| DOCKETED | |
|---|---|
| **Docket Number:** | 24-OPT-04 |
| **Project Title:** | Potentia-Viridi Battery Energy Storage System |
| **TN #:** | 258199 |
| **Document Title:** | Nationwide Permit Pre-Construction Notification Supplemental Information |
| **Description:** | Nationwide Permit Application |
| **Filer:** | Jennifer Dorgan |
| **Organization:** | Allen Matkins Leck Gamble Mallory & Nats |
| **Submitter Role:** | Applicant Representative |
| **Submission Date:** | 7/30/2024 3:07:19 PM |
| **Docketed Date:** | 7/30/2024 |

# Appendix 3.2D

Nationwide Permit Pre-Construction Notification
Supplemental Information

# Potentia-Viridi Battery Energy Storage System (BESS) Project

## Nationwide Permit Pre-Construction Notification Supplemental Information

*Prepared for*

**Levy Alameda, LLC**
c/o Capstone Infrastructure Corporation
155 Wellington Street West, Suite 2930
Toronto, Ontario M5V 3H1, Canada

*Prepared by*

433 Visitacion Avenue
Brisbane, CA 94005

June 14, 2024

# CONTENTS

# LIST OF FIGURES

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AC | Alternating Current |
| AMM | Avoidance and Minimization Measure |
| APE | Area of Potential Effect |
| BESS | Battery Energy Storage System |
| BMS | Battery Management System |
| CNDDB | California Natural Diversity Database |
| CWA | Clean Water Act |
| DC | Direct Current |
| DPS | Distinct Population Segment |
| EACCS | Eastern Alameda County Conservation Strategy |
| ESA | Endangered Species Act |
| HVAC | Heating, Ventilation, and Air Conditioning |
| kV | KiloVolt |
| LFP | lithium iron phosphate |
| MV | Megawatt |
| NEMA | National Electrical Manufacturers Association |
| PCS | Power Conversion System |
| PG&E | Pacific Gas and Electric |
| USFWS | U.S. Fish and Wildlife Service |

# 1 DESCRIPTION OF PROPOSED NATIONWIDE PERMIT ACTIVITY (BOX 19)

The Potentia-Viridi Battery Energy Storage System (BESS) Project (Project) proposes to construct, operate, and eventually repower or decommission the 400 megawatt (MW) Potentia-Viridi Battery Energy Storage System (Project) on approximately 85 acres in eastern Alameda County (Figure 1). The primary components of the Project include an up to 3,200 megawatt-hour (MWh) BESS facility, an operations and maintenance (O&M) building, a project substation, a 500 kilovolt (kV) overhead intertie transmission (gen-tie) line, and interconnection facilities within the Pacific Gas and Electric (PG&E) owned and operated Tesla Substation (Figures 2 & 3).

The Project would draw electricity from the power grid to charge and store electrical energy and discharge back to the power grid when the stored energy is needed. The Project would provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that would enhance grid reliability.

The Project would be remotely operated and monitored year-round and be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians would routinely inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

The Project would be located in Alameda County, California within a portion of Assessor Parcel Number (APN) 99B-7890-002-04 located at 17257 Patterson Pass Road, southwest of Interstate 580 and Interstate 205 (Figures 1-3). Development of the BESS facility would occur on about 70 acres of APN 99B-7890-002-04, which is currently comprised of fallowed annual grasslands suitable for grazing. The gen-tie line would extend southeast from the Project substation, crossing Patterson Pass Rd, and then proceed east to the Point of Interconnection (POI) at the Tesla Substation. The Project's gen-tie line would be sited on APNs 99B-7890-2-4, 99B-7890-2-6, and 99B-7885-12. Land uses in the immediate vicinity of the Project include undeveloped rural agricultural lands, multiple high-voltage transmission lines and electrical substations, rural roads, and railroad lines. The nearest municipality to the Project site is the City of Tracy approximately 2.5 miles to the northeast. There are a few single-family residences near the Tesla Substation's southern and eastern boundaries. The nearest residence is about 1,500 feet southeast of the Project site and 560 feet south of the proposed gen-tie line; it is owned by the same landowner leasing the lands for the Project.

The Project location was selected due to it being large enough to support development of the Project, its close proximity to existing electrical infrastructure and the Tesla Substation, thereby

minimizing length of the proposed gen-tie line to the POI, and because it is located immediately adjacent to existing roadways for construction and O&M access.

The Project would include construction, O&M, and eventual decommissioning of a 400 MW BESS with an energy storage capacity up to 3,200 MWhs. Charging from or discharging to the electrical grid would be a 500kV gen-tie connecting the project substation to the point of interconnect (POI) within the existing PG&E Tesla Substation. The BESS Facility would include the following components:

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Facilities and Outfall
- Site Security and Fencing, including fire detection system
- Operations and Maintenance Building

The total foot print of the proposed project is 59.6-ac. The project includes two components that will require Clean Water Act (CWA) authorization; improvements to an existing stormwater culvert and outfall that discharges to a jurisdictional water of the United States, and the construction of a permanent water crossing of the same feature.

The following description of the proposed project components is provided to allow USACE to have a comprehensive understanding of the BESS project; proposed discharges to jurisdictional waters are included in the descriptions of "Access Roads" and "Stormwater Facilities and Outfall."

### Battery Energy Storage System

The energy storage facility would utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common at present being lithium iron phosphate (LFP) cells (often colloquially referred to as 'lithium-ion'). LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology.

The BESS enclosures would be prefabricated off-site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure would include battery packs on racks, a battery management system (BMS), fire protection, and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures would not exceed approximately 15 feet in height. The BESS enclosures may also have a heating, ventilation, and air conditioning (HVAC) system for optimal performance and safety. Power for the HVAC system, lighting, and other electrical systems would be provided through separate auxiliary power connection to the on-site project substation with connection lines installed above and/or below ground.

### Power Conversion System

A PCS is a packaged and integrated system consisting of a bi-directional inverter, medium voltage transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the voltage output of the BESS enclosures.

The PCS would convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS would also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units would be unattended systems designed to operate in all conditions. The inverters would be monitored and controlled remotely, and there would be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units would be installed on concrete foundations and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment would be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures.

### Medium Voltage Collection System

The medium voltage collection system would include multiple components that connect the PCS units to the project substation including: underground conductor circuits, switchboards, switchgear, and panels at 34.5kV voltage. The conductors for the MV collection system would be installed underground during construction using trenching.

### Project Substation

The project substation would include three main power transformers (MPTs) – two active and a live spare. When the BESS facility is charging, power from the regional electric transmission grid would be stepped down from 500kV to 34.5kV and sent from the project substation

through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures would be sent to the PCS units, stepped up to 34.5kV, and transported to the project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A prefabricated control building would be installed within the project substation area and contain an energy management system, metering and telecommunication equipment for communication with PG&E/CAISO facilities and to support remote Project operations monitoring. The project substation area would also include five static masts for lightning protection and a wireless communication tower mounted with an antenna up to 15 feet in diameter for external telecommunications.

## Access Roads

The Project's roadway system would include two new facility access roads and driveways, a perimeter road, internal access roads, and a gen-tie access road. One of the new site access roads and driveways would be constructed from an existing private road near the northeastern portion of the site, and the other would be constructed from Patterson Pass Road near the southwestern portion of the site. A project substation access road would be constructed outside of the perimeter fence, connecting the northeast and southwest driveways, to facilitate substation access by third parties during operations. The gen-tie access road would provide access from Patterson Pass Road to the PG&E Tesla Substation, within the transmission corridor. All new access roads, driveways, internal and perimeter roads would be bladed, compacted, and surfaced with aggregate. All internal roadways and private driveways would be constructed to meet access requirements for construction, O&M, and emergency response requirements.

The gen-tie access road will require construction of a low-water crossing of a water of the United States. This will consist of an "Arizona crossing" including grading of the bed and banks of the feature, followed by placement of approximately 6 cubic yards of clean rip-rap below the Ordinary High Water Mark, to accommodate maintenance vehicle crossing.

## Laydown Yards

The Project would include up to 4 laydown yards for equipment and material staging and storage during construction. These areas would also be used for worker parking during construction. The primary laydown yard would be located directly adjacent to the project substation area. The primary laydown yard would be bladed, compacted, and surfaced with aggregate, while additional laydown yards would be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Portions of additional laydown yards may also be graded, if necessary. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The

O&M building, and required parking spaces for O&M staff, would be constructed within the primary laydown following construction of the BESS facility components.

## Stormwater Facilities

The proposed BESS facility site currently consists of annual grassland with rolling topography. Regulatory standards require that volumes and flow rates of stormwater discharge after construction not exceed pre-development conditions. Stormwater generated on-site would flow to stormwater detention basins located along the periphery of the BESS facility site. Stormwater treatment and storage sizing would be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. In the event stormwater basins reach capacity, stormwater would be discharged from the detention basins via storm drainpipes and sheet flow at rates no greater than pre-development conditions following natural drainage patterns.

A stormwater drainage outfall utilizing a new 15-inch corrugated metal pipe would be constructed from a detention basin located in the southwest portion of the site to the inlet of an existing culvert on the north side of Patterson Pass Road. This existing culvert carries storm water from the north side of Patterson Road to the South side where it discharges to a water of the United States. Approximately 2.5 cubic yards of clean rip-rap would be placed below the Ordinary High Water Mark as an energy dissipator at the outfall to discharge clean stormwater at or below current rates at the elevation of the ordinary high water mark of the existing drainage on the south side of Patterson Pass Road.

## Site Security

The BESS facility site would be enclosed with an 8-foot tall chain link fence topped with 1 foot of three-strand barbed wire or razor wire. The fence would be installed on the outside of the perimeter road. An additional fence with the same specifications would be installed around the project substation area. The fences would be required to prevent unauthorized access and to comply with human health and safety regulations. Gates would be installed at various access points along the fence lines and equipped with lock boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site.

Lighting would only be in areas where it is required for safety, security, or operations. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras would be placed on site and monitored 24/7.

## Fire Protection System

Fire protection would include multiple fire detection systems on-site and within the individual BESS enclosures. An infrared camera system would be installed throughout the BESS facility to achieve 100% of electrical infrastructure and trigger an alarm in case of an onsite fire. Each BESS enclosure would have a fire rating in conformance with the California Fire Code 2022. In addition, each BESS enclosure would contain an onboard monitoring system to track the state of individual battery cells and relays information 24-7. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design would comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures would be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire would not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, would be subjected to destructive testing including fire testing. The Project's BESS enclosures would include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).
- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

CAL FIRE would review and comment on the facility fire protection and suppression plans.

## Operations and Maintenance Building

Following construction of the BESS facility, an O&M building would be constructed within the primary laydown yard for the Project's anticipated three full-time operations staff. The O&M building would include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. A potable water storage tank would provide water for washroom and sanitary facilities, and sewage/wastewater would be collected in a separate tank. Potable water would be trucked to the water storage tank periodically during O&M, and sewage/wastewater would be pumped from the storage tank, transported offsite via truck, and disposed of at a sanitary dump station, as needed, during operations. The O&M building would be powered via a distribution line from the project substation.

## Proposed Impact to Waters of the United States

The project includes two features that will require placement of fill materials within regulated Waters of the United States, including improvements to an existing culvert under Patterson Road, and the construction of a new low-water crossing within the corridor of the proposed overhead gen-tie line. The discharge point of the culvert will require placement of rip-rap to provide energy dissipation and prevent bed or bank erosion at the point of discharge. The proposed crossing includes minor grading to the bed and banks of the feature, and placement of rip-rap to create a stable point of crossing for maintenance vehicles. The civil plans are provided in Appendix B; the total expected placement of rip-rap proposed below the Ordinary High Water Mark is 8.5 cubic yards, including approximately 2.5 cubic yards of rip-rap for the outfall and 6.0 cubic yards for the low-water crossing. Site Photos are included in Appendix C.

# 2 DESCRIPTION OF PROPOSED MITIGATION MEASURES (BOX 20)

The project occurs within the area considered by the Eastern Alameda County Conservation Strategy (EACCS). The project impacts to jurisdictional waters are estimated to include the placement of a total of 8.5 cubic yards of clean rip-rap within a jurisdictional water of the United States. The project anticipates that mitigation will not be required by USACE, however mitigation will be required by the U. S. Fish & Wildlife Service (USFWS), pursuant to the Endangered Species Act (ESA). Mitigation outlined in EACCS is expected to be required by USFWS and is expected to include wetlands and/or waters to offset impacts to aquatic features. Additionally, EACCS includes the following applicable minimization and avoidance measures, which have been adopted and will be implemented:

**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. 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 monofilament 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: CTS, CRLF**

*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/CDFW 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/CDFW 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.

# 3 ENDANGERED SPECIES ACT COMPLIANCE (BOX 26)

The proposed project may affect, and is likely to adversely affect, species listed under the Federal Endangered Species Act, including California red-legged frog and California tiger salamander. Additionally, critical habitat for California red-legged frog occurs in the project area. As previously described, the project expects to provide mitigation for these species pursuant to the EACCS template.

The project proponents have included a Biological Assessment (Appendix D). We respectfully request that USACE initiate consultation with USFWS, pursuant to Section 7 of the Endangered Species Act.

# 4 NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE (BOX 27)

According to the cultural resources report for the project (Appendix E), no cultural resources were identified during the survey effort. Additionally, there are no known cultural resources within the area of potential effect (APE) or a 0.5-mile radius around the APE, and the buried site sensitivity within the APE is considered low to moderate. Therefore, the project will have *no effect* on historic properties.

# 5 ADDITIONAL NECESSARY INFORMATION

Potential waters of the U.S. in the project area were delineated by Dudek. The aerial imagery (Figure 2) was mapped on January 18, 2024 by Mikaela Bissell and Erin Colton Fisher. The OHWM data sheet is included as Appendix F.

# 6 FIGURES



Project Location

0 1.5 3 Miles
(At original document size of 8.5x11)
1:250,000

N

Stantec

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-03
IR by SE on 2024-06-04

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 1**

*Title*
**Project Location**

***Notes***
**1.** Coordinate System: NAD 1983 UTM Zone 10N
**2.** Data Sources: California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, NASA, NGA, USGS, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, USGS

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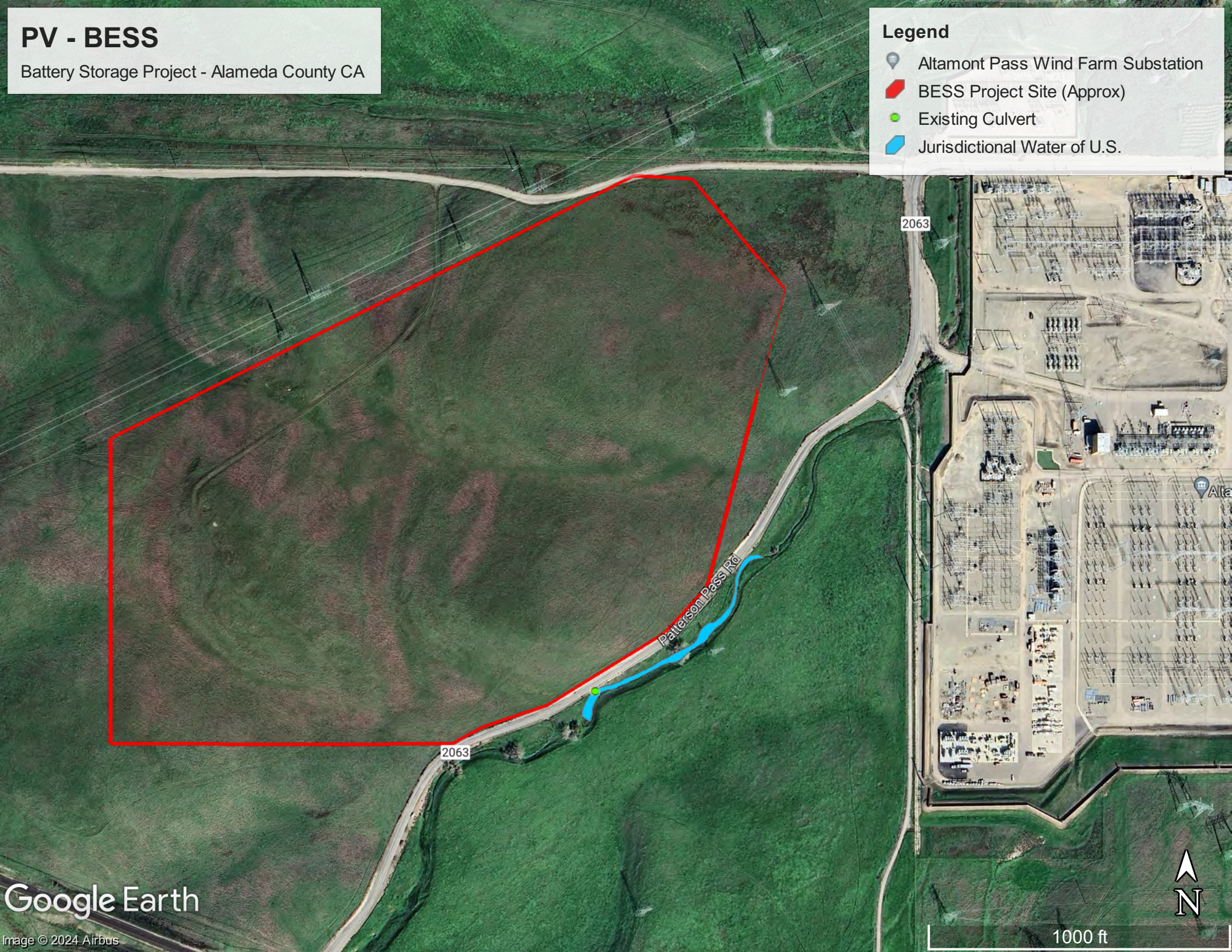
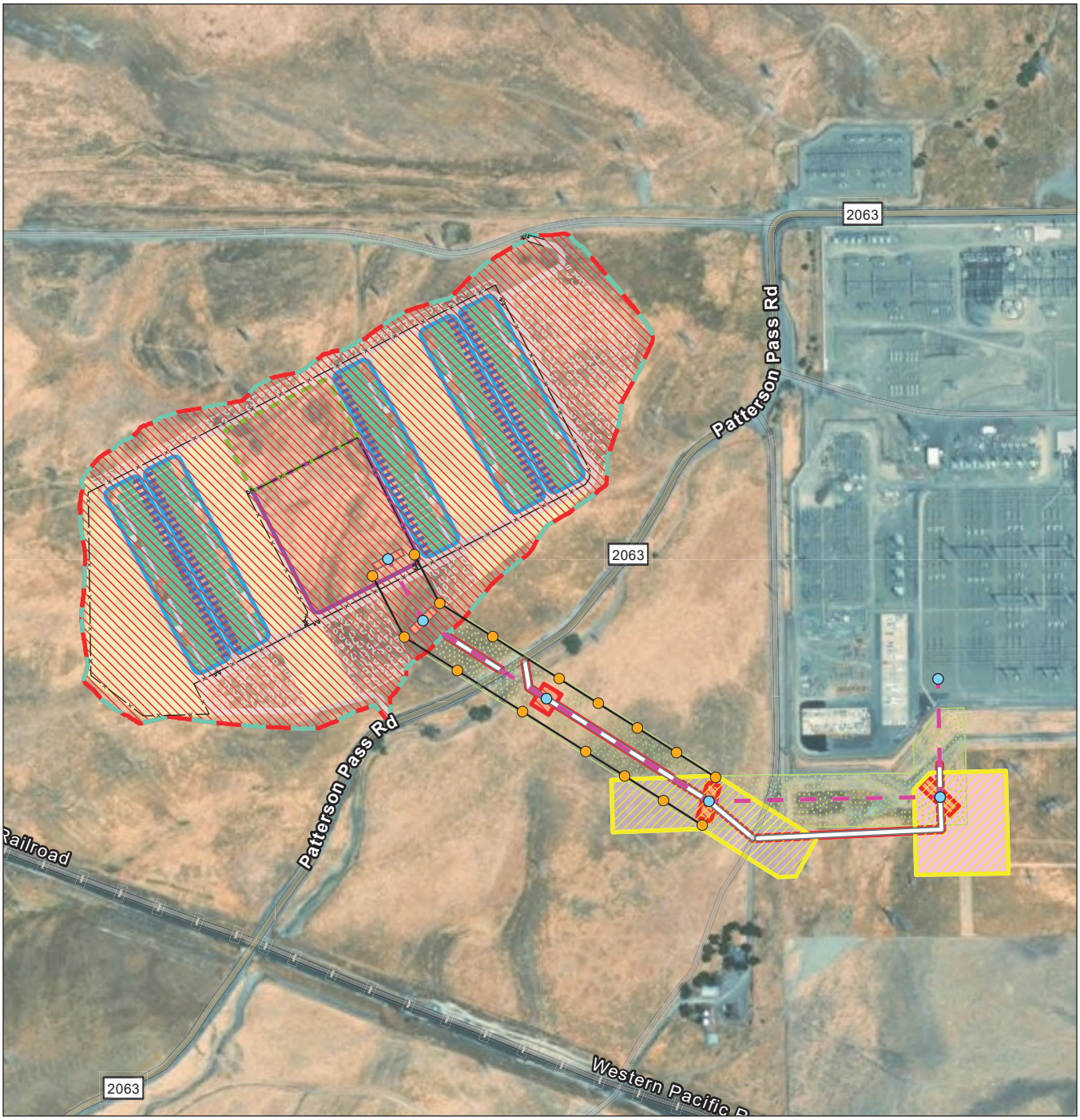
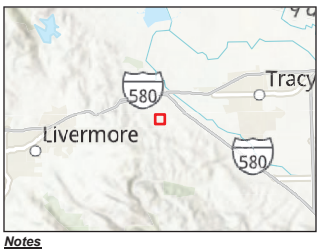

PV - BESS
Battery Storage Project - Alameda County CA
Legend
Altamont Pass Wind Farm Substation
BESS Project Site (Approx)
Existing Culvert
Jurisdictional Water of U.S.
2063
Patterson Pass Rd
2063
N
1000 ft
Google Earth
Image © 2024 Airbus




- Telecomm Pole
- HV Structure
- Telecomm Line
- Gen-Tie
- Gen-Tie Corridor
- PG&E Temporary Work Area
- Tension Pulling Area
- Transmission Access Path
- Laydown Yard
- BESS Yards
- BESS Enclosures
- DC/DC Converters
- PCS Units
- Auxilary Transformers and Panels
- Primary Laydown Yard
- Project Substation Area
- Fence Line
- Stormwater Areas
- Roads
- Grading Limits
- Temporary Distrubance
- Permanent Disturbance

0 250 500 Feet

(At original document size of 8.5x11)
1:7,000

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 UTM Zone 10N

**2.** Data Sources: Esri Community Maps Contributors, San Joaquin County GIS/Planning, San Joaquin County Public Works, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, CGIAR, USGS, Maxar, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS,

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-03
IR by SE on 2024-06-04

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 3**

*Title*
**Project Design Features**

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# 7 APPENDICIES

# Appendix A – Eng Form 6082

U.S. Army Corps of Engineers (USACE)

# NATIONWIDE PERMIT PRE-CONSTRUCTION NOTIFICATION (PCN)

33 CFR 330. The proponent agency is CECW-CO-R.

***Form Approved - OMB No. 0710-0003 Expires: 02-28-2022***

**DATA REQUIRED BY THE PRIVACY ACT OF 1974**

| | |
|---|---|
| **Authority** | Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Program of the Corps of Engineers (Corps); Final Rule 33 CFR 320-332. |
| **Principal Purpose** | Information provided on this form will be used in evaluating the nationwide permit pre-construction notification. |
| **Routine Uses** | This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of the agency coordination process. |
| **Disclosure** | Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. |

The public reporting burden for this collection of information, 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

**PLEASE DO NOT RETURN YOUR RESPONSE TO THE ABOVE EMAIL.**

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (*see sample drawings and/or instructions*) and be submitted to the district engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|---|---|---|---|
| | | | |

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

| 5. APPLICANT'S NAME | 8. AUTHORIZED AGENT'S NAME AND TITLE (*agent is not required*) |
|---|---|
| First - Lauren Middle - Last - McLeod | First - Cameron Middle - Last - Johnson |
| Company - Levy Alameda, LLC | Company - Integral Consulting Inc. |
| Company Title - Senior Development Manager | E-mail Address - cjohnson@integral-corp.com |
| E-mail Address - LMcLeod@capstoneinfra.com | |
| **6. APPLICANT'S ADDRESS** | **9. AGENT'S ADDRESS** |
| Address- 155 Wellington Street West, Suite 2930 | Address- 433 Visitacion Ave |
| City - Toronto State - Ontario Zip - M5V Country - Canada | City - Brisbane State - CA Zip - 94005 Country - USA |
| **7. APPLICANT'S PHONE NOs. with AREA CODE** | **10. AGENT'S PHONE NOs. with AREA CODE** |
| a. Residence b. Business 416-649-1335 c. Fax d. Mobile | a. Residence b. Business 415-602-2970 c. Fax d. Mobile |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, Cameron Johnson to act in my behalf as my agent in the processing of this nationwide permit pre-construction notification and to furnish, upon request, supplemental information in support of this nationwide permit pre-construction notification.

Lauren McLeod Digitally signed by Lauren McLeod Date: 2024.06.18 10:03:31 -04'00' — 2024-06-18

SIGNATURE OF APPLICANT — DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME or TITLE (*see instructions*)

Potentia-Viridi Battery Energy Storage System Project (PV-BESS)

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

13. NAME OF WATERBODY, IF KNOWN (*if applicable*)
N/A

14. PROPOSED ACTIVITY STREET ADDRESS (*if applicable*)
Alameda County - 17257 Patterson Pass Road

15. LOCATION OF PROPOSED ACTIVITY (*see instructions*)

| Latitude °N | Longitude °W | City: | State: | Zip: |
|---|---|---|---|---|
| 37.712130 | -121.573369 | Alameda County | CA | |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (*see instructions*)

State Tax Parcel ID
99B-7890-002-04, -06, and 99B-7885-12

Municipality
Alameda County

| Section | Township | Range |
|---|---|---|
| 31 | 2S | 4E |

17. DIRECTIONS TO THE SITE
From Sacramento, California: Drive south on Interstate 5 to Lathrop, then westward on Highway 205 to Highway 580(south). Take the Patterson Pass exit westward, approximately 2.5-miles to the project site.

18. IDENTIFY THE SPECIFIC NATIONWIDE PERMIT(S) YOU PROPOSE TO USE
Nationwide Permit 7 - Outfall Structures
Nationwide Permit 14 - Linear Transportation

19. DESCRIPTION OF PROPOSED NATIONWIDE PERMIT ACTIVITY (*see instructions*)
See attached Supplemental Information

20. DESCRIPTION OF PROPOSED MITIGATION MEASURES (*see instructions*)
See attached Supplemental Information

21. PURPOSE OF NATIONWIDE PERMIT ACTIVITY (*Describe the reason or purpose of the project, see instructions*)
The purpose of the project is to install a storm water outfall structure and a low-water crossing for a battery energy storage project.

22. QUANTITY OF WETLANDS, STREAMS, OR OTHER TYPES OF WATERS DIRECTLY AFFECTED BY PROPOSED NATIONWIDE PERMIT ACTIVITY (*see instructions*)

| Acres | Linear Feet | Cubic Yards Dredged or Discharged |
|---|---|---|
| | 20 | 8.5 |

**Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.**

23. List any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. (*see instructions*)
N/A

24. If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and requires pre-construction notification, explain how the compensatory mitigation requirement in paragraph (c) of general condition 23 will be satisfied, or explain why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required for the proposed activity.
N/A

25. Is any portion of the nationwide permit activity already complete? ☐ Yes ☒ No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed NWP activity or utilize the designated critical habitat that might be affected by the proposed NWP activity. (*see instructions*)

The project is expected to affect California red-legged frog, and California tiger salamander (federally listed species). See attached Supplemental Information

27. List any historic properties that have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic property or properties. (*see instructions*)

No cultural resources were identified in the APE by Dudek. See attached Supplemental Information.

28. For a proposed NWP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":

N/A

29. If the proposed NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the Corps district having jurisdiction over that project? ☐ Yes ☐ No

If "yes", please provide the date your request was submitted to the Corps district:

30. If the terms of the NWP(s) you want to use require additional information to be included in the PCN, please include that information in this space or provide it on an additional sheet of paper marked Block 30. (*see instructions*)

N/A

31. Pre-construction notification is hereby made for one or more nationwide permit(s) to authorize the work described in this notification. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

| Lauren McLeod Digitally signed by Lauren McLeod Date: 2024.06.18 10:05:11 -04'00' | 2024-06-18 | Cameron Johnson Digitally signed by Cameron Johnson Date: 2024.06.18 11:16:58 -07'00' | 2024-06-14 |
|---|---|---|---|
| SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE |

The pre-construction notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in Block 11 has been filled out and signed, the authorized agent.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

**Instructions for Preparing a**

**Department of the Army**

**Nationwide Permit (NWP) Pre-Construction Notification (PCN)**

**Blocks 1 through 4.** To be completed by the Corps of Engineers.

**Block 5. Applicant's Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the preconstruction notification, please attach a sheet of paper with the necessary information marked Block 5.

**Block 6. Address of Applicant.** Please provide the full address of the party or parties responsible for the PCN. If more space is needed, attach an extra sheet of paper marked Block 6.

**Block 7. Applicant's Telephone Number(s).** Please provide the telephone number where you can usually be reached during normal business hours.

**Blocks 8 through 11.** To be completed, if you choose to have an agent.

**Block 8. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

**Blocks 9 and 10. Agent's Address and Telephone Number.** Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

**Block 11. Statement of Authorization.** To be completed by the applicant, if an agent is to be employed.

**Block 12. Proposed Nationwide Permit Activity Name or Title.** Please provide a name identifying the proposed NWP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

**Block 13. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the NWP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

**Block 14. Proposed Activity Street Address.** If the proposed NWP activity is located at a site having a street address (not a box number), please enter it in Block 14.

**Block 15. Location of Proposed Activity.** Enter the latitude and longitude of where the proposed NWP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area requiring evaluation. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 15.

**Block 16. Other Location Descriptions.** If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality where the site is located.

**Block 17. Directions to the Site.** Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide a description of the location of the proposed NWP activity, such as lot numbers, tract numbers, or you may choose to locate the proposed NWP activity site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed NWP activity site if known. If there are multiple locations, please indicate directions to each location on a separate sheet of paper and mark as Block 17.

**Block 18. Identify the Specific Nationwide Permit(s) You Propose to Use.** List the number(s) of the Nationwide Permit(s) you want to use to authorize the proposed activity (e.g., NWP 29).

**Block 19. Description of the Proposed Nationwide Permit Activity.** Describe the proposed NWP activity, including the direct and indirect adverse environmental effects the activity would cause. The description of the proposed activity should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal. Identify the materials to be used in construction, as well as the methods by which the work is to be done.

Provide sketches when necessary to show that the proposed NWP activity complies with the terms of the applicable NWP(s). Sketches usually clarify the activity and result in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed NWP activity (e.g.,a conceptual plan), but do not need to be detailed engineering plans.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 19.

**Block 20. Description of Proposed Mitigation Measures.** Describe any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed NWP activity. The description of any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or additional mitigation measures.

**Block 21. Purpose of Nationwide Permit Activity.** Describe the purpose and need for the proposed NWP activity. What will it be used for and why? Also include a brief description of any related activities associated with the proposed project. Provide the approximate dates you plan to begin and complete all work.

**Block 22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by the Proposed Nationwide Permit Activity.** For discharges of dredged or fill material into waters of the United States, provide the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained by the proposed NWP activity. For structures or work in navigable waters of the United States subject to Section 10 of the Rivers and Harbors Act of 1899, provide the amount of navigable waters filled, dredged, or occupied by one or more structures (e.g., aids to navigation, mooring buoys) by the proposed NWP activity.

For multiple NWPs, or for separate and distant crossings of waters of the United States authorized by NWPs 12 or 14, attach an extra sheet of paper marked Block 21 to provide the quantities of wetlands, streams, or other types of waters filled, flooded, excavated, or drained (or dredged or occupied by structures, if in waters subject to Section 10 of the Rivers and Harbors Act of 1899) for each NWP. For NWPs 12 and 14, include the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained for each separate and distant crossing of waters or wetlands. If more space is needed, attach an extra sheet of paper marked Block 22.

**Block 23. Identify Any Other Nationwide Permit(s), Regional General Permit(s), or Individual Permit(s) Used to Authorize Any Part of Proposed Activity or Any Related Activity.** List any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. For linear projects, list other separate and distant crossings of waters and wetlands authorized by NWPs 12 or 14 that do not require PCNs. If more space is needed, attach an extra sheet of paper marked Block 23.

**Block 24. Compensatory Mitigation Statement for Losses of Greater Than 1/10-Acre of Wetlands When Pre-Construction Notification is Required.** Paragraph (c) of NWP general condition 23 requires compensatory mitigation at a minimum one-for-one replacement ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation is more environmentally appropriate or the adverse environmental effects of the proposed NWP activity are no more than minimal without compensatory mitigation, and provides an activity-specific waiver of this requirement. Describe the proposed compensatory mitigation for wetland losses greater than 1/10 acre, or provide an explanation of why the district engineer should not require wetland compensatory mitigation for the proposed NWP activity. If more space is needed, attach an extra sheet of paper marked Block 24.

**Block 25. Is Any Portion of the Nationwide Permit Activity Already Complete?** Describe any work that has already been completed for the NWP activity.

**Block 26. List the Name(s) of Any Species Listed As Endangered or Threatened under the Endangered Species Act that Might be Affected by the Nationwide Permit Activity.** If you are not a federal agency, and if any listed species or designated critical habitat might be affected or is in the vicinity of the proposed NWP activity, or if the proposed NWP activity is located in designated critical habitat, list the name(s) of those endangered or threatened species that might be affected by the proposed NWP activity or utilize the designated critical habitat that might be affected by the proposed NWP activity. If you are a Federal agency, and the proposed NWP activity requires a PCN, you must provide documentation demonstrating compliance with Section 7 of the Endangered Species Act.

**Block 27. List Any Historic Properties that Have the Potential to be Affected by the Nationwide Permit Activity.** If you are not a Federal agency, and if any historic properties have the potential to be affected by the proposed NWP activity, list the name(s) of those historic properties that have the potential to be affected by the proposed NWP activity. If you are a Federal agency, and the proposed NWP activity requires a PCN, you must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

**Block 28. List the Wild and Scenic River or Congressionally Designated Study River if the Nationwide Permit Activity Would Occur in such a River.** If the proposed NWP activity will occur in a river in the National Wild and Scenic River System or in a river officially designated by Congress as a “study river” under the Wild and Scenic Rivers Act, provide the name of the river. For a list of Wild and Scenic Rivers and study rivers, please visit http://www.rivers.gov/.

**Block 29. Nationwide Permit Activities that also Require Permission from the Corps Under 33 U.S.C. 408.** If the proposed NWP activity also requires permission from the Corps under 33 U.S.C. 408 because it will temporarily or permanently alter, occupy, or use a Corps federal authorized civil works project, indicate whether you have submitted a written request for section 408 permission from the Corps district having jurisdiction over that project.

**Block 30. Other Information Required For Nationwide Permit Pre-Construction Notifications.** The terms of some of the Nationwide Permits include additional information requirements for preconstruction notifications:

* NWP 3, Maintenance –information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
* NWP 31, Maintenance of Existing Flood Control Facilities –a description of the maintenance baseline and the dredged material disposal site.
* NWP 33, Temporary Construction, Access, and Dewatering –a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.
* NWP 44, Mining Activities –if reclamation is required by other statutes, then a copy of the final reclamation plan must be submitted with the pre-construction notification.
* NWP 45, Repair of Uplands Damaged by Discrete Events –documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
* NWP 48, Commercial Shellfish Aquaculture Activities –(1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the species that will be cultivated during the period this NWP is in effect; (3) whether canopy predator nets will be used; (4) whether suspended cultivation techniques will be used; and (5) general water depths in the project area (a detailed survey is not required).
* NWP 49, Coal Remining Activities –a document describing how the overall mining plan will result in a net increase in aquatic resource functions must be submitted to the district engineer and receive written authorization prior to commencing the activity.
* NWP 50, Underground Coal Mining Activities –if reclamation is required by other statutes, then a copy of the reclamation plan must be submitted with the pre-construction notification.

If more space is needed, attach an extra sheet of paper marked Block 30.

**Block 31. Signature of Applicant or Agent.** The PCN must be signed by the person proposing to undertake the NWP activity, and if applicable, the authorized party (agent) that prepared the PCN. The signature of the person proposing to undertake the NWP activity shall be an affirmation that the party submitting the PCN possesses the requisite property rights to undertake the NWP activity (including compliance with special conditions, mitigation, etc.).

## DELINEATION OF WETLANDS, OTHER SPECIAL AQUATIC SITES, AND OTHER WATERS

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. The 45 day PCN review period will not start until the delineation is submitted or has been completed by the Corps.

## DRAWINGS AND ILLUSTRATIONS

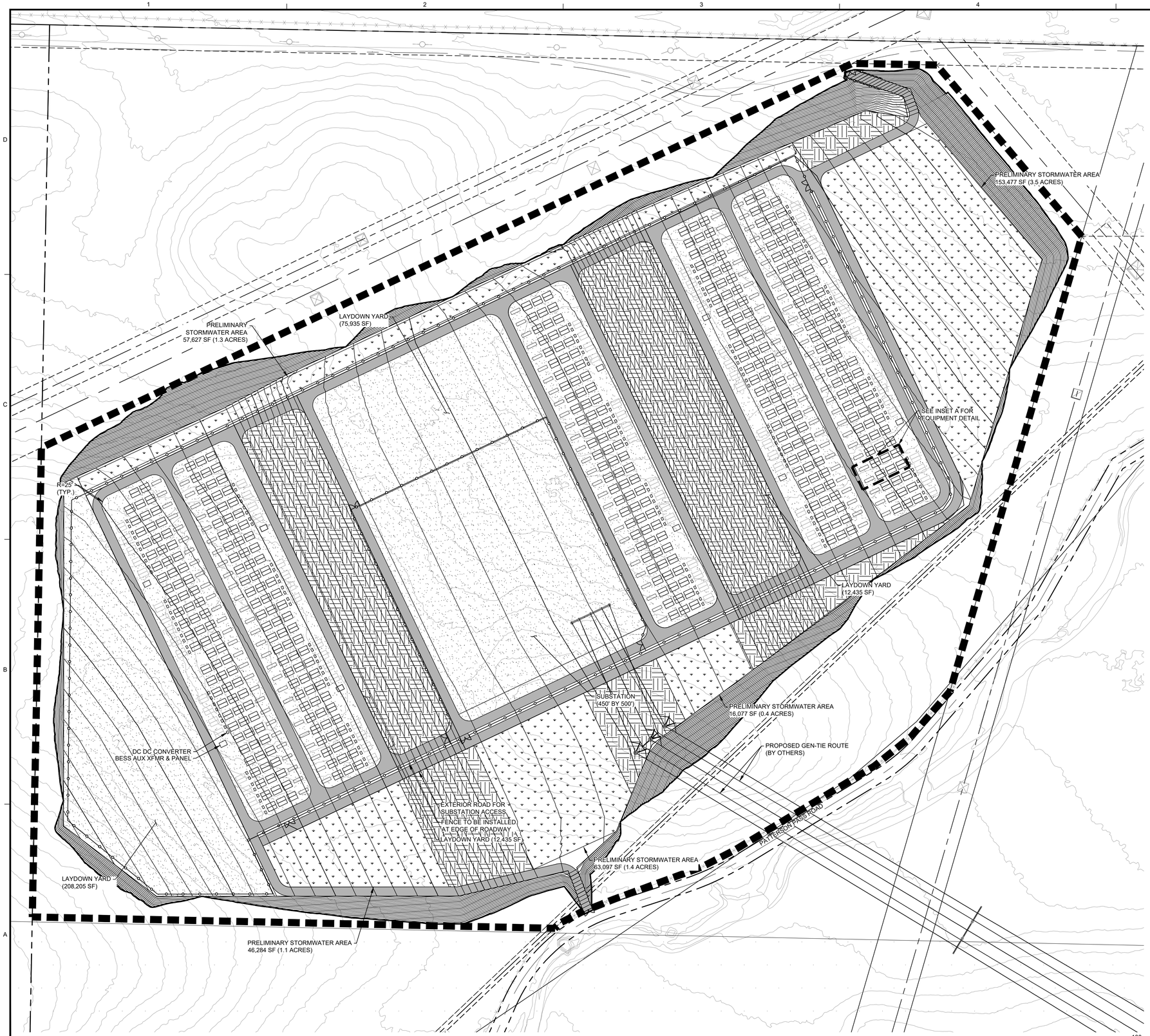
**General Information.**

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings should also be included. Please submit one original, or good quality copy, of all drawings on 8½x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

## ADDITIONAL INFORMATION AND REQUIREMENTS

For proposed NWP activities that involve discharges into waters of the United States, water quality certification from the State, Tribe, or EPA must be obtained or waived (see NWP general condition 25). Some States, Tribes, or EPA have issued water quality certification for one or more NWPs. Please check the appropriate Corps district web site to see if water quality certification has already been issued for the NWP(s) you wish to use. For proposed NWP activities in coastal states, state Coastal Zone Management Act consistency concurrence must be obtained, or a presumption of concurrence must occur (see NWP general condition 26). Some States have issued Coastal Zone Management Act consistency concurrences for one or more NWPs. Please check the appropriate Corps district web site to see if Coastal Zone Management Act consistency concurrence has already been issued for the NWP(s) you wish to use.

# Appendix B – Civil Plans




LEGEND

- GRAVEL ACCESS ROAD
- GRAVEL
- STORMWATER/ LID AREA
- LANDSCAPE

EARTHWORK QUANTITIES
CUT = 588,018 CUBIC YARDS
FILL = 344,900 CUBIC YARDS
NET = 243,118 CUBIC YARDS (EXPORT)

TOTAL = 932,918 CUBIC YARDS

NOTE:
1. EARTHWORK QUANTITIES ARE ESTIMATES ONLY AND ARE NOT ADJUSTED FOR SHRINKAGE, CONSOLIDATION, AND CLEARING LOSS FACTORS. THESE QUANTITIES ARE TO BE USED FOR BONDING AND PERMIT PURPOSES ONLY.
2. CUT/FILL SLOPES ARE SHOWN NO STEEPER THAN 3:1.
3. PRELIMINARY EARTHWORK QUANTITIES ASSUME ONSITE MATERIAL IS ADEQUATE FILL. ASSUMPTIONS ARE TO BE CONFIRMED BASED ON GEOTECH RECOMMENDATIONS.
4. EARTHWORK QUANTITIES DO NOT INCLUDE GEN-TIE LINE.

| SYSTEM SUMMARY | |
|---|---|
| ESS TYPE | SOLBANK |
| ESS QUANTITY | 1000 |
| PCS UNITS | 140 |
| BATTERY CAPACITY | 400 MW/3200 MWH |
| | |
| BESS YARD | 13.2 ACRES |
| PROJECT SUBSTATION | 8.1 ACRES |
| ACCESS ROADS | 7.2 ACRES |
| LAYDOWN YARD (INCLUDING O&M BUILDING) | 8.0 ACRES |
| STORMWATER AREAS* | 9.3 ACRES |
| OTHER** | 6.2 ACRES |
| TOTAL PROJECT AREA | 52.0 ACRES |
| TOTAL DISTURBED AREA*** | 57.0 ACRES |

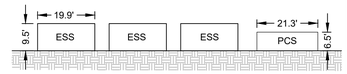
NOTE:
* PRELIMINARY STORMWATER TREAMENT AND STORAGE SIZING BASED ON ALAMEDA COUNTY STANDARDS
** INCLUDES SLOPED AREAS
*** TO GRADING DAYLIGHT

## ABBREVIATIONS:

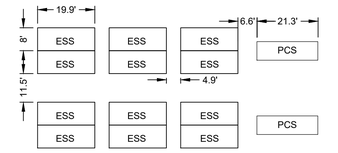
| | |
|---|---|
| ESS | ENERGY STORAGE SYSTEM |
| PCS | POWER CONVERSION SYSTEM |
| POI | POINT OF INTERCONNECTION |
| XMFR | TRANSFORMER |

GENERAL NOTES:
FUTURE STEEL FRAME O&M BUILDING (100'X50') WILL BE LOCATED WITHIN PROPOSED LAYDOWN YARD. EXACT BUILDING SIZE AND LOCATION TBD.

FIRE NOTES:
1) FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET.
2) INTERNAL RADII = 25' MINIMUM.




INSET A - ELEVATION




INSET A - PLAN

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

SCALE: 1 INCH = 100 FEET

811 Know what's below. Call before you dig.

COFFMAN ENGINEERS
1939 Harrison Street, Suite 320
Oakland, CA 94612
ph 510.251.9578
www.coffman.com

POTENTIA-VIRIDI BATTERY ENERGY STORAGE SYSTEM

LEVY ALAMEDA, LLC

NOT FOR CONSTRUCTION

| REV | DATE | DESCRIPTION |
|---|---|---|

| | |
|---|---|
| PROJ. NO. | 232059 |
| DRAWN | LB |
| CHECKED | RB |
| DATE | 4/19/24 |



SHEET TITLE:

CIVIL SITE PLAN

SHEET NO:

C-1.0

SHEET 4 OF 7

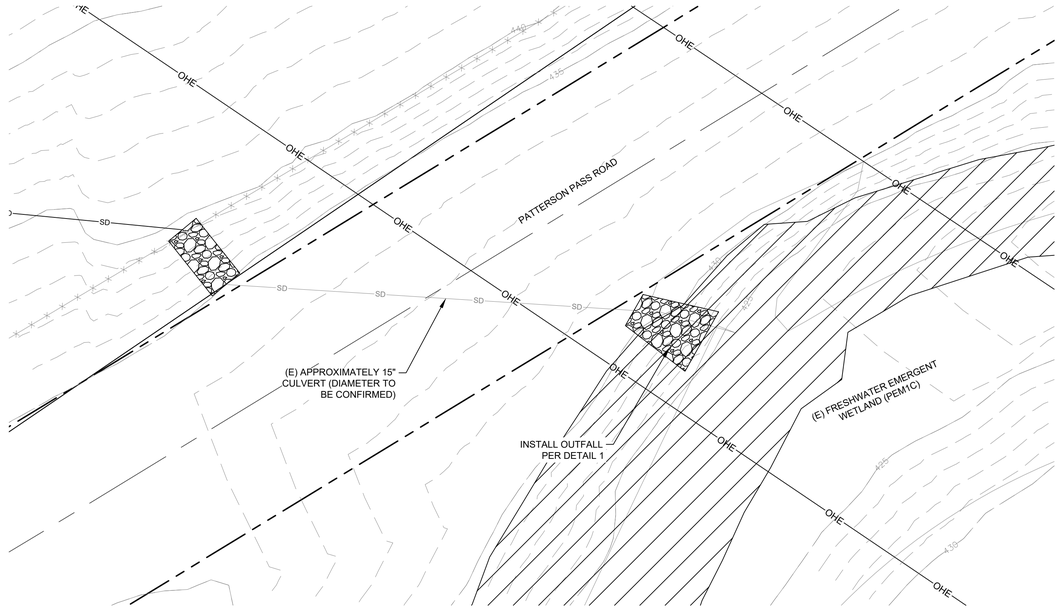
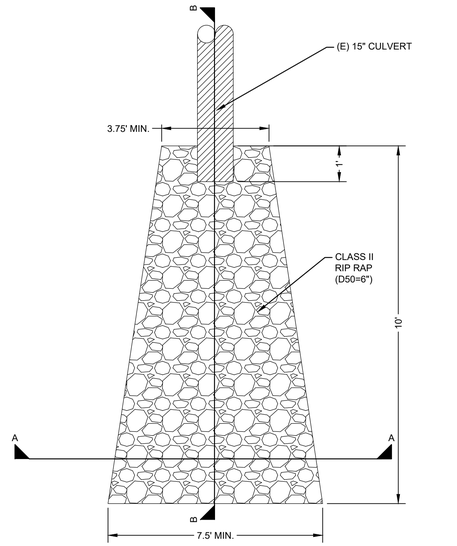
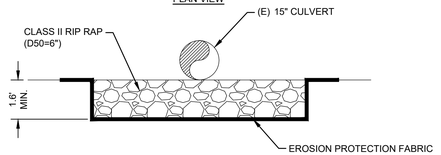



EXHIBIT A
SCALE: 1"=10'




PLAN VIEW

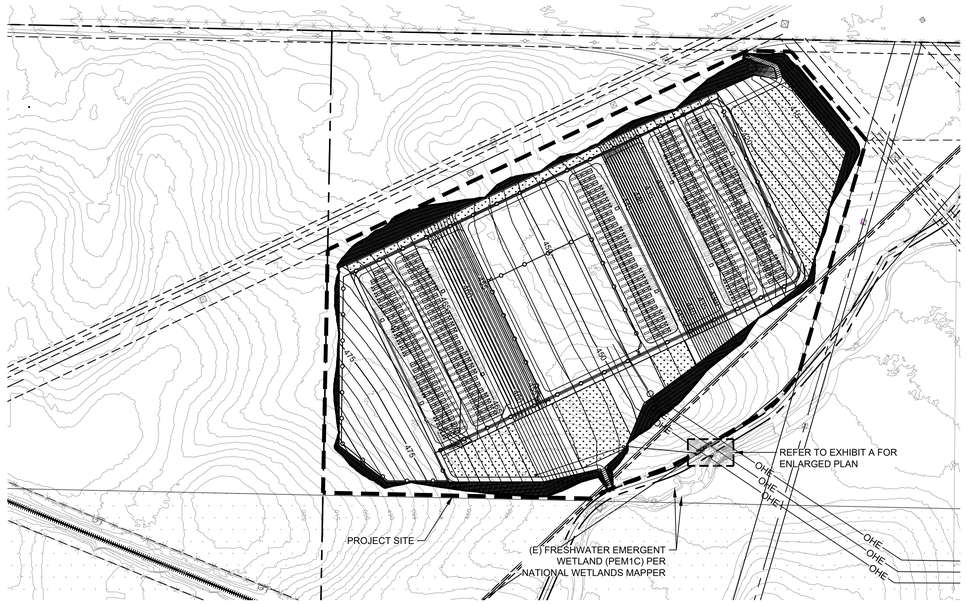



SECTION A-A

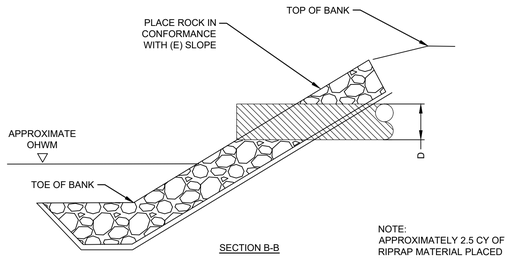
NOTES:
ENERGY DISSIPATER SIZED PER FEDERAL HIGHWAY ADMINISTRATION HYDRAULIC ENGINEERING MANUAL

## LEGEND

- CENTERLINE
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED LEASE LINE
- DRAINAGE MANAGEMENT AREA
- EXISTING CHAIN LINK FENCE
- PROPOSED FENCE
- STORM DRAIN PIPE
- RAILROAD
- EXISTING UTILITY POLE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- ORDINARY HIGH WATER MARK
- STORMWATER/LID AREA




SITE MAP
SCALE: 1'=300'




SECTION B-B

NOTE:
APPROXIMATELY 2.5 CY OF RIPRAP MATERIAL PLACED BELOW OHWM.

1 - OUTFALL DETAIL
SCALE: NTS

200 100 0 200 400
SCALE: 1 INCH = 200 FEET

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

811 Know what's below. Call before you dig.

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**ph 510.251.9578**
**www.coffman.com**

POTENTIA-VIRIDI BATTERY ENERGY STORAGE SYSTEM

LEVY ALAMEDA, LLC

NOT FOR CONSTRUCTION

| REV | DATE | DESCRIPTION |
|---|---|---|

| | |
|---|---|
| PROJ. NO. | 232059 |
| DRAWN | LB |
| CHECKED | RB |
| DATE | 5/30/24 |



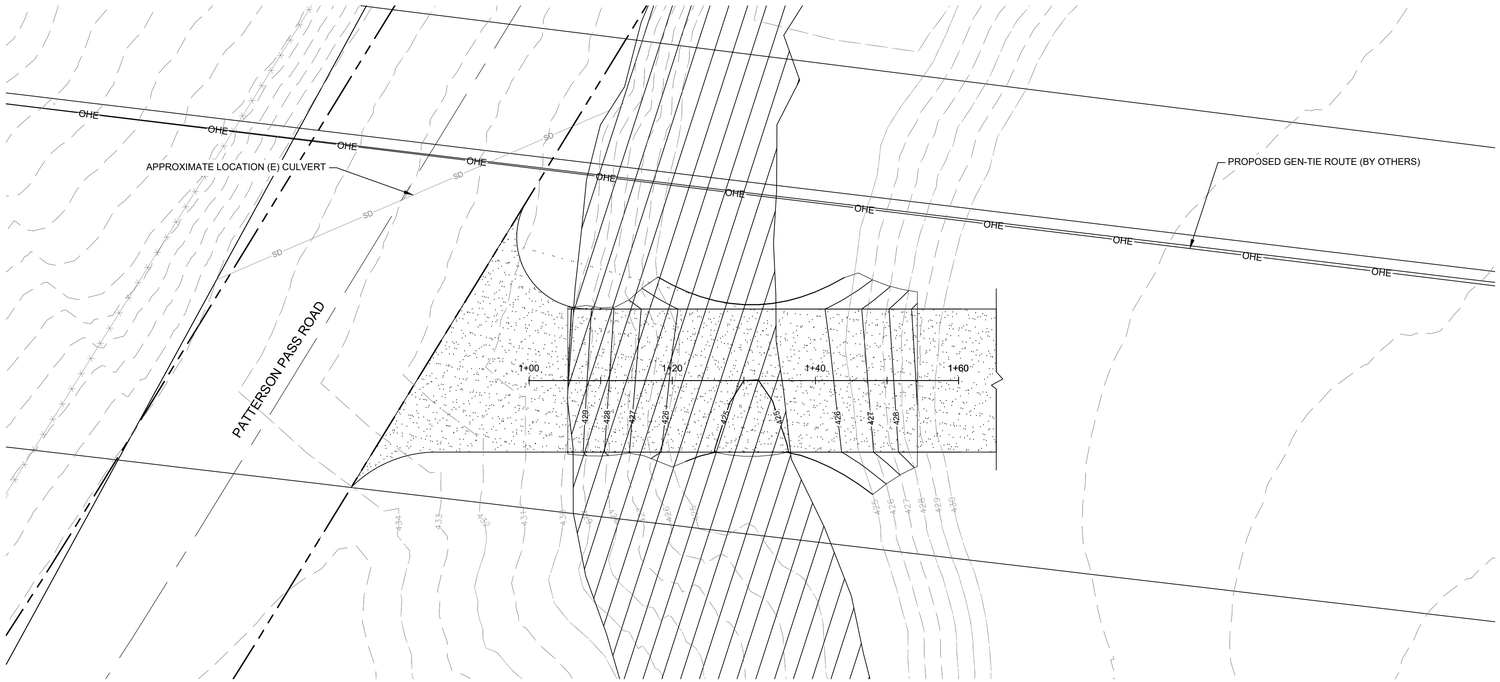
SHEET TITLE:

CONCEPTUAL CIVIL HYDROLOGY/ HYDRAULIC OUTFALL SCHEMATIC

SHEET NO:

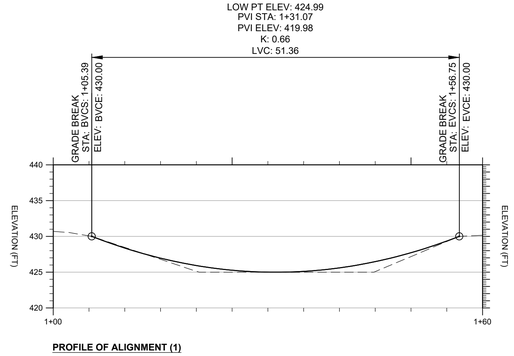
C-1.0

SHEET 4 OF 7




10 5 0 10 20

SCALE: 1 INCH = 10 FEET




**PROFILE OF ALIGNMENT (1)**

## LEGEND

- CENTERLINE
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED LEASE LINE
- EXISTING CHAIN LINK FENCE
- PROPOSED FENCE
- STORM DRAIN PIPE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- ORDINARY HIGH WATER MARK
- PROPOSED CONSTRUCTION ACCESS

## QUANTITIES

| DISTURBED AREA (SF) | EXCAVATED VOLUME (CY) | TOTAL FILL VOLUME (CY) | TOTAL CUT VOLUME (CY) | RIP RAP VOLUME (CY) |
|---|---|---|---|---|
| 1,600 | 18 | 17 | 1 | |

## OHWM QUANTITIES

| DISTURBED AREA (SF) | EXCAVATED VOLUME (CY) | FILL VOLUME (CY) | CUT VOLUME (CY) | RIP RAP VOLUME (CY) |
|---|---|---|---|---|
| 650 | 7 | 6 | 1 | |

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

811 Know what's below. Call before you dig.

COFFMAN ENGINEERS
1939 Harrison Street, Suite 320
Oakland, CA 94612
**ph 510.251.9578**
**www.coffman.com**

POTENTIA-VIRIDI BATTERY ENERGY STORAGE SYSTEM

LEVY ALAMEDA, LLC

NOT FOR CONSTRUCTION

| REV | DATE | DESCRIPTION |
|---|---|---|

PROJ. NO. 232059
DRAWN LB
CHECKED RB
DATE 6/7/24



SHEET TITLE:

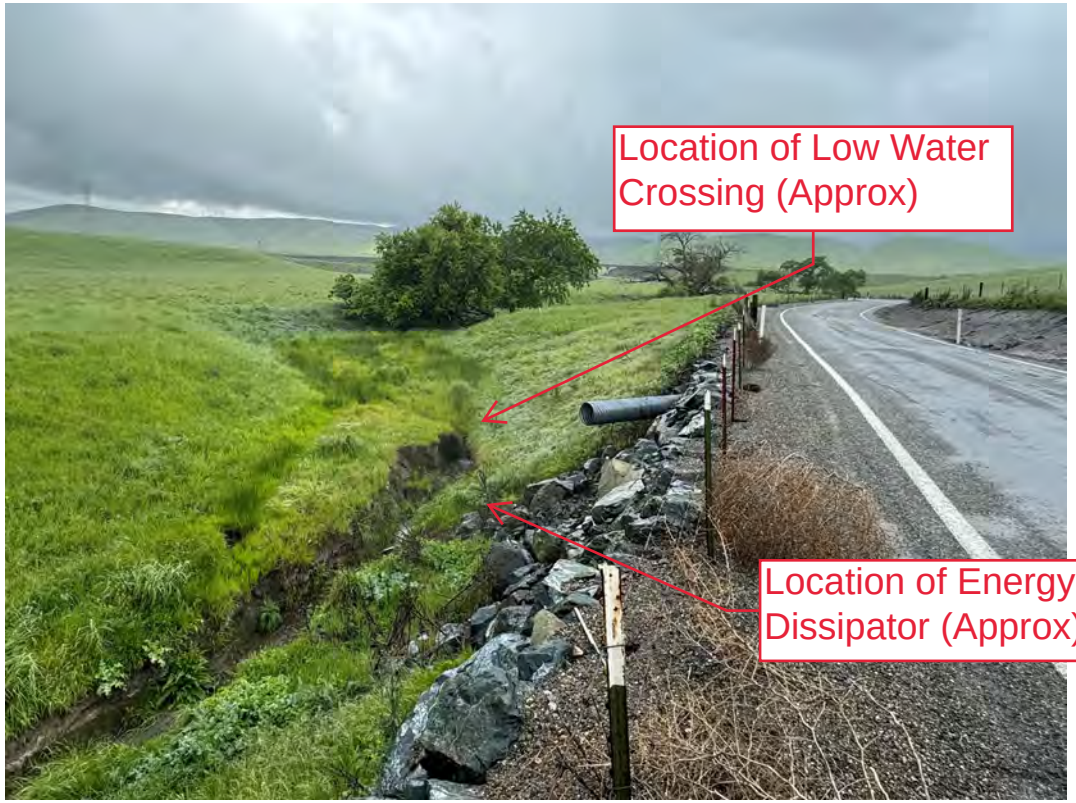
CONCEPTUAL ACCESS ROAD SCHEMATIC

SHEET NO:

C-1.0

SHEET OF 7

# Appendix C – Site Photos




## South Side of Patterson Pass road – facing SW

Note existing culvert under roadway. Crossing to be installed Immediately upstream of culvert.

## South Side of Patterson Pass road – facing NE

Downstream of proposed outfall improvements. Note flowing feature in foreground and Altamont Pass Wind Farm Substation in the background

# Appendix D – Biological Assessment

# Potentia-Viridi Battery Energy Storage System Project

Biological Assessment

June 17, 2024

Prepared for:
Levy Alameda, LLC
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155 Wellington Street West, Suite 2930
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Prepared by:
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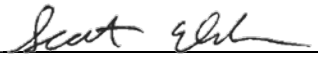
# Sign-off Sheet

This document, entitled Potentia-Viridi Battery Energy Storage System Project, was prepared by Stantec for the Levy Alameda, LLC. Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment considering the scope, schedule, and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use that a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 

(signature)

**Scott Elder, Associate Biologist, Stantec**

Reviewed by 

(signature)

**Jared Elia, Senior Biologist, Stantec**

Approved by _____

(signature)

**Lauren McLeod, Project Manager**

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# Executive Summary

This Biological Assessment (BA) was prepared for the proposed Potentia-Viridi Battery Energy Storage System (BESS) Project (Project). This BA describes the existing conditions, existing biological resources within the Project Action Area (AA), and assessment of Project impacts to federally listed species.

The primary purpose of the Project is to assist the State of California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035. The Project will help balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation from emissions free power sources and delivering it back to the grid when demand exceeds real-time generation supply. The Project displaces the need for additional fossil fuel based generating stations needed to serve peak demand periods when renewable sources may be inadequate or unavailable.

Three federally-listed species, California tiger salamander (*Ambystoma californiense*) which is listed as federally threatened, California red-legged frog (*Rana draytonii*) which is listed as federally threatened, and San Joaquin kit fox (*Vulpes macrotis mutica)* which is listed as federally endangered, were evaluated in this BA to determine if the Project would have adverse effects on the species, as they are either known or have potential to occur in the Project AA. A summary of Project effects on federally-listed species as described by habitat disturbance is provided below in Table ES-1.

## Table ES-1. Impacts on Federally Listed Species

| Resource | Direct Impacts | |
|---|---|---|
| | Permanent | Temporary |
| California tiger salamander | 59.6 | 6.7 |
| California red-legged frog | 59.6 | 6.7 |
| San Joaquin kit fox | 59.6 | 6.7 |

Based on Project effects, the BA makes the following determinations regarding federally-listed species.

**California Tiger Salamander**

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and upland habitat for California tiger salamander. The Project will have temporary and permanent impacts to potential dispersal and upland habitat; however, there are no permanent or temporary impacts to aquatic breeding habitat. Therefore, the Project **may affect, likely to adversely affect California tiger salamander**. Implementation of avoidance and minimization measures described in Section 7.1.1.1 would reduce any direct and indirect effects on potential California tiger salamander dispersal and upland habitat. Additionally, the Applicant would compensate for any permanent dispersal and upland habitat loss as described in 7.1.1.2.

The Project does not occur within designated critical habitat for California tiger salamander; therefore, the Project will have **no effect** on critical habitat for this species.

**California Red-legged Frog**

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and upland habitat for California red-legged frog. The Project will have temporary and permanent impacts to potential dispersal and upland habitat; however, there are no permanent or temporary impacts to aquatic breeding habitat. Therefore, the Project **may affect, likely to adversely affect California red-legged frog**. Implementation of avoidance and minimization measures described in Section 7.1.1.1 would reduce any direct and indirect effects on potential California red-legged frog dispersal and upland habitat. Additionally, the Applicant would compensate for any permanent dispersal and upland habitat loss as described in 7.1.1.2.

The Project will have temporary and permanent impacts to designated critical habitat for California red-legged frog; therefore, the Project **may affect, likely to adversely affect California red-legged frog** critical habitat.

**San Joaquin Kit Fox**

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and migration habitat for San Joaquin kit fox. The Project will have temporary and permanent impacts to potential dispersal and migration habitat; however, these impacts are considered minimal as the AA is within the northern limits of their dispersal or migration boundary. There are no permanent or temporary impacts to potential breeding or denning habitat within the AA. Therefore, the Project **may affect, not likely to adversely affect San Joaquin kit fox**. Implementation of avoidance and minimization measures described under Section 7.1.2.1 would reduce any direct and indirect effects on potential San Joaquin kit fox dispersal and migration habitat. Additionally, the Applicant would compensate for any permanent dispersal and migration habitat loss as described in 7.1.2.2.

The Project does not occur within designated critical habitat for San Joaquin kit fox; therefore, the Project will have **no effect** on critical habitat for this species.

Cumulative Effects

Implementation of avoidance and minimization efforts and compensatory mitigation described in Chapter 7 would ensure that the Project's incremental effects on sensitive biological resources are not cumulatively considerable.

**Avoidance, Minimization, and Compensation Measures**

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. 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 monofilament 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.

<u>California Tiger Salamander and California Red-Legged Fog</u>

East Alameda County Conservation Strategy Avoidance and Minimization Measures:

*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/CDFW 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/CDFW 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.

<u>San Joaquin Kit Fox</u>

East Alameda County Conservation Strategy Avoidance and Minimization Measures:

**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 CDFW. 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 CDFW.
- Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construction areas is active.

As part of the Project, avoidance, minimization and compensation measures will be implemented prior to and during construction to avoid, minimize, and compensate for Project effects on CTS, CRLF and San Joaquin kit fox potential upland, dispersal and migration habitat within the AA. These measures are described in Chapter 7 of this BA.

# Abbreviations

| | |
|---|---|
| ºF | degrees Fahrenheit |
| AA | Action Area |
| AC | alternating current |
| Applicant | Levy Alameda LLC |
| BA | Biological Assessment |
| BESS | Battery Energy Storage System |
| BMP | best management practices |
| BMS | battery management system |
| C | candidate |
| cy | cubic yards |
| CDFW | California Department of Fish and Wildlife |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| Corps | United States Army Corps of Engineers |
| CRLF | California red-legged frog |
| CRPR | California Rare Plant Rank |
| DC | direct current |
| DPS | Distinct Population Segment |
| EACCS | East Alameda County Conservation Strategy |
| ESA | Federal Endangered Species Act |
| ESRI | Environmental Systems Research Institute |
| FE | federally endangered |
| FT | federally threatened |
| gen-tie | intertie transmission |
| HVAC | heating, ventilation, and air conditioning |
| kV | kilovolt |
| LFP | lithium iron phosphate |
| LGIA | Large Generator Interconnection Agreement |
| MPT | main power transformer |
| MV | Medium voltage |
| MW | megawatt |
| MWh | megawatt-hour |
| NEMA | National Electrical Manufacturers Association |
| NWI | National Wetlands Inventory |
| O&M | operations and maintenance |
| PCE | primary constituent elements |
| PCS | Power Conversion Systems |
| PG&E | Pacific Gas and Electric |
| POCO | Point of Change of Ownership |

| | |
|---|---|
| POI | Point of Interconnect |
| Project | Potentia-Viridi Battery Energy Storage System |
| PT | proposed threatened |
| SCADA | Supervisory Control and Data Acquisition |
| Stantec | Stantec Consulting Services Inc. |
| UL | Underwriters Laboratories |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |

# 1.0 INTRODUCTION

The purpose of this Biological Assessment (BA) is to review the proposed Potentia-Viridi Battery Energy Storage System (BESS) Project (Project) in sufficient detail to determine if the Project may affect federally listed threatened or endangered species, or those proposed for such listing and their critical habitat. This BA was prepared in accordance with legal requirements found in Section 7 (a)(2) of the Federal Endangered Species Act (ESA) (Title 16, United States Code [U.S.C], Section 1536[c]). The Project will require federal permits from the U.S. Army Corps of Engineers (Corps), who will act as federal lead agency for the Project under Section 7 of the ESA.

Levy Alameda, LLC (Applicant), a wholly owned subsidiary of Obra Maestra Renewables, LLC, proposes to construct, operate, and eventually repower or decommission the 400 megawatt (MW) Potentia-Viridi Battery Energy Storage System (Project) on approximately 85 acres in eastern Alameda County. The primary components of the Project include an up to 3,200 megawatt-hour (MWh) BESS facility, an operations and maintenance (O&M) building, a project substation, a 500 kilovolt (kV) overhead intertie transmission (gen-tie) line, and interconnection facilities within the Pacific Gas and Electric (PG&E) owned and operated Tesla Substation.

The Project would draw electricity from the power grid to charge and store electrical energy and discharge back to the power grid when the stored energy is needed. The Project would provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that would enhance grid reliability.

The Project would be remotely operated and monitored year-round and be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians would routinely inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

In preparation of this BA, Stantec Consulting Services Inc. (Stantec) relied mostly on the following sources of information pertaining to federally listed threatened and endangered species:

- A records search of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) to query recorded accounts of special-status species occurring within the *Midway, California* 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle and the eight surrounding quadrangles (CDFW 2024) (Appendix A);
- A records search of the California Native Plant Society's (CNPS) database for the *Midway, California* 7.5-minute USGS topographic quadrangle and eight surrounding quadrangles (CNPS 2024) (Appendix A);
- A species list of endangered, threatened, and candidate species that may occur in the Action Area (AA) (U.S. Fish and Wildlife Service [USFWS] 2024a) (Appendix A). Additionally, the USFWS online Critical Habitat Portal and CDFW Biogeographic Information and Observation System were accessed to identify any USFWS designated critical habitat units that may occur in the AA;
- *Potentia-Viridi Battery Energy Storage System Project Biological Technical Report* (Dudek 2024);

## 1.1 CONSULTATION TO DATE

On May 22, 2024, Stantec requested a species list from the USFWS for the AA vicinity. The USFWS Sacramento Fish and Wildlife Office provided a list (Project code 2024-0094382) of threatened and endangered species that may occur in Project vicinity. No additional consultation has occurred with the USFWS for this Project.



● Project Location

0 1.5 3 Miles
(At original document size of 8.5x11)
1:250,000

N

Stantec

***Notes***
**1.** Coordinate System: NAD 1983 UTM Zone 10N
**2.** Data Sources: California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, NASA, NGA, USGS, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, USGS

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-12
IR by SE on 2024-06-12

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 1**

*Title*
**Project Location**

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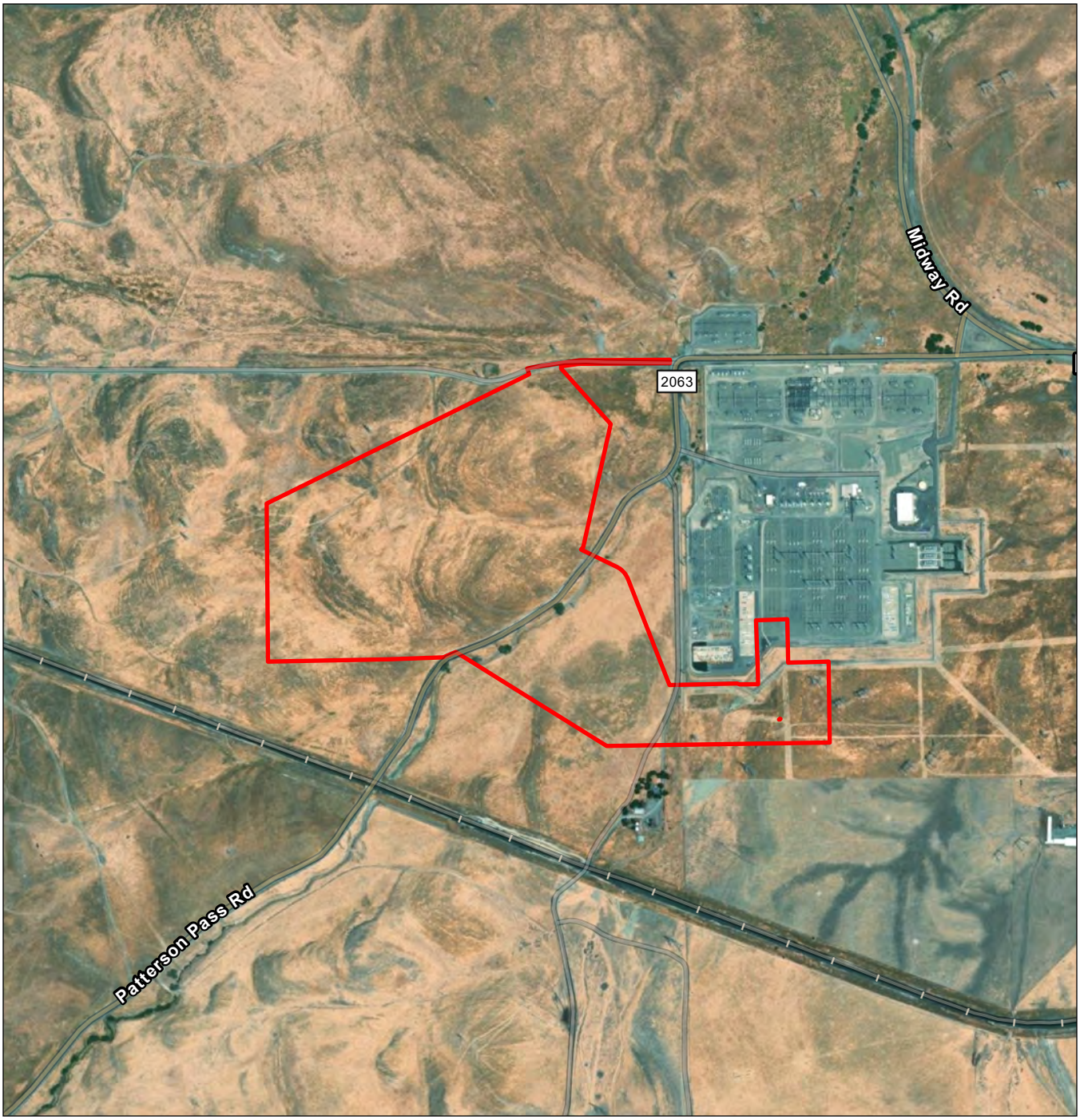


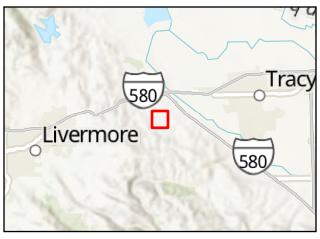


Action Area

0 425 850 Feet

(At original document size of 8.5x11)
1:12,000

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 UTM Zone 10N

**2.** Data Sources: Esri Community Maps Contributors, San Joaquin County GIS/Planning, San Joaquin County Public Works, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, USGS, Maxar, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-12
IR by SE on 2024-06-12

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 2**

*Title*
**Action Area**

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# 2.0 SPECIES CONSIDERED

To determine which special-status species have the potential to occur within the vicinity of the AA, Stantec obtained official special-status species lists consisting of federally endangered (FE), federally threatened (FT), proposed threatened (PT) and Candidate (C) species from the USFWS, CNDDB, and CNPS. The list was generated for the *Midway, California* 7.5-minute USGS topographic quadrangle and eight surrounding quadrangles (*Byron Hot Springs, Clifton Court Forebay, Union Island, Altamont, Tracy, Mendenhall Springs, Cedar Mountain, and Lone Tree Creek*). Following a review of the special-status species lists, a total of thirteen (13) federally listed species were identified to have the potential to occur within the AA (Appendix A). For this report, special-status species include species listed as threatened, endangered, candidate, or proposed for such listing under the ESA.

A list of those three special-status species is included below.

**Plants**

- Large-flowered fiddleneck (*Amsinckia grandiflora*) (FE)
- Lassics lupine (*Lupinus constancei*) (FE)

**Insects**

- Monarch butterfly (*Danaus plexippus*) (C)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (FT)
- Vernal pool fairy shrimp (*Branchinecta lynchi*) (FT)
- Vernal pool tadpole shrimp (*Lepidurus packardi*) (FE)

**Amphibians**

- California red-legged frog (*Rana draytonii*) (FT)
- California tiger salamander (*Ambystoma californiense*) (FT)
- Western spadefoot (*Spea hammondii*) (PT)

**Reptiles**

- Alameda whipsnake (*Masticophis lateralis euryxanthus*) (FT)
- Northwestern pond turtle (*Actinemys marmorata*) (PT)

**Birds**

- California condor (*Gymnogyps californianus*) (FE)

**Mammals**

- San Joaquin kit fox (*Vulpes macrotis mutica*) (FE)

## 2.1 SUMMARY OF SPECIES WITH POTENTIAL TO OCCUR IN THE ACTION AREA

To determine which of the thirteen special-status species have the potential to occur within the AA, Stantec used information collected during the field assessment, vegetation and habitat mapping, CNDDB species occurrence records, online databases, and published information review.

Based on a review of the data sources listed above, only three of the thirteen special-status species were determined to have the potential to occur within the AA. These three species include California red-legged frog (CRLF), California tiger salamander (CTS) and San Joaquin kit fox. These three special-status species are addressed in further detail within this BA.

The remaining ten special-status species described above are not expected to occur within or adjacent to the AA due to lack of occurrences and/or suitable habitat and are excluded from further consideration in the remainder of this BA. Additional detail regarding the analysis that supports these conclusions is provided within the Biological Technical Report, included as Appendix B.

.

# 3.0 DESCRIPTION OF THE PROPOSED PROJECT

## 3.1 PURPOSE AND NEED

The Project Objectives are:

- Construct and operate an economically viable, and commercially financeable, 400-MW battery energy storage facility in Alameda County with an interconnection at the Tesla Substation.
- Assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60% of all retail sales of electricity to California end-use customers by December 31, 2030, 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, and 100% of all retail sales of electricity to California end-use customers by December 31, 2045.
- Assist California utilities in meeting obligations under the California Public Utilities Commission's Mid-Term Reliability Procurement Requirements.
- Develop an electricity storage facility in close proximity to a utility grid-connected substation with existing capacity available for interconnection to minimize environmental impacts.
- Relieve grid congestion, and enhance electricity reliability, without requiring the construction of new regional transmission infrastructure or substantial network upgrades.
- Construct and operate a battery energy storage facility in Alameda County, resulting in economic benefits to the County, creating prevailing wage construction jobs, and facilitating local community benefits.

## 3.2 EXISTING CONDITION

The Project area is currently undeveloped, and the regional land use has remained largely unchanged since the 1980s based on aerial imagery (Google Earth Pro 2024). 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 Point of Interconnection. 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 of the Project area.

# 3.3 PROJECT DESCRIPTION

## 3.3.1 Project Components

The Project would include construction, O&M, and eventual decommissioning of a 400 MW BESS with an energy storage capacity up to 3,200 MWhs. Charging from or discharging to the electrical grid would be a 500kV gen-tie connecting the project substation to the point of interconnect (POI) within the existing PG&E Tesla Substation. The BESS Facility would include the following components:

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Facilities and Outfall
- Site Security and Fencing, including fire detection system
- Operations and Maintenance Building

Project components are described in the following subsections. Figure 3, Project Design Features, shows the project layout. Table 1 summarizes the preliminary dimensions of major BESS facility components, and Table 2 summarizes the preliminary footprint/disturbance acreage associated with the BESS facility.

**Table 1. Preliminary Dimensions of Major BESS Facility Components**

| Component | Quantity | Approximate Dimensions |
|---|---|---|
| BESS Enclosures | 1,000* | 20 ft x 8 ft x 10 ft (L x W x H) |
| PCS | 140* | 22 ft x 7 ft x 8 ft (L x W x H) |
| MV Collection system | -- | Buried in trenches up to 5 ft x 10 ft (W x D) |
| Project Substation Area | 1 | 500 ft x 450 ft; (5) 120 ft (H) (lightning masts) |
| Control Building | 1 | 52 ft x 20 ft x 15 ft (L x W x H) |
| Wireless Communication Tower | 1 | 18 ft x 18 ft x 199 ft (L x W x H) |
| Access Roads | -- | 20 ft (W) internal radii 25 ft minimum |
| Laydown Yards | 4 | Variable |
| Stormwater Detention Facilities | 5 | Variable |
| Stormwater Outfall | 1 | 500 ft x 5 ft x 10 ft (L x W x D) |

| | | |
|---|---|---|
| Security fencing | 1 | 9 ft (H) 8 ft tall fence topped with 1 ft of barbed/razor wire |
| Operations and Maintenance Building | 1 | 100 ft x 50 ft x 30 ft (L x W x H) |

Notes: * The number of BESS enclosures and PCS units would depend on the manufacturer selected. The total number of BESS enclosures and PCS units may increase or decrease in the final design. It is also possible that the BESS units ultimately procured may incorporate the PCS units within the BESS enclosures.

**Table 2. Preliminary Footprint of BESS Facility**

| Component | Permanent Disturbance |
|---|---|
| BESS Yards | 13.3 acres |
| Project Substation | 5.5 acres |
| Access Roads | 6.6 acres |
| Laydown Yards | 15.2 acres |
| Stormwater Detention Areas | 9.3 acres |
| Stormwater Outfall | 0.6 acres |
| Other* | 7.2 acres |
| *Total+* | *57.7 acres* |

Notes: * Other areas include maximum grading limits. The analyses assume that all areas used for the BESS facility are permanently disturbed and kept free of vegetation to comply with fire requirements.
+The total permanent disturbance acreage is a conservative estimate, and final designs may require fewer acres. Underground components within the BESS facility would be located within the footprint of above ground disturbance areas.

### 3.3.1.1 Battery Energy Storage System

The energy storage facility would utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common at present being lithium iron phosphate (LFP) cells (often colloquially referred to as 'lithium-ion'). LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured would result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description.

The BESS enclosures would be prefabricated off-site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure would include battery packs on racks, a battery management system (BMS), fire

protection, and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures would not exceed approximately 15 feet in height. The BESS enclosures may also have a heating,

ventilation, and air conditioning (HVAC) system for optimal performance and safety. Power for the HVAC system, lighting, and other electrical systems would be provided through separate auxiliary power connection to the on-site project substation with connection lines installed above and/or below ground.

#### 3.3.1.2 Power Conversion System

A PCS is a packaged and integrated system consisting of a bi-directional inverter, MV transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the voltage output of the BESS enclosures.

The PCS would convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS would also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units would be unattended systems designed to operate in all conditions. The inverters would be monitored and controlled remotely, and there would be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units would be installed on concrete foundations and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment would be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures.

#### 3.3.1.3 MV Collection System

The MV collection system would include multiple components that connect the PCS units to the project substation including: underground conductor circuits, switchboards, switchgear, and panels at 34.5kV voltage. The conductors for the MV collection system would be installed underground during construction using trenching.

#### 3.3.1.4 Project Substation

The project substation would include three main power transformers (MPTs) – two active and a live spare. When the BESS facility is charging, power from the regional electric transmission grid would be stepped down from 500kV to 34.5kV and sent from the project substation through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures would be sent to the PCS units, stepped up to 34.5kV, and transported to the project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A prefabricated control building would be installed within the project substation area and contain an energy management system, metering and telecommunication equipment for communication with PG&E/CAISO facilities and to support remote Project operations monitoring. The project substation area would also include five static masts for lightning protection and a wireless communication tower mounted with an antenna up to 15 feet in diameter for external telecommunications.

### 3.3.2 Access Roads

The Project's roadway system would include two new facility access roads and driveways, a perimeter road, and internal access roads. One of the new site access roads and driveways would be constructed from an existing private road near the northeastern portion of the site, and the other would be constructed from Patterson Pass Road near the southwestern portion of the site. A project substation access road would be constructed outside of the perimeter fence, connecting the northeast and southwest driveways, to facilitate substation access by third parties during operations. All new access roads, driveways, internal and perimeter roads would be bladed, compacted, and surfaced with aggregate. All internal roadways and private driveways would be constructed to meet access requirements for construction, O&M, and emergency response requirements.

### 3.3.3 Laydown Yards

The Project would include up to 4 laydown yards for equipment and material staging and storage during construction. These areas would also be used for worker parking during construction. The primary laydown yard would be located directly adjacent to the project substation area (see Figure 3). The primary laydown yard would be bladed, compacted, and surfaced with aggregate, while additional laydown yards would be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Portions of additional laydown yards may also be graded, if necessary. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The O&M building, and required number of parking spaces for O&M staff, would be constructed within the primary laydown following construction of the BESS facility components.

If the BESS technology ultimately procured prior to construction requires larger BESS yards to accommodate BESS enclosures with larger dimensions, a greater number of BESS enclosures, or greater spacing requirements to comply with regulations, portions of the additional laydown yards may be used to accommodate larger BESS yards than those currently proposed. The proposed Project's preliminary layout, earthwork volumes, and project component dimensions assumed for environmental analyses in subsequent chapters are conservatively large to allow for design flexibility and Project schedule preservation.

### 3.3.4 Stormwater Facilities

The proposed BESS facility site currently consists of annual grassland with rolling topography. Regulatory standards require that volumes and flow rates of stormwater discharge after construction not exceed pre-development conditions. Stormwater generated on-site would flow to stormwater detention basins located along the periphery of the BESS facility site (Figure 3). Stormwater treatment and storage sizing would be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. In the event stormwater basins reach capacity, stormwater would be discharged from the detention basins via storm drainpipes and sheet flow at rates no greater than pre-development conditions following natural drainage patterns.

A stormwater drainage outfall utilizing a new 15-inch corrugated metal pipe would be constructed from a detention basin located in the southwest portion of the site to the inlet of an existing culvert on the north side of Patterson Pass Road. Approximately 10 cubic yards of clean rip-rap would be placed as an energy dissipator at the outfall to discharge clean stormwater at or below current rates into the existing drainage on the south side of Patterson Pass Road.

### 3.3.5 Site Security

The BESS facility site would be enclosed with an 8-foot tall chain link fence topped with 1 foot of three-strand barbed wire or razor wire. The fence would be installed on the outside of the perimeter road. An additional fence with the same specifications would be installed around the project substation area. The fences would be required to prevent unauthorized access and to comply with human health and safety regulations. Gates would be installed at various access points along the fence lines and equipped with lock boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site.

Lighting would only be in areas where it is required for safety, security, or operations. Low-elevation (less than 14 feet) controlled security lighting would be installed at the project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras would be placed on site and monitored 24/7.

### 3.3.6 Fire Protection System

Fire protection would include multiple fire detection systems on-site and within the individual BESS enclosures. An infrared camera system would be installed throughout the BESS facility to achieve 100% of electrical infrastructure and trigger an alarm in case of an onsite fire. Each BESS enclosure would have a fire rating in conformance with the California Fire Code 2022. In addition, each BESS enclosure would contain an onboard BMS that monitors the appropriate state of individual battery cells and relays information 24-7. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design would comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures would be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire would not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, would be subjected to destructive testing including fire testing. The Project's BESS enclosures would include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).

- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

The California Department of Forestry and Fire Protection (CAL FIRE) would review and comment on the facility fire protection plans.

### 3.3.7 Operations and Maintenance Building

Following construction of the BESS facility, an O&M building would be constructed within the primary laydown yard for the Project's anticipated three full-time operations staff. The O&M building would include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. A potable water storage tank would provide water for washroom and sanitary facilities, and sewage/wastewater would be collected in a separate tank. Potable water would be trucked to the water storage tank periodically during O&M, and sewage/wastewater would be pumped from the storage tank, transported offsite via truck, and disposed of at a sanitary dump station, as needed, during operations. The O&M building would be powered via a distribution line from the project substation.

### 3.3.8 Transmission and Interconnection Description, Design, and Operation

The Project would be interconnected to the regional electrical transmission grid via an approximately 2,884-foot long new single-circuit 500kV gen-tie line within a 200-foot wide corridor between the project substation and the PG&E Tesla Substation. The Applicant would construct and own the portion of the gen-tie line between the project substation and the Point of Change of Ownership (POCO) transmission structure, and PG&E would construct and own the remaining portion of the gen-tie from the POCO to the POI within the Tesla Substation. The Project's transmission and interconnection facilities would include the following components:

- 500kV Gen-Tie Line including Transmission Structures and Conductors
- Fiber Optic Telecommunications Utility Poles and Fiber Optic Lines
- Access Paths
- Temporary Work Areas
- Interconnection Facilities within Existing PG&E Tesla Substation Footprint (PG&E constructed and owned)

The proposed route location was selected to minimize the number of existing utility crossings, cross existing utilities at the optimum locations, minimize the total gen-tie line length and number of transmission structures required, minimize the number of turning structures required, and enter the Telsa Substation as close as possible to the POI. The proposed transmission structures were sited to avoid potential impacts to environmental resources. Project components associated with transmission and interconnection facilities are described in the following subsections. Figure 3 shows the gen-tie route, scattered rural residences, and existing transmission lines within one mile of the proposed route. No parks, recreational areas, or scenic areas are located within one mile of the proposed gen-tie route. Table 3 summarizes the preliminary dimensions of major transmission components, and Table 4 summarizes

the preliminary new ground disturbance area associated with construction of the transmission and interconnection facilities.

**Table 3. Preliminary Dimensions of Major Transmission Components**

| Component | Quantity | Approximate Dimensions |
|---|---|---|
| 500kV Gen-Tie Line | 1 | Applicant Owned: 1,557ft long |
| | | PG&E Owned: 1,327ft long |
| Substation Bay Dead-End Transmission Structure | 2 | Applicant Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within project substation area footprint |
| | | PG&E Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within Tesla Substation footprint. |
| Angled Dead-End Transmission Structure | 3 | Applicant Owned: 2 structures; Up to 199ft above ground level; three nine foot diameter foundations, installed up to 40ft deep, per structure |
| | | PG&E Owned: 1 structure; Up to 199ft above ground level; three nine foot diameter foundations, installed up to 40ft deep. |
| H-Frame Tangent Transmission Structure | 1 | Applicant Owned: Up to 199ft above ground level; two six-foot diameter foundations, installed up to 30ft deep. |
| Conductors | 6 | Two 2,300 kcmil 61W AAC “Pigweed” per phase. 30ft minimum ground clearance. |
| Overhead Shield Wire | 2 | Two 3/8in extra high strength 7-strand steel |
| Fiber Optic Utility Poles | 16 | Up to 40ft above ground level; up to 20in diameter wood poles direct embedded up to 8ft deep. |
| Fiber Optic Cables | 2 | All dielectric self-supporting fiber optic cable. Two redundant and diverse routes. Installed above ground on utility poles by Applicant from Project Substation to POCO. Installed by PG&E underground in trenches up to 2ft wide and 4ft deep between POCO and Tesla Substation. |
| Transmission Structure Access Path | 1 | Applicant Owned: 20ft wide; up to 1,750ft long |
| | | PG&E Owned: 20ft wide; up to 950ft long |
| Transmission Line Corridor | 1 | 200ft wide |

**Table 4. Approximate New Ground Disturbance Area Associated with Transmission and Interconnection Facilities**

| Component | Permanent Disturbance | Temporary Disturbance |
|---|---|---|
| Applicant Portion | | |
| Transmission Structure Pads | 0.4 acres | - |
| Transmission Structure Access Path | 0.7 acres | - |
| Fiber Optic Utility Poles | 0.1 acres | - |
| Tension and Pulling Site | - | 3.6 acres |
| *Applicant Total* | *~1.2 acres* | *~3.6 acres* |
| PG&E Portion | | |
| Transmission Structure Pad | 0.2 acres | - |
| Transmission Structure Access Path | 0.5 acres | - |
| Tension and Pulling Site | - | 3.1 acres |
| *PG&E Total* | *~0.7 acres* | *~3.1 acres* |

### 3.3.9 500kV Gen-Tie Line

The 500kv gen-tie line would originate at the project substation within the BESS facility site and extend southeast, crossing Patterson Pass Rd overhead until reaching the POCO structure. After reaching the POCO structure the route would proceed east to an angled dead-end structure outside of the Tesla Substation fence line before extending north to a new substation dead-end structure at the POI bay within the Tesla Substation footprint. The 200-foot-wide transmission corridor would be within the BESS facility lease area on APN 99B-7890-2-4 and within an easement on APN 99B-7890-2-6 until reaching the parcel's eastern boundary about 255 feet east of the POCO structure. Both parcels comprising the BESS facility lease area and transmission corridor easement are private lands owned by the same landowner. After crossing the eastern boundary of APN 99B-7890-2-6, the remaining portion of the gen-tie would be on the same PG&E-owned parcel that includes the 500kV Tesla Substation and POI. Table 3 includes the approximate number and dimensions of the three different types of transmission structures that would be used. The gen-tie would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006), where feasible.

### 3.3.10 Transmission Structure Access Path

A transmission structure access path would be located within portions of the transmission corridor outside of the BESS facility and Tesla Substation footprints and generally follow the centerline of the gen-tie. The portion of the transmission structure access path between Patterson Pass Road and the POCO structure would include a dry

crossing of Patterson Run and require clean fill material (e.g., large cobbles, clean, native gravel, prefabricated mats) to be placed beneath the ordinary high water mark elevation for stabilization and erosion and sedimentation control.

### 3.3.11 Telecommunication Facilities

Telecommunications equipment would be installed between the control building at the project substation and the Tesla Substation to facilitate communication with PG&E/CAISO facilities. PG&E interconnection policies require two redundant fiber optic cables to be installed on diverse paths without a single point of failure (i.e., both fiber optic lines cannot be installed on a single set of structures). Between the control building within the project substation area and the POCO structure, the Applicant would install the two fiber optic lines above ground on separate utility structures within the transmission corridor. One route would be installed near the northern boundary of the transmission corridor and the other would be installed near the southern boundary of the transmission corridor. The fiber optic utility poles would be accessed via overland travel from the transmission structure pads or the transmission structure access path. At the POCO structure, each of the fiber optic cables would be brought down to an underground pullbox. PG&E would install the fiber optic cables underground from the pull boxes to the PG&E control building at the Tesla Substation. A microwave antenna installed on a communications tower within the project substation area, an optical ground wire installed on the 500kV structures, or placed underground within the transmission structure access path, between the project substation and POCO may be used in lieu of a second set of utility poles, if feasible.

### 3.3.12 Interconnection Facilities within Existing PG&E Tesla Substation Footprint

To facilitate interconnection of the BESS facility to the electric transmission grid, PG&E would need to install a substation bay dead-end transmission structure and expand the POI's 500kV breaker-and-a-half bay with a new circuit breaker.

### 3.3.13 Transmission System Impact Studies

The Applicant filed an Interconnection Request with CAISO in the Cluster 13 Interconnection Request window. CAISO, in cooperation with PG&E, prepared the Phase I Interconnection Study (February 12, 2021), and Phase II Interconnection Study (November 22, 2021). The Applicant entered into a Large Generator Interconnection Agreement (LGIA) with CAISO and PG&E on October 31, 2022. No Affected Systems controlled by CAISO or PG&E were identified during the interconnection study process. Non-CAISO systems potentially affected by the Project and other Cluster 13 projects are Western Area Power Administration and Modesto Irrigation District. The Applicant is working with both system operators to identify specific impacts and will take all reasonable steps to address potential reliability system impacts prior to the initial synchronization of the Project.

### 3.3.14 Construction

The following sections detail the approximate construction schedule and workforce, construction activities, estimated water use, and materials handling proposed by the Project.

#### 3.3.14.1 Schedule and Workforce

The Project is anticipated to be built over an approximately 18-month period from the onset of site preparation activities through energization. Following energization, testing and commissioning would take place over 6 months.

Initial mobilization and site preparation is anticipated to begin no later than Q1 2026 and testing and commissioning is anticipated to conclude no later than Q2 2028. It is anticipated that construction crews would work 8 to 10 hours per day, with work occurring Monday through Friday. Overtime, night work, and weekend work would be used only as necessary to meet the project schedule or complete time-sensitive or safety critical work. All work schedules would comply with applicable California labor laws, county regulations, and the Project Labor Agreement. Estimated durations of construction activities are presented in Table 5. However, the duration of particular construction activities may be affected by weather, unanticipated site conditions, the supply chain, and coordination between the different activities.

The expected average workforce for each construction activity is also included in Table 5.

**Table 5. Estimated Construction Activity Duration and Average Workforce Expected**

| Construction Activity | Estimated Duration | Average Workforce Expected (Number of Employees) |
|---|---|---|
| Site Preparation | 8 Weeks | 25 |
| Civil Work and Grading | 24 Weeks | 55 |
| Foundations and Underground Equipment | 16 Weeks | 50 |
| BESS Equipment Installation | 20 Weeks | 60 |
| Project Substation Installation | 32 Weeks | 20 |
| Gen-Tie Foundations and Structure Erection | 8 Weeks | 10 |
| Gen-Tie Line Stringing and Pulling | 2 Weeks | 10 |
| Testing and Commissioning | 22 Weeks | 10 |
| PG&E Interconnection Facility Upgrades within Tesla Substation | 26 Weeks | 10 |

### 3.3.14.2 Sequencing

During construction activities, multiple crews would be working on the site with various equipment and vehicles. The total number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) would range from approximately 5 to 200 workers, depending on the phase of construction. It is estimated that construction would require the vehicle trips and equipment listed in Table 6.

**Table 6: BESS Project - Construction Equipment and Usage Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |
| Site Preparation | 50 | 10 | 600 | Graders | 2 | 8 |
| | | | | Rubber Tired Loaders | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| Site Grading and Civil Work | 110 | 76 | 30,240 | Graders | 4 | 8 |
| | | | | Rollers | 4 | 8 |
| | | | | Rubber Tired Loaders | 4 | 8 |
| | | | | Skid Steer Loaders | 4 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 4 | 8 |
| | | | | Pavers | 2 | 8 |
| | | | | Paving Equipment | 2 | 8 |
| | | | | Rollers | 2 | 8 |
| | | | | Plate Compactors | 1 | 8 |
| | | | | Cement and Mortar Mixers | 1 | 4 |
| | | | | Rock Crushers | 4 | 8 |
| Foundations and Underground Equipment Installation* | 100 | 10 | 20 | Paving Equipment | 2 | 8 |
| | | | | Rollers | 2 | 8 |
| | | | | Plate Compactors | 2 | 8 |
| | | | | Cement and Mortar Mixers | 2 | 8 |
| | | | | Bore/Drill Rig | 3 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 6 | 8 |
| | | | | Excavators | 2 | 8 |
| | | | | Rubber Tired Dozers | 2 | 8 |
| | | | | Trenchers | 4 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |

**Table 6: BESS Project - Construction Equipment and Usage Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |
| BESS Installation* | 160 | 20 | 2,636 | Air Compressors | 2 | 8 |
| | | | | Cranes | 3 | 8 |
| | | | | Generator Sets | 4 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| Project Substation Installation | 40 | 20 | 0 | Air Compressors | 2 | 8 |
| | | | | Aerial Lifts | 6 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Generator Sets | 2 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| Gen-tie foundation and tower erection | 28 | 2 | 0 | Bore/Drill Rig | 1 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Forklifts | 2 | 8 |
| | | | | Boom Truck | 1 | 8 |
| | | | | Flat Bed Truck | 1 | 8 |
| | | | | Cement and Morter Mixer | 1 | 8 |
| | | | | Bucket Lift Truck | 1 | 8 |
| Gen-tie stringing and pulling | 24 | 2 | 0 | Heavy-duty Truck (Puller) | 1 | 8 |
| | | | | Heavy-duty Truck (Tensioner) | 1 | 8 |
| | | | | Forklifts | 2 | 8 |
| | | | | Generator Sets | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| | | | | Boom Truck | 1 | 8 |
| | | | | Trencher | 1 | 8 |
| PG&E Interconnection Facility Upgrades | 40 | 20 | 0 | Air Compressors | 4 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Excavators | 2 | 8 |

**Table 6: BESS Project - Construction Equipment and Usage Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |
| | | | | Generator Sets | 4 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| | | | | Trencher | 1 | 8 |
| Testing and Commissioning | 52 | 0 | 0 | Rough Terrain Forklift | 1 | 8 |
| | | | | Off-Highway Trucks | 3 | 8 |
| Decommissioning | 40 | 2 | 2,640 | Concrete/Industrial Saws | 2 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Rubber Tired Dozers | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |

Notes: * The project layout depicted in Figure 3 shows the "End of Life" configuration of the BESS, meaning it shows the equipment layout after all augmentation units are implemented. The numbers in this table conservatively assume that foundations and BESS equipment installation related to augmentation occurs during initial construction of the facility. Construction of foundations and BESS equipment installation for augmentation may occur during O&M periodically within the BESS facility footprint.

### 3.3.14.3 Site Preparation

Environmental clearance surveys would be performed at the Project site prior to commencement of construction activities. The limits of construction disturbance areas delineated in the final approved engineering design packages would be surveyed and staked. Initial ground disturbing activities in preparation for construction would include installation of erosion and sediment control measures prior to start of major earthworks activities. Rough grading and grubbing/vegetation removal would be performed where required to accommodate site drainage and allow construction equipment to access the site. Detention basins and stormwater facilities would be created for hydrologic control. The construction contractor would be required to incorporate applicable best management practices (BMPs) including the guidelines provided in the California Stormwater Quality Association's Construction BMP Handbook (CASQA 2019), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Stabilized construction entrances and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with applicable BMPs and the Bay Area Air Quality Management District's Fugitive Dust Rules. Site preparation would involve the removal and proper disposal of existing debris that would unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques

would be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. All applicable governmental requirements and BMPs would be incorporated into the construction activities for the Project site.

Vegetation on the site would be removed where necessary to ensure the BESS facility is free from combustible vegetation to allow for fire protection and defensible space. Where feasible, in compliance with fire protection requirements, vegetation root mass within appropriate portions of the BESS facility lease area on the outside of the perimeter and substation access roads would be left in place for soil stabilization. However, the environmental analyses in subsequent sections conservatively assume that all areas within the maximum anticipated grading limits of the BESS facility would be permanently disturbed.

### 3.3.14.4 Site Grading and Civil Work

Following site preparation activities, grading and civil work would commence. Construction activities during this phase would include excavation and grading of the Project site. Earthwork on the site is ultimately anticipated to result in nearly balanced cut and fill volumes, but the preliminary designs conservatively assume that grading would include up to approximately 588,018 cubic yards (cy) of cut and up to approximately 344,900 cy of fill, resulting in up to approximately 243,118 cy of export material. As appropriate, all, or a portion of, of the Project's excess material resulting from earthwork may be used beneficially used on-site for the construction of berms or other onsite needs. Where appropriate, excess material would be processed in one or more different types of rock crushing equipment depending on the requirements of the various potential beneficial uses onsite. Blasting may be required if large boulders are encountered during excavation and grading.

Conventional grading would be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement that may result in dust. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards would be graded, compacted, and surfaced with gravel or aggregate. Class II road base would be imported to create necessary compaction under the equipment, as determined by geotechnical testing and Project specifications. Once the roadways have been constructed, the project perimeter fence and access gates would be constructed.

### 3.3.14.5 Foundations and Underground Equipment Installation

Following completion of major site grading and civil work, equipment foundations and below grade equipment would be installed. A grounding grid and underground conduit would be installed below grade beneath the project substation area and BESS components. Typical ground grids consist of direct-buried copper conductors with copper-clad ground rods arranged in a grid pattern. After installation of the grounding grid, the area would be backfilled, compacted, and leveled followed by application of an aggregate rock base. A containment area within the MPT foundations would be sized to hold the full volume of oil within the MPTs. The MPT foundations within the substation area are anticipated to be concrete slab foundations poured into excavations up to 10 feet deep. Foundations for the control building, static masts, other aboveground substation equipment, O&M building, BESS enclosures, PCS units, DC/DC converters, and BESS auxiliary transformers and panels are anticipated to be pile foundations embedded up to 40 feet below ground level. Depending on soil conditions, the piles may be drilled or driven and set with a slurry. However, some of

these project components may be installed on concrete slab foundations depending on the geotechnical conditions at the final locations.

Additional underground work would included trenching for the placement of underground electrical and communications lines, including the MV collection system, AC and DC cables, and fire alarm cable. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application

### 3.3.14.6 BESS and Project Substation Equipment Installation

Where possible, major equipment would be delivered directly to its permanent location and offloaded directly into place with a crane or heavy equipment. Where staging or sequencing does not allow, equipment would be stored at one of the laydown areas near its permanent location and installed at a later date. Major aboveground equipment would be the MPTs and other project substation components, control building, BESS enclosures, PCS units, DC/DC converters, BESS auxiliary transformers and panels, and O&M building.

Electrical work would include installing cables, terminations, and splices. Electrical wiring would be installed underground, at-grade, and above ground, depending on the application and location. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

### 3.3.14.7 Gen-Tie Structure Erection

Environmental clearance surveys would be performed within the gen-tie corridor prior to commencement of construction activities. The gen-tie corridor boundaries, gen-tie centerline, telecommunications route centerlines, and transmission structure access path would be surveyed and flagged. Initial activities would include the installation of erosion and sediment control measures and materials to facilitate the dry crossing of Patterson Run, and preparation of the transmission structure and fiber optic utility pole work areas. The transmission structure access path may be bladed, compacted, and surfaced with gravel where necessary to facilitate transmission structure deliveries and construction equipment access. The surface of the access path would be at-grade to allow water to sheet flow across the gen-tie corridor, as it currently does. Access to the fiber optic utility pole locations would be via overland travel from the transmission structure pads or access path. Overland travel and temporary construction activities associated with the gen-tie and telecommunications facilities may occur anywhere within the 200-foot-wide transmission corridor and 50 feet on either side of the transmission corridor boundary. Vegetation at the transmission and fiber optic utility pole work areas would be trimmed, mowed, or removed. At locations where gen-tie line structures and fiber optic utility poles would be installed, minor cuts may be required where the foundation would be installed.

Cast-in-place concrete foundations would be installed by placing reinforcing steel and a structure stub or anchor bolt cage into the foundation hole, positioning the stub, and encasing it in concrete. Each transmission structure foundation would be set on anchor bolts on top of the foundation with cranes. Fiber optic utility poles would be direct embedded in holes up to 8 feet deep. Holes would be excavated using a truck-mounted drill rig or standalone auger rig. Poles would be delivered on a flat-bed trailer and hoisted into place with a crane. The annular space between the poles and holes would be backfilled with concrete or soil. Excavated spoil material not used for backfilling would be spread around the structure work areas.

### 3.3.14.8 Gen-Tie Stringing and Pulling

Conductors would be strung between transmission structures with heavy duty trucks and a telescoping boom lift. Cables would be pulled through one segment of the transmission line at a time. To pull cables, truck-mounted cable-pulling equipment is placed alongside the first and last towers or poles in a segment. Power pulling equipment is used at the front end of the segment, while power braking or tensioning equipment is used at the back end. The conductors are then pulled through the segment and attached to the insulators. Equipment is then moved to the next segment; the front end pull site previously used becomes the back end pull site for the next segment. After conductors have been pulled into place in a section, the conductor tension is increased to achieve a ground clearance of at least 30 feet prior to moving to the next section.

Three tension and pulling sites are anticipated to facilitate construction of the gen-tie: one within the BESS facility footprint near the first angled dead-end structure, one at the POCO structure, and another at the PG&E-constructed angled dead-end structure near the Tesla Substation fence line.

### 3.3.14.9 PG&E-Owned Gen-Tie Segment and Interconnection Facilities within Tesla Substation Footprint

PG&E would construct the segment of the gen-tie between the POCO and the POI within the Tesla Substation, and the fiber optic routes between the POCO and the PG&E control building within the Tesla Substation footprint. The Applicant would bring the fiber optic cables to underground pull boxes at the POCO structure, and PG&E would install the segment of the fiber optic cables between the POCO and control building in conduit placed in underground trenches. The trenches are anticipated to be up to three feet wide, and the trenches for the redundant routes would need to be at least 10 feet apart to meet PG&E's diverse path requirements. It is anticipated that PG&E would install the trenches within the access road to the angled dead-end structure outside the Tesla Substation fence line. However, PG&E may install the cables within existing roadways or other pre-disturbed areas along the perimeter of the substation fence depending on final design and routing.

PG&E would also construct the interconnection upgrades within the Tesla Substation footprint at the POI. These upgrades would include erection of a new substation bay dead-end transmission structure and expanding the POI's existing 500kV substation bay-and-a-half bay with a new circuit breaker. Other activities within the Tesla Substation footprint and/or property boundary may include relocation or modification of existing PG&E infrastructure. Additional potential disturbance acreage associated with PG&E's work to facilitate interconnection of the Project to the grid are not anticipated to exceed 5 additional acres of disturbance beyond the estimates in Table 4.

### 3.3.14.10 Construction Water Use

During construction, an estimated 16,000,000 million gallons (~49.1 acre-feet) of untreated water would be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line would not be required during construction because restroom facilities would be portable units, serviced by licensed providers, and water and sewage from the restroom facilities would be stored in onsite tanks and serviced by trucks. Drinking water would be provided via portable water coolers. Construction water is anticipated to be purchased from a local water purveyor and trucked to the site.

#### 3.3.14.11 Solid and Non-hazardous Waste

The Project would produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. This waste would be segregated, where practical, for recycling. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III (non-hazardous waste) landfill.

#### 3.3.14.12 Hazardous Materials

The hazardous materials used for construction would be typical of most construction Projects of this type. Materials may include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. A hazardous materials business plan would be prepared prior to commencement of construction activities. The hazardous materials business plan would include a complete list of all materials used on site and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During Project construction, material safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel.

#### 3.3.14.13 Hazardous Waste

Small quantities of hazardous waste would most likely be generated over the course of construction. This waste may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment, recycling, or disposal facility in accordance with law. All hazardous waste shipped off site would be transported by a licensed hazardous waste hauler.

### 3.3.15 Commissioning

As part of Project construction activities, and after installation, equipment will be tested and commissioned. Commissioning work will be completed by qualified personnel, and in accordance with various codes, standards and specifications including Institute of Electrical and Electronic Engineers, National Electrical Code (NFPA 70), International Electrical Testing Association, specific provisions of National Fire Protection Association, and the relevant manufacturers installation and commissioning manuals. Documentation necessary for commissioning will include (but is not limited to) complete sets of electrical plans, itemized equipment descriptions, control narratives, and other procedural requirement such as persons or entities to notify when equipment has become available for acceptance tests.

Commissioning will include testing of mechanical, electrical, fire protection, and other systems at substantial completion. Systems to be commissioned and tested include (but are not limited to) BESS enclosures, PCS units, auxiliar service transformers, MV collection system, DC cables, Supervisory Control and Data Acquisition (SCADA) systems, power backup systems, and fire protection system. Performance testing will also be completed to ensure charge and discharge performance of the systems as designed and in accordance with the utility requirements. Full details of the commissioning activities will be made available in a commissioning plan, prepared by the BESS supplier

and construction contractor and reviewed by the Engineer of Record, as part of the construction documentation package.

### 3.3.16 Operations and Maintenance

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be remotely monitored by the original equipment manufacturer or an affiliated company. Project operations would be monitored remotely through the SCADA system and by the Project's anticipated three full-time operations staff members.

Onsite maintenance would be required, which would include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the project substation, O&M staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

Batteries within utility-scale BESS facilities degrade with use over time, leading to a loss of capacity. To maintain the Project's capacity in compliance with interconnection requirements and commercial contracts, periodic augmentation by installing new batteries and related equipment within the Project site would occur to maintain the capacity over an approximate 35-year life. Augmentation would include constructing new foundations, installing BESS equipment on the foundations, and completing electrical work within the existing Project footprint. The preliminary site layout depicted on Figure 3 shows an "end of life" configuration, meaning it shows the equipment layout after all augmentation units are implemented. The construction sequencing and equipment usage assumptions in Tables 3 and 4 above, and environmental analyses in subsequent Chapters, conservatively assume that all initial BESS equipment and augmentation BESS equipment are constructed at the same time.

#### 3.3.16.1 Solid and Nonhazardous Waste

The Project will produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning electrical materials, empty containers, and other miscellaneous solid waste, including typical refuse generated by workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

#### 3.3.16.2 Hazardous Materials

Limited amounts of hazardous materials would be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the Project. A spill prevention control and countermeasures plan would be developed for site operations.

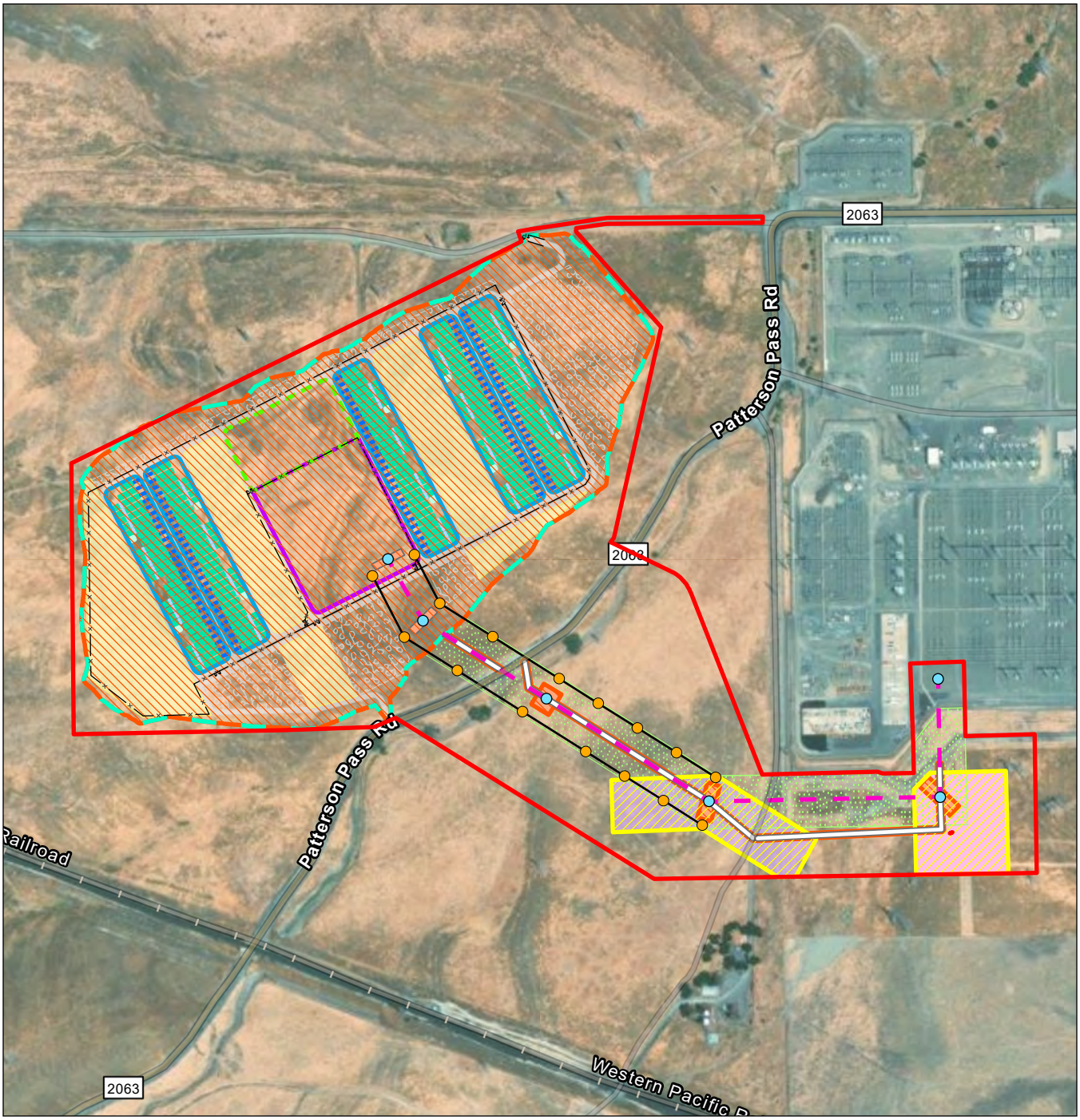
### 3.3.16.3 Hazardous Waste

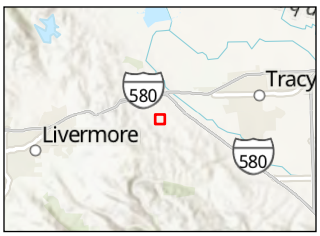
Fuels and lubricants used in operations would be subject to the spill prevention control and countermeasures plan to be prepared for the proposed Project. Solid waste, if generated during operations, would be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

## 3.3.17 Decommissioning

In general, the BESS would be recycled at the expiration of the Project's life (estimated to be 35 years). Most parts of the proposed system are recyclable. Batteries include lithium-ion, which degrades but can be recycled or repurposed. Steel, wood, and concrete from the decommissioned facilities would be recycled. Metal and scrap equipment and parts that do not have free-flowing oil may be sent for salvage. Materials three feet or more below the ground surface would be left in place.

Fuel, hydraulic fluids, and oils would be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks and vessels would be rinsed and transferred to tanker trucks. Other items that are not feasible to remove at the point of generation, such as smaller container lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, would be kept in a locked utility structure with integral secondary containment that meets Certified Unified Program Agencies and Resource Conservation and Recovery Act requirements for hazardous waste storage until removal for proper disposal and recycling. It is anticipated that all oils and batteries would be recycled at an appropriate facility. Site personnel involved in handling these materials would be trained to properly handle them. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage. Additional procedures would be specified in a Hazardous Materials Business Plan closure plan submitted to the Certified Unified Program Agencies. Transportation of the removed hazardous materials would comply with regulations for transporting hazardous materials, including those set by the Department of Transportation, the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal.




- Action Area
- Telecomm Pole
- HV Structure
- Telecomm Line
- Gen-Tie
- Gen-Tie Corridor
- PG&E Temporary Work Area
- Tension Pulling Area
- Transmission Access Path
- Laydown Yard
- BESS Yards
- BESS Enclosures
- DC/DC Converters
- PCS Units
- Auxilary Transformers and Panels
- Primary Laydown Yard
- Project Substation Area
- Fence Line
- Stormwater Areas
- Roads
- Grading Limits
- Temporary Distrubance
- Permanent Disturbance

0 250 500 Feet

(At original document size of 8.5x11)
1:7,000

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 UTM Zone 10N

**2.** Data Sources: Esri Community Maps Contributors, San Joaquin County GIS/Planning, San Joaquin County Public Works, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, CGIAR, USGS, Maxar, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS,

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-12
IR by SE on 2024-06-12

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 3**

*Title*
**Project Design Features**

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# 4.0 FIELD INVESTIGATION

Dudek qualified biologists conducted biological field surveys in 2023 and 2024 to evaluate the AA for special-status species and habitat. These included reconnaissance surveys and focused surveys for rare plants, burrows, and CRLF habitat. Additionally, a formal aquatic resource delineation was conducted concurrently with the reconnaissance and focused surveys in 2024. The field surveys are summarized in Table 7 and discussed further below.

### Table 7. Field Survey Summary

| Date | Survey Type(s) | Biologists | Time | Survey Conditions |
|---|---|---|---|---|
| 3/31/2023 | Reconnaissance (original Project site boundary only, excludes gen-tie) | Emily Scricca, Erin Fisher-Colton | 9:30am-11:30am | 58°F–61°F, 75%–90% cloud cover, 1–4 mph wind |
| 5/16/2023 | • Protocol-Level Botanical<br>• Focused Burrow Surveys | Kelsey Higney<br>Lorna Haworth | 8:41 a.m.–11:15 a.m. | 80°F–85°F, 0% cloud cover, 0–6 mph wind |
| 8/2/2023 | • Reconnaissance (gen-tie alignment only)<br>• Protocol-Level Botanical<br>• Focused Burrow Surveys<br>• Protocol-level California Red- Legged Frog (CRLF) Habitat Assessment | Kelsey Higney<br>Erin Fisher-Colton | 9:23 a.m.–4:54 p.m. | 71°F–80°F, 0% cloud cover, 5–20 mph wind |
| 1/18/2024 | • Reconnaissance (adjusted gen-tie alignment only)<br>• Protocol-Level Botanical (adjusted gen-tie alignment only)<br>• Focused Burrow Surveys (adjusted gen-tie alignment only)<br>• Aquatic Resources Delineation | Mikaela Bissell<br>Erin Fisher-Colton | 9:16 a.m.-2:30 p.m. | 50°F–58°F, 80%-100% cloud cover, 1- 4 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 2023a). 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. See Appendix B for Biological Technical Report.

## 4.1 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 AA 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 and burrows. This survey was conducted on foot to identify vegetation communities in the updated AA 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 and burrows within the adjusted buffered gen-tie alignment.

## 4.2 PROTOCOL-LEVEL BOTANICAL SURVEYS

Protocol-level rare plant surveys were conducted on May 16, 2023, August 2, 2023, January 18, 2024, April 15, 2024, May 3, 2024, and May 24, 2024, to identify special-status rare plant species within the updated AA boundaries. Dudek qualified biologists surveyed the entire Project site on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated AA 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).

## 4.3 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 AA boundaries. Dudek qualified biologists surveyed the entire AA on foot in approximately 20-meter parallel transects to provide complete visual coverage within the updated AA boundaries and gen-tie alignment. All burrows potentially suitable for San Joaquin kit fox were documented and mapped using ArcGIS Field Maps (Environmental Systems Research Institute [Esri]). Several larger California ground squirrel (*Otospermophilus beecheyi*) burrows were documented on the eastern side of the AA, adjacent to Patterson Pass Road. Although atypical for San Joaquin kit fox, these burrows were documented as being potentially suitable for this species. Additional burrow surveys were conducted April 15, May 3, and May 24, 2024. All burrows onsite were determined to be either ground squirrel or pocket gopher (*Thomomys bottae*) and were not suitable for San Joaquin kit fox. Further, no sign of either of this species has been documented during any site survey conducted in 2023 or 2024.

## 4.4 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 AA to identify potential aquatic breeding sites within dispersal distance of the AA. 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).

## 4.5 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 AA that are potentially subject to regulation under federal Clean Water Act Sections 401 and 404, CFGC Section 1602, or under the Porter-Cologne Act.

# 5.0 NATURAL ENVIRONMENT

The following section provides a description of the existing physical and biological conditions within and adjacent to the Action Area.

## 5.1 GENERAL SETTING

The AA is within a Mediterranean climate where annual temperatures range from 38.3 degrees Fahrenheit (°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.

The AA is relatively flat, with an approximate elevation of 383 to 523 feet at mean sea level. 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 2023b) commonly associated with wetlands or other waters.

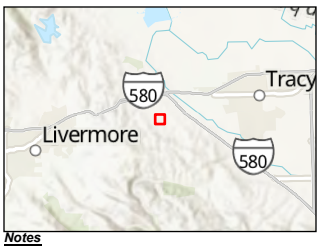
The AA occurs within the North Diablo Range of the Alameda Creek Watershed (USGS 2023). According to the USFWS National Wetlands Inventory (NWI), there are several freshwater ponds, freshwater wetlands, and riverine aquatic features in the vicinity of the Project (USFWS 2023; Appendix B). The NWI is based on coarse aerial mapping and does not involve ground-truthing. The national hydrography dataset shows Patterson Run and one other drainage crossing the AA from south to north. Patterson Run is an ephemeral stream system that runs parallel to Patterson Road adjacent to the AA, flows in a northerly direction, and eventually terminates approximately 2.3 miles northeast of the AA in agricultural land just north of the Delta Mendota Canal. Patterson Run is classified in the NWI as a freshwater emergent wetland (USFWS 2023). The second drainage is classified by the NWI as freshwater emergent wetland (USFWS 2023), however, there is no physical evidence of this drainage within the AA either on aerial imagery or when surveyed on the ground.

## 5.2 VEGETATION COMMUNITIES

Vegetation communities are based on descriptions provided in Manual of California Vegetation. One vegetation community occurs in the AA, Wild oats and annual brome grassland (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance) (CNPS 2023). 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 2023). Annual grassland covers the entire AA outside of the aquatic features (88.24 acres).

## 5.3 POTENTIAL WATERS OF THE UNITED STATES

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 AA where the BESS facility site connects to the gen-tie alignment, paralleling Patterson Pass Road (Figure 4). This seasonal channel flows southwest to northeast. The channel had moderate flow during the March 2023 and January 2024 surveys and was dry during the May and August 2023 surveys.


Action Area

**Delineated Feature**

EPH-01

0 250 500 Feet

(At original document size of 8.5x11)
1:7,000

N

Stantec

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-12
IR by SE on 2024-06-12

*Client/Project*
185706735

Potentia-Viridi Battery Energy Storage System
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*Figure No.*
**Figure 4**

*Title*
**Potential Waters of the United States within the Action Area**

***Notes***

**1.** Coordinate System: NAD 1983 UTM Zone 10N

**2.** Data Sources: Esri Community Maps Contributors, San Joaquin County GIS/Planning, San Joaquin County Public Works, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, CGIAR, USGS, Maxar, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS,

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# 6.0 SPECIES ACCOUNTS

Three federally listed species, CTS, CRLF and San Joaquin kit fox were identified as having potential to occur within and adjacent to the AA. Each of these species is described below.

## 6.1 CALIFORNIA TIGER SALAMANDER

The central California distinct population segment (DPS) of CTS is federally listed as threatened. This species is a large, stocky, terrestrial salamander with a broad, rounded snout. Total body length of adults range from 6 to 9.5 inches and coloration consists of randomly occurring white or yellow spots on an all-black body (USFWS 2017a). Larvae coloration is variable, with a majority being pale and sometimes having dark grey spots.

### 6.1.1 Historical and Current Distribution

The CTS Central California DPS is restricted to disjunct populations that form a ring along the foothills of the Central Valley and Inner Coast Range from San Luis Obispo, Kern, and Tulare Counties in the south, to Sacramento and Yolo Counties in the north. The recovery priority number for the CTS Central California DPS is 9C, which indicates that the DPS faces a moderate degree of threat, has a high potential for recovery, and is in conflict with development projects, such as conversion to agriculture or urban development.

### 6.1.2 Habitat Requirements and Life History

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. This species has an obligate biphasic life cycle where it utilizes both aquatic habitats as larvae and terrestrial habitats as adults. Although larvae develop in the ponds and wetlands where they hatch, once an individual undergoes metamorphosis, it will leave its natal pond and enters a burrow or other upland refugia, and then spend most its life underground, generally only returning to aquatic habitats to breed. Adult CTS engage in mass migrations during a few rainy nights per year, typically from November through April, although migrating adults have been observed as early as October and as late as May. During these rain events, adults will travel overland to breeding ponds at night to mate before returning to their underground burrows. Males typically arrive before the females and generally remain in the ponds longer than females (USFWS 2017a). This species has been documented to cover distances from 492 feet to 1.3 miles, traveling from breeding ponds to upland terrestrial habitat (Orloff 2011). On average, it is estimated that California tiger salamander migrate an average of 1,844 feet and could potentially migrate up to 1.5 miles each breeding season (Searcy and Shaffer 2011).

### 6.1.3 Occurrence in Relation to the Action Area

#### 6.1.3.1 CNDDB

There are 209 CNDDB occurrences for CTS within a 9-quadrangle search of the AA (Figure 5). The nearest documented occurrence is approximately 1.6 miles southwest of the AA from 2012 (Occ. No. 1003), but there are numerous other records within 5 miles of the AA (CDFW 2024). The AA also occurs within the East Alameda County

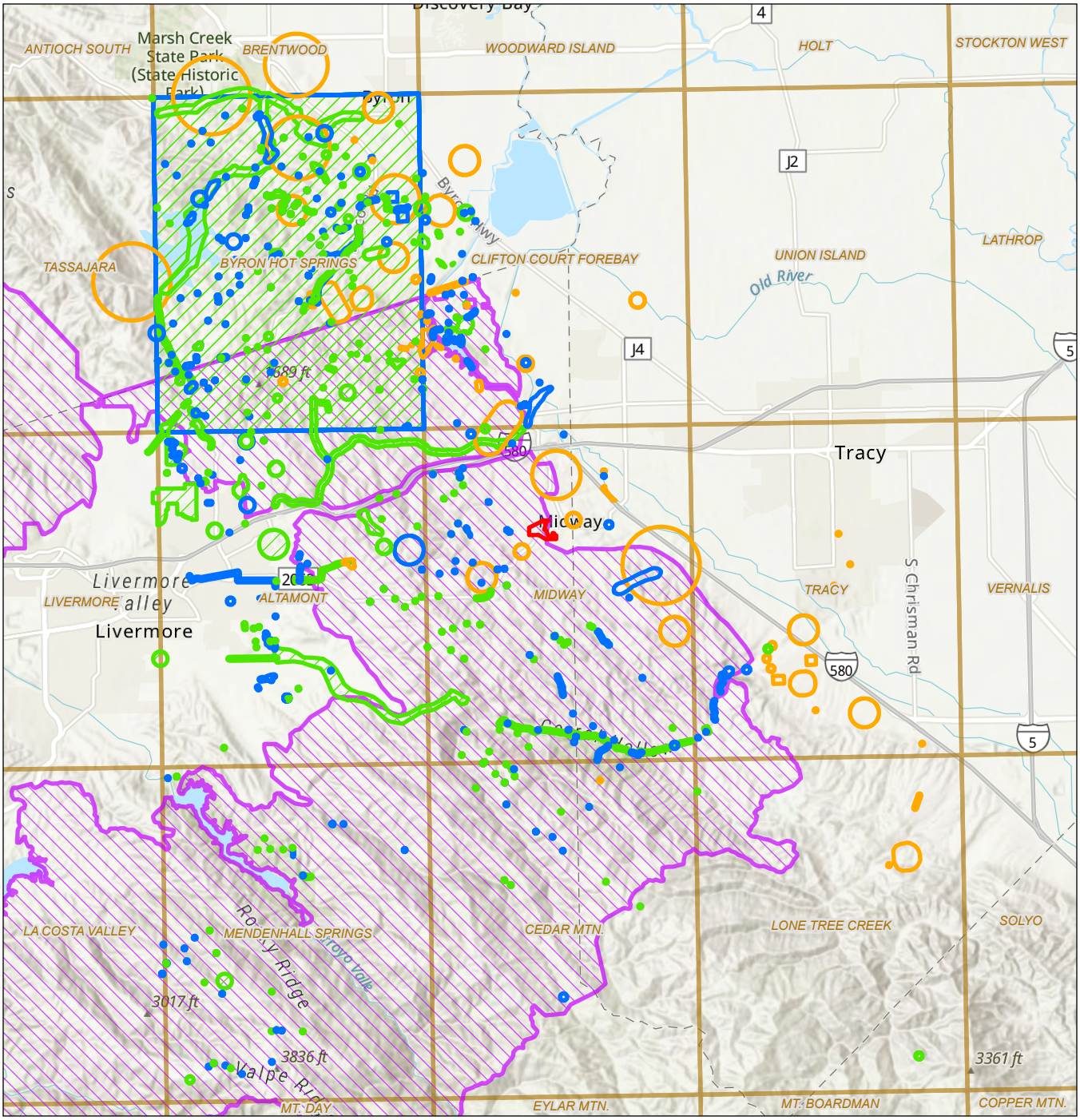
Conservation Strategy (EACCS) Conservation Zone 10 or designated as “CTS North” and is a high priority for the EACCS for protecting a substantial portion of potential breeding ponds within this area (ICF 2010).

#### 6.1.3.2 Field Assessment

The habitat on the AA 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 AA (Appendix B). No CTS 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 2003).

### 6.1.4 Critical Habitat

There is no USFWS designated critical habitat for this species within the AA.





**Notes**
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data Sources: California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, CGIAR, USGS, San Joaquin County GIS/Planning, California State Parks, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, USGS

- Action Area
- USGS 7.5' Quadrangle

**CNDDB Occurrences**
- California red-legged frog *(Rana draytonii)*
- California tiger salamander - central California DPS *(Ambystoma californiense pop. 1)*
- San Joaquin kit fox *(Vulpes macrotis mutica)*

**Critical Habitat**
- California red-legged frog

0 1.5 3 Miles
(At original document size of 8.5x11)
1:250,000

N

Stantec

*Project Location*
Midway
Alameda County, CA

Prepared by KDLP on 2024-06-12
IR by SE on 2024-06-12

*Client/Project*
185706735
Potentia-Viridi Battery Energy Storage System
Biological Assessment

*Figure No.*
**Figure 5**

*Title*
**California Natural Diversity Database (CNDDB) Occurrences**

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## 6.2 CALIFORNIA RED-LEGGED FROG

The CRLF is federally listed as threatened. This species is the largest native frog in California, ranging from 1.5 to 5.1 inches in length (USFWS 2022). Adult CRLF abdomen and hind legs are primarily red with this coloration extending to other parts of the body; however, adult coloration ranges between brown, gray, olive, and reddish with black flecks and larger dark blotches. They also have prominent dorsolateral folds, easily distinguishable from other frog species that occur in the same habitats. Larvae range from 0.3 to 3 inches in length and are typically brown and yellow with some darker spots (USFWS 2022).

### 6.2.1 Historical and Current Distribution

The historical range of CRLF extended from Riverside County to Mendocino County along the Coast Range; from Calaveras County to Butte County in the Sierra Nevada; and to Baja California, Mexico (USFWS 2017b). CRLF are still abundant within portions of the San Francisco Bay area (including Marin County) and the central coast (USFWS 2017b).

### 6.2.2 Habitat Requirements and Life History

The CRLF inhabits a variety of aquatic, upland, and riparian environments, including ephemeral and permanent ponds, seasonal wetlands, perennial creeks, intermittent streams, manmade aquatic features (e.g., stock ponds), riparian corridors, nonnative annual grasslands, and oak savannahs (USFWS 1996). Preferred breeding habitat consists of still or slow-moving water or deep-water pools where it deposits large egg masses, usually attached to submergent or emergent vegetation. Breeding typically occurs during winter and early spring (i.e., late November through April). Well-vegetated upland habitats in proximity of a riparian corridor may also provide sheltering habitat during the breeding season. During the nonbreeding season (i.e., generally from May through mid-November), CRLF utilize a variety of aquatic habitats including small pools in streams, springs, water traps and other perennial water bodies (Miller et al. 1996; Fellers and Kleeman 2007). During the dry summer months, CRLF seek refuge in small mammal burrows, areas with structural cover, and moist leaf litter commonly associated with adjacent riparian habitat to avoid desiccation (Rathbun et al. 1993; Jennings and Hayes 1994). CRLFs have been recorded to cover distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (USFWS 2005; Tartarian 2008).

#### 6.2.2.1 CNDDB

There are 212 CNDDB occurrences for CRLF within a 9-quadrangle search of the AA (Figure 5). The nearest documented occurrences are approximately 1.5 miles east, south, and west of the AA (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 AA (CDFW 2024). The AA also occurs within the EACCS Conservation Zone 10 or designated as “CRLF South” and is a high priority for the EACCS for protecting a substantial portion of potential breeding ponds within this area (ICF 2010).

#### 6.2.2.2 Field 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 AA to identify potential aquatic breeding sites within dispersal distance of the AA. 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 AA (see Appendix B for the Biological Technical Report). 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 (see Appendix C for the CRLF Habitat Assessment).

### 6.2.3 Critical Habitat

The AA is located within USFWS designated critical habitat for CRLF (75FR12816 12959). The critical habitat extends beyond the AA to the north and southwest of the AA (USFWS 2024b), 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 acres) lakes or reservoirs.

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

## 6.3 SAN JOAQUIN KIT FOX

San Joaquin kit fox is federally listed as endangered. This species is a small, tan fox with a bushy black-tipped tail. They are the smallest foxes in North America, with an average body length of 20 inches and a weight of about 5 pounds. It has a narrow nose and a small, slim body. The foot pad of kit foxes are small by comparison with other

canids. The fox is specially adapted for its desert habitat because it's large, close-set ears help dissipate heat, keeping it cool in the hot desert (USFWS 2024c).

### 6.3.1 Historical and Current Distribution

Currently, they occur in some areas of suitable habitat within the San Joaquin Valley and in the surrounding foothills of the Coast Range, Sierra Nevada, and Tehachapi Mountains from Kern County north to Contra Costa, Alameda, and San Joaquin Counties. Historically, San Joaquin kit fox were believed to inhabit the area from Contra Costa and Jan Joaquin Counties in the north to Kern County in the south (USFWS 1998).

### 6.3.2 Habitat Requirements and Life History

This species occurs in a variety of habitats, including grasslands; scrublands; vernal pool areas; alkali meadows and playas; and an agricultural matrix of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands. They prefer habitats with loose textured soils that are suitable for digging, but they occur on virtually every soil type. Dens are generally located in open areas with grass and/or scattered brush, and seldom occur in areas with thick brush. They feed primarily on small mammals, including California ground squirrels, rabbits, mice, kangaroo rats, and have been known to prey on ground-nesting birds, reptiles, and insects (USFWS 1998).

### 6.3.3 Occurrence in Relation to the Action Area

#### 6.3.3.1 CNDDB

There are 44 CNDDB occurrences for San Joaquin kit fox within a 9-quadrangle search of the AA (Figure 5). The nearest documented occurrence is approximately 0.3 miles southwest of the AA, a historical record from 1984 (Occ. No. 6); multiple other historical records are within 5 miles of the AA, all prior to 1992 (CDFW 2024). There is moderate-quality grassland present on the site. The AA also falls within the EACCS Conservation Zone 10 for SJKF or "SJKF East." EACCS indicates this area likely supports connectivity through the Altamont Hills for SJKF but connectivity across I-580 has been compromised by infrastructure development (ICF 2010).

#### 6.3.3.2 Field Assessment

Focused burrow surveys were conducted on May 16 and August 2, 2023, and January 18, April 15, May 3, and May 24, 2024, to identify a variety of animal burrows within the updated AA boundaries, including for San Joaquin kit fox. Several large burrow tailings were observed on the eastern side of the AA along Patterson Pass Road, evidence of suitable soils for burrowing. Additional burrow surveys were conducted April 15, May 3, and May 24, 2024, as part of a protocol-level western burrowing survey. All burrows onsite were determined to be either ground squirrel or pocket gopher (*Thomomys bottae*) and were not suitable for San Joaquin kit fox. Further, no sign of San Joaquin kit fox has been documented during any site survey conducted in 2023 or 2024.

### 6.3.4 Critical Habitat

The AA does not occur within or adjacent to USFWS designated critical habitat for this species.

# 7.0 EFFECTS OF THE PROPOSED ACTION

This section describes the effects of the Proposed Action on focused species.

As defined under the ESA, direct effects are caused by the proposed action and occur at the time of the proposed action. Activities proposed as part of the proposed action with the potential to have permanent and temporary impacts that may result in direct effects to focused species include road widening, earthwork, culvert extensions, drainage modifications, vegetation removal, utility relocation and development. An evaluation of potential indirect and direct impacts to California tiger salamander, California red-legged frog and San Joaquin kit fox are provided below. Because the study area is within the EACCS; therefore, avoidance, minimization, and mitigation measures described below for each species are directly from the EACCS and the Programmatic Biological Opinion for the EACCS (USFWS 2012).

## 7.1 PROPOSED IMPACTS TO SPECIES AND CRITICAL HABITAT

### 7.1.1 California Tiger Salamander and California Red-legged Frog

CTS is a federally threatened species and CRLF are federally threatened. Both species have a potential to occur on the AA. The habitat on the AA is suitable upland habitat for these species, consisting of abundant grassland with small mammal burrows to provide refuge. Two nearby stock ponds provide suitable aquatic breeding habitat for CTS approximately 0.3 miles from the AA. One of these ponds is also high-quality breeding habitat for CRLF. No CTS were observed during the field surveys, although there are known occurrences for this species within 5 miles, and the aquatic habitats are within dispersal distance of the AA.

The Project could result in direct or indirect impacts on CTS and CRLF. Direct impacts include mortality or injury from ground-disturbing activities, construction equipment, grading, or other construction activities; and permanent loss of potential upland and dispersal habitat within the construction footprint. These species are known to use burrows for refuge, which may be crushed by the weight of construction equipment, building supplies, or grading on the surface, even if the burrow is of sufficient depth to avoid direct excavation. Indirect impacts include disturbance due to increased human activity and impacts to water quality from construction activities.

#### 7.1.1.1 Avoidance and Minimization Measures

The following avoidance and minimization measures will be implemented following EACCS.

**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. 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 monofilament 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: CTS, CRLF**

*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/CDFW 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/CDFW 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.

#### 7.1.1.2 Compensatory Mitigation

With the implementation of the above avoidance and minimization measures, compensatory mitigation proposed is associated with the preservation of upland and dispersal habitat for these species. To compensate for direct impacts on upland habitat for CTS and CRLF, the Applicant will purchase the appropriate mitigation credits from a USFWS-approved mitigation bank or another site to be approved by the USFWS. Currently, the Applicant anticipates purchasing mitigation credits from Vieira Ranch Conservation Bank, located within the same Conservation Zone as the AA (Conservation Zone 10). The EACCS standardized mitigation ratios for CTS and CRLF are 3:1 (three acres preserved for each acre removed) (ICF 2010). However, using the Mitigation Score Sheets in Appendix E of the EACCS, the mitigation ratios are adjusted downward because the mitigation bank provides higher quality habitat for CTS and CRLF than the AA, including suitable breeding habitat (see Appendix D for the Mitigation Score Sheets). As stated in the Programmatic Biological Opinion for the EACCS, the impact site score is divided by the mitigation site score and then multiplied by the standard mitigation ratio to determine the adjusted ratio:

(Impact Score ÷ Mitigation Score) x Standard Mitigation Ratio = Adjusted Mitigation Ratio

Therefore, Permanent impacts will be mitigated at a minimum of 1.9:1 for CTS and 2.3:1 for CRLF. Final mitigation ratios will be based on consultation with USFWS.

#### 7.1.1.3 Cumulative Effects

Implementation of avoidance and minimization measures mentioned above would ensure that potential adverse effects to CTS and CRLF are minimized. Potential Project effects to these species would be direct temporary and permanent effects associated with dispersal and upland habitat only. Because the Project does not have any temporary or permanent effects to breeding habitat for these species, along with the implementation of avoidance and minimization measures, the Project is not expected to have a measurable effect on the local and regional population of these species and is therefore not cumulatively considerable.

### 7.1.2 San Joaquin Kit Fox

San Joaquin kit fox is a federally endangered with moderate potential to occur on the AA. Burrow surveys were conducted April 15, May 3, and May 24, 2024. All burrows onsite were determined to be either ground squirrel or pocket gopher (*Thomomys bottae*) and were not suitable for San Joaquin kit fox. Further, no sign of SJKF has been documented during any site survey conducted in 2023 or 2024.

#### 7.1.2.1 Avoidance and Minimization Measures

Potential direct and indirect effects could occur during construction activities as result from noise and vibration. In addition to the general measures listed above, the following species avoidance and minimization measures will be implemented during construction:

**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 CDFW. 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 CDFW.
- Pipes will be capped, and trenches will contain exit ramps to avoid direct mortality while construction areas is active.

#### 7.1.2.2 Compensatory Mitigation

With the implementation of the above avoidance and minimization measures, compensatory mitigation proposed is associated with the preservation of dispersal and migration habitat for this species. To compensate for direct impacts

on dispersal and migration habitat for San Joaquin kit fox, the Applicant will purchase the appropriate mitigation credits from a USFWS-approved mitigation bank (anticipated to be Vieira Ranch Conservation Bank). The EACCS standardized mitigation ratios for San Joaquin kit fox are 3:1 (three acres preserved for each acre removed) (ICF 2010). However, using the Mitigation Score Sheets in Appendix E of the EACCS, the mitigation ratios are adjusted downward because the mitigation bank provides higher quality habitat for San Joaquin kit fox than the AA (see Appendix D for the Mitigation Score Sheets). Using the same mitigation formula stated in Section 7.1.1.2, permanent impacts will be mitigated at a minimum of 2.5:1 for San Joaquin kit fox. Final mitigation ratios will be based on consultation with USFWS.

#### 7.1.2.3 Cumulative Effects

Implementation of avoidance and minimization measures mentioned above would ensure that potential adverse effects to San Joaquin kit fox are minimized. Because the Project impacts to this species' habitat are not anticipated to have a significant impact on the species or jeopardize its continued existence, it is not expected to have a measurable effect on the local and regional population of this species and is therefore not cumulatively considerable.

# 8.0 CONCLUSIONS AND DETERMINATION

This BA represents an assessment of the effects of the Proposed Action on the federally listed CTS, CRLF and San Joaquin kit fox in accordance with Section 7 of ESA of 1973, as amended. Based on the information presented in this BA, the following conclusions and effect determinations were made for these species below.

## 8.1 CALIFORNIA TIGER SALAMANDER

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and upland habitat for CTS. The Project will have temporary and permanent impacts to potential dispersal and upland habitat; however, there are no permanent or temporary impacts to aquatic breeding habitat. Therefore, the Project **may affect, likely to adversely affect California tiger salamander**. Implementation of avoidance and minimization measures described under Section 7.1.1 would reduce any direct and indirect effects on potential CTS dispersal and upland habitat. Additionally, the Applicant would compensate for any permanent dispersal and upland habitat loss as described under 7.1.1.2.

The Project does not occur within designated critical habitat for CTS; therefore, the Project will have **no effect** on critical habitat for this species.

## 8.2 CALIFORNIA RED-LEGGED FROG

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and upland habitat for CRLF. The Project will have temporary and permanent impacts to potential dispersal and upland habitat; however, there are no permanent or temporary impacts to aquatic breeding habitat. Therefore, the Project **may affect, likely to adversely affect California red-legged frog**. Implementation of avoidance and minimization measures described under Section 7.1.1 would reduce any direct and indirect effects on potential CRLF dispersal and upland habitat. Additionally, the Applicant would compensate for any permanent dispersal and upland habitat loss as described under 7.1.1.2.

The Project will have temporary and permanent impacts to designated critical habitat for CRLF; therefore, the Project **may affect, likely to adversely affect California red-legged frog** critical habitat.

## 8.3 SAN JOAQUIN KIT FOX

The AA occurs within the range of the species and may directly and indirectly impact potential dispersal and migration habitat for San Joaquin kit fox. The Project will have temporary and permanent impacts to potential dispersal and migration habitat; however, these impacts are considered minimal as the AA is within the northern limits of their dispersal or migration boundary. There are no permanent or temporary impacts to potential breeding or denning habitat within the AA. Therefore, the Project **may affect, not likely to adversely affect San Joaquin kit fox**. Implementation of avoidance and minimization measures described under Section 7.1.2.1 would reduce any direct and indirect effects on potential San Joaquin kit fox dispersal or migration habitat. Additionally, the Applicant would compensate for any permanent dispersal and migration habitat loss as described under 7.1.2.2.

The Project does not occur within designated critical habitat for San Joaquin kit fox; therefore, the Project will have **no effect** on critical habitat for this species.

# 9.0 REFERENCES

Avian Power Line Interaction Committee. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, CA. Available online at https://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf. Accessed May 2024.

California Department of Fish and Wildlife (CDFW). 2018. Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. California Natural Resources Agency Department of Fish and Wildlife.

CDFW. 2024. California natural diversity database - RareFind 5 for commercial subscribers. Available online at https://nrm.dfg.ca.gov/cnddb. Last accessed May 2024.

California Native Plant Society (CNPS). 2001. CNPS Botanical Survey Guidelines. Revised June 2, 2001. https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf. Accessed August 2023.

CNPS. 2023. A Manual of California Vegetation, Online Edition. Sacramento, California: CNPS. https://vegetation.cnps.org. Accessed August 2023.

CNPS. 2024. Inventory of rare and endangered plants of California. Available online at http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Last accessed January 2024.

California Stormwater Quality Association. 2019. Construction Best Management Practices Handbook. https://www.casqa.org/resources/bmp-handbooks/construction-bmp/2019-construction-bmp-handbook. Accessed May 2024.

Dudek. 2024. Biological Technical Report for the Potentia-Viridi Battery Energy Storage System Facility Project, Alameda County, California. Prepared for Levy Alameda LLC by Dudek. Auburn, California. February 2024.

Fellers, G. M. and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: implications for conservation. Journal of Herpetology, 41(2):276-286.

Google Earth Pro. 2024. Version 7.3.6.9796. Mountain View, CA: Google Earth Mapping Service. Accessed May 2024.

ICF. 2010. East Alameda County Conservation Strategy, Final Draft. Available online: https://www.eastalco-conservation.org/documents.html. Accessed May 2024.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract Number 8023.

Jepson Flora Project (eds.) 2023. Jepson eFlora. Available online at http://ucjeps.berkeley.edu/eflora/. Last accessed August 2023.

Miller, K. J., A. Willy, S. Larsen, and S. Morey. 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-legged Frog. Federal Register: Vol. 61, No. 101.

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

Rathbun, G. B., M. R. Jennings, T. G. Murphey, and N. R. Siepel. 1993. Status and ecology of sensitive aquatic vertebrates in lower San Simeon and Pico Creeks, San Luis Obispo County, CA. National Ecology Research Center, Piedras Blancas Research Station, San Simeon, CA. Cooperative Agreement 14-16-009-91-1909.

Searcy, C.A. and H.B. Shaffer. 2011. Determining the migration distance of a vagile vernal pool specialist: How much land is required for conservation of California tiger salamanders? Pages 73-87 In: D.G. Alexander and R.A. Schlising (Editors), Research and recovery in vernal pool landscapes. Studies from the Herbarium, Number 16. California State University, Chico, California.

Tartarian, P. J. 2008. Movement Patterns of California Red-legged Frogs (*Rana draytonii*) in an Inland California Environment. Herpetological Conservation and Biology 3(2): 155-169.

U.S. Department of Agriculture (USDA). 2023a. “California.” State PLANTS Checklist. https://plants.usda.gov/home/stateSearch. Accessed August 2023.

USDA. 2023b. List of Hydric Soils. USDA Natural Resources Conservation Service, Soil Survey Staff. https://www.nrcs.usda.gov/conservation-basics/natural-resourceconcerns/ soil/hydric-soils. Accessed August 2023.

USDA. 2024. Soil Survey Geographic Database: Web Soil Survey [GIS online viewer]. USDA Natural Resources Conservation Service, Soil Survey Staff. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed January 2024.

U.S. Fish and Wildlife Service (USFWS). 1996. Endangered and threatened wildlife and plants; determination of threatened status for the California red-legged frog. Final rule. Federal Register, Vol. 61 No. 101: 25813-25833. May 23, 1996.

USFWS. 1998. Recovery plan for the upland species of the San Joaquin Valley, California. September 30, 1998.

USFWS. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. January 2000. https://fws.gov/media/guidelines-conducting-and-reporting-botanical-inventories-federally-listedproposed-and. Accessed August 2023.

USFWS. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October 2003. U.S. Fish and Wildlife Service, Sacramento Office.

USFWS. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. Accessed at <http://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/crf_survey_guidance_aug2005.pdf>. Last accessed on December 16, 2015.

USFWS. 2011. U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. January 2011. https://fws.gov/media/standardized-recommendations-protection-endangered-san-joaquin-kit-fox-prioror-during-ground. Accessed August 2023.

USFWS. 2012. Programmatic Biological Opinion for the East Alameda County Conservation Strategy. Sacramento Fish and Wildlife Office. 08ESMFOO-2012-F-0092-1.

USFWS. 2017a. Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. v + 69pp.

USFWS. 2017b. California Red-Legged Frog – Amphibians-Reptiles Endangered Species Accounts. Sacramento Fish and Wildlife Office. Last updated: December 1, 2017. Available at: https://www.fws.gov/sacramento/es_species/Accounts.

USFWS 2022. California Red-Legged Frog (*Rana draytonii*) 5-Year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office. Sacramento, California. December 2022. https://ecos.fws.gov/ecp/species/2891. Accessed May 2024.

USFWS. 2023. “National Wetlands Inventory.” U.S. Department of the Interior, USFWS. http://www.fws.gov/wetlands/. Accessed August 2023.

USFWS. 2024a. Trust Resources Report. Information for Planning and Consultation (IPaC). https://ecos.fws.gov/ipac/ Accessed May 2024.

USFWS. 2024b. Critical Habitat for Threatened & Endangered Species. https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed May 2024.

USFWS. 2024c. San Joaquin Kit Fox. USFWS Species Profiles. https://www.fws.gov/species/san-joaquin-kit-fox-vulpes-macrotis-mutica. Accessed May 2024.

U.S. Geological Survey. 2023. “The National Map Viewer” [online GIS viewer]. National Hydrography GIS Data. https://www.usgs.gov/tools/national-map-viewer. Accessed August 2023.

Western Regional Climate Center. 2023. “Historical Climate Information: Tracy Pumping Plant, California (049001).” https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9001. Accessed August 2023.

# **Appendix A** CNDDB, CNPS, AND USFWS SPECIES LIST

# 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))<br /> 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 | |

| 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 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Atriplex cordulata* var. *cordulata* | heartscale | Chenopodiaceae | annual herb | Apr-Oct | None | None | G3T2 | S2 | 1B.2 | Yes | 1988-01-01 |  © 1994 Robert E. Preston, Ph.D. |
| *Atriplex coronata* var. *coronata* | crownscale | Chenopodiaceae | annual herb | Mar-Oct | None | None | G4T3 | S3 | 4.2 | Yes | 1994-01-01 |  © 1994 Robert E. Preston, Ph.D. |
| *Atriplex depressa* | brittlescale | Chenopodiaceae | annual herb | Apr-Oct | None | None | G2 | S2 | 1B.2 | Yes | 1994-01-01 |  © 2009 Zoya Akulova |
| *Atriplex minuscula* | lesser saltscale | Chenopodiaceae | annual herb | May-Oct | None | None | G2 | S2 | 1B.1 | Yes | 1994-01-01 |  © 2000 Robert E. Preston, Ph.D. |
| *Balsamorhiza macrolepis* | big-scale balsamroot | Asteraceae | perennial herb | Mar-Jun | None | None | G2 | S2 | 1B.2 | Yes | 1974-01-01 |  ©1998 Dean Wm. Taylor |
| *Blepharizonia plumosa* | big tarplant | Asteraceae | annual herb | Jul-Oct | None | None | G1G2 | S1S2 | 1B.1 | Yes | 1994-01-01 | No Photo Available |
| *Calochortus pulchellus* | Mt. Diablo fairy-lantern | Liliaceae | perennial bulbiferous herb | Apr-Jun | None | None | G2 | S2 | 1B.2 | Yes | 1974-01-01 | No Photo Available |
| *Caulanthus lemmonii* | Lemmon's jewelflower | Brassicaceae | annual herb | Feb-May | None | None | G3 | S3 | 1B.2 | Yes | 2001-01-01 | No Photo Available |
| *Centromadia parryi* ssp. *congdonii* | Congdon's tarplant | Asteraceae | annual herb | May-Oct(Nov) | None | None | G3T2 | S2 | 1B.1 | Yes | 1994-01-01 | No Photo Available |
| *Chlorogalum pomeridianum* var. *minus* | dwarf soaproot | Agavaceae | perennial bulbiferous herb | May-Aug | None | None | G5T3 | S3 | 1B.2 | Yes | 1994-01-01 |  © 1997 Dean Wm Taylor |

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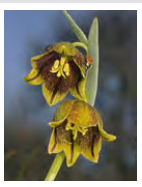
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Chloropyron molle* ssp. *hispidum* | hispid salty bird's-beak | Orobanchaceae | annual herb (hemiparasitic) | Jun-Sep | None | None | G2T1 | S1 | 1B.1 | Yes | 1974-01-01 | No Photo Available |
| *Chloropyron palmatum* | palmate-bracted bird's-beak | 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 |

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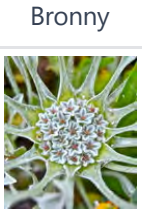
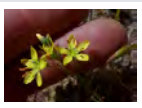
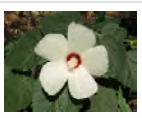
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Fritillaria falcata* | talus fritillary | Liliaceae | perennial bulbiferous herb | Mar-May | None | None | G2 | S2 | 1B.2 | Yes | 1974-01-01 |  © 2013 Aaron Schusteff |
| *Galium andrewsii* ssp. *gatense* | phlox-leaf serpentine bedstraw | Rubiaceae | 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 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *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].

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: 05/22/2024 18:35:35 UTC
Project Code: 2024-0094382
Project Name: Potentia-Viridi Battery Energy Storage System Project

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

To Whom It May Concern:

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

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

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

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

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

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

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

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

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

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

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

Attachment(s):

- Official Species List

# OFFICIAL SPECIES LIST

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

This species list is provided by:

**Sacramento Fish And Wildlife Office**
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

# PROJECT SUMMARY

Project Code: 2024-0094382
Project Name: Potentia-Viridi Battery Energy Storage System Project
Project Type: Power Gen - Other
Project Description: The project proposes to construct, operate, and eventually repower or decommission the 400 megawatt (MW) Battery Energy Storage System on approximately 85 acres in eastern Alameda County.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.7110833,-121.574586204687,14z


Counties: Alameda County, California

# ENDANGERED SPECIES ACT SPECIES

There is a total of 13 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

## MAMMALS

| NAME | STATUS |
|---|---|
| San Joaquin Kit Fox *Vulpes macrotis mutica*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/2873 | Endangered |

## BIRDS

| NAME | STATUS |
|---|---|
| California Condor *Gymnogyps californianus*<br>Population: U.S.A. only, except where listed as an experimental population<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/8193 | Endangered |

## REPTILES

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

## AMPHIBIANS

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii*<br>There is **final** critical habitat for this species. Your location overlaps the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2891 | Threatened |
| California Tiger Salamander *Ambystoma californiense*<br>Population: U.S.A. (Central CA DPS)<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2076 | Threatened |
| Western Spadefoot *Spea hammondii*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/5425 | Proposed Threatened |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Candidate |

| NAME | STATUS |
|---|---|
| Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/7850 | Threatened |

## CRUSTACEANS

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

## FLOWERING PLANTS

| NAME | STATUS |
|---|---|
| Large-flowered Fiddleneck *Amsinckia grandiflora*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/5558 | Endangered |
| Lassics Lupine *Lupinus constancei*<br>Population:<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/7976 | Endangered |

## CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii*<br>https://ecos.fws.gov/ecp/species/2891#crithab | Final |

# IPAC USER CONTACT INFORMATION


| | |
|---|---|
| Agency: | Private Entity |
| Name: | Scott Elder |
| Address: | 2999 Oak Road |
| Address Line 2: | Suite 800 |
| City: | Walnut Creek |
| State: | CA |
| Zip: | 94597 |
| Email | scott.elder@stantec.com |
| Phone: | 9256274590 |

# **Appendix B** BIOLOGICAL RESOURCES TECHNICAL REPORT

DUDEK
1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

June 7, 2024 13584.07

Lauren McLeod
Levy Alameda, LLC
155 Wellington Street West, Suite 2930
Toronto, Ontario M5V 3H1, Canada

**Subject:** **Federally Regulated Biological Resources Constraints Analysis for the Potentia-Viridi Battery Energy Storage System Project, Alameda County, California**

Dear Lauren McLeod:

The purpose of this Federally Regulated Biological Resources Constraints Analysis letter report (report) is to provide existing conditions and background for the proposed Potentia-Viridi Battery Energy Storage System (BESS) Project (Project) to assess potential presence of resources regulated by federal agencies. This report describes the existing conditions and biological resources within the Project Study Area (PSA). As part of the report, Dudek biologists conducted a desktop literature review and database search specific to biological resources and performed biological field surveys to identify and characterize resources within the PSA, with particular focus on the potential for occurrence of federally regulated resources such as federally listed plant and wildlife species or their critical habitat, as well as potential waters of the U.S.

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°
- **APN:** 99b-7890-2-4 (BESS facility, 67.58 acres); 99B-7890-2-6, 99B-7885-12 (gen-tie alignment, 20.44 acres including buffer)
- **Elevation Range (feet):** 383 to 523 feet above mean sea level (amsl)
- **PSA:** 88.51 acres

# 1 Existing Conditions

## 1.1 Regional Land Use Setting

The PSA is currently undeveloped and according to historic aerial imagery little has changed since the 1980s (Google Earth Pro 2023). The PG&E Tesla substation is directly east, along the western project boundary there are

transmission lines running northeast to southwest, Patterson Pass Road along the eastern boundary, a railroad line to the south, and a gravel access road to the north. The site and surrounding land have been used for cattle grazing although the site is not currently being grazed. The nearest city is Tracy, approximately 8 miles to the east.

## 1.2 Climate and Rainfall

The site is located in 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.

## 1.3 Soil and Terrain

The Project site is relatively flat, with an approximate elevation of 403 to 536 feet above mean sea level. According to the Natural Resources Conservation Service (US Department of Agriculture [USDA] 2023a), three soil types are present: Linne clay loam, 3 to 15 percent slopes; Linne clay loam, 15 to 30 percent slopes, MLRA 15; Rincon clay loam, 0 to 3 percent slopes. The Line 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 2023b), which are commonly associated with wetlands or other waters.

## 1.4 Hydrology and Watershed

The Project site occurs within the San Joaquin Delta hydrologic unit (Hydrological Unit Code HUC-8 18040003). The Project 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 2023). 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 Road adjacent to the PSA. The second drainage is classified by the NWI as freshwater emergent wetland (USFWS 2023), however, there is no physical evidence of this drainage within the PSA either on aerial imagery or when surveyed on the ground.

# 2 Methods

## 2.1 Database Searches

Prior to conducting the field survey, Dudek searched pertinent online special-status species occurrence databases in January 2023. This review included the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) online tool,1 California Department of Fish and Wildlife (CDFW) California Natural Diversity

[1] https://ipac.ecosphere.fws.gov/

Database (CNDDB), and California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. The area for the IPaC Trust Resource Report 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).

Following the database review, Dudek biologists determined the potential for special-status plant and wildlife species to occur onsite. 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. No protocol-level surveys for special-status species were conducted; the field survey was focused on evaluating the potential for the Project site to provide habitat for these species.

## 2.2 Biological Field Surveys

Dudek biologists Emily Scricca and Erin Fisher-Colton conducted a reconnaissance-level biological field survey within the PSA on March 31, 2023 (9:30–11:30 a.m., 58–61 degrees Fahrenheit, 1–4 mph wind, 75-90 percent cloud cover). The survey was conducted by foot and by vehicle to provide complete visual coverage of the PSA. Field notes, an aerial photograph with an overlay of the property boundary, and a Trimble Geo 7X Global Positioning System (GPS) unit were used to map vegetation communities and record any sensitive biological resources within the Project site. The focus of the survey was to assess overall habitat suitability for the target species identified from the database review described in Section 2.1. Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly into a field notebook. The site was also scanned with binoculars to aid in the identification of wildlife.

Protocol-level rare plant surveys were conducted on May 16, 2023, August 2, 2023, and January 18, 2024, to identify special-status rare plant species within the updated PSA boundaries.

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.

Additional burrow surveys associated with protocol-level burrowing owl (*Athene cunicularia*) were conducted on April 15, May 3, and May 24, 2024.

# 3 Findings

## 3.1 Vegetation Communities

There was one vegetation community mapped on site: California annual grassland. The vegetation communities and land covers listed here were adapted from the Manual of California Vegetation, Online Edition (CNPS 2021).

Non-native annual grasslands general habitat is a land cover type which represents the entire project site. The herbaceous level is dominated by non-native species including wild oats (*Avena* spp.), bromes (*Bromus* spp.), and

barleys (*Hordeum* spp.). Non-native grasslands were not mapped to the alliance or association level because all alliances and associations are not considered sensitive as they are dominated by non-native species.

## 3.2 Aquatic Resources

There is one seasonal channel (0.37 acre, 846.07 linear feet), Patterson Run, within the PSA where the BESS facility site connects to the gen-tie alignment, paralleling Patterson Pass Road.

## 3.3 Special-Status Species

### 3.3.1 Special-Status Plants

"Special-status plant species" in this report include plant species listed as endangered or threatened under the federal Endangered Species Act (FESA) or proposed for listing under the FESA.

The PSA was found not to contain suitable habitat for any special-status plant species. Special-status plant species were observed during the protocol-level rare plant surveys.

### 3.3.2 Special-Status Wildlife

"Special-status wildlife species" in this report include wildlife species listed, proposed for listing, or candidates for listing as threatened or endangered under FESA.

The PSA contains habitat for three special-status wildlife species: California tiger salamander (*Ambystoma californiense* pop. 1), California red-legged frog (*Rana draytonii*), and San Joaquin kit fox (*Vulpes macrotis mutica*). Each of these species are discussed in further detail below.

**California Tiger Salamander** (central California distinct population segment [DPS]) is listed as threatened under FESA and occurs in small mammal burrows most of the year in grassland, savanna, or open woodland habitats in the vicinity of aquatic breeding habitat (e.g., vernal pools or ponds). 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 highly suitable upland refuge and dispersal habitat for this species, consisting of abundant 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). This species has high potential to occur on the PSA.

**California Red-Legged Frog** is listed as threatened under FESA that occurs in small mammal burrows in the lowlands and foothills in the vicinity of aquatic breeding habitat (e.g., stream pools, ponds, marshes). 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 highly suitable upland refuge and dispersal habitat for this species, consisting of abundant grassland with small mammal burrows. The PSA is also located within critical habitat for

California red-legged frog. Three aquatic features were assessed for habitat suitability for CRLF: Patterson Run, an ephemeral stream paralleling Patterson Pass Road, and two stock ponds approximately 0.3 miles northwest (Pond 1) and west (Pond 2) of the PSA. 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 species has a high potential to occur on the PSA.

**San Joaquin Kit Fox** is listed as endangered under FESA and occurs in annual grasslands with loose textured sandy soils for burrowing, and suitable prey base. San Joaquin kit fox has a moderate potential to occur on the PSA. This species occurs on grassland and scrublands, oak woodland, alkali sink scrubland, vernal pools, and alkali meadows. 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). There is abundant moderate-quality grassland present on the site. Dudek biologists conducted focused burrow surveys on May 16 and August 2, 2023. All burrows potentially suitable for San Joaquin kit fox, western burrowing owl, and American badger were documented. Several larger ground squirrel (*Otospermophilus beecheyi*) burrows were documented on the eastern side of the project area, adjacent to Patterson Pass Road. Although atypical for either American badger or San Joaquin kit fox, these burrows were documented as being potentially suitable for these species. Additional burrow surveys were conducted April 15, May 3, and May 24, 2024 as part of a protocol-level western burrowing survey. All burrows onsite were determined to be either ground squirrel or pocket gopher (*Thomomys bottae*) and were not suitable for either San Joaquin kit fox or American badger. Further, no sign of either of these species has been documented during any site survey conducted in 2023 or 2024.

## 3.4 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.

### California Red-Legged Frog

DCH for CRLF overlaps the PSA and extends 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.
1. **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.

2. 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.
3. 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.

### Alameda Whipsnake

There is DCH for Alameda whipsnake (*Masticophis lateralis euryxanthus*) approximately 2.5 miles south of the PSA (USFWS 2023f). This species is not expected to occur within or near the PSA 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 PSA (USFWS 2023g). This species is not expected to occur within or near the PSA 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 PSA (USFWS 2023h). This species is not expected to occur within the PSA due to being outside of the known elevation range of the species.

# 4 Conclusions

Aquatic Resources. There was one aquatic resource identified within the Project site, a seasonal channel (0.37 acre, 846.07 linear feet), Patterson Run, where the BESS facility site connects to the gen-tie alignment, paralleling Patterson Pass Road. This drainage is potentially jurisdictional under Section 404 of the Clean Water Act.

Special Status Plants. No federally listed plants or sensitive vegetation communities were identified as having potential to occur in the PSA.

Special Status Wildlife. Three federally listed wildlife species have a moderate or high potential to occur on the PSA, including California tiger salamander, California red-legged frog, and San Joaquin kit fox.

California tiger salamander, California red-legged frog, burrowing owl, and San Joaquin kit fox are all focal species of the East Alameda County Conservation Strategy (EACCS) (ICF 2010). The East Alameda County Conservation Strategy (EACCS ICF 2010) is a voluntary conservation plan that was collaboratively developed by local and regulatory agencies between 2007 and 2009; the final draft was completed in December 2010. It 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 or CDFW. 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, the USFWS and CDFW participated in the development of the EACCS 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. Per this strategy, there are species-specific avoidance and mitigation measures for California tiger salamander and California red-legged frog (AMPH-1 and AMPH-2), and San Joaquin kit fox (MAMM-1) that would need to be implemented during construction, and programmatic compensatory mitigation requirements for impacts to focal species habitat. Given the high quality of grassland habitat on the site, the mitigation ratio could be as high as 4:1 (acres protected: acres impacted).

In summary, the site provides habitat for three federally listed wildlife species: California tiger salamander, California red-legged frog, and San Joaquin kit fox. Consultation with USFWS would be necessary prior to any development to determine an appropriate permitting mechanism, including potential coverage under the EACCS. Consultation with the U.S. Fish and Wildlife Service through Section 7 of the federal Endangered Species Act process may be required. Further, it is likely that any project occurring within San Joaquin kit fox habitat will require a take authorization and permit from USFWS.

Sincerely,

Laura Burris
Biologist

*cc: Ronelle Candia, Senior Project Manager, Dudek*
*Luke Shillington, Strategic Land and Energy Development*

# 5 References

CNPS. 2021. A Manual of California Vegetation, Online Edition. Sacramento, California: CNPS. Accessed April 2023. http://vegetation.cnps.org

CDFW. 2024. California Natural Diversity Database (CNDDB) Rarefind 5, Commercial version 5.3.0. CDFW, Biogeographic Data Branch. Accessed January 2024. https://wildlife.ca.gov/Data/CNDDB.

CNPS (California Native Plant Society), Rare Plant Program. 2023a. Inventory of Rare and Endangered Plants of California (online edition, v9-01 0.0). California Native Plant Society, Sacramento, California. Accessed February 2023. http://www.rareplants.cnps.org.

ICF. 2010. *East Alameda County Conservation Strategy*. Final. Prepared for: East Alameda County Conservation Strategy Steering Committee. San Jose, CA: ICF International. ICF 00906.08. October 2010. Accessed August 2023. http://www.eastalco-conservation.org/documents.html.

USDA. 2023a. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed April 2023. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

USDA. 2023b. List of Hydric Soils. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed April 2023. https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/.

USFWS. 2023. "National Wetlands Inventory." U.S. Department of the Interior, USFWS. Accessed August 2023. http://www.fws.gov/wetlands/.

USFWS. 2024. IPaC (Information for Planning and Consultation) Search. Accessed January 2024. https://ipac.ecosphere.fws.gov/.

USFWS. 2023. "The National Wetlands Inventory." Accessed April 2023. fws.gov/wetlands/NWI/index.html.

USGS (U.S. Geological Survey). 2023. "The National Map Viewer" [online GIS viewer]. National Hydrography GIS Data. Accessed August 2023. https://www.usgs.gov/tools/national-map-viewer

WRCC (Western Regional Climate Center). 2023. Historical Climate Information: Tracy Pumping Plant, California (049001). Accessed April 2023. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7965.

# **Appendix C** CALIFORNIA RED-LEGGED FROG HABITAT ASSESSMENT

**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.

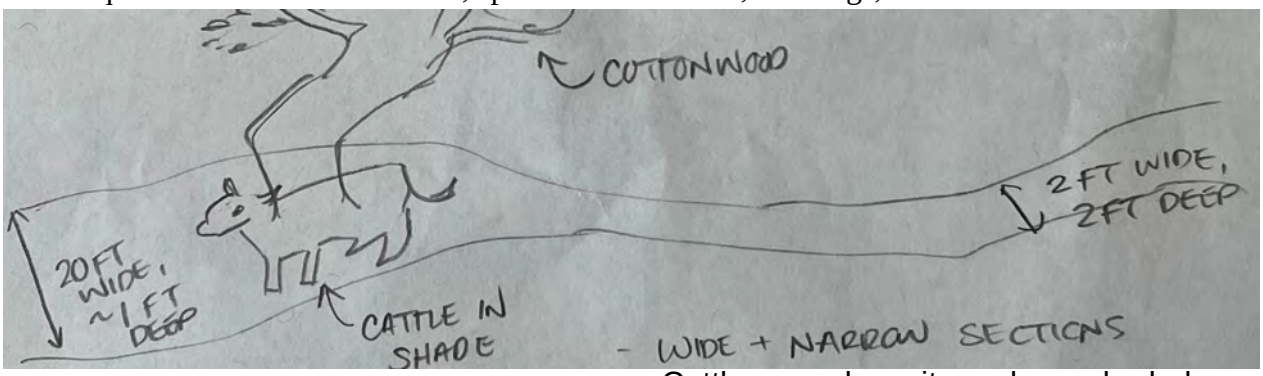
Vegetation: emergent, overhanging, dominant species:
Populus fremontii, Salix sp., Avena sp. upland grassland

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:




-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

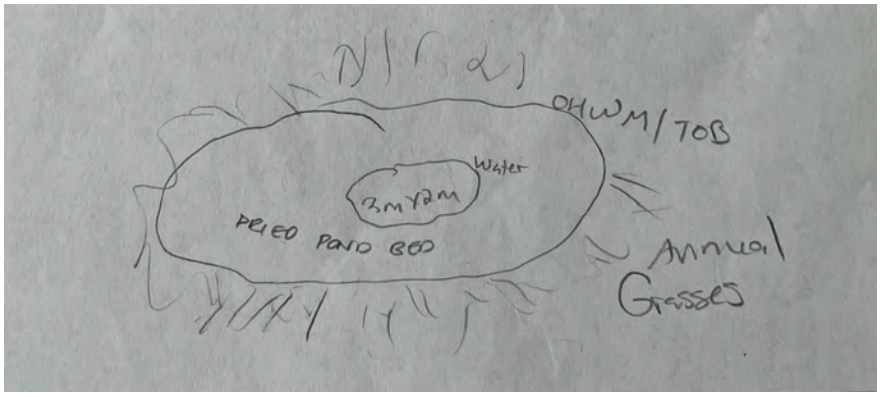
Vegetation: emergent, overhanging, dominant species: N/A

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 | 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; 37.711060, -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

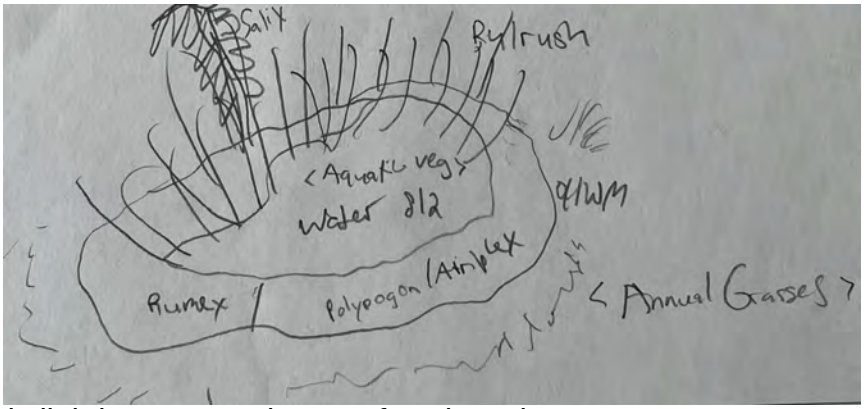
Vegetation: emergent, overhanging, dominant species: N/A

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 D** EACCS MITIGATION SCORING SHEETS

**Appendix E. Continued**

**Table E-4. 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 E. Continued**

**Table E-5. 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 E. Continued**

**Table E-11. 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 E. Continued**

## Table E-4. 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 | 5 |
| Is there occupied habitat within 6,900 feet of site? | Yes | -- | -- | No | -- | -- | 5 |
| Aquatic land covers impacted/ mitigated | Wetland, Ponds | -- | Stream/River | -- | -- | All others; none | 5 |
| 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 | 0 |
| Protect linkage between breeding and upland habitat | Documented breeding location | -- | Potential breeding location | -- | -- | No | 5 |
| Inside designated Critical Habitat | Yes | -- | -- | -- | -- | No | 0 |
| On parcels with an approved management plan for this species. | Yes | -- | -- | -- | No | -- | 5 |
| **Total Score** | | | | | | | 40 |
| 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 E. Continued**

## Table E-5. 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 | 5 |
| Is there occupied habitat within 2-miles of site? | Yes | -- | -- | No | -- | -- | 5 |
| 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 | 0 |
| Protect linkage between breeding and upland habitat | Documented breeding location | -- | Potential breeding location | -- | -- | No | 5 |
| 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 | -- | 5 |
| **Total Score** | | | | | | | 45 |
| 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 E. Continued**

**Table E-11. 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. | -- | -- | 3 |
| On parcels with an approved management plan for this species. | Yes | -- | -- | -- | No | -- | 5 |
| **Total Score** | | | | | | | 27 |
| 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 E – Cultural Resources Report

DRAFT

# Cultural Resources Inventory and Evaluation Report

# Potentia Viridi BESS Project, Alameda County, California

**JUNE 2024**

*Prepared for:*

**LEVY ALAMEDA, LLC**
c/o Capstone Infrastructure Corporation
155 Wellington Street West, Suite 2930
Toronto, Ontario M5V 3H1, Canada
*Contact: Lauren McLeod*

*Prepared by:*

*Nicholas Hanten, MA; Adam Giacinto, MA*
*Kathryn Haley, MA; Patricia Ambacher, MA; and Danielle Baza, BA*
DUDEK

1810 13th Street, Suite 110,
Sacramento, California 95811

Printed on 30% post-consumer recycled material.

# National Archaeological Database (NADB) Information

| | |
|---|---|
| **Authors:** | Nicholas Hanten, MA; Adam Giacinto, MA, RPA; Kathryn Haley, MA; Patricia Ambacher, MA; and Danielle Baza, BA |
| **Firm:** | Dudek |
| **Project Proponent:** | Levy Alameda, LLC |
| **Report Date:** | June 2024 |
| **Report Title:** | Cultural Resources Inventory and Evaluation Report Potentia Viridi BESS Project, Alameda County, California |
| **Type of Study:** | Archaeological and Historic Built-Environment Inventory |
| **Resources:** | P-01-010502, P-39-005337 |
| **USGS Quads:** | Sections 31 and 32 of Township 2S, Range 4E, Mount Diablo Base Meridian; Midway, California, 7.5-minute Quadrangle |
| **Acreage:** | 232 Acres |
| **Permit Numbers:** | Not applicable. |
| **Keywords:** | Intensive Pedestrian Survey; Tesla Substation |

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# Table of Contents

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## FIGURES



## TABLES



## APPENDICES

# Acronyms and Abbreviations

| Acronym/Abbreviation | Definition |
|---|---|
| API | Area of Potential Impacts |
| CCaIC | Central California Information Center |
| CEQA | California Environmental Quality Act |
| CHRIS | California Historical Resources Information System |
| CRHR | California Register of Historic Resources |
| MLD | Most Likely Descendent |
| NAHC | Native American Heritage Commission |
| NHPA | National Historic Preservation Act |
| NRHP | National Register of Historic Places |
| NWIC | Northwest Information Center |
| PG&E | Pacific Gas and Electric |
| POI | Point of Interconnection |
| Project | Potentia Viridi BESS project |
| USGS | U.S. Geological Survey |

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# Management Summary

The proposed Potentia Viridi Battery Energy Storage System project (Project) is near the eastern boundary of Alameda, California, 2.5 miles west of the City of Tracy and 2 miles south of the interchange of Interstates 580 and 205 and adjacent to the Pacific Gas and Electric (PG&E) Tesla Substation. The Project site is surrounded by vacant, open space, rural roads, and the Pacific Gas and Electric (PG&E) Tesla Substation. The Project site located within Sections 31 and 32, Township 2 South, Range 4 East of the Midway, CA 7.5' USGS Quadrangle map (Figure 1). The Project proposes to construct and operate Battery Energy Storage System composed of lithium-ion batteries, inverters, medium-voltage transformers, a collector substation, and other associated equipment to interconnect into the PG&E Tesla Substation.

This cultural resource inventory report documents Dudek's efforts to identify and evaluate cultural (archaeology and built environment) resources consistent with the requirements of the California Environmental Quality Act (CEQA). The Project's lead agency under CEQA is the California Energy Commission. Dudek's efforts included a records search of the California Historical Resources Information Management system, the development of a study area of Area of Potential Impacts (API), correspondence with the Native American Heritage Commission, an intensive level survey of the API for cultural resources, background and archival research, development of a cultural and historic context, and the recordation and evaluation of historic-era resources located in the API using the National Register of Historic Places (NRHP), California Register of Historical resources (CRHR), and Alameda County Register evaluation criteria.

Dudek archaeologists conducted an intensive pedestrian survey of the Project area using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory. Surface visibility was low (less than 10%) throughout the Project site due to dense non-native grasses. One previously recorded resource, the Tesla Substation (P-01-010502), was identified in the Project API. The resource was previously evaluated using the NRHP and CRHR criteria and was recommended as not eligible. Dudek concurs with those previous findings.

This report concludes that there are no cultural resources in the API for the Project.

# 1 Introduction

## 1.1 Project Description

### Facility Description, Design, and Operation

Levy Alameda, LLC (Applicant), a wholly owned subsidiary of Obra Maestra Renewables, LLC, proposes to construct, operate, and eventually repower or decommission the 400-megawatt (MW) Potentia-Viridi Battery Energy Storage System (Project) on approximately 85 acres in eastern Alameda County. The primary components of the Project include an up to 3,200 megawatt-hour (MWh) battery energy storage system (BESS) facility, an operations and maintenance (O&M) building, a project substation, a 500 kilovolt (kV) overhead intertie transmission (gen-tie) line, and interconnection facilities within the Pacific Gas and Electric (PG&E) owned and operated Tesla Substation.

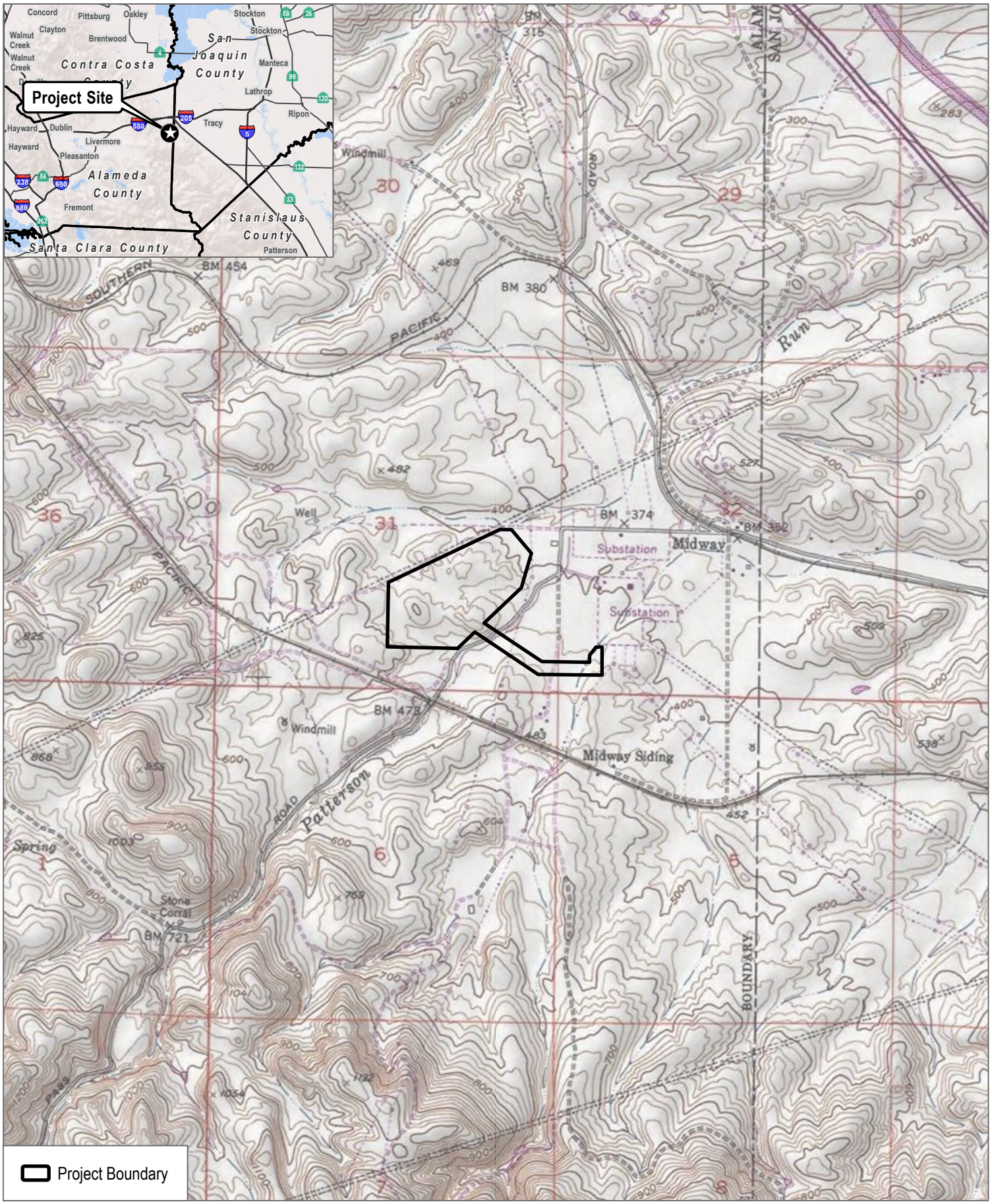
The Project would draw electricity from the power grid to charge and store electrical energy and discharge back to the power grid when the stored energy is needed. The Project would provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that would enhance grid reliability.

The Project would be remotely operated and monitored year-round and be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians would routinely inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

## 1.2 Project Location

The proposed Potentia Viridi Battery Energy Storage System (BESS) project (Project) is located near the eastern boundary of Alameda County approximately 2.5 miles west of the City of Tracy and 2 miles south of the interchange of Interstates 580 and 205. The Project site is surrounded by vacant, open space, rural roads, and the Pacific Gas and Electric (PG&E) Tesla Substation. The Project site located within Sections 31 and 32, Township 2 South, Range 4 East of the Midway, CA 7.5' USGS Quadrangle map. The Project Location is shown on **Figure 1**.

Development of the BESS facility would occur on about 70 acres of APN 99B-7890-002-04, which is currently comprised of fallowed annual grasslands suitable for grazing. The gen-tie line would extend southeast from the Project substation, crossing Patterson Pass Rd, and then proceed east to the Point of Interconnection (POI) at the Tesla Substation. The Project's gen-tie line would be sited on APNs 99B-7890-2-4, 99B-7890-2-6, and 99B-7885-12. Land uses in the immediate vicinity of the Project include undeveloped rural agricultural lands, multiple high-voltage transmission lines and electrical substations, rural roads, and railroad lines. The nearest municipality to the Project site is the City of Tracy approximately 2.5 miles to the northeast. There are a few single-family residences near the Tesla Substation's southern and eastern boundaries. The nearest residence is about 1,500 feet southeast of the Project site and 560 feet south of the proposed gen-tie line; it is owned by the same landowner leasing the lands for the Project.




SOURCE: USGS 7.5 Minute Quadrangle Series

DUDEK

0 500 1,000 Feet

**FIGURE 1**

Project Location

Potentia Viridi BESS Project

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The Project location was selected due to it being large enough to support development of the Project, its close proximity to existing electrical infrastructure and the Tesla Substation, thereby minimizing length of the proposed gen-tie line to the POI, and because it is located immediately adjacent to existing roadways for construction and O&M access.

## 1.3 Project Objectives

The primary purpose of the Project is to assist the State of California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035. The Project will help balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation from emissions free power sources and delivering it back to the grid when demand exceeds real-time generation supply. The Project displaces the need for additional fossil fuel based generating stations needed to serve peak demand periods when renewable sources may be inadequate or unavailable.

The Project Objectives are:

- Construct and operate an economically viable, and commercially financeable, 400-MW battery energy storage facility in Alameda County with an interconnection at the Tesla Substation.
- Assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60% of all retail sales of electricity to California end-use customers by December 31, 2030, 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, and 100% of all retail sales of electricity to California end-use customers by December 31, 2045.
- Assist California utilities in meeting obligations under the CPUC's Mid-Term Reliability Procurement Requirements.
- Develop an electricity storage facility in close proximity to a utility grid-connected substation with existing capacity available for interconnection to minimize environmental impacts.
- Relieve grid congestion, and enhance electricity reliability, without requiring the construction of new regional transmission infrastructure or substantial network upgrades.
- Construct and operate a battery energy storage facility in Alameda County, resulting in economic benefits to the County, creating prevailing wage construction jobs, and facilitating local community benefits.

## 1.4 Project Components

The Project would include construction, O&M, and eventual decommissioning of a 400 MW BESS with an energy storage capacity up to 3,200 MWhs. The project site is illustrated on **Figure 2**. Charging from or discharging to the electrical grid would be a 500kV gen-tie connecting the project substation to the POI within the existing PG&E Tesla Substation. The BESS Facility would include the following components:

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)

- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Facilities and Outfall
- Site Security and Fencing, including fire detection system
- Operations and Maintenance Building

Project components are described in the following subsections. Table 1-1 summarizes the preliminary dimensions of major BESS facility components, and Table 1-2 summarizes the preliminary footprint/disturbance acreage associated with the BESS facility.

**Table 1-1. Preliminary Dimensions of Major BESS Facility Components**

| Component | Quantity | Approximate Dimensions |
|---|---|---|
| BESS Enclosures | 1,000* | 20 ft x 8 ft x 10 ft (L x W x H) |
| PCS | 140* | 22 ft x 7 ft x 8 ft (L x W x H) |
| MV Collection system | -- | Buried in trenches up to 5 ft x 10 ft (W x D) |
| Project Substation Area | 1 | 500 ft x 450 ft; (5) 120 ft (H) (lightning masts) |
| Control Building | 1 | 52 ft x 20 ft x 15 ft (L x W x H) |
| Wireless Communication Tower | 1 | 18 ft x 18 ft x 199 ft (L x W x H) |
| Access Roads | -- | 20 ft (W) internal radii 25 ft minimum |
| Laydown Yards | 4 | Variable |
| Stormwater Detention Facilities | 5 | Variable |
| Stormwater Outfall | 1 | 500 ft x 5 ft x 10 ft (L x W x D) |
| Security fencing | 1 | 9 ft (H) 8 ft tall fence topped with 1 ft of barbed/razor wire |
| Operations and Maintenance Building | 1 | 100 ft x 50 ft x 30 ft (L x W x H) |

Notes: * The number of BESS enclosures and PCS units would depend on the manufacturer selected. The total number of BESS enclosures and PCS units may increase or decrease in the final design. It is also possible that the BESS units ultimately procured may incorporate the PCS units within the BESS enclosures.

**Table 1-2. Preliminary Footprint of BESS Facility**

| Component | Permanent Disturbance |
|---|---|
| BESS Yards | 13.3 acres |
| Project Substation | 5.5 acres |
| Access Roads | 6.6 acres |
| Laydown Yards | 15.2 acres |
| Stormwater Detention Areas | 9.3 acres |
| Stormwater Outfall | 0.6 acres |
| Other* | 7.2 acres |

| | |
|---|---|
| *Total+* | *57.7 acres* |

Notes: * Other areas include maximum grading limits. The analyses assume that all areas used for the BESS facility are permanently disturbed and kept free of vegetation to comply with fire requirements. +The total permanent disturbance acreage is a conservative estimate, and final designs may require fewer acres. Underground components within the BESS facility would be located within the footprint of above ground disturbance areas.

### 1.4.1 Battery Energy Storage System

The energy storage facility would utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common at present being lithium iron phosphate (LFP) cells (often colloquially referred to as 'lithium-ion'). LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured would result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description.

The BESS enclosures would be prefabricated off-site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure would include battery packs on racks, a battery management system (BMS), fire protection, and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures would not exceed approximately 15 feet in height. The BESS enclosures may also have a heating, ventilation, and air conditioning (HVAC) system for optimal performance and safety. Power for the HVAC system, lighting, and other electrical systems would be provided through separate auxiliary power connection to the on-site project substation with connection lines installed above and/or below ground.

### 1.4.2 Power Conversion System

A PCS is a packaged and integrated system consisting of a bi-directional inverter, MV transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the voltage output of the BESS enclosures.

The PCS would convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS would also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units would be unattended systems designed to operate in all conditions. The inverters would be monitored and controlled remotely, and there would be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units would be installed on concrete foundations and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment would be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures.

### 1.4.3 MV Collection System

The MV collection system would include multiple components that connect the PCS units to the project substation including: underground conductor circuits, switchboards, switchgear, and panels at 34.5kV voltage. The conductors for the MV collection system would be installed underground during construction using trenching.

### 1.4.4 Project Substation

The project substation would include three main power transformers (MPTs) – two active and a live spare. When the BESS facility is charging, power from the regional electric transmission grid would be stepped down from 500kV to 34.5kV and sent from the project substation through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures would be sent to the PCS units, stepped up to 34.5kV, and transported to the project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A prefabricated control building would be installed within the project substation area and contain an energy management system, metering and telecommunication equipment for communication with PG&E/CAISO facilities and to support remote Project operations monitoring. The project substation area would also include five static masts for lightning protection and a wireless communication tower mounted with an antenna up to 15 feet in diameter for external telecommunications.

### 1.4.5 Access Roads

The Project's roadway system would include two new facility access roads and driveways, a perimeter road, and internal access roads. One of the new site access roads and driveways would be constructed from an existing private road near the northeastern portion of the site, and the other would be constructed from Patterson Pass Road near the southwestern portion of the site. A project substation access road would be constructed outside of the perimeter fence, connecting the northeast and southwest driveways, to facilitate substation access by third parties during operations. All new access roads, driveways, internal and perimeter roads would be bladed, compacted, and surfaced with aggregate. All internal roadways and private driveways would be constructed to meet access requirements for construction, O&M, and emergency response requirements.

### 1.4.6 Laydown Yards

The Project would include up to 4 laydown yards for equipment and material staging and storage during construction. These areas would also be used for worker parking during construction. The primary laydown yard would be located directly adjacent to the project substation area. The primary laydown yard would be bladed, compacted, and surfaced with aggregate, while additional laydown yards would be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Portions of additional laydown yards may also be graded, if necessary. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The O&M building, and required number of parking spaces for O&M staff, would be constructed within the primary laydown following construction of the BESS facility components.

If the BESS technology ultimately procured prior to construction requires larger BESS yards to accommodate BESS enclosures with larger dimensions, a greater number of BESS enclosures, or greater spacing requirements to comply with regulations, portions of the additional laydown yards may be used to accommodate larger BESS yards than those currently proposed. The proposed Project's preliminary layout, earthwork volumes, and project component dimensions assumed for environmental analyses in subsequent chapters are conservatively large to allow for design flexibility and Project schedule preservation.

### 1.4.7 Stormwater Facilities

The proposed BESS facility site currently consists of annual grassland with rolling topography. Regulatory standards require that volumes and flow rates of stormwater discharge after construction not exceed pre-development conditions. Stormwater generated on-site would flow to stormwater detention basins located along the periphery of the BESS facility site. Stormwater treatment and storage sizing would be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. In the event stormwater basins reach capacity, stormwater would be discharged from the detention basins via storm drainpipes and sheet flow at rates no greater than pre-development conditions following natural drainage patterns.

A stormwater drainage outfall utilizing a new 36-inch corrugated metal pipe or bioswale/ditch would be constructed from one or more of the detention basins located in the southwest portion of the site to the inlet of a new or existing culvert on the north side of Patterson Pass Road. Approximately 10 cubic yards of clean rip-rap would be placed as an energy dissipator at the outfall to discharge clean stormwater at or below current rates at the elevation of the ordinary high-water mark of the existing drainage on the south side of Patterson Pass Road.

### 1.4.8 Site Security

The BESS facility site would be enclosed with an 8-foot tall chain link fence topped with 1 foot of three-strand barbed wire or razor wire. The fence would be installed on the outside of the perimeter road. An additional fence with the same specifications would be installed around the project substation area. The fences would be required to prevent unauthorized access and to comply with human health and safety regulations. Gates would be installed at various access points along the fence lines and equipped with lock boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site.

Lighting would only be in areas where it is required for safety, security, or operations. Low elevation (less than 14 feet) controlled security lighting would be installed at the project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras would be placed on site and monitored 24/7.

### 1.4.9 Fire Protection System

Fire protection would include multiple fire detection systems on-site and within the individual BESS enclosures. An infrared camera system would be installed throughout the BESS facility to achieve 100% of electrical infrastructure and trigger an alarm in case of an onsite fire. Each BESS enclosure would have a fire rating in conformance with the California Fire Code 2022. In addition, each BESS enclosure would contain an onboard battery management system (BMS) that monitors the appropriate state of individual battery cells and relays information 24-7. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design would comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures would be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire would not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, would be subjected to destructive testing including fire testing. The Project's BESS enclosures would include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).
- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

The Alameda County Fire District would review and comment on the facility fire protection and suppression plans.

### 1.4.10 Operations and Maintenance Building

Following construction of the BESS facility, an O&M building would be constructed within the primary laydown yard for the Project's anticipated three full-time operations staff. The O&M building would include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. A potable water storage tank would provide water for washroom and sanitary facilities, and sewage/wastewater would be collected in a separate tank. Potable water would be trucked to the water storage tank periodically during O&M, and sewage/wastewater would be pumped from the storage tank, transported offsite via truck, and disposed of at a sanitary dump station, as needed, during operations. The O&M building would be powered via a distribution line from the project substation.

### 1.4.11 Transmission and Interconnection Description, Design, and Operation

The Project would be interconnected to the regional electrical transmission grid via an approximately 2,884-foot long new single-circuit 500kV gen-tie line within a 200-foot-wide corridor between the project substation and the PG&E Tesla Substation. The Applicant would construct and own the portion of the gen-tie line between the project substation and the Point of Change of Ownership (POCO) transmission structure, and PG&E would construct and own the remaining portion of the gen-tie from the POCO to the POI within the Tesla Substation. The Project's transmission and interconnection facilities would include the following components:

- 500kV Gen-Tie Line including Transmission Structures and Conductors
- Fiber Optic Telecommunications Utility Poles and Fiber Optic Lines
- Access Paths
- Temporary Work Areas
- Interconnection Facilities within Existing PG&E Tesla Substation Footprint (PG&E constructed and owned)

The proposed route location was selected to minimize the number of existing utility crossings, cross existing utilities at the optimum locations, minimize the total gen-tie line length and number of transmission structures required, minimize the number of turning structures required, and enter the Telsa Substation as close as possible to the POI. The proposed transmission structures were sited to avoid potential impacts to environmental resources. Project components associated with transmission and interconnection facilities are described in the following subsections. No parks, recreational areas, or scenic areas are located within one mile of the proposed gen-tie route. Table 1-3 summarizes the preliminary dimensions of major transmission components, and Table 1-4 summarizes the preliminary new ground disturbance area associated with construction of the transmission and interconnection facilities. Section 4.13, *Visual Resources*, includes photographic simulations of a representative above ground section of the gen-tie route prior to construction and after construction.

**Table 1-3. Preliminary Dimensions of Major Transmission Components**

| Component | Quantity | Approximate Dimensions |
|---|---|---|
| 500kV Gen-Tie Line | 1 | Applicant Owned: 1,557ft long |
| | | PG&E Owned: 1,327ft long |
| Substation Bay Dead-End Transmission Structure | 2 | Applicant Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within project substation area footprint |
| | | PG&E Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within Tesla Substation footprint. |
| Angled Dead-End Transmission Structure | 3 | Applicant Owned: 2 structures; Up to 199ft above ground level; three nine-foot diameter foundations, installed up to 40ft deep, per structure |

| | | |
|---|---|---|
| | | PG&E Owned: 1 structure; Up to 199ft above ground level; three nine-foot diameter foundations, installed up to 40ft deep. |
| H-Frame Tangent Transmission Structure | 1 | Applicant Owned: Up to 199ft above ground level; two six-foot diameter foundations, installed up to 30ft deep. |
| Conductors | 6 | Two 2,300 kcmil 61W AAC "Pigweed" per phase. 30ft minimum ground clearance. |
| Overhead Shield Wire | 2 | Two 3/8in extra high strength 7-strand steel |
| Fiber Optic Utility Poles | 16 | Up to 40ft above ground level; up to 20in diameter wood poles direct embedded up to 8ft deep. |
| Fiber Optic Cables | 2 | All dielectric self-supporting fiber optic cable. Two redundant and diverse routes. Installed above ground on utility poles by Applicant from Project Substation to POCO. Installed by PG&E underground in trenches up to 2ft wide and 4ft deep between POCO and Tesla Substation. |
| Transmission Structure Access Path | 1 | Applicant Owned: 20ft wide; up to 1,750ft long |
| | | PG&E Owned: 20ft wide; up to 950ft long |
| Transmission Line Corridor | 1 | 200ft wide |

**Table 1-4. Approximate New Ground Disturbance Area Associated with Transmission and Interconnection Facilities**

| Component | Permanent Disturbance | Temporary Disturbance |
|---|---|---|
| **Applicant Portion** | | |
| Transmission Structure Pads | 0.4 acres | - |
| Transmission Structure Access Path | 0.7 acres | - |
| Fiber Optic Utility Poles | 0.1 acres | - |
| Tension and Pulling Site | - | 3.6 acres |
| *Applicant Total* | *~1.2 acres* | *~3.6 acres* |
| **PG&E Portion** | | |
| Transmission Structure Pad | 0.2 acres | - |
| Transmission Structure Access Path | 0.5 acres | - |
| Tension and Pulling Site | - | 3.1 acres |
| *PG&E Total* | *~0.7 acres* | *~3.1 acres* |

## 1.4.12 500kV Gen-Tie Line

The 500kv gen-tie line would originate at the project substation within the BESS facility site and extend southeast, crossing Patterson Pass Rd overhead until reaching the POCO structure. After reaching the POCO structure the route would proceed east to an angled dead-end structure outside of the Tesla Substation fence line before extending north to a new substation dead-end structure at the POI bay within the Tesla Substation footprint. The 200-foot-wide transmission corridor would be within the BESS facility lease area on APN 99B-7890-2-4 and within an easement on APN 99B-7890-2-6 until reaching the parcel's eastern boundary about 255 feet east of the POCO structure. Both parcels comprising the BESS facility lease area and transmission corridor easement are private lands owned by the

same landowner. After crossing the eastern boundary of APN 99B-7890-2-6, the remaining portion of the gen-tie would be on the same PG&E-owned parcel that includes the 500kV Tesla Substation and POI. Table 1-3 includes the approximate number and dimensions of the three different types of transmission structures that would be used. The gen-tie would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006), where feasible.

### 1.4.13 Transmission Structure Access Path

A transmission structure access path would be located within portions of the transmission corridor outside of the BESS facility and Tesla Substation footprints and generally follow the centerline of the gen-tie. The portion of the transmission structure access path between Patterson Pass Road and the POCO structure would include a dry crossing of Patterson Run and require clean fill material (e.g., large cobbles, clean, native gravel, prefabricated mats) to be placed beneath the ordinary high water mark elevation for stabilization and erosion and sedimentation control.

### 1.4.14 Telecommunication Facilities

Telecommunications equipment would be installed between the control building at the project substation and the Tesla Substation to facilitate communication with PG&E/CAISO facilities. PG&E interconnection policies require two redundant fiber optic cables to be installed on diverse paths without a single point of failure (i.e., both fiber optic lines cannot be installed on a single set of structures). Between the control building within the project substation area and the POCO structure, the Applicant would install the two fiber optic lines above ground on separate utility structures within the transmission corridor. One route would be installed near the northern boundary of the transmission corridor and the other would be installed near the southern boundary of the transmission corridor. The fiber optic utility poles would be accessed via overland travel from the transmission structure pads or the transmission structure access path. At the POCO structure, each of the fiber optic cables would be brought down to an underground pullbox. PG&E would install the fiber optic cables underground from the pull boxes to the PG&E control building at the Tesla Substation. A microwave antenna installed on a communications tower within the project substation area, an optical ground wire installed on the 500kV structures, or placed underground within the transmission structure access path, between the project substation and POCO may be used in lieu of a second set of utility poles, if feasible.

### 1.4.15 Interconnection Facilities within Existing PG&E Tesla Substation Footprint

To facilitate interconnection of the BESS facility to the electric transmission grid, PG&E would need to install a substation bay dead-end transmission structure and expand the POI's 500kV breaker-and-a-half bay with a new circuit breaker.

### 1.4.16 Transmission System Impact Studies

The Applicant filed an Interconnection Request with CAISO in the Cluster 13 Interconnection Request window. CAISO, in cooperation with PG&E, prepared the Phase I Interconnection Study (February 12, 2021), and Phase II

Interconnection Study (November 22, 2021). The Applicant entered into a Large Generator Interconnection Agreement (LGIA) with CAISO and PG&E on October 31, 2022. No Affected Systems controlled by CAISO or PG&E were identified during the interconnection study process. Non-CAISO systems potentially affected by the Project and other Cluster 13 projects are Western Area Power Administration and Modesto Irrigation District. The Applicant is working with both system operators to identify specific impacts and will take all reasonable steps to address potential reliability system impacts prior to the initial synchronization of the Project.

## 1.5 Construction

The following sections detail the approximate construction schedule and workforce, construction activities, estimated water use, and materials handling proposed by the Project.

### 1.5.1 Schedule and Workforce

The Project is anticipated to be built over an approximately 18-month period from the onset of site preparation activities through energization. Following energization, testing and commissioning would take place over 6 months. Initial mobilization and site preparation is anticipated to begin no later than Q1 2026 and testing and commissioning is anticipated to conclude no later than Q2 2028. It is anticipated that construction crews would work 8 to 10 hours per day, with work occurring Monday through Friday. Overtime, night work, and weekend work would be used only as necessary to meet the project schedule or complete time-sensitive or safety critical work. All work schedules would comply with applicable California labor laws, county regulations, and the Project Labor Agreement. Estimated durations of construction activities are presented in Table 1-5. However, the duration of particular construction activities may be affected by weather, unanticipated site conditions, the supply chain, and coordination between the different activities.

The expected average workforce for each construction activity is also included in Table 2.

**Table 1-5. Estimated Construction Activity Duration and Average Workforce Expected**

| Construction Activity | Estimated Duration | Average Workforce Expected (Number of Employees) |
|---|---|---|
| Site Preparation | 8 Weeks | 25 |
| Civil Work and Grading | 24 Weeks | 55 |
| Foundations and Underground Equipment | 16 Weeks | 50 |
| BESS Equipment Installation | 20 Weeks | 60 |
| Project Substation Installation | 32 Weeks | 20 |
| Gen-Tie Foundations and Structure Erection | 8 Weeks | 10 |
| Gen-Tie Line Stringing and Pulling | 2 Weeks | 10 |
| Testing and Commissioning | 22 Weeks | 10 |
| PG&E Interconnection Facility Upgrades within Tesla Substation | 26 Weeks | 10 |

### 1.5.2 Sequencing

During construction activities, multiple crews would be working on the site with various equipment and vehicles. The total number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) would range from approximately 5 to 200 workers, depending on the phase of construction. It is estimated that construction would require the vehicle trips and equipment listed in Table 1-6.

**Table 1-6: BESS Project - Construction Equipment and Usage Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |
| Site Preparation | 50 | 10 | 600 | Graders | 2 | 8 |
| | | | | Rubber Tired Loaders | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| Site Grading and Civil Work | 110 | 76 | 30,240 | Graders | 4 | 8 |
| | | | | Rollers | 4 | 8 |
| | | | | Rubber Tired Loaders | 4 | 8 |
| | | | | Skid Steer Loaders | 4 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 4 | 8 |
| | | | | Pavers | 2 | 8 |
| | | | | Paving Equipment | 2 | 8 |
| | | | | Rollers | 2 | 8 |
| | | | | Plate Compactors | 1 | 8 |
| | | | | Cement and Mortar Mixers | 1 | 4 |
| | | | | Rock Crushers | 4 | 8 |
| Foundations and Underground Equipment Installation* | 100 | 10 | 20 | Paving Equipment | 2 | 8 |
| | | | | Rollers | 2 | 8 |
| | | | | Plate Compactors | 2 | 8 |
| | | | | Cement and Mortar Mixers | 2 | 8 |
| | | | | Bore/Drill Rig | 3 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 6 | 8 |
| | | | | Excavators | 2 | 8 |
| | | | | Rubber Tired Dozers | 2 | 8 |
| | | | | Trenchers | 4 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| BESS Installation* | 160 | 20 | 2,636 | Air Compressors | 2 | 8 |
| | | | | Cranes | 3 | 8 |

## Table 1-6: BESS Project - Construction Equipment and Usage Assumptions

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |
| | | | | Generator Sets | 4 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| Project Substation Installation | 40 | 20 | 0 | Air Compressors | 2 | 8 |
| | | | | Aerial Lifts | 6 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Generator Sets | 2 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| Gen-tie foundation and tower erection | 28 | 2 | 0 | Bore/Drill Rig | 1 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Forklifts | 2 | 8 |
| | | | | Boom Truck | 1 | 8 |
| | | | | Flat Bed Truck | 1 | 8 |
| | | | | Cement and Morter Mixer | 1 | 8 |
| | | | | Bucket Lift Truck | 1 | 8 |
| Gen-tie stringing and pulling | 24 | 2 | 0 | Heavy-duty Truck (Puller) | 1 | 8 |
| | | | | Heavy-duty Truck (Tensioner) | 1 | 8 |
| | | | | Forklifts | 2 | 8 |
| | | | | Generator Sets | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| | | | | Boom Truck | 1 | 8 |
| | | | | Trencher | 1 | 8 |
| PG&E Interconnection Facility Upgrades | 40 | 20 | 0 | Air Compressors | 4 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Excavators | 2 | 8 |
| | | | | Generator Sets | 4 | 8 |
| | | | | Rough Terrain Forklifts | 2 | 8 |
| | | | | Skid Steer Loaders | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |
| | | | | Trencher | 1 | 8 |
| Testing and Commissioning | 52 | 0 | 0 | Rough Terrain Forklift | 1 | 8 |
| | | | | Off-Highway Trucks | 3 | 8 |
| Decommissioning | 40 | 2 | 2,640 | Concrete/Industrial Saws | 2 | 8 |
| | | | | Cranes | 2 | 8 |
| | | | | Rubber Tired Dozers | 2 | 8 |
| | | | | Tractors/Loaders/ Backhoes | 2 | 8 |

Notes: * The numbers in this table conservatively assume that foundations and BESS equipment installation related to augmentation occurs during

**Table 1-6: BESS Project - Construction Equipment and Usage Assumptions**

| Construction Phase | One-Way Vehicle Trips | | | Equipment | | |
|---|---|---|---|---|---|---|
| | Average Daily Worker Trips | Average Daily Vendor Truck Trips | Total One-Way Haul Truck Trips | Equipment Type | Quantity | Usage Hours |

initial construction of the facility. Construction of foundations and BESS equipment installation for augmentation may occur during O&M periodically within the BESS facility footprint.

## 1.5.3 Site Preparation

Environmental clearance surveys would be performed at the Project site prior to commencement of construction activities. The limits of construction disturbance areas delineated in the final approved engineering design packages would be surveyed and staked. Initial ground disturbing activities in preparation for construction would include installation of erosion and sediment control measures prior to start of major earthworks activities. Rough grading and grubbing/vegetation removal would be performed where required to accommodate site drainage and allow construction equipment to access the site. Detention basins and stormwater facilities would be created for hydrologic control. The construction contractor would be required to incorporate applicable best management practices (BMPs) including the guidelines provided in the California Stormwater Quality Association's Construction BMP Handbook (CASQA 2019), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Stabilized construction entrances and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with applicable BMPs and the Bay Area Air Quality Management District's Fugitive Dust Rules. Site preparation would involve the removal and proper disposal of existing debris that would unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques would be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. All applicable governmental requirements and BMPs would be incorporated into the construction activities for the Project site.

Vegetation on the site would be removed where necessary to ensure the BESS facility is free from combustible vegetation to allow for fire protection and defensible space. Where feasible, in compliance with fire protection requirements, vegetation root mass within appropriate portions of the BESS facility lease area on the outside of the perimeter and substation access roads would be left in place for soil stabilization. However, the environmental analyses in subsequent sections conservatively assume that all areas within the maximum anticipated grading limits of the BESS facility would be permanently disturbed.

## 1.5.4 Site Grading and Civil Work

Following site preparation activities, grading and civil work would commence. Construction activities during this phase would include excavation and grading of the Project site. Earthwork on the site is ultimately anticipated to result in nearly balanced cut and fill volumes, but the preliminary designs conservatively assume that grading would include up to approximately 588,018 cubic yards (cy) of cut and up to approximately 344,900 cy of fill, resulting in

up to approximately 243,118 cy of export material. As appropriate, all, or a portion of, of the Project's excess material resulting from earthwork may be used beneficially used on-site for the construction of berms or other onsite needs. Where appropriate, excess material would be processed in one or more different types of rock crushing equipment depending on the requirements of the various potential beneficial uses onsite. Blasting may be required if large boulders are encountered during excavation and grading.

Conventional grading would be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement that may result in dust. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards would be graded, compacted, and surfaced with gravel or aggregate. Class II road base would be imported to create necessary compaction under the equipment, as determined by geotechnical testing and Project specifications. Once the roadways have been constructed, the project perimeter fence and access gates would be constructed.

### 1.5.5 Foundations and Underground Equipment Installation

Following completion of major site grading and civil work, equipment foundations and below grade equipment would be installed. A grounding grid and underground conduit would be installed below grade beneath the project substation area and BESS components. Typical ground grids consist of direct-buried copper conductors with copper-clad ground rods arranged in a grid pattern. After installation of the grounding grid, the area would be backfilled, compacted, and leveled followed by application of an aggregate rock base. A containment area within the MPT foundations would be sized to hold the full volume of oil within the MPTs. The MPT foundations within the substation area are anticipated to be concrete slab foundations poured into excavations up to 10 feet deep. Foundations for the control building, static masts, other aboveground substation equipment, O&M building, BESS enclosures, PCS units, DC/DC converters, and BESS auxiliary transformers and panels are anticipated to be pile foundations embedded up to 40 feet below ground level. Depending on soil conditions, the piles may be drilled or driven and set with a slurry. However, some of these project components may be installed on concrete slab foundations depending on the geotechnical conditions at the final locations.

Additional underground work would include trenching for the placement of underground electrical and communications lines, including the MV collection system, AC and DC cables, and fire alarm cable. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application

### 1.5.6 BESS and Project Substation Equipment Installation

Where possible, major equipment would be delivered directly to its permanent location and offloaded directly into place with a crane or heavy equipment. Where staging or sequencing does not allow, equipment would be stored at one of the laydown areas near its permanent location and installed at a later date. Major aboveground equipment would be the MPTs and other project substation components, control building, BESS enclosures, PCS units, DC/DC converters, BESS auxiliary transformers and panels, and O&M building.

Electrical work would include installing cables, terminations, and splices. Electrical wiring would be installed underground, at-grade, and above ground, depending on the application and location. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

### 1.5.7 Gen-Tie Structure Erection

Environmental clearance surveys would be performed within the gen-tie corridor prior to commencement of construction activities. The gen-tie corridor boundaries, gen-tie centerline, telecommunications route centerlines, and transmission structure access path would be surveyed and flagged. Initial activities would include the installation of erosion and sediment control measures and materials to facilitate the dry crossing of Patterson Run, and preparation of the transmission structure and fiber optic utility pole work areas. The transmission structure access path may be bladed, compacted, and surfaced with gravel where necessary to facilitate transmission structure deliveries and construction equipment access. The surface of the access path would be at-grade to allow water to sheet flow across the gen-tie corridor, as it currently does. Access to the fiber optic utility pole locations would be via overland travel from the transmission structure pads or access path. Overland travel and temporary construction activities associated with the gen-tie and telecommunications facilities may occur anywhere within the 200-foot-wide transmission corridor and 50 feet on either side of the transmission corridor boundary. Vegetation at the transmission and fiber optic utility pole work areas would be trimmed, mowed, or removed. At locations where gen-tie line structures and fiber optic utility poles would be installed, minor cuts may be required where the foundation would be installed.

Cast-in-place concrete foundations would be installed by placing reinforcing steel and a structure stub or anchor bolt cage into the foundation hole, positioning the stub, and encasing it in concrete. Each transmission structure foundation would be set on anchor bolts on top of the foundation with cranes. Fiber optic utility poles would be direct embedded in holes up to 8 feet deep. Holes would be excavated using a truck-mounted drill rig or standalone auger rig. Poles would be delivered on a flat-bed trailer and hoisted into place with a crane. The annular space between the poles and holes would be backfilled with concrete or soil. Excavated spoil material not used for backfilling would be spread around the structure work areas.

### 1.5.8 Gen-Tie Stringing and Pulling

Conductors would be strung between transmission structures with heavy duty trucks and a telescoping boom lift. Cables would be pulled through one segment of the transmission line at a time. To pull cables, truck-mounted cable-pulling equipment is placed alongside the first and last towers or poles in a segment. Power pulling equipment is used at the front end of the segment, while power braking or tensioning equipment is used at the back end. The conductors are then pulled through the segment and attached to the insulators. Equipment is then moved to the next segment; the front end pull site previously used becomes the back end pull site for the next segment. After conductors have been pulled into place in a section, the conductor tension is increased to achieve a ground clearance of at least 30 feet prior to moving to the next section.

Three tension and pulling sites are anticipated to facilitate construction of the gen-tie: one within the BESS facility footprint near the first angled dead-end structure, one at the POCO structure, and another at the PG&E-constructed angled dead-end structure near the Tesla Substation fence line.

### 1.5.9 PG&E-Owned Gen-Tie Segment and Interconnection Facilities within Tesla Substation Footprint

PG&E would construct the segment of the gen-tie between the POCO and the POI within the Tesla Substation, and the fiber optic routes between the POCO and the PG&E control building within the Tesla Substation footprint. The Applicant would bring the fiber optic cables to underground pull boxes at the POCO structure, and PG&E would install the segment of the fiber optic cables between the POCO and control building in conduit placed in underground trenches. The trenches are anticipated to be up to three feet wide, and the trenches for the redundant routes would need to be at least 10 feet apart to meet PG&E's diverse path requirements. It is anticipated that PG&E would install the trenches within the access road to the angled dead-end structure outside the Tesla Substation fence line. However, PG&E may install the cables within existing roadways or other pre-disturbed areas along the perimeter of the substation fence depending on final design and routing.

PG&E would also construct the interconnection upgrades within the Tesla Substation footprint at the POI. These upgrades would include erection of a new substation bay dead-end transmission structure and expanding the POI's existing 500kV substation bay-and-a-half bay with a new circuit breaker. Other activities within the Tesla Substation footprint and/or property boundary may include relocation or modification of existing PG&E infrastructure. Additional potential disturbance acreage associated with PG&E's work to facilitate interconnection of the Project to the grid are not anticipated to exceed 5 additional acres of disturbance beyond the estimates in Table 1-2.

### 1.5.10 Construction Water Use

During construction, an estimated 16,000,000 million gallons (~49.1 acre-feet) of untreated water would be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line would not be required during construction because restroom facilities would be portable units, serviced by licensed providers, and water and sewage from the restroom facilities would be stored in onsite tanks and serviced by trucks. Drinking water would be provided via portable water coolers. Construction water is anticipated to be purchased from a local water purveyor and trucked to the site.

### 1.5.11 Solid and Non-hazardous Waste

The Project would produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. This waste would be segregated, where practical, for recycling. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III (non-hazardous waste) landfill.

### 1.5.12 Hazardous Materials

The hazardous materials used for construction would be typical of most construction Projects of this type. Materials may include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. A hazardous materials business plan would be prepared prior to commencement of construction activities. The hazardous materials business plan would include a complete list of all materials used on site and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During Project construction, material safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel.

### 1.5.13 Hazardous Waste

Small quantities of hazardous waste would most likely be generated over the course of construction. This waste may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment, recycling, or disposal facility in accordance with law. All hazardous waste shipped off site would be transported by a licensed hazardous waste hauler .

## 1.6 Commissioning

As part of Project construction activities, and after installation, equipment will be tested and commissioned. Commissioning work will be completed by qualified personnel, and in accordance with various codes, standards and specifications including IEEE Institute of Electrical and Electronic Engineers, NEC National Electrical Code (NFPA 70), NETA International Electrical Testing Association, specific provisions of NFPA National Fire Protection Association, and the relevant OEM / manufacturers installation and commissioning manuals. Documentation necessary for commissioning will include (but is not limited to) complete sets of electrical plans, itemized equipment descriptions, control narratives, and other procedural requirement such as persons or entities to notify when equipment has become available for acceptance tests.

Commissioning will include testing of mechanical, electrical, fire protection, and other systems at substantial completion. Systems to be commissioned and tested include (but are not limited to) BESS enclosures, PCS units, auxiliar service transformers, MV collection system, DC cables, Supervisory Control and Data Acquisition (SCADA) systems, power backup systems, and fire protection system. Performance testing will also be completed to ensure charge and discharge performance of the systems as designed and in accordance with the utility requirements. Full details of the commissioning activities will be made available in a commissioning plan, prepared by the BESS supplier and construction contractor and reviewed by the Engineer of Record (EOR), as part of the construction documentation package.

## 1.7 Operations and Maintenance

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be remotely monitored by the original equipment manufacturer or an affiliated company. Project operations would be monitored remotely through the SCADA system and by the Project's anticipated three full-time operations staff members.

Onsite maintenance would be required, which would include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the project substation, O&M staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

Batteries within utility-scale BESS facilities degrade with use over time, leading to a loss of capacity. To maintain the Project's capacity in compliance with interconnection requirements and commercial contracts, periodic augmentation by installing new batteries and related equipment within the Project site would occur to maintain the capacity over an approximate 35-year life. Augmentation would include constructing new foundations, installing BESS equipment on the foundations, and completing electrical work within the existing Project footprint. The construction sequencing and equipment usage assumptions in Tables 3 and 4 above, and environmental analyses in subsequent Chapters, conservatively assume that all initial BESS equipment and augmentation BESS equipment are constructed at the same time.

### 1.7.1 Solid and Nonhazardous Waste

The Project will produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning electrical materials, empty containers, and other miscellaneous solid waste, including typical refuse generated by workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

### 1.7.2 Hazardous Materials

Limited amounts of hazardous materials would be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the Project. A spill prevention control and countermeasures plan would be developed for site operations.

### 1.7.3 Hazardous Waste

Fuels and lubricants used in operations would be subject to the spill prevention control and countermeasures plan to be prepared for the proposed Project. Solid waste, if generated during operations, would be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

## 1.8 Decommissioning

In general, the BESS would be recycled at the expiration of the Project's life (estimated to be 35 years). Most parts of the proposed system are recyclable. Batteries include lithium-ion, which degrades but can be recycled or repurposed. Steel, wood, and concrete from the decommissioned facilities would be recycled. Metal and scrap equipment and parts that do not have free-flowing oil may be sent for salvage. Materials three feet or more below the ground surface would be left in place.

Fuel, hydraulic fluids, and oils would be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks and vessels would be rinsed and transferred to tanker trucks. Other items that are not feasible to remove at the point of generation, such as smaller container lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, would be kept in a locked utility structure with integral secondary containment that meets Certified Unified Program Agencies and Resource Conservation and Recovery Act requirements for hazardous waste storage until removal for proper disposal and recycling. It is anticipated that all oils and batteries would be recycled at an appropriate facility. Site personnel involved in handling these materials would be trained to properly handle them. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage. Additional procedures would be specified in a Hazardous Materials Business Plan closure plan submitted to the Certified Unified Program Agencies. Transportation of the removed hazardous materials would comply with regulations for transporting hazardous materials, including those set by the Department of Transportation, the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal.

## 1.9 Project Site Selection

The Project site and related facilities were selected taking into consideration engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, and electric transmission constraints, among other factors. The Project site was selected in furtherance of the Project Objectives detailed in Section 2.1.3 above. The site selection criteria are discussed in detail in Chapter 6, *Alternatives*.

## 1.10 Report Structure and Key Personnel

This report is divided into five chapters. Following this introduction, Chapter 2 reviews the natural environment and the cultural context and Chapter 3 provides the methods used to complete the current inventory. The records search, survey results, and tribal correspondence are discussed in Chapter 4. Chapter 5 summarizes the cultural resources work completed for this Project to-date and provides recommendations for further treatment of the cultural resources consistent with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA). Several appendices are attached to this report. Confidential Appendix A includes confidential records search results; Appendix B contains Native American Heritage Commission (NAHC) coordination documents; and Appendix C provides the California Department of Parks and Recreation (DPR) 523 forms and pertinent documentation for resources encountered during survey.

Gregory Wada and Victoria Martin conducted the intensive pedestrian survey. Nicholas Hanten, MA, drafted archaeological elements of the technical report. Adam Giacinto, MA, RPA, acted as archaeological principal investigator, reviewed management recommendations, and provided QA/QC for the technical report. Architectural

Historians, Kathryn Haley, MA, Patricia Ambacher, MA and Danielle Baza, BA, prepared all built environment report contributions. Nicholas Hanten, Adam Giacinto, Kathryn Haley, and Patricia Ambacher meet Secretary of the Interior Professional Qualification Standards for archaeology and architectural history and have extensive experience working within local, state, and federal regulatory contexts.

# 1.11 Regulatory Context

This cultural resources investigation was completed to satisfy both CEQA.

## 1.11.1 National Register of Historic Places

The National Register of Historic Places (NRHP) is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service (NPS), under the U.S. Department of the Interior, the NRHP was authorized under the NHPA, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by NPS.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
B. That are associated with the lives of persons significant in our past; or
C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, *How to Apply the National Register Criteria,* as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1997). NRHP guidance further asserts that properties must have been completed at least 50 years before evaluation to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (Criteria Consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records,

and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 CFR Sections 800.16(i)(1)).

### 1.11.2 California Register of Historic Resources and CEQA

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." (PRC section 5020.1(j).) In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." (Public Resources Code [PRC] section 5024.1(a). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- Is associated with the lives of persons important in our past.
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see Cal. Code Regs., tit. 14, section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks (numbered 770 and higher) and points of historical interest designated by the State Historical Resources Commission. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

### 1.11.3 California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC section 21083.2(g) defines "unique archaeological resource."

- PRC section 21084.1 and CEQA Guidelines section 15064.5(a) defines “historical resources.” In addition, CEQA Guidelines section 15064.5(b) defines the phrase “substantial adverse change in the significance of an historical resource;” it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC section 21074(a) defines “tribal cultural resources.”
- PRC section 5097.98 and CEQA Guidelines section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

PRC sections 21083.2(b)-(c) and CEQA Guidelines section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource." (PRC section 21084.1; CEQA Guidelines section 15064.5(b). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC section 21084.1; CEQA Guidelines section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC section 21084.1; CEQA Guidelines section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines section 15064.5(b)(1); PR Code section 5020.1(q)0. In turn, the significance of an historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

(CEQA Guidelines section 15064.5(b)(2).) Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a

substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC section 21083.2(a); CEQA Guidelines section 15064.5(c)(4).) However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC section 5097.98.

### 1.11.4 California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (section 7050.5c). The NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Recommendations from the tribe must be provided within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

### 1.11.5 Alameda County Register

The Alameda County Register is a list of landmarks, historic preservation districts, contributing resources and structures of merit. Resources eligible for listing on the Alameda County Register must meet one or more of the following criteria:

a. It is associated with events that have made a significant contribution to the broad patterns of the history of the County, the region, the state or the nation;

b. It is associated with the lives of persons significant in the County's past;

c. It embodies the distinctive characteristics of a type, period or method of construction;

d. It represents the work of an important creative individual or master;

e. It possesses high artistic values; or

f. It has yielded, or may be likely to yield, information important in the prehistory or history of the County, the region, the state or the nation.

The resource must have integrity of location, design, setting, materials workmanship, feeling and association. Integrity shall be judged with reference to the particular criterion or criteria specified above (Alameda County 2024).

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## 1.12 Area of Potential Impacts

The area of potential impacts (API) is the study area delineated to assess potential impacts from the construction and operation of the Project on both archaeological and historic built environment resources. The API encompasses the geographic area or areas within which the Project may directly or indirectly cause a substantial adverse change in the significance of a known or unknown historical resource. A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource is materially impaired (14 CCR Section 15064.5[b][1]). Under CEQA, material impairment of a historical resource is considered a significant impact (or effect), which can be direct, indirect, or cumulative.[1]

A direct or primary effect on a historical resource is one that is caused by the Project and occurs at the same time and place (14 CCR Section 15358[a][1]). Examples of direct effects that are caused by, and immediately related to, the Project include, but are not limited to, demolition, destruction, relocation, and alteration of a historical resource as a result of ground disturbance and other construction activities. Direct effects, however, are not limited to physical effects and, in certain circumstances, can be visual, vibratory, auditory, or atmospheric in nature if the effect is immediate and it results in the material impairment of the significance of a historical resource. Visual intrusions within the viewshed of a historical resource, for example, could result in the material impairment of the resource's integrity of setting if an unencumbered view of the surrounding area or a specific area is a characteristic that contributes to the significance of the resource. Similarly, operational noise that exceeds the ambient level of a sensitive noise receptor can cause material impairment to a historical resource that derives part or all its significance from an inherently quiet auditory setting.[2] Finally, atmospheric intrusions, such as those caused by the introduction of high levels of fugitive dust emissions or chemical pollutants, can result in adverse effects that directly and physically affect biological landscape features that have been identified as historical resources for the purposes of CEQA. Overall, while direct effects clearly include physical effects, they may also include other types of effects that are visual, vibratory, auditory, or atmospheric in nature if the effect is caused by and occurs at the same time and place as the Project and there is no other intervening cause between the activities or components of the Project and the historical resource.

By contrast, an indirect or secondary effect is a reasonably foreseeable effect caused by the Project that occurs later in time or is farther removed in distance. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems (14 CCR Section 15358[a][2]). Because these types of effects are not immediately related to the Project, they are considered secondary effects.

Cumulative impacts refer to two or more individual effects that, when considered together, are considerable or compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually

1 As used in the CEQA Guidelines and 14 CCR Section 15358, the terms "effects" and "impacts" are synonymous in this report.

2 Construction noise that exceeds the ambient level of a sensitive noise receptor is not analyzed because it is considered a temporary impact that would not have an adverse effect on historical resources because it would not cause physical damage and would not permanently alter or diminish the integrity of such resources. Temporary construction noise would not result in a substantial adverse change in the significance of a historical resource and, therefore, would not cause a significant impact under CEQA.

minor but collectively significant projects taking place over a period of time (14 CCR Section 15355[a]-[b]). The API for cumulative impacts, if any exist, would include the API for direct effects, indirect effects, or both because in order for a cumulative impact to exist, a historical resource must first be directly or indirectly affected by the project.

The API for Cultural Resources is illustrated on **Figure 3**. Explanation of the API considerations for archaeological resources and built environment resources is noted below.

## Archaeological Resources API Delineation

The API for archaeological resources includes all areas where ground-disturbing activities associated with the proposed Project have the potential to impact archaeological resources. Proposed ground disturbance activities with potential impacts to archaeological resources within the API are limited to the extent of the Project Boundary. The Project API is approximately 127.4 acres and consists of the primary project site as well as selected off-site activity areas along roadways and intersections that would require recontouring of existing disturbed areas to accommodate truck turning movements. The maximum vertical extent of the API is not expected to exceed 15 feet in depth.

## Built Environment API Delineation

Delineation of the API considered the proposed project activities in conjunction with historic era built resources that are 45 years of age or older (those built-in or prior to 1979) that may sustain impacts or effects due to the construction or operation of the project.3 The Project proposes to connect to the existing PG&E Tesla Substation (P-01-010502). As such the extent of this property is included in the API and this facility is addressed in this report. The Tesla-Salado-Manteca 115 kV Transmission Line (P-39-005337) PG&E transmission located directly adjacent to the northwestern edge of the API will not sustain any direct or indirect impacts that would result in damage, destruction, or degradation of historic significance, if applicable. As such, the transmission lines were not included in the API.

[3] While the 50-year threshold is generally used for listing resources in the NRHP and CRHR, the California Office of Historic Preservation's (OHP) *Instructions for Recording Historical Resources* recommends recording "any physical evidence of human activities over 45 years . . . for the purposes of inclusion in the OHP's filing system." It also allows for the "documentation of resources less than 45 years . . . if those resources have been formally evaluated, regardless of the outcome of the evaluation." Further, the guidance notes that the 45-year threshold recognizes that there is commonly a five-year lag between resource identification and the date that planning decisions are made, and thus it explicitly encourages the collection of data about resources that may become eligible for the NRHP or CRHR within that planning period (OHP 1995: 2).


SOURCE: Bing Maps 2023

DUDEK

0 190 380 Feet

**FIGURE 2**

Project Site

Potentia Viridi BESS Project

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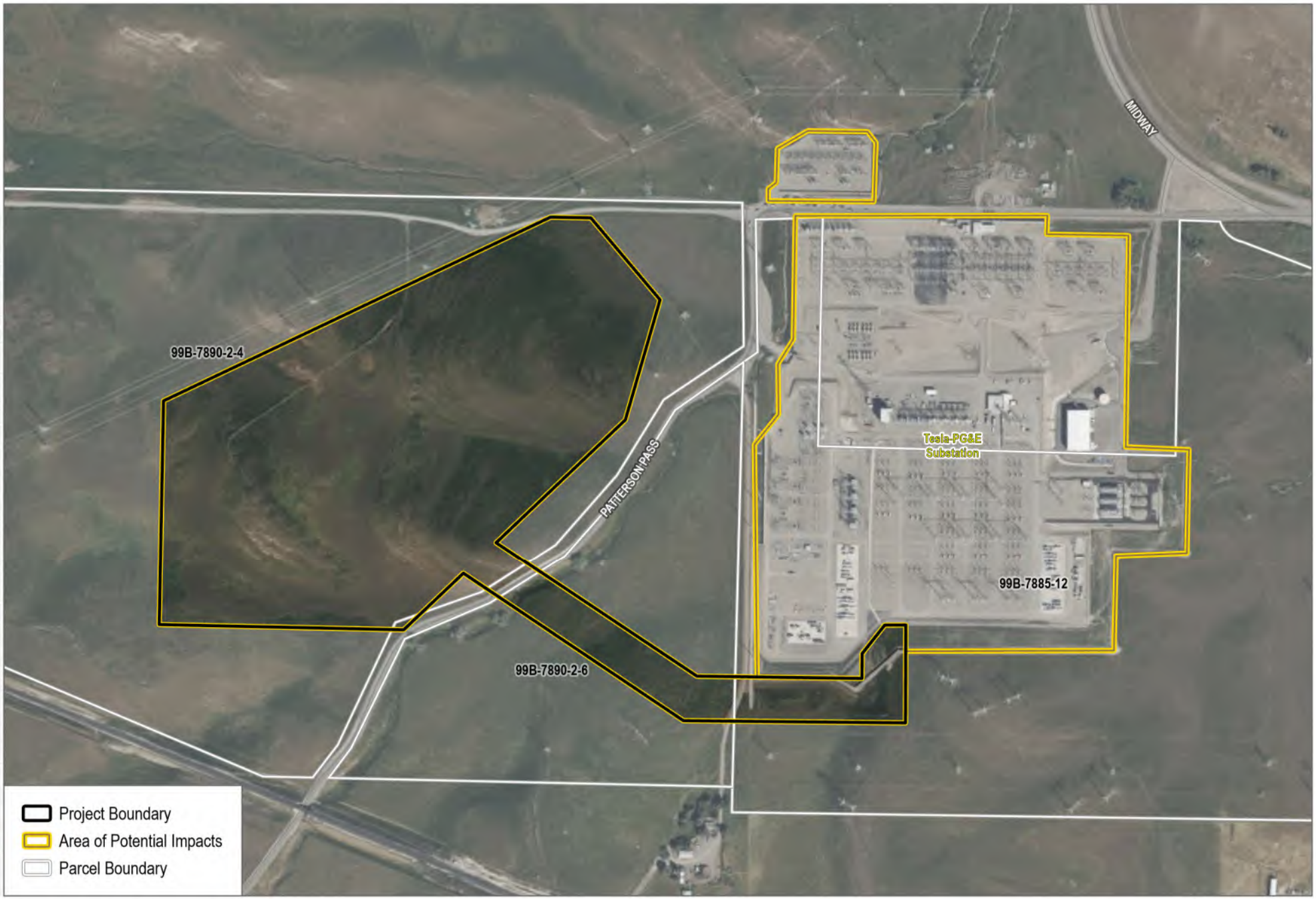


SOURCE: Bing Maps 2023, County of Alameda 2022

DUDEK

0 290 580 Feet

**FIGURE 3**

Cultural Resources Area of Potential Impacts

Potentia Viridi BESS Project

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# 2 Project Context

## 2.1 Environmental Context

The Project falls at the transition between the Coast Ranges and Great Valley geomorphic provinces at the margin of the Sacramento Valley. Portions of the API have been substantially modified by construction roads and agricultural activities. The Sacramento Valley has two major river systems, the Sacramento and American Rivers, which carry water that originates in the Sierra Nevada south and west into the Sacramento-San Joaquin River Delta. Elevation in the API ranges from approximately 380 to 523 feet above mean sea level and the topography of the API is flat.

This region is characterized by a Mediterranean climate, which includes dry hot summers and cool wet winters.The region within which the Project area occurs receives an average of about 12 inches of precipitation annually. Annual temperatures range from 38.3°F to 92.6°F, with the coolest temperatures in January and warmest temperatures in July (WRCC 2023).

## 2.2 Cultural Context

This context provides an overview of the prehistoric and historic periods in the API.

### 2.2.1 Paleoindian Period (11,550–8,550 BC)

While few sites of Paleoindian age have been identified in the region, occupation is known to date to at least 11,000 years ago (e.g., Fenenga 1993; Fredrickson and Grossman 1977; Riddell and Olsen 1969; Siefkin 1999; Wallace and Riddell 1988). Most of the evidence for a Paleoindian presence in the valley has been limited to surface finds of fluted projectile points, which are typically regarded by North American archaeologists as late Pleistocene early Holocene time markers. Numerous specimens of these fluted, concave base (Clovis or “Clovis-like”) projectile points and other artifacts presumed to be Paleoindian in age (e.g., “humpies” and crescents) (see Fredrickson and Grossman 1977; Sampson 1991) have been collected from surface contexts in several locations in the San Joaquin Valley. Unfortunately, most of these discoveries have been made by amateur collectors, many of whom were collecting illegally, so virtually no provenance has been provided for these artifacts. This has resulted in an enormous and irretrievable loss of data for understanding the Paleoindian Period in this region.

One of the most significant Paleoindian locations in this region is the Witt Site (CA-KIN-32) on the southwest shore of Tulare Lake, which contained fluted projectile points, scrapers, crescents, and Lake Mojave series points (Moratto 1984, pp. 81–82). The Witt Site, at an elevation of 192 feet, signifies a “major lake level for a considerable span of time” (Riddell and Olsen 1969, p. 121). Subsequent archaeological investigations conducted by Fenenga (1993) in the early 1990s near the Witt Site resulted in the recovery of additional fluted projectile points, as well as later types, indicating sustained occupation of the Tulare Lake Basin dating from the Paleoindian Period to contact (also see Gardner et al. 1995; Jennings et al. 1994; Manifold et al. 1995; Tidmore et al. 1994). These and other isolated finds elsewhere indicate an initial occupation of the region at the end of the Pleistocene and early Holocene.

### 2.2.2 Archaic Period (8,550 BC to AD 1,100)

The Archaic Period in California is generally characterized by gradual development of specific regional adaptations and the proliferation and regional differentiation of subsistence strategies and tool types as people because increasingly sedentary, or at least reoccupied a greater number of locations with greater frequency, resulting in the formation of a larger number of regionally or functionally distinct sites. The Archaic Period in the California chronology is subdivided into three phases: Lower Archaic, Middle Archaic, and Upper Archaic.

#### 2.2.2.1 Lower Archaic Period (8,550 to 5,550 BC)

As with the Paleoindian Period, Lower Archaic deposits tend to be isolated finds lacking stratigraphic context. Stemmed projectile points, flaked stone crescents, and other distinctive flaked stone artifact types are associated with this period, several of which have been found in the vicinity of Tulare Lake (Fenenga 1992). It is believed that human subsistence during this period was based largely on the hunting of large game and fishing (Sutton 1997, p. 12). Grinding implements, such as mortars, pestles, millingstones, and handstones, appear infrequently during this time in the archaeological record. Other types of artifacts in these assemblages include hand-molded baked clay net weights, Olivella and Haliotis shell beads and ornaments, and charmstones.

#### 2.2.2.2 Middle Archaic Period (5,550 to 550 BC)

The onset of the Middle Archaic in Central California marked a substantial change in the climate, with warmer, dryer conditions resulting in the shrinking and eventual drying out of the lakes of the San Joaquin Valley, a phenomenon common among other Pleistocene Lakes throughout the Western United States during this time. This also coincided with the formation of new wetland habitats as rising sea levels pushed inland, forming the Sacramento–San Joaquin River Delta (Delta). These climatic processes resulted in substantially more stable landforms as fans and floodplains stabilized within the Delta, making buried Middle Archaic deposits much more common than those from the Early Archaic.

Middle Archaic sites are typified by the distinct adaptive pattern of more generalized and logistically organized subsistence practices and residential stability along river corridors (Rosenthal et al. 2007). While hunting, fowling, and fishing continue to be important aspects of subsistence, the prevalence of groundstone tools, including early examples of mortars and pestles, suggest an increased reliance on vegetal resources, likely the result of greater residential stability driving resource intensification (e.g., Basgall 1987). The continued importance of fishing is indicative in the adoption of new fishing technologies, including gorge hooks, composite bone hooks, and spears, along with abundant ichthyofaunal remains, identified at Middle Archaic sites in Contra Costa, Sacramento, and San Joaquin Counties (Heizer 1949; Rosenthal et al. 2007; Schulz 1981). Other artifact types characteristic of the period include Olivella and Haliotis beads and other ornaments, distinctive spindle-shaped charmstones, cobble mortars, chisel-ended pestles, and large projectile points (implying use of the atlatl) (Moratto 1984, p. 183; Sutton 1997, p. 12).

#### 2.2.2.3 Upper Archaic Period (550 BC to AD 1,100)

The transition to the Upper Archaic Period coincides with the onset of late Holocene environmental conditions, during which time the climate was markedly cooler, wetter, and more stable. The archaeological record from the

Upper Archaic is better understood and represented, and is marked by an increase in cultural diversity, with numerous regional distinctions in burial posture, artifact styles, and other elements of material culture (Bennyhoff and Fredrickson 1994; Rosenthal et al. 2007).

The Upper Archaic record is marked by the development and proliferation of numerous bone tools and implements, as well as widespread production and trade of manufactured goods, including Olivella shell beads, Haliotis ornaments, and obsidian bifacial roughouts and ceremonial blades (Bennyhoff and Fredrickson 1994; Moratto 1984). Subsistence economies during the Upper Archaic focused on seasonally structured resources that could be harvested and processed in bulk, including acorns, salmon, shellfish, deer, and rabbits. The proliferation of mortars and pestles and archaeobotanical remains indicate that the first widespread reliance on acorns occurred during this period (Wohlgemuth 1996, 2004). Large, mounded village sites also first occurred in the Delta region during this period (Bennyhoff and Fredrickson 1994; Bouey 1995; Rosenthal et al. 2007).

On the whole, the Archaic Period is characterized by increasing residential stability, cultural diversity, and subsistence intensification though time.

### 2.2.3 Emergent Period (AD 1,100 to 1,750)

The archaeological record for the Emergent Period is the most substantial and well-documented of any period in the region, and the assemblages and adaptations represented therein are the most diverse. The Emergent Period also marks the onset of cultural traditions consistent with those documented at European contact and the disappearance of several previous archaeological traditions. Large villages developed in areas of the Sacramento Valley, and the number of mound villages and smaller hamlets increased across the region. Subsistence economies during the Emergent Period were increasingly reliant on fishing and plant gathering, with increased subsistence intensification evident in the increased reliance on small seeds and a more diverse assortment of mammals and birds (Broughton 1994; Rosenthal et al. 2007; Wohlgemuth 2004). Perhaps the most notable technological change during the Emergent Period is the introduction of the bow and arrow, which replaced atlatl technology as the favored hunting implement sometime between AD 1100 and AD 1300 (Bennyhoff and Fredrickson 1994; Moratto 1984). The material record during the Emergent Period is also marked by the introduction of new Olivella bead and Haliotis ornament types, and eventually the introduction of Clamshell Disk beads (Groza 2002; Moratto 1984; Rosenthal et al. 2007). The Emergent Period in general is marked by an increase in population size and the number of residential sites and villages throughout the region, with increasing regional variability and resource intensification.

#### 2.2.3.1 Ethnohistoric Period (post-AD 1750)

The history of Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century. The principal intent of these researchers was to record the pre-contact, culturally specific practices, ideologies, and

languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005, p. 32) by recording languages and oral histories within the region.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007).

Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007). A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla (2007) has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates. This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The API falls near the northwestern periphery of the area occupied Yokuts speaking groups, bordered to the west by Costanoan (Ohlone) and to the north by Plains Miwok populations during the Ethnohistoric Period. These three languages form a branch ("Yok-Utian") of the Penutian linguistic group, with two distinct sub-branches: Yokuts, and the more closely related Costanoan and Miwok ("Utian") (Golla 2011). The Yok-Utian language group is believed to have originated in the Great Basin and been subsequently brought to California in two separate migration events, an initial Utian migration that reached the Delta region approximately 2,500 to 2,000 cal BC, and a later Yokut migration, possibly as late as 600 to 700 cal AD (Golla 2007, 2011). Kroeber's (1959) interpretation of the ethnographic distribution of the major sub-dialects of the Yokut language suggests that the original diversification of Yokut speaking groups in California originated in the southern San Joaquin Valley and subsequently spread northward. Golla (2011) notes that the most specialized subdialects of Yokut, and thus presumably the oldest variants, are from the southern end of Yokut territory, suggesting that the Yokut language group likely originated in the vicinity of the Lower Kern River or Tehachapi Pass, with the language diversifying as it spread north along the San Joaquin Valley and southern Sierra Nevada foothills.

#### 2.2.3.1.1 Northern Valley Yokuts

Ethnohistoric inhabitants of the area now representing the Project site would have likely spoken Tamukamne, a dialect of Delta (or Far Northern Valley) Yokuts centered approximately 15 miles west of Lathrop (Golla 2011, p. 153). People speaking Delta Yokuts dialects occupied the lower course of the San Joaquin River from the Merced River east of Newman to the Delta sloughs north of Stockton. Little is known about Tamukamne, or any Delta Yokuts dialects, due to the effects of early missionization activities and Euro–American settlement, with the only linguistic documentation coming from late nineteenth- and early twentieth-century word lists. Despite the paucity of linguistic data, it appears that these dialects can be classified as Valley Yokuts on phonological and morphological grounds, though several portions of the language are non-cognate with other Yokuts dialects and word borrowing from the adjacent Miwok and Costanoan languages is evident (Golla 2011, p. 154). The similarity between Delta Yokuts and

Valley Yokuts has generally led to the grouping of Delta Yokuts with the Northern Valley Yokuts in ethnographic works describing the ethnographic lifeways of the region.

Broadly defined, Northern Valley Yokuts refers to groups speaking several distinct dialects who inhabited the lower San Joaquin River watershed and its tributaries extending from Calaveras River in the north to approximately the large bend of San Joaquin River eastward near Mendota. The lower San Joaquin River meanders through the territory making bends, sloughs, and marshes full of tule reeds. Farther from the rivers and marshes, the valley floor would have been dry and sparely vegetated grassland with occasional stands of sycamores, cottonwoods, and willows along stream courses and groves of valley oaks where the soil was rich enough (Wallace 1978; Latta 1977; Kroeber 1976). In contrast to the limited diversity of available plants, the fauna of the region was both plentiful and diverse on land and water. Fish, freshwater shellfish, migratory waterfowl, tule elk, pronghorn antelopes, and other smaller animals would all have been available and often seasonally abundant.

Northern Valley Yokuts habitation was most common and dense in areas situated in proximity to rivers and major tributaries, though the drier plains were occupied at lower density, more often on the east side of the river (Kroeber 1976). West of the river, populations were much sparser and concentrated in the foothills on minor waterways. The concentration of the population near waterways is unsurprising given that many of the Northern Yokuts subsistence staples, particularly fish and waterfowl, would have been most available in these areas. The focus on fishing is seen in the material culture consisting of net sinkers and harpoons, likely used from rafts constructed from tule reed bundles (Wallace 1978). Gathered vegetable resources would also have been an important part of subsistence, particularly acorns, although tule roots and various seeds were also gathered. These vegetal resources would likely have been processed in portable mortars—often made from white oak, although stone mortars were occasionally used (Kroeber 1976).

Due to abundant riverine resources, the Northern Valley Yokuts were generally sedentary, occupying the same locations year-round, though there were times of seasonal disbandment for harvesting wild plant resources such as acorns and seeds (Gayton 1948; Kroeber 1976). Principal settlements were perched atop low mounds on or near riverbanks, where their elevated position prevented inundation during seasonal flooding (Wallace 1978). Northern Valley Yokuts' dwellings were constructed of tule reed woven mats places over a pole frame oval or round structure. These structures were usually 25 to 40 feet in diameter and would belong to a single family (Wallace 1978). This is in contrast to the larger multifamily dwellings erected sometimes by the Southern Yokuts. In addition to dwellings, earth-covered ceremonial sweat lodges and larger ceremonial assembly chambers were constructed, with each community likely having one or more of these buildings (Wallace 1978).

As with most aspects of their lifeways, little can be said for certain about the political organization among the Northern Valley Yokuts, but it is believed that these groups were organized into tribes of as many as 300 individuals, guided by a head man or chief (Wallace 1978). Most members of the tribe congregated in a single principal settlement, although smaller hamlets of two or three houses also existed.

Based on the information about population density and settlement distribution, it is possible to conjecture that the total population of the Northern Valley Yokuts may have been quite large prior to European contact. However, the Northern Valley Yokut population saw sharp and devastating decline from disease and relocation to coastal missions nearly immediately after Spanish contact (Osbourne 1992). This only increased with the large influx of cattle ranching and Anglo Americans after the gold rush (Osborne 1992; Cook 1976).

#### 2.2.3.1.2 Costanoan (Ohlone) and Plains Miwok

As alluded to above, while the Project site is within area occupied ethnographically by the Delta Yokuts, the location is very close to the ethnographic borders with neighboring Costanoan-speaking groups to the west and Plains Miwok groups to the North. The Yokuts occupants of the area would likely have had frequent contact with these other groups, and therefore a brief description of these other groups is warranted.

##### Costanoan (Ohlone)

The area immediately west of the Project site was occupied by Ohlone groups that spoke a dialect of Costanoan (Golla 2011). Costanoan-speaking groups occupied much of the Bay Area, from the San Francisco and San Ramone down to the Monterey Bay and Salinas. Due the effects of missionization, relatively little is known about the Ohlone ethnographically and their material culture has largely been reconstructed from the archaeological record. Like their neighboring Yokuts, Ohlone communities were generally organized into autonomous tribelets of 200 to 400 people, which were overseen by a headman and council of elders, and occupied villages near the coast or major drainages (Levy 1978). These primary settlements were supplemented with temporary camps located in prime resource-collecting areas.

Subsistence practices were similar to those of the Yokuts, with a heavy reliance on terrestrial vegetal food sources including acorn, nuts, seeds, greens, and bulbs. The Ohlone also pursued terrestrial game including deer, pronghorn, tule elk, rabbit, and waterfowl. Whereas the Yokuts relied heavily on riverine resources, marine resources made up an important component of the Ohlone diet, in particular shellfish and sea mammals. The Ohlone traded shell ornaments, animal furs, salt, shellfish, and other items with neighboring Miwok, Yokuts, and Patwin for bows and arrows, basketry materials, pigments, and feather blankets (Clay and Waechter 2009). Thus, it is likely that the area around the Project site would have been frequently traversed by both Yokuts and Ohlone groups in pursuit of trading partners.

##### Plains Miwok

The area to the north of the Project site would have been occupied by the Plains Miwok–speaking groups who inhabited the region of the lower Mokelumne and Cosumnes Rivers, roughly bounded by the Yolo Basin to the west, the American River to the north, the Sierra Nevada to the east, and the Calaveras River to the south. These groups were similar to the Yokuts in their subsistence settlement system with settlements situated on rivers, and a reliance on fishing, hunting, and collecting vegetative resources. These groups may have been more logistically mobile than the Yokuts, with satellite sites used during hunting excursions and for pre-processing of collected plant resources, such as acorns; however, the primary settlements were likely permanently occupied (Barret and Gifford 1933; Bennyhoff 1977; Kroeber 1976). As with the Yokuts, the Plains Miwok were organized into tribelets, although the basic social unit was the patrilineal extended family. The Plains Miwok are somewhat better documented ethnographically than either the Yokuts or Ohlone, though not nearly as well documented as the Eastern Miwok groups of the Sierra Nevada foothills.

In general, the ethnographic groups surrounding Project site shared very similar subsistence and settlement systems relying on intensive processing of vegetal resources in addition to a reliance on riverine or marine resources when plentiful. However, dialects and other social practices did vary in non-trivial ways. Unfortunately, the effects

of missionization have made more detailed reconstruction of the lifeways and social practices of ethnographic period inhabitants of the region very difficult

## 2.2.4 Historic Context

This historic context is provided to ascertain the significant themes are present used to understand any identified previously recorded or newly documented resources in the API. The context was taken from the 2011 *Final Cultural Resources Technical Report Kelso Substation to Tesla Substation 230 kV Reconductoring Project* prepared by AECOM (AECOM 2011).

### 2.2.4.1 Spanish Period (1769–1822)

As early as 1769, the Spanish explorer José Francisco Ortega led an expedition through present-day Alameda County. Other Spanish expeditions in the region were led by Pedro Fages, Juan Bautista de Anza, and Pedro Font. During this period, the Spanish began to set up a series of missions and presidios along the California coast, including Mision del Gloriosisimo Patriarca Senor San Jose (currently known as Mission San Jose), located just south of San Jose and approximately 23 miles to the west of the study area (Kyle 1990:4-7; Mason 1975: 91). The presidios served as military forts for protection from competing interests and the native population. Once the missions and presidios were established, the government set up secular towns (pueblos) nearby and populated them with colonists from Mexico. The missions served as agricultural and educational centers for the surrounding rural area (AECOM 2011: 11).

### 2.2.4.2 Mexican Period (1822–1848)

In 1822, Mexico gained independence from Spain. The mission system was secularized in 1834 and Mexico granted large tracts of land to individuals and families resulting in the rancho system becoming more widely established throughout present-day California. Vast tracts of land granted in the vicinity of the study area included the 8,880-acre Rancho Las Positas (located west of the study area) which then Mexican Governor Juan Alvarado granted to Robert Livermore and Jose Noriega in 1839, and Rancho de Los Medranos granted to John Marsh and located north and west of the study area along the San Joaquin River and Suisun Bay in present day Antioch. Rancho El Pescadero patented by Andres Pico and H.M. Nagle in 1865, was located to the northeast of the study area in what is now San Joaquin County (Potter 1951; Perez 1996: 81). Cattle ranching dominated other agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period (AECOM 2011: 11).

In 1848, the United States defeated Mexico in the Mexican-American War, and Mexico surrendered its Alta California land through the Treaty of Guadalupe Hidalgo. That same year, the Gold Rush brought hundreds of immigrants to the state and San Francisco Bay became one of the world's busiest seaports, dominating shipping and transportation in the American west until the last years of the 19th century. Attracted by the fertile land and mild climate of the Bay Area, many miners chose to stay to start a new life. The region, including the study area, soon became one of the leading agricultural hubs of California, with agriculture, dairy farming, and livestock grazing serving as the principal industries of the period. The bay's regional importance only increased once the transcontinental railroad reached its western terminus in Alameda on September 6, 1869 (Phillips 1981).

### 2.2.4.3 American Period (Post-1848)

Early in 1853, Alameda County separated from Contra Costa County and in June of that year, the eastern part of the county was established and named Murray Township for an early settler, Michael Murray. Alameda County was composed of five townships—including Murray Township—where, especially in the Livermore Valley, settlement increased, and the big ranchos began to be broken up after 1850 (Corbett 2005: 1). Complicated rules and laws pertaining to rancho ownership also contributed to the decline of the rancho and by the late 19th century, very few ranchos remained intact as settlers moved into the surrounding towns and hamlets (Starr 2005:104-105). In the hills where the project is located and surrounding areas, the typical parcel ranged from a quarter section (160 acres) to a section (640 acres) of land, with several over 1,000 acres. In the valleys, 80 to 160 acre-farms were the norm, although larger holdings ranging up to several thousand acres were not uncommon. While the majority of valley farms included buildings, few of the hill parcels—which were mostly used for livestock grazing—had been improved (AECOM 2011: 11–12).

### 2.2.4.4 Pacific Gas & Electric Company

In the first decades of the 20th century, the rapid spread of electric power fueled the growth of American industry and brought with it an unprecedented standard of living. Gas lighting was commonplace in major American cities by the middle decades of the 19th century, but in the second half of that century, inventions and innovations by Thomas Edison, Nikola Tesla, George Westinghouse, and others made it possible for virtually every town in the United States to have electricity (Williams 1997: 170-174). These advancements made possible the long-distance transmission of power—first demonstrated by the success of the 22-mile transmission line installed between Folsom and Sacramento, California in 1895. In California, the state's resources and geography made the long-distance transmission of hydropower both practical and necessary (Williams 1997:174, 176).

In many ways the history of PG&E parallels the history of 20th century California. Incorporated in San Francisco in 1905, PG&E has helped shape the utility industry and played an important role in the growth and development of the state's economy. The company began as the merger of two power holding companies, the San Francisco Gas and Electric Corporation, one of San Francisco's oldest corporations, and the California Gas and Electric Corporation, a relatively recent consolidation. San Francisco Gas and Electric owned steam-power generating facilities that complemented California Gas and Electric's hydro-electric resources by picking up the slack during peak periods and when winter freeze or summer drought reduced the flow of water through the company's turbines in the Sierra (Hughes 1983; 276-278; The New York Times 1905; San Francisco Chronicle 1905, 1906). By 1930, the company had become one of the state's largest landowners, one of the nation's largest hydroelectric producers, and a major supplier of natural gas for home and industry (The Los Angeles Times 2001; Williams 1997: 115-142).

The virtue of long-distance transmission of electricity is the ability to move the power at high volumes and then step it down before delivery to the user. To accomplish this and other tasks, such as transferring bulk power around a utility network, electrical utility companies built distribution substations at various points along the transmission lines to decrease the power or to accumulate and transfer power from various sources. With its hydro-power sources located in the Sierra Nevada, PG&E could send high voltage power more than 100 miles along its transmission lines then step it down once before delivering to the customer

(McDonald 2007: 1-2). California differed from other parts of the country in other ways as well. In the east and midwest, for example, most power came from fossil fuels. When power demand dropped, companies could shut down facilities. In California, it became more practical to keep the hydro-power plants running whenever possible and to develop new classes of customers that would use power at different times (Williams 1997: 206-207).

At the beginning of the 20th century, the San Francisco Bay Area was the state's most heavily populated and industrialized region, and more than 60 percent of California's 1.5 million people lived in urban areas. California's growth was explosive—between 1900 and 1910, California added almost 900,000 people and more than 1 million in the following decade. While the people moved toward the cities, agricultural production also grew. Since the beginning of the 20th century, farmers had been adapting electricity to their poultry operations, dairy farms, and replacing windmills with steam, gasoline, and then electric pumps (Williams 1997: 78, 228-229). The 1910s brought a more systematic approach to the development of irrigation in California, especially in the Central Valley. PG&E worked with water users to generate power from the water before it was released into irrigation canals. This process would accelerate in the following decades as the state and federal governments would play an increasingly active role in the development of water and power (Coleman 1952: 283; Williams 1997: 259-260, 263-265).

PG&E invested in waterpower even while the price of steam power dropped as the crude oil industry matured and prices for fuel oil declined. By the end of the 1910s, the company supplied more than one-third of the power in the state (Williams 1997: 279-280; International Directory of Company Histories 1999: 561). With America's direct involvement in World War I in 1917, fears that the diversion of fuel oil and the inability to meet an expected upsurge in demand led the California State Railroad Commission (precursor to the Public Utilities Commission) to insist that power companies interconnect transmission lines to increase power availability. First implemented in California, the concept of superpower would spread throughout the United States during and after the war. When PG&E and Southern California Edison introduced extra high voltage transmission lines in 1924, the age of superpower had arrived in earnest (Williams 1997: 245-248).

As the state's population grew and became more urbanized in the 1910s, the demand for electrical power increased for everything from home appliances to industrial presses (Williams 1997: 114). As a result, PG&E expanded its hydroelectric capacity on the South Yuba and Bear Rivers and built the Drum-Cordelia-Marin power transmission line to bring the power to the north end of the Bay Area. It also constructed the Newark Substation, a modern substation and switching station near the East Bay town of Newark, to accommodate power from the Halsey and Wise powerhouses on the South Yuba River in Placer County. The Wise Tower line carried power from the South Yuba power houses through the Newark Substation to the southern end of the Bay (Jollyman 1916: 243; Steele and Jollyman 1920: 271-272). As additional power from its Salt Spring and Tiger Creek power houses on the Mokelumne River came on line in the early 1930s, the company expanded the Newark Substation to receive power flowing into the station from the 110-mile transmission line built from the Sierra foothills (Myrtle 1930: 47, 1931: 131; Frickstad 1924: 373; Jollyman 1931: 142-144).

In the early 1920s, the company began to refer to itself as P.G. and E. Company through the publication of its monthly newsletter, *P.G. and E. Progress*. The company reinforced its commitment to California with the construction of a 17-story headquarters building in 1925, designed by the renowned architectural firm of

Bakewell and Brown. The structure reflects the era's emphasis on beauty and the company's focus on design and functionality, evident in nearly everything the company built in its first decades, including its power plants, substations, and other transmission facilities. In the first decades of the 20th century, PG&E adapted the Spanish Renaissance style of architecture for many of its structures because it suggested the company's linkage to the pioneer era of California. The Halsey and Wise powerhouses and the Newark Substation were typical in this regard (Coleman 1952: 279-280; University of California 2011; Frickstad 1916: 213).

California became virtually self-sufficient in energy in the 1930s. The company's discovery of natural gas supplies and its completion of a pipeline from Southern California to San Francisco and one the from gas fields in Texas to California were supplemented in the 1930s by the maturing California's oil industry, and the completion of Shasta and Hoover Dams. However, by the 1940s, World War II growth in population and industrial production left the state in need of new energy supplies (Williams 1997: 280-282; Castaneda and Smith 1996: 62). The war helped establish momentum for steam power in California and as cheap oil became available after the war, nearly three-quarters of all planned and newly-built generating capacity in the state was designed for thermal steam power (Williams 1997: 282).

In the decade after World War II, PG&E embarked on an unprecedented building program. California's population grew by more than 50 percent in the 1940s to nearly 10.5 million people in 1950. PG&E added more than 125,000 new customers in that year alone, its largest on record (U.S. Census Bureau 1950; PG&E: April 1951). The company spent more than 1 billion dollars on construction projects including new steam plants in San Francisco, Bakersfield, Eureka and at Moss Landing on Monterey Bay, as well as 14 new hydro powerhouses on the Pit, Feather, and Yuba Rivers (PG&E May 1951). In addition to new power facilities, the company expanded and remodeled several older facilities and added new substations. The Vaca-Dixon Substation, dating to the 1910s, was connected to a new substation in Moraga, and new substations at Midway and Tesla were built to control delivery of power from the northern to the southern San Joaquin Valley (Steel 1947: 75).

As fuel prices climbed in the 1960s and 1970s, and the environment became a higher priority among Americans, the company turned its focus toward conservation and alternative energy sources. In 1978, the Public Utility Regulatory Policies Act mandated that utilities buy power from independent producers at prices set by state utility commissions. In the 1980s, the company began purchasing energy created by wind turbines, located primarily in the Altamont Pass area, and by the end of the 1980s had become the country's largest purchaser of alternative energy. The company also since became an industry leader in conservation and alternative energy sources. Energy created in the wind turbine farm at Altamont, for example, is funneled through its Tesla substation, where it is distributed throughout the network. In 1985, PG&E opened the Diablo Canyon Power Plant, the company's second nuclear-powered facility.

In 1995, PG&E became a subsidiary of the PG&E Corporation. Since passage of the Public Utility Regulatory Act, many of the company's largest customers dropped PG&E in favor of independent energy producers or built their own power facilities. As a result, the company lost significant revenue in the last decade of the century and found itself with a significant surplus of energy. PG&E relied on a "grow and build" strategy for most of its first century and, like the state of California, its growth was spectacular at times. Presently, the company's focus is on maintaining its system as well as conservation and alternative energy sources.

#### 2.2.4.4.1 Development of Tesla Substation

Construction of Tesla Substation began in 1947 and was completed in 1948. Originally planned for only 38 acres, the first three buildings constructed were a temporary construction warehouse (Building No. 1), shop building (Building No. 2), and the control building (Building No. 3). To the north of these buildings were the associated bus, switch, and other electrical transmission structures (PG&E GM 92000:1948). In 1947, PG&E's plans to spend $55 million dollars towards expanding its facilities and transmission lines into the San Joaquin Valley included the construction of Tesla Substation (Electrical West 1947:74). As technology improved, electrical demands increased, and wind-generators increased in numbers in the area, PG&E continued to expand and construct updated control rooms as well as bus/switch structures at the substation in the late-1950s, 1960s, 1980s, and 1990s (PG&E GM 162818 Box 37564; PG&E Building and Land Inventory; PG&E Drawing 56626 Rev 53).

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# 3 Research and Field Methods

The Secretary of the Interior has issued Standards and Guidelines for Archeology and Historic Preservation (48 FR 44720–44726), which are used for the identification and evaluation of historic properties and to ensure that the procedures are adequate and appropriate. The identification and evaluation of historic properties are dependent upon the relationship of individual properties to other similar properties. Information about properties regarding their prehistory, history, architecture, and other aspects of culture must be collected and organized to define these relationships which is the intent of the current inventory.

## 3.1 California Historical Resources Information System Records Search

A records search of the California Historical Resources Information System (CHRIS) was completed for the current proposed Project site and a 1-mile radius on behalf of Dudek by staff at the Central California Information Center (CCaIC) and Northwest Information Center (NWIC) on August 1, 2023 and August 30, 2023 (Confidential Appendix B). This search included a review of their collection of mapped prehistoric, historical, and built-environment resources, Department of Parks and Recreation Site Records, technical reports, historical maps, and local inventories. Additional consulted sources included the NRHP, California Inventory of Historical Resources/CRHR and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks. The results of the records search are presented in Section 4.

## 3.2 Native American Heritage Commission and Tribal Correspondence

On August 1, 2023, Dudek requested a NAHC search of their Sacred Lands File for the area of the Project site. The NAHC results, received August 12,2023, indicated the Sacred Lands File search failed to identify any cultural resources within the records search area (Appendix B). The NAHC then provided a list of Native American tribes culturally affiliated with the location of the Project site and recommended contacting them for further information. None of the Native American tribes were contacted by Dudek; follow-up communication and formal consultation with Native American tribes pursuant to Assembly Bill (AB) 52 will be the responsibility of the County.

The proposed Project is subject to compliance with Assembly Bill 52 (PRC Section 21074), which requires consideration of impacts to “tribal cultural resources” as part of the CEQA process and requires the CEQA lead agency to notify any groups (who have requested notification) of the Project who are traditionally or culturally affiliated with the geographic area of the Project. Because AB 52 is a government-to government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the County.

## 3.3 Archival Research

Dudek consulted historic maps and aerial photographs to understand development of the proposed Project site and surrounding properties. Topographic maps were available from 1907, 1914, 1929, 1941, 1942, 1943, 1948, 1955, 1964, 1969, 1975, 1981, 1986, 2012, 2015, 2018, and 2021 (NETR 2023a). The earliest topographic

map depicts Patterson Pass Road and the north-south running road on the western edge of the substation in their present orientation, with two drainages running parallel to and just east of each of the roadways. No other development is evident within the Project area or its immediate surroundings. The 1943 topographic map is the first to depicted the residential structure located south of the Project site, as well as several other structures to the northeast along Patterson Pass Road, however, there are no evident changes or development within the Project API itself. The 1955 topographic map is the first to depict the Tesla Substation which intersects and is immediately north of the Project API. Transmission lines associated with the substation are depicted to the east of, but not intersecting the Project API. No further changes are evident on any of the subsequent topographic maps.

Aerial photographs were available for the project area from 1949, 1957, 1958, 19569, 1966, 1968, 1971, 1979, 1981, 1982, 1987, 1993, 2005, 2009, 2010, 2012, 2014, 2016, 2018, and 2020 (NETR 2022b). The aerial images are consistent with the topographic maps, with the 1949 image showing an undeveloped Project area with Patterson Pass Road, the paved road/driveway to the residential property to the south of the Project area, and a drainage paralleling and immediately east of Patterson Pass Road all visible. A small electrical substation is also visible along Patterson Pass Road to the north or the Project area. No changes are evident within the Project area or immediate vicinity until 1966 at which time the substation expands to the south and further expands west to its current footprint in the 2005 image. No other development is evident within the Project area on any of the aerial images.

## 3.4 Field Survey

On October 11, 2023, Dudek archaeologists Gregory Wada and Victoria Martin conducted an intensive pedestrian survey of the Project area using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory. Exposed ground surfaces were observed for surface artifacts, undisturbed areas, archaeological deposits, and historic structures; periodic boot scrapes were employed to expose additional ground surface. Evidence of artifacts and archaeological deposits were also opportunistically sought after in animal burrows and other areas with disturbed soil.

Dudek technical staff conducted a survey of the PG&E Tesla Substation on January 18, 2024. Access to the PG&E facility was limited to public access vantage points due to a lack of access to the site. The facility was documented through digital photographs.

# 4 Results of Identification and Evaluation Efforts

## 4.1 Records Search Results

NWIC and CCaIC records indicate that 38 previous cultural resources technical investigations have been conducted within 1 mile of the proposed Project site, of which 18 have addressed portions of the proposed Project site (Table 4-1).

### 4.1.1 Previously Conducted Studies

**Table 4-1. Previous Cultural Resource Studies**

| Report ID | Year | Title | Author |
|---|---|---|---|
| **Reports within the Project Site** | | | |
| S-000848 | 1976 | A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources | Fredrickson, David A. |
| S-002458 | 1981 | Overview of Prehistoric Archaeology for the Northwest Region, California Archaeological Sites Survey: Del Norte, Humboldt, Mendocino, Lake, Sonoma, Napa, Marin, Contra Costa, Alameda | Ramiller, Neil, Suzanne Ramiller, Roger Werner, and Suzanne Stewart |
| S-002865 | 1982 | Archaeological field reconnaissance of the wind farm planned for the lands of Mulqueeney and Haera in the eastern most portion of Alameda County, California (letter report). | Holman , Miley P. |
| S-009462 | 1977 | Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties | Miller, Teresa Ann |
| S-011826 | 1980 | Montezuma I and II Cultural Resources | Theodoratus, Dorothea J. , Mary Pyle Peters, Clinton M. Blount, Pamela J. McGuire, Richard D. Ambro, Michael Crist, Billy J. Peck, and Myrna Saxe |
| S-012790 | 1991 | Sacramento-San Joaquin Delta, California: Historical Resources Overview | Owens, Kenneth N. |
| S-016660 | 1992 | Prehistoric Rock Art of Alameda and Contra Costa Counties, California | Fentress, Jeffrey B. |
| S-017835 | 1975 | Biological Distance of Prehistoric Central California Populations Derived from Non-Metric Traits of the Cranium | Suchey, Judy Myers |

## Table 4-1. Previous Cultural Resource Studies

| Report ID | Year | Title | Author |
|---|---|---|---|
| S-018217 | 1996 | Cultural Resource Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report | Gmoser, Glenn |
| S-020395 | 1998 | PCNs of the Coast Ranges of California: Religious Expression or the Result of Quarrying? | Gillette, Donna L. |
| S-024986 | 2000 | Cultural Resources Assessment, PG&E Proposed Tri-Valley 2002 Electric Power Capacity Increase Project | |
| S-030204 | 2003 | The Distribution and Antiquity of the California Pecked Curvilinear Nucleated (PCN) Rock Art Tradition. | Gillette, Donna L. |
| S-032596 | 2006 | The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways | Milliken, Randall, Jerome King, and Patricia Mikkelsen |
| S-033239 | 1994 | Alameda Watershed, Natural and Cultural Resources: San Francisco Watershed Management Plan | Chavez, David |
| S-033545 | 1994 | Draft Comprehensive Management and Use Plan and Environmental Impact Statement, Juan Bautista de Anza National Historic Trail, Arizona and California | – |
| S-033600 | 2007 | Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4 | Meyer, Jack and Jeff Rosenthal |
| S-048927 | 1997 | The Economy and Archaeology of European-made Glass Beads and Manufactured Goods Used in First Contact Situations in Oregon, California and Washington | Crull, Donald Scott |
| S-052105 | 1978 | Cultural Resources Survey of the Tesla-Lawrence Livermore Laboratory 230 KV Transmission Line, Pacific Gas and Electric Company | Wilson, Kenneth L. |
| **Previous Studies Within a 1-Mile of the API** | | | |
| S-002623 | 1981 | Archaeological reconnaissance of the windpower generator farm to be located on the Jess Ranch East of Livermore, Alameda County (letter report). | Holman, Miley P. |
| S-004552 | 1976 | Preliminary Report for the Pacific Gas and Electric Stanislaus Project on the Archaeological and Historical Resources Found Within Proposed Transmission Line Corridors | Horvath, Laurie, Anne M. Carlson, Suzanne Baker, and Cindy Desgrandchamp |
| S-005657 | 1982 | An Archaeological Reconnaissance of Six Windfarm Parcels Near Altamont Pass, Alameda County, California | Slater, Sarah E. and Miley Paul Holman |

## Table 4-1. Previous Cultural Resource Studies

| Report ID | Year | Title | Author |
|---|---|---|---|
| S-006510 | 1984 | Archaeological Reconnaissance of a Portion of Section 29, Midway Quadrangle, Alameda County, California (letter report) | Holman, Miley P. |
| S-007071 | 1984 | Helen Andrade Property Archaeological Reconnaissance (letter report) | Holman, Miley P. |
| S-007072 | 1984 | A.I. and Agnes Martin Property Archaeological Reconnaissance (letter report) | Holman, Miley P. |
| S-009795 | 1986 | Late Prehistoric Obsidian Exchange in Central California | Jackson, Thomas L. |
| S-017993 | 1995 | Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project | Hatoff, Brian, Barb Voss, Sharon Waechter, Stephen Wee, and Vance Bente |
| S-027016 | 2003 | A Cultural Resource Assessment for the Proposed Tesla Reclaimed Waterline Project, Alameda and San Joaquin Counties, California | Dougherty, John, Cindy Baker, and Mary L. Maniery |
| S-035796 | 2009 | Cultural Resources Investigation and Architectural Evaluation of the Pittsburg-Tesla Transmission Line, Contra Costa and Alameda Counties, California | Siskin, Barbra, Cassidy DeBaker, and Jennifer Lang |
| S-043682 | 2004 | Archaeological Inventory Survey: Tracy-Tesla Fiber Optics Project Utilizing COTP Transmission Towers, San Joaquin and Alameda Counties, California | Jensen, Sean M. |
| S-045214 | 2013 | Cultural Resources Survey for FloDesign Wind Turbine, Inc. Proposed Sand Hill West Farm Repowering Project Alameda County, California | Farrell, Jenna L. |
| S-052299 | 2018 | Historic Resource Survey and Assessment for the 1883 Midway Public School Relocation and Restoration Project, Alameda County, California | De Shazo, Stacey |
| SJ-02759 | 1995 | Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project, Final. | Hatoff, Brian, Barb Voss, Sharon Waechter, Stephen Wee, and Vance Bente |
| SJ-02930 | 1996 | Archaeological Inventory Survey, Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California | Jensen, Peter |
| SJ-04509 | 2001 | GWF Tracy Peaker Project, Cultural Resources (Archaeological and Historic Built Environment Resources) Technical Report; Appendix C of Application for Certification. | Egherman, Rachael |
| SJ-05047 | 2003 | A Cultural Resource Assessment for the Proposed Tesla Reclaimed Waterline Project, | Dougherty, J., C. Baker, and M. Maniery |

**Table 4-1. Previous Cultural Resource Studies**

| Report ID | Year | Title | Author |
|---|---|---|---|
| | | Alameda and San Joaquin Counties, California. | |
| SJ-05528 | 2004 | Archaeological Inventory Survey, Tracy-Tesla Fiber Optics Project Utililizing COTP Transmission Towers, San Joaquin and Alameda Counties, California. | Jensen, S. M. |
| SJ-07085 | 2008 | Draft Environmental Assessment for the North Area Right-of Way Maintenance Program. | Geordt, A. |
| SJ-08014 | 2008 | Cultural Resources Inventory for the California-Oregon Transmission Project, Right-of-Way Maintenance Environmental Assessment | CH2MHIll |

### 4.1.2 Previously Identified Cultural Resources

Records search indicates that one built-environment resources is on file within the Project site, P-39-005337, Tesla-Salado-Manteca 115 kV Transmission Line and an additional 30 archaeological or built-environment resources are recorded within the 1-mile record search buffer. Five resources were on file within the 1-mile records search area (Table 4-2). One of these resources consists of a precontact indigenous site while the remaining resources are historic-era structures. The Tesla Substation (P-01-010502) DPR 523 form set was not submitted to the CHRIS and therefore, did not come back as part of the records search results.

**Table 4-2. Previously Recorded Cultural Resources**

| Primary ID | Trinomial | Period | Name | Type | NRHP/CRHR Status |
|---|---|---|---|---|---|
| **Resources Intersecting the API** | | | | | |
| P-39-005337 | | Historic-era | Tesla-Salado-Manteca 115 kV Transmission Line | Engineering structure | 6Z (Ineligible) |
| **Resources Within a 1-Mile of the API** | | | | | |
| P-01-000154 | CA-ALA-000432H | Historic-era | #64 H | Foundations/structure pads; Landscaping/orchard; Privies/dumps/trash scatters; Walls/fences | 7 (Not evaluated) |
| P-01-000155 | CA-ALA-000433H | Historic-era | #63 H | Foundations/structure pads; Landscaping/orchard | 7 (Not evaluated) |

| | | | | | |
|---|---|---|---|---|---|
| P-01-001783 | CA-ALA-000623H | Historic-era | Southern Pacific Railroad | Roads/trails/railroad grades; Water conveyance system; Engineering structure; Bridge; Other | 6Z (Ineligible) |
| P-01-010498 | CA-ALA-000632H | Historic-era | Heara-Brockman Cemetery | Cemetery | 7 (Not evaluated) |
| P-01-010499 | – | Historic-era | 500 kV Transmission Lines | Engineering structure | 7 (Not evaluated) |
| P-01-010500 | – | Historic-era | Heara-Brockman-Griffith Ranch | Farm/ranch | 7 (Not evaluated) |
| P-01-010502 | – | Historic-era | Tesla Substation Butler Building | Public utility building | 6Z (Ineligible) |
| P-01-010503 | CA-ALA-000603H | Historic-era | Telsa/Midway - Site A | Water conveyance system | 7 (Not evaluated) |
| P-01-010504 | – | Historic-era | Aermotor Windmill | Other; Walls/gates/fences | 6Z (Ineligible) |
| P-01-010505 | – | Historic-era | TI-01; Bottle Neck Fragment | Water conveyance system | 7 (Not evaluated) |
| P-01-010506 | – | Historic-era | TI-02; Wood/square Nail Isolate | Water conveyance system | 7 (Not evaluated) |
| P-01-010507 | – | Historic-era | TI-03; Manganese Glass Isolate | Water conveyance system | 7 (Not evaluated) |
| P-01-010508 | – | Historic-era | TI-04; Bottle Neck Isolate | Water conveyance system | 7 (Not evaluated) |
| P-01-010614 | – | Historic-era | TRWP - 24 | Highway/trail | 7 (Not evaluated) |
| P-01-010947 | – | Historic-era | Pittsburg -Tesla Transmission Line | Engineering structure | 3D (Appears eligible) |
| P-01-010948 | CA-ALA-000657H | Historic-era | GANDA Site 19 | Privies/dumps/trash scatters; Water conveyance system | 7 (Not evaluated) |
| P-01-010949 | CA-ALA-000660H | Historic-era | GANDA Site 20 | Water conveyance system; Lake/river/reservoir | 6Z (Ineligible) |
| P-01-010950 | CA-ALA-000659H | Historic-era | GANDA Site 21 | Foundations/structure pads; Privies/dumps/trash scatters; AH05; Walls/fences; Farm/ranch | 7 (Not evaluated) |
| P-01-011394 | – | Historic-era | SH-JF-01 | Roads/trails/railroad grades | 7 (Not evaluated) |
| P-01-011395 | – | Historic-era | SH-JF-02 | Engineering structure | 7 (Not evaluated) |

| | | | | | |
|---|---|---|---|---|---|
| P-01-011477 | – | Historic-era | Isolate I-SRI-2 | Water conveyance system | 7 (Not evaluated) |
| P-01-011479 | CA-ALA-000662H | Historic-era | SRI-2 | Engineering structure | 6Z (Ineligible) |
| P-01-011480 | CA-ALA-000663H | Historic-era | SCR-3 | Engineering structure | 7 (Not evaluated) |
| P-01-011481 | CA-ALA-000658H | Historic-era | SRI-4 | Water conveyance system | 7 (Not evaluated) |
| P-01-011482 | CA-ALA-000661H | Historic-era | SRI-7 | Water conveyance system | 7 (Not evaluated) |
| P-01-012147 | – | Historic-era | 1883 Midway Public School | Educational building | 7 (Not evaluated) |
| P-39-000088 | – | Historic-era | Lateral 5 West, Banta Carbona Irrigation District | Other | 6Z (Ineligible) |
| P-39-000098 | CA-SJO-000292H | Historic-era | Western Pacific Railroad/Union Pacific RR; Includes Sharpe Army Depot Field Annex Railroad Spur | Roads/trails/railroad grades; Engineering structure; Bridge; Other | 6Z (Ineligible) |
| P-39-004290 | – | Historic-era | TTP-3, Historic Telegraph line along Western Pacific Railroad | Engineering structure | 6Z (Ineligible) |
| P-39-004332 | CA-SJO-000279H | Historic-era | Gallagher Foundation | Foundations/structure pads; AH10; Trees/vegetation | 7 (Not evaluated) |

## 4.2 Field Survey Results

### 4.2.1 Archaeology

Surface visibility was low (less than 10-percent) throughout the Project site due to dense non-native grasses. The previously recorded transmission lines intersecting the project site were relocated and found to be in the same condition as described in the site record. No archaeological resources were observed within the Project site during the field survey.

#### 4.2.1.1 Geomorphology

Potential for yet identified cultural resources in the vicinity was reviewed against geologic and topographic data for the area and information from other nearby projects. The “archaeological sensitivity,” or potential to support the presence of a buried prehistoric archaeological deposits, is generally interpreted based on geologic landform and environmental parameters (i.e., distance to water and landform slope).

The Project site is situated within the Alameda Creek Watershed. An ephemeral stream system, the Patterson Run, intersects the northwest portion of the project site, running parallel to Patterson Road. This waterway and Patterson Road are visible on the earliest historic topographic maps and aerial images, as such it is unclear the extent to which the course of the drainage is natural or has been modified to accommodate the roadway.

The project site is flat to gently sloping. Soils within the project site consist of Linne Clay Loam and Rincon Clay Loam series (USDA 2023). These soils consist of moderately deep to deep, well drained souls that form in material weathered from fairly soft shale and sandstone (Linne series) or alluvium from sedimentary rocks (Rincon series).

The northwest portion of the Project site, in the vicinity of the waterway, would be low-to-moderately-well suited to support the formation of buried cultural deposits or surface manifestations. Given the lack of disturbance in the area and review of this information, the project site has low-to-moderate archaeological sensitivity.

### 4.2.2 Built Environment

One built environment resource was noted in the API. The Tesla Substation (P-01-010502) is also in the proposed Project API. AECOM previously recorded and evaluated the substation in 2011 as part of PG&E's proposed Kelso to Tesla 230kv Reconductoring Project. Dudek field checked the Tesla Substation and found no changes since 2011. AECOM found the Tesla Substation ineligible for listing in either the NRHP or CRHR. It is unknown whether the State Historic Preservation Officer concurred with the evaluation. Research for this Project revealed no new information that would require a re-evaluation of the property and Dudek concurs with the previous recommendation that the property does not meet the criteria for listing in the NRHP or CRHR. A copy of the Updated DPR 523 form set and the original 2011 AECOM form set is included in Appendix C.

# 5 Summary of Findings and Management Considerations

As a result of Dudek's research, field survey, and property significance evaluations, the following section presents a summary of eligibility for the subject properties in the vicinity of the API, and management recommendations. The current cultural resources inventory was completed to satisfy the requirements of CEQA.

## 5.1 Archeological Resources Findings

Dudek's cultural resources inventory of the Project API suggests that there is a low-to-moderate potential for inadvertent impacts to previously unidentified archaeological cultural resources or deposits. While neither the CHRIS records search nor the NAHC Sacred Lands File search identified any discrete archaeological or built environment resources within the API, review of the geomorphology indicates a low-to-moderate potential for the presence of intact subsurface soils that could support archaeological deposits.

A cultural resources survey was completed of all undeveloped areas within the 85-acre API. No cultural resources were identified during this survey. Visibility of the ground surface was highly restricted due to the presence of thick, low-laying grasses and other non-native vegetation. Soils in the northwest portion of the API, in the vicinity of the waterway, do have low-to-moderate potential to support the presence of buried cultural deposits. Although there are not a high number of known cultural resources within the surrounding 0.5 miles, the low visibility of the ground surface during pedestrian survey, geomorphic setting, and lack of previous disturbance indicate that the Project does have a low-to-moderate potential of encountering unanticipated cultural resources within undeveloped areas of the API.

Recommended cultural resources mitigation should include preparation of measures for unanticipated cultural resources and human remains. With this strategy implemented, no cultural resources would be impacted (No Historic Properties Affected) by the Project as currently designed.

## 5.2 Archaeological Resources Management Recommendations

### Unanticipated Discovery of Archaeological Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Recommendations will be dependent upon the potential for the find to be considered significant under CEQA (14 CCR 15064.5(f); PRC Section 21082). If the discovery proves potentially significant under CEQA, coordination with the lead agency and other designated parties is likely to be required. Additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted and should be developed based on the conditions and nature of the find.

### Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, if the potential remains are human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, the County Coroner shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant (MLD) from of the deceased Native American. The MLD shall provide recommendations on next steps within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains and/or related burial goods.

## 5.3 Built Environment Findings

One resource in the API, the Tesla Substation (P--01-010502) was re-evaluated for listing in the NRHP, the CRHR, and the Alameda County Regsiter and was found ineligible under all criteria. As such, it is not considered an historical resource under CEQA. The recommended Status Code for each resource is 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

## 5.4 Built Environment Management Recommendations

No further work for built environment cultural resources is necessary prior to the proposed Project implementation.

# 6 References

AECOM. 2011. *Final Cultural Resources Technical Report Kelso Substation to Tesla Substation 230 kV Reconductoring Project.* Prepared for Pacific Gas and Electric. Original on file with Pacific Gas and Electric Company, San Ramon,

Alameda County. 2024. "Ordinance 2012-5." https://www.acgov.org/cda/planning/generalplans/documents/HPO_Signed.pdf. Accessed May 28, 2024.

Barrett, S.A., and E.W. Gifford. 1933. "Miwok Material Culture." *Bulletin of the Milwaukee Public Museum* 2:117–376.

Basgall, M.E. 1987. "Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California." *Research in Economic Anthropology* 9(198):21–52.

Bennyhoff, J.A. 1977. "Ethnogeography of the Plains Miwok." Center for Archaeological Research at Davis, Publication No. 5. Davis, California: University of California, Davis.

Bennyhoff, J.A., and D.A. Fredrickson. 1994. *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and* David *A. Fredrickson* (R.E. Hughes, Ed.). Berkeley, California: Archaeological Research Facility, University of California.

Bouey, P.D. 1995. *Final Report on the Archaeological Analysis of the CA-SAC-43, Cultural Resource Mitigation for the Sacramento Urban Area Levee Reconstruction Project, Sacramento County, California*. Report on file North Central Information Center, Department of Anthropology, California State University, Sacramento.

Broughton, J.M. 1994. "Late Holocene Resource Intensification in the Sacramento Valley, California: The Vertebrate Evidence." *Journal of Archaeological Science* 21(4):501–514.

Castaneda, Christopher J. and Clarence M. Smith. 1996. *Gas Pipelines and the Emergence of America's Regulatory State: A History of Panhandle Eastern Corporation, 1928-1993*. Cambridge University Press, New York.

Clay, V., and S. Waechter 2009. Data Recovery and Late Discovery Treatment Plan for the Cal train Electrification Program Alternative: San Francisco, San Mateo, and Santa Clara Counties, California. With contributions by W. Hildebrandt and J. Meyer.

Coleman, Charles M. 1952. P.G. & E. of California: The Centennial Story of Pacific Gas and Electric Company 1852-1952. McGraw-Hill Book Company, Inc. New York.

Cook, S.F. 1976. *The Conflict between the California Indian and White Civilization.* Berkeley, California: University of California Press.

Corbett, Michael R. 2005. Historical and Cultural Resources Survey East Alameda County.

*Electrical West*, Vol. 98, No. 2, 1947. Available at the California History Room, California State Library

Fenenga G.L. 1993. "Test Excavations at the Witt Site (CA-KIN-32)." In *Contributions to Tulare Lake Archaeology II, Finding the Evidence: The Quest for Tulare Lake's Archaeological Past*, edited by W.J. Wallace and F.A. Riddell, 25–38. Redondo Beach, California: Tulare Lake Archaeological Research Group.

Fredrickson, D.A. and J.W. Grossman. 1977. "A San Dieguito Component at Buena Vista Lake, California." *The Journal of California Anthropology* 4(2):173–190.

Frickstad, I. C. 1916. "The Development of 'Pacific Service' Architecture as Exemplified in its Modern Powerhouses and Substations." VIII, no. 6 (Nov. 1916): 205-215.

Gardner, J., K. Pinney, H. Switalski, and A. Mitchell. 1995. *Preliminary Archaeological Investigations at the Van Den Enden Site, Tulare Lake, California.* Report on file at the Southern San Joaquin Valley Historical Resources Information Center, California State University, Bakersfield.

Gayton, A.H. 1948. "Yokuts and Western Mono Ethnography. I: Tulare Lake, Southern Valley, and Central Foothill Yokuts." *Anthropological Records* 10:1. Berkeley, California: University of California Press.

Golla, V. 2007. "Linguistic Prehistory." In *California Prehistory: Colonization, Culture, and Complexity,* edited by T.L. Jones and K.A. Klar, 71–82. New York, New York: Altamira Press.

Golla, V. 2011. *California Indian Languages*. Los Angeles, California: University of California Press.

Groza, R.G. 2002. "An AMS Chronology for Central California Olivella Shell Beads." Unpublished Master's thesis; California State University, San Francisco.

Heizer, R.F. 1949. "The Archaeology of Central California I: The Early Horizon." *University of California Anthropological Records* 12:1–84.

Hughes, Thomas P. *Networks of Power: Electrification in Western Society, 1880-1930.* Baltimore: Johns Hopkins University Press, 1983.

*International Directory of Company Histories*. 1999. Vol. 26. St. James Press.

Jennings, W., J. Lawson, M.R Iriart, and B.T. Woods. 1994. *Flooterville: Test Excavations at a Late Pleistocene Site at Tulare Lake.* Report on file at the Southern San Joaquin Valley Historical Resources Information Center, California State University, Bakersfield.

Jollyman, J. P. "Halsey Power Plant in 'Pacific Service.'" 1916. *Pacific Service Magazine*. VII, no. 7 (Dec. 1916): 243-245.

Jollyman, J. P. "Extensions at Newark Substation to Accommodate New Power Supply 'Pacific Service.'" 1931. *Pacific Service Magazine*. XVIII, no. 5 (July 1931): 142-146.

Kroeber, A.L. 1959. "Ethnographic Interpretations 7-11." *University of California Publications in American Archaeology and Ethnology* 47(3):235–310

Kroeber, A. 1976. *Handbook of the Indians of California.* Washington, DC: Smithsonian Institution. Original work published 1925.

Kyle, Douglas. 1990. Historic Spots in California. Stanford University Press, Stanford.

Latta, F.F. 1977. *Handbook of Yokuts Indians.* Santa Cruz, California: Bear State Books.

Lightfoot, K.G. 2005. *Indians, Missionaries, and Merchants: The Legacy of Colonial Encounters on the California Frontiers*. Berkeley, California: University of California Press.

Manifold, D., P. Manifold, and G. Reza. 1995. *Archaeological Investigations at the Corral Site, Tulare Lake, California.* Report on file at the Southern San Joaquin Valley Historical Resources Information Center, California State University, Bakersfield.

Mason, William Marvin 1975 Fages Code of Conduct Towards the Indians, 1787. *Journal of California Anthropology, Volume No. 2, Issue No. 1.*

McDonald, John D. 2007. *Electric Power Substation Engineering*. Boca Raton, Florida: CRC Press.

Moratto, M.J. 1984. *California Archaeology*. San Diego, California: Academic Press.

Myrtle, Frederick S. 1930. "Salt Springs Water and Power Project on Way to Completion: Record of Progress Made of Construction of Dam, Water-Conduit." *Pacific Service Magazine*. XV, no. 2 (Oct. 1930): 35-47.

Osborne, R.H. 1992. "An Ethnographic Overview of the Southern Valley Yokuts." *Kern County Archaeological Society Journal* 3:36–65.

Pacific Gas and Electric Company. 1951. "Construction Tops Billion Dollars." *P.G. and E. Progress.* XXVIII, no. 6 (April 1951): 1-2.

PG&E Building and Land Inventory for Existing Structures; On file at the PG&E Records Center, Brisbane

PG&E GM 162818, 1965 Box 37564. On file at the PG&E Records Center.

PG&E GM 92000, 1948 and Box 31900, available at the PG&E Records Center. On file at the PG&E Records Center, Brisbane.

PG&E Tesla Substation Drawing 56626 Rev 53 May 2008. On file at the PG&E Records Center, Brisbane

Perez, Crisostomo N. Perez.
1996 *Land Grants in Alta C*alifornia. Landmark Enterprises, Rancho Cordova, CA

Phillips, George H. 1981. *The Enduring Struggle: Indians in California History.* San Francisco: Boyd & Fraser.

Potter, Elizabeth Gray. 1951. *Early Mexican Ranchos of the San Francisco Bay Region.* Self-published, San Francisco.

Riddell, F.A., and W.H. Olsen. 1969. "An Early Man Site in the San Joaquin Valley, California." *American Antiquity* 34(2):121–130.

Rosenthal, J.S., G.G. White, and M.Q. Sutton. 2007. "The Central Valley: A View from the Catbird's Seat." In *California Prehistory: Colonization, Culture, and Complexity,* edited by T.L. Jones and K.A. Klar, 147–163. New York, New York: Altamira Press.

Sampson, M. 1991. "A Distinctive Flaked-Stone Tool Type from Tulare Lake Basin." In *Contributions to Tulare Lake Archaeology I: Background to a Study of Tulare Lake's Archaeological Past*, edited by W.J. Wallace and F.A. Riddell, 53–60. Redondo Beach, California: Tulare Lake Archaeological Research Group.

Schulz, P. 1981. "Osteoarchaeology and Subsistence Change in Prehistoric Central California." Unpublished PhD dissertation; University of California, Davis.

Siefkin, N. 1999. "Archaeology of the Redtfeldt Mound (CA-KIN-66), Tulare Basin, California." Master's thesis; California State University, Bakersfield.

Starr, Kevin. 2005. *California: A History.* Modern Library. New York.

Steel, I. C. 1947. "Pacific Gas and Electric." *Electrical West*. 98, no. 2 (Feb. 1947): 74-75

Steele, E. H. and J. P. Jollyman. 1920. "Wise Tower Line Completed and Newark Substation in Operation." *Pacific Service Magazine*. 11, no. 9 (Feb. 1920): 270-276.

Sutton, M.Q. 1997. "A Background for Archaeological Investigations at Buena Vista Lake, Southern San Joaquin Valley." *Kern County Archaeological Society Journal* 8:3–21.

The San Francisco Chronicle. 1905. "New Gas Company Files its Papers." Oct. 11, 1905, p. 7.

_____. 1906. "The Passing of San Francisco's Oldest Corporation." Jan. 21, 1906, p. 2.

The San Francisco Chronicle. 1905. "New Gas Company Files its Papers." Oct. 11, 1905, p. 7.

_____. 1906. "The Passing of San Francisco's Oldest Corporation." Jan. 21, 1906, p. 2.

Tidmore, R., J. Pritchard, S. Tisler, and D. Schuldies. 1994. *Preliminary Archaeological Investigations at the EWE-20 Site, Tulare Lake, California.* Report on file at the Southern San Joaquin Valley Historical Resources Information Center, California State University, Bakersfield.

United States. Census Bureau. "Resident Population and Apportionment of U.S. House of Representatives: California, 1850-2000."

University of California, Berkeley. 2011. Environmental Design Archives. http://www.ced.berkeley.edu/cedarchives/profiles/bakewell.htm. Accessed August 22, 2011.

Wallace, W.J. 1978. "Northern Valley Yokuts." In *California*, edited by R.F. Heizer, 462–470. *Handbook of North American Indians,* edited by W.C. Sturtevant. Washington, DC: Smithsonian Institution.

Wallace, W.J. and F.A. Riddell, eds. 1988. "Archaeological Background of Tulare Lake, California." In *Early Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by J.A. Willig, C.M. Aikens, and J.L. Fagan, 87–101. Nevada State Museum Anthropological Papers No. 21, Carson City, Nevada.

Williams, James C. 1997. *Energy and the Making of Modern California*. Akron, Ohio: The University of Akron Press, 1997.

Wohlgemuth, E. 1996. "Resource Intensification in Prehistoric Central California: Evidence from Archaeobotanical Data." *Journal of California and Great Basin Anthropology* 18(1):81–103.

Wohlgemuth, E. 2004. "The Course of Plant Food Intensification in Native Central California." Unpublished PhD dissertation; University of California, Davis.

# Appendix A (Confidential)

Records Search Maps and Information

# Appendix B
NAHC Sacred Lands File Search

# NATIVE AMERICAN HERITAGE COMMISSION



NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 12, 2023

Nicholas Hanten
Dudek

Via Email to: nhanten@dudek.com

Re: Potentia Viridi (14828) Project, Alameda County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
*Cultural Resources Analyst*

Attachment

**Native American Heritage Commission**

| County | Tribe Name | Fed (F) Non-Fed (N) | Contact Person | Contact Address | Phone # | Fax # | Email Address | Cultural Affiliation | Counties | Last Updated |
|---|---|---|---|---|---|---|---|---|---|---|
| Alameda | Amah MutsunTribal Band of Mission San Juan Bautista | N | Irene Zwierlein, Chairperson | 3030 Soda Bay Road<br>Lakeport, CA, 95453 | (650) 851-7489 | (650) 332-1526 | amahmutsuntribal@gmail.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Confederated Villages of Lisjan Nation | N | Deja Gould, Language Program Manager | 10926 Edes Ave<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Confederated Villages of Lisjan Nation | N | Corrina Gould, Chairperson | 10926 Edes Avenue<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Confederated Villages of Lisjan Nation | N | Cheyenne Gould, Tribal Cultural Resource Manager | 10926 Edes Ave<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Costanoan Rumsen Carmel Tribe | N | Tony Cerda, Chairperson | 244 E. 1st Street<br>Pomona, CA, 91766 | (909) 629-6081 | (909) 524-8041 | rumsen@aol.com | Costanoan | Alameda,Monterey,San Francisco,San Mateo | |
| | Indian Canyon Mutsun Band of Costanoan | N | Kanyon Sayers-Roods, MLD Contact | 1615 Pearson Court<br>San Jose, CA, 95122 | (408) 673-0626 | | kanyon@kanyonkonsulting.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | 4/17/2018 |
| | Indian Canyon Mutsun Band of Costanoan | N | Ann Marie Sayers, Chairperson | P.O. Box 28<br>Hollister, CA, 95024 | (831) 637-4238 | | ams@indiancanyon.org | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Muwekma Ohlone Indian Tribe of the SF Bay Area | N | Monica Arellano, Vice Chairwoman | 20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | (408) 205-9714 | | monicavarellano@gmail.com | Costanoan | Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus | 7/12/2019 |
| | North Valley Yokuts Tribe | N | Katherine Perez, Chairperson | P.O. Box 717<br>Linden, CA, 95236 | (209) 887-3415 | | canutes@verizon.net | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa | |
| | North Valley Yokuts Tribe | N | Timothy Perez, | P.O. Box 717<br>Linden, CA, 95236 | (209) 662-2788 | | huskanam@gmail.com | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa | 5/12/2020 |
| | The Ohlone Indian Tribe | N | Andrew Galvan, Chairperson | P.O. Box 3388<br>Fremont, CA, 94539 | Phone: (510) 882-0527 | (510) 687-9393 | chochenyo@AOL.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | The Ohlone Indian Tribe | N | Vincent Medina, Tribal Consultant | 17365 Via Del Rey<br>San Lorenzo, CA, 94580 | (510) 610-7587 | | vincent.d.medina@gmail.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | The Ohlone Indian Tribe | N | Desiree Vigil, THPO | 1775 Marco Polo Way, Apt. 21<br>Burlingame, CA, 94010 | (650) 290-0245 | | dirwin0368@yahoo.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | Tule River Indian Tribe | F | Neil Peyron, Chairperson | P.O. Box 589<br>Porterville, CA, 93258 | (559) 781-4271 | (559) 781-4610 | neil.peyron@tulerivertribe-nsn.gov | Yokut | Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San | |
| | Tule River Indian Tribe | F | Joey Garfield, Tribal Archaeologist | P. O. Box 589<br>Porterville, CA, 93258 | (559) 783-8892 | (559) 783-8932 | joey.garfield@tulerivertribe-nsn.gov | Yokut | Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San | 7/22/2016 |
| | Tule River Indian Tribe | F | Kerri Vera, Environmental Department | P. O. Box 589<br>Porterville, CA, 93258 | (559) 783-8892 | (559) 783-8932 | kerri.vera@tulerivertribe-nsn.gov | Yokut | Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San | 7/22/2016 |
| | Wilton Rancheria | F | Dahlton Brown, Executive Director of Administration | 9728 Kent Street<br>Elk Grove, CA, 95624 | (916) 683-6000 | | dbrown@wiltonrancheria-nsn.gov | Miwok | Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba | 8/7/2023 |
| | Wilton Rancheria | F | Cultural Preservation Department, | 9728 Kent Street<br>Elk Grove, CA, 95624 | (916) 683-6000 | | cpd@wiltonrancheria-nsn.gov | Miwok | Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba | 8/7/2023 |
| | Wilton Rancheria | F | Herbert Griffin, Executive Director of Cultural Preservation | 9728 Kent Street<br>Elk Grove, CA, 95624 | (916) 683-6000 | | hgriffin@wiltonrancheria-nsn.gov | Miwok | Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba | 8/7/2023 |
| | Wuksachi Indian Tribe/Eshom Valley Band | N | Kenneth Woodrow, Chairperson | 1179 Rock Haven Ct.<br>Salinas, CA, 93906 | (831) 443-9702 | | kwood8934@aol.com | Foothill Yokut<br>Mono | Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San | 6/19/2023 |



Record: PROJ-2023-004024
Report Type: List of Tribes

# Appendix C (Confidential)

DPR Forms

# Appendix F – OHWM Data Sheet

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:

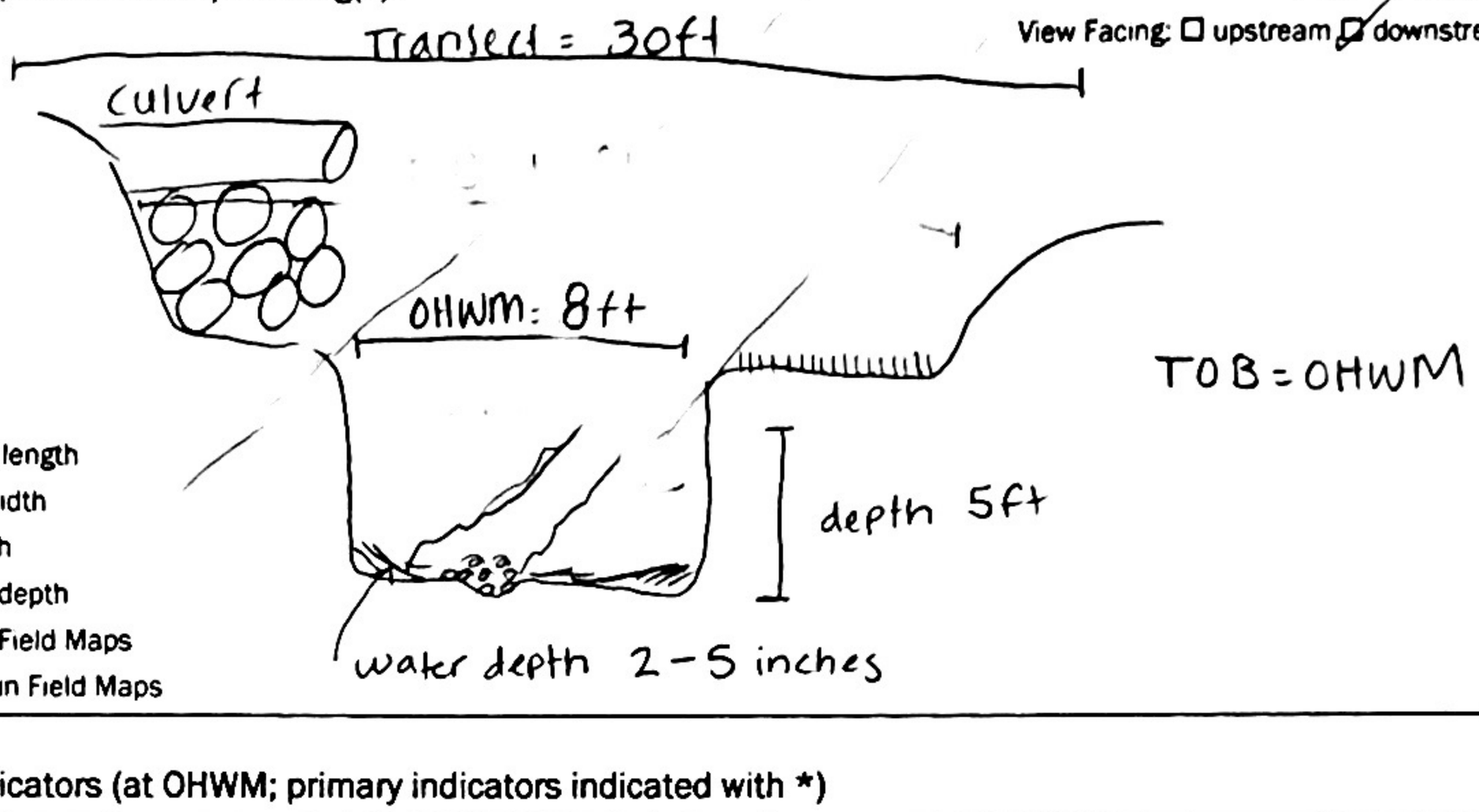
Alameda County, northwest portion of site

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 | ☐ Sediment sorting |
| ☒ Shelving | ☐ Leaf litter disturbed or washed away |
| ☐ Changes in the character of soil (texture)* | ☐ Scour |
| ☐ Destruction of terrestrial vegetation | ☐ Deposition |
| ☐ Presence of litter and debris | ☐ Bed and banks |
| ☐ Wracking | ☐ Water staining |
| ☒ Vegetation matted down, bent, or absent | ☒ 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<br>Centaurea solstitialis<br>Centaurea calcitrapa<br>Senescent grasses<br>Brassica sp.<br>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)