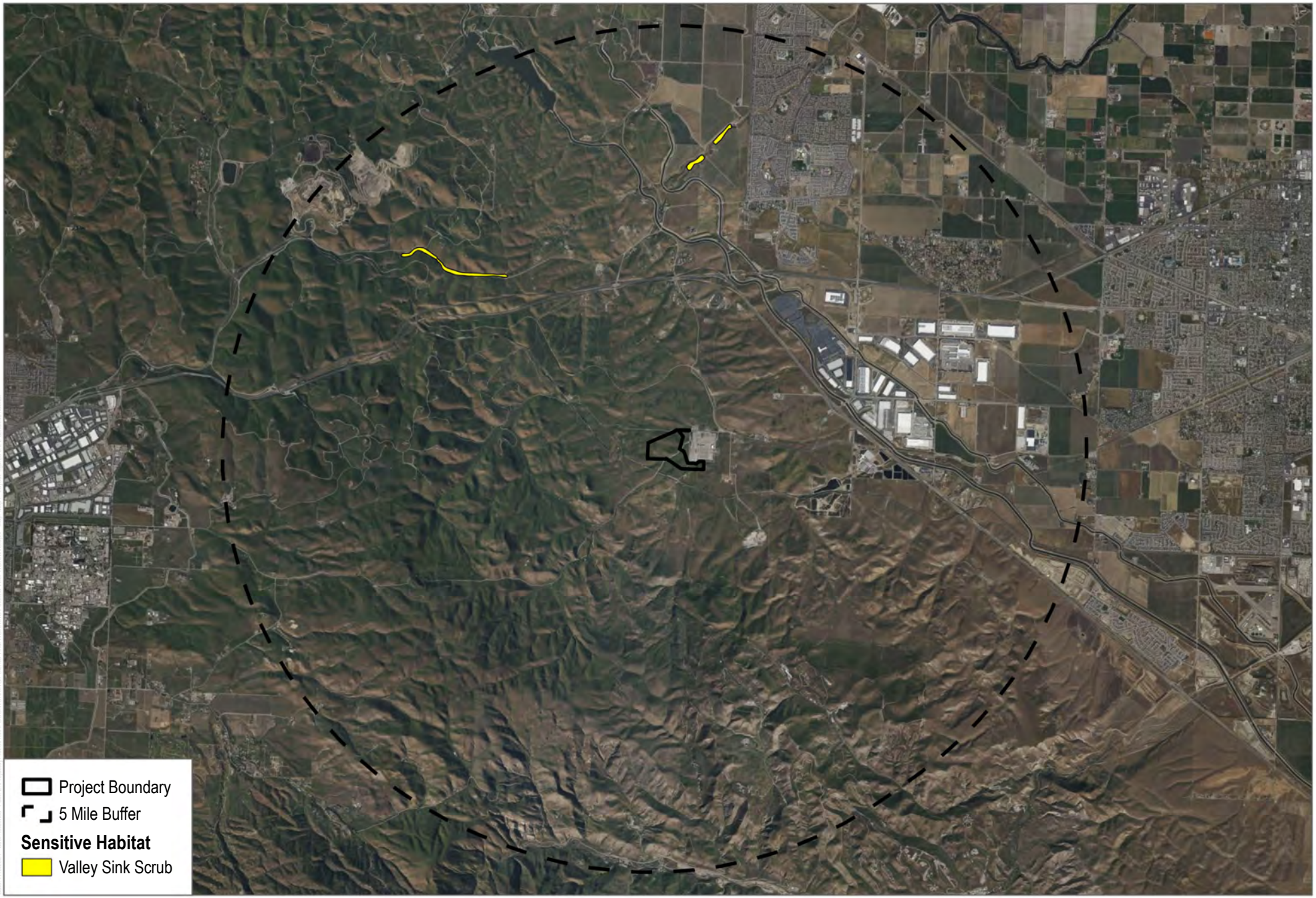

SOURCE: Bing Maps 2021; CA Fish and Wildlife 2021

DUDEK

0 4,000 8,000 Feet

FIGURE 3.2-2

Sensitive Habitat Types

Potentia-Viridi Battery Energy Storage System Project

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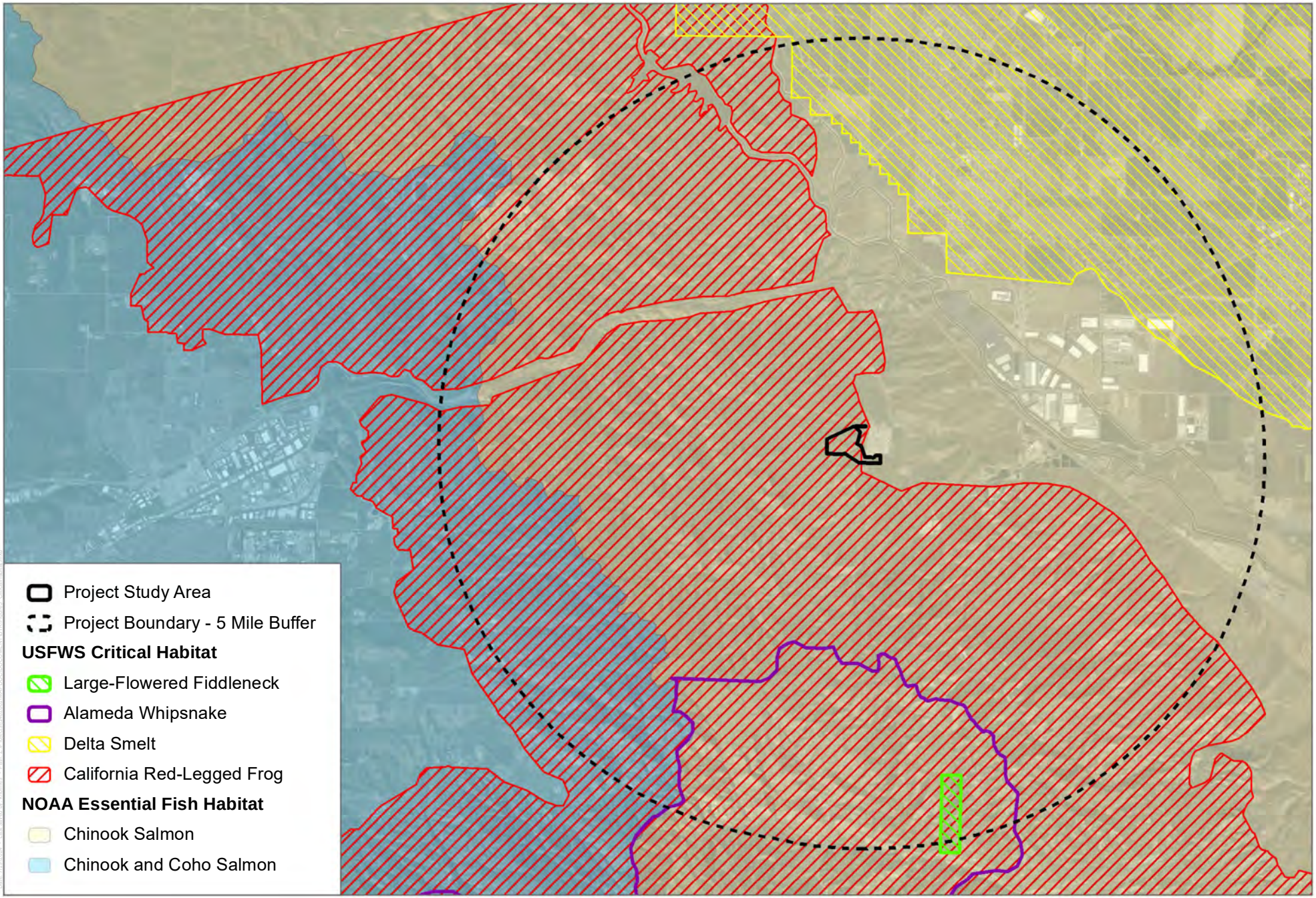

SOURCE: Bing Maps 2022, USFWS 2022, NOAA 2021

DUDEK

0 0.75 1.5 Miles

FIGURE 3.2-3

Critical Habitats

Potentia-Viridi Battery Energy Storage System Project

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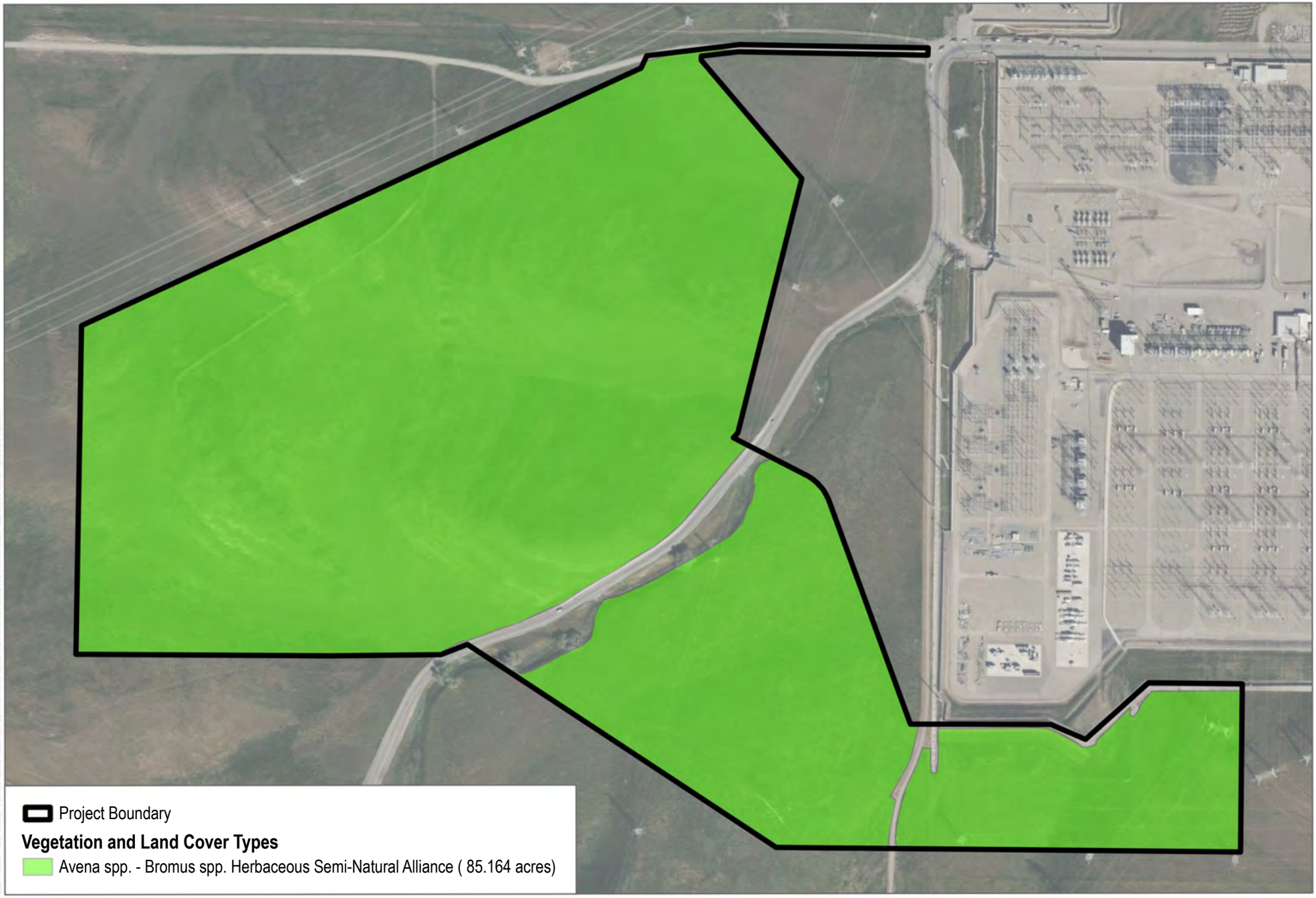

SOURCE: Bing Maps 2021

DUDEK

0 200 400 Feet

FIGURE 3.2-5

Vegetation Communities and Land Cover Types

Potentia-Viridi Battery Energy Storage System Project

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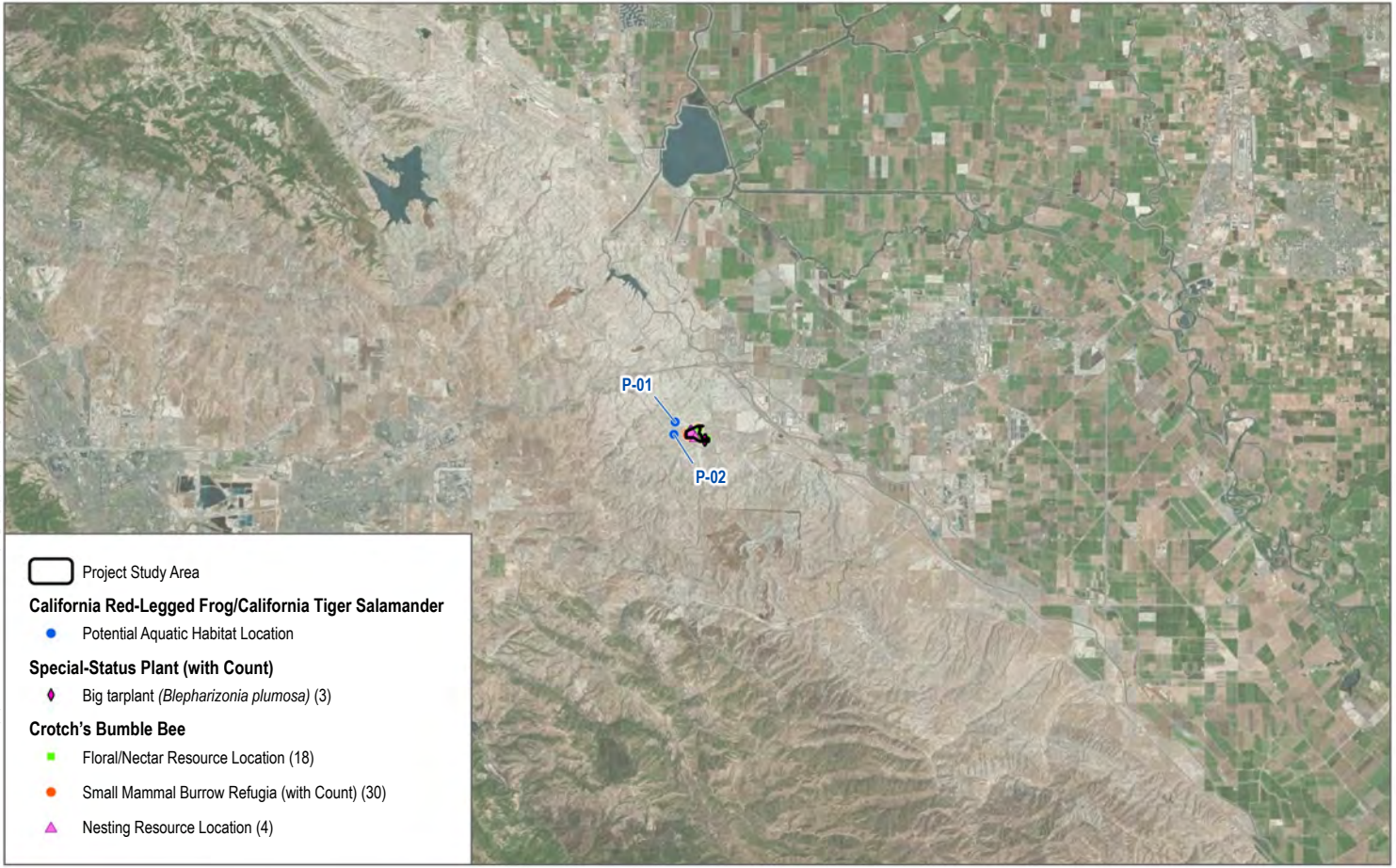

SOURCE: Bing Maps 2023;
1:350,000

DUDEK

0 10,000 20,000 Feet

FIGURE 3.2-6

Biological Survey Results

Potentia-Veridi Battery Energy Storage System Project

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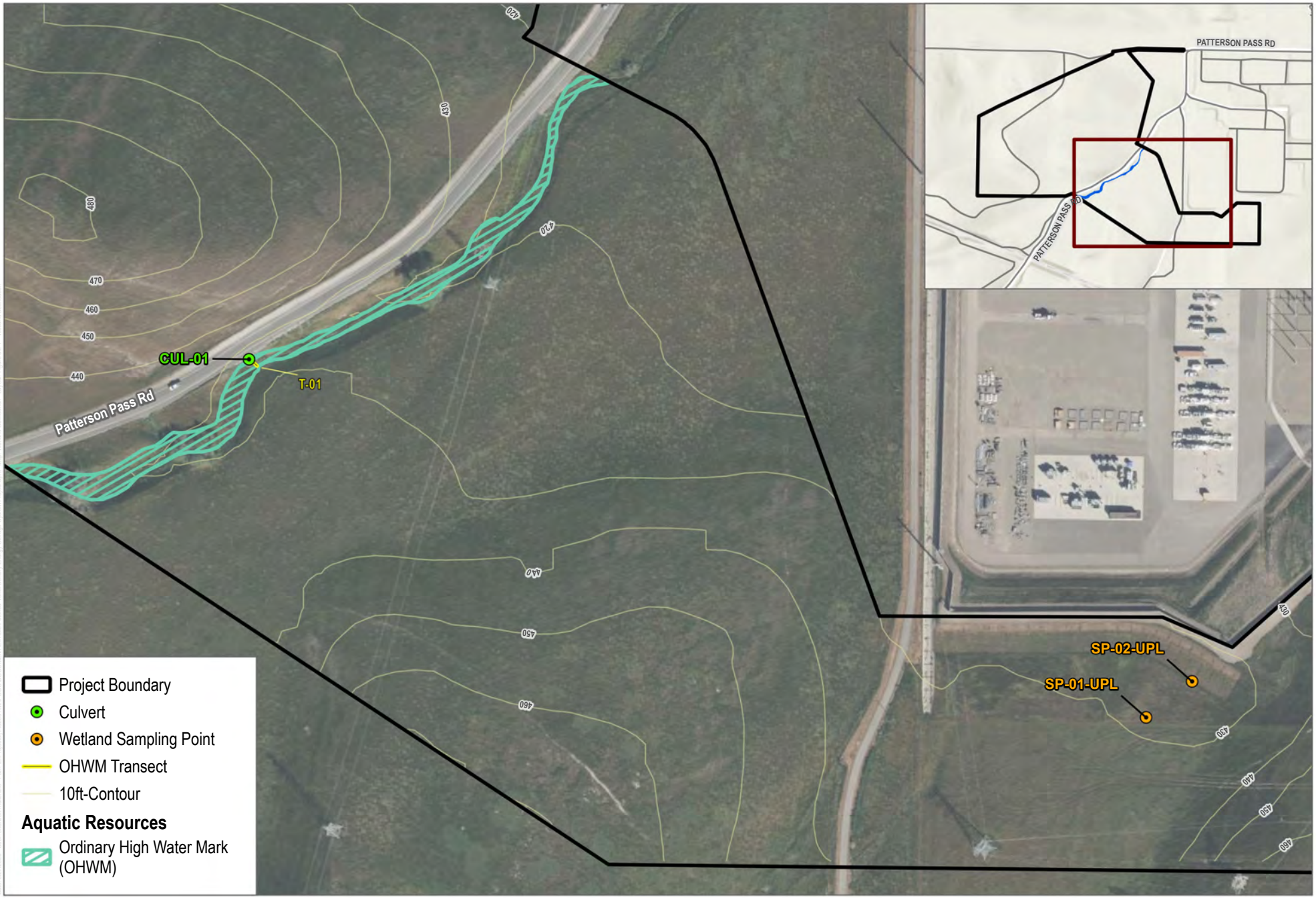

SOURCE: Bing Maps (accessed 2024)

1:2,400 | 1 inch equals 200 feet

DUDEK

0 100 200 Feet

FIGURE 3.2-7

Wetland Delineation

Potentia-Veridi Battery Energy Storage System Project

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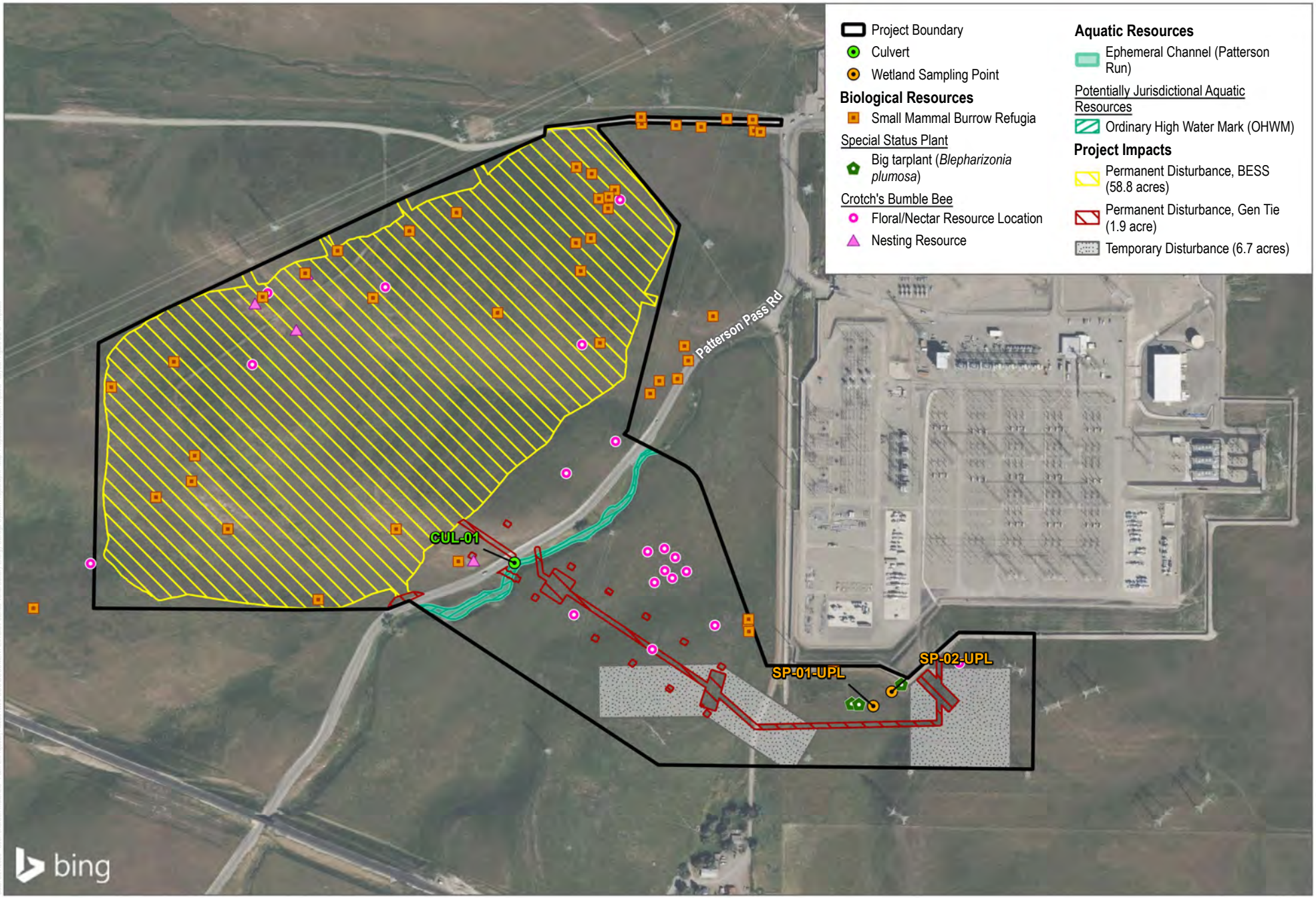

SOURCE: Bing Maps (accessed 2024)

1:6,000 | 1 inch equals 500 feet

DUDEK

0 250 500 Feet

FIGURE 3.2-7

Proposed Project Impacts

Potentia-Veridi Battery Energy Storage System Project

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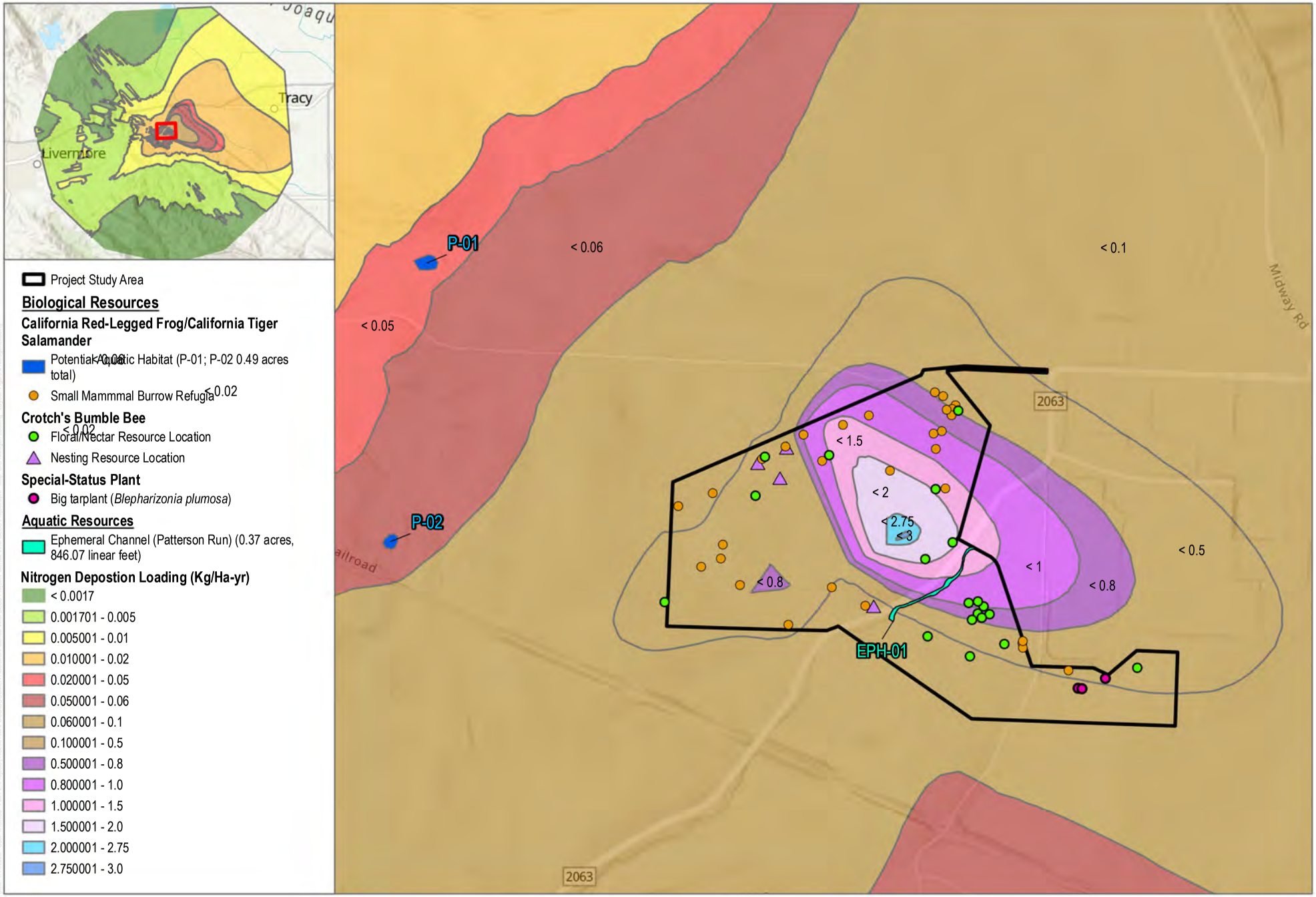

SOURCE: USGS; World Topographic

DUDEK

0 460 920 Feet

FIGURE 3.2-9

Biological Resource Nitrogen Deposition Loading

Potentia Viridi BESS Project

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