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Initial Study/Mitigated Negative Declaration

Double Springs Energy Storage Project

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Prepared for:

CALAVERAS COUNTY
Planning Department
891 Mountain Ranch Road, Building E
San Andreas, California 95249
Contact: Katherine Stefani

Prepared by:

DUDEK

687 S. Coast Highway 101, Suite 110
Encinitas, California 92024
Contact: Cindi Hoover, AICP

Table of Contents

SECTION **PAGE**

Acronyms and Abbreviations v

1 Introduction 1
- 1.1 Project Overview 1
- 1.2 California Environmental Quality Act Compliance 1
- 1.3 Project Planning Setting 2

2 Project Description 3
- 2.1 Project Location 3
- 2.2 Environmental Setting 3
- 2.3 Project Characteristics 4
  - 2.3.1 Construction 9
  - 2.3.2 Operations and Maintenance Activities 10
  - 2.3.3 Decommissioning 11
- 2.4 Project Objectives 12
- 2.5 Project Approvals 13

3 Initial Study Checklist 15
- 3.1 Aesthetics 19
- 3.2 Agriculture and Forestry Resources 23
- 3.3 Air Quality 25
- 3.4 Biological Resources 32
- 3.5 Cultural Resources 44
- 3.6 Energy 46
- 3.7 Geology and Soils 48
- 3.8 Greenhouse Gas Emissions 53
- 3.9 Hazards and Hazardous Materials 60
- 3.10 Hydrology and Water Quality 70
- 3.11 Land Use and Planning 73
- 3.12 Mineral Resources 75
- 3.13 Noise 76
- 3.14 Population and Housing 85
- 3.15 Public Services 86
- 3.16 Recreation 88
- 3.17 Transportation 89
- 3.18 Tribal Cultural Resources 93
- 3.19 Utilities and Service Systems 95
- 3.20 Wildfire 98

3.21 Mandatory Findings of Significance 105

4 References and Preparers 109
4.1 References 109
4.2 List of Preparers 112

APPENDICES

A PG&E Best Management Practices
B Decommissioning Plan
C Air Quality and Greenhouse Gas Emissions Analysis Technical Memorandum
D1 Biological Resources Technical Report
D2 Biological Assessment
D3 Aquatic Resources Delineation Report
E Archaeological Resources Inventory Report
F Geotechnical Feasibility Summary
G Paleontological Resources Memo
H Hazardous Consequences Analysis
I Phase I Environmental Site Assessment
J UL9540A Testing of Battery Components
K Hazardous Materials Business Plan
L Fire Safety Plan
M Operational Noise Analysis
N Fire Prevention Plan

FIGURES

1 Project Vicinity 113
2A Project Site 115
2B PG&E Interconnection Infrastructure Improvements 117
3 Project Site Plan 119
4 General Plan Land Use 121
5 Zoning 123
6 Energy Storage Equipment Photos 125
7 Landscape Plan 127
8 FMMP Designations 129
9 Fire Hazard Severity Zone 131

TABLES

2-1 Project Required Permits and Approvals 13
3.3-1 Estimated Maximum Daily Construction Criteria Air Pollutant Emissions 27
3.3-2 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions 27
3.8-1 Estimated Annual Construction and Decommissioning GHG Emissions 58
3.8-2 Summary of Estimated Annual Greenhouse Gas Emissions 59
3.13-1 Typical Construction Equipment Maximum Noise Levels 79
3.13-2 Estimated Per-Phase Construction Noise Levels 80
3.13-3 Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission 81
3.13-4 Predicted Operational Sound Pressure Levels at Modeled Receptors 82

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
Applicant	Double Springs Energy Storage LLC
BESS	battery energy storage system
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAPCD	Calaveras County Air Pollution Control District
CCOG	Calaveras Council of Governments
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	California Fire Code
CHRIS	California Historical Resources Information System
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
County	County of Calaveras
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTT	Direct Transfer Trip
EIR	Environmental Impact Report
FTA	Federal Transit Administration
gen-tie	generation transmission
GHG	greenhouse gas
IS	Initial Study
ISO	International Organization for Standardization
ITP	Incidental Take Permit
kV	kilovolt
L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
MCAB	Mountain Counites Air Basin
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
MT	metric ton
NAAQS	National Ambient Air Quality Standards

Acronym/Abbreviation	Definition
NFPA	National Fire Protection Association
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRTL	Nationally Recognized Testing Laboratory
O_3	ozone
OSHA	Occupational Safety and Health Administration
PCS	power conversion system
PG&E	Pacific Gas & Electric
PM_{10}	coarse particulate matter
$PM_{2.5}$	fine particulate matter
PRC	California Public Resources Code
Project	Double Springs Energy Storage Project
ROG	reactive organic gas
RTP	Regional Transportation Plan
SAFPD	San Andreas Fire Protection District
SB	Senate Bill
SCADA	supervisory control and data acquisition
SOx	sulfur oxides
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
UL	Underwriters Laboratories
VMT	vehicle miles traveled

1 Introduction

1.1 Project Overview

Double Springs Energy Storage LLC (Applicant) proposes to construct the Double Springs Energy Storage Project (project), a utility-scale battery energy storage system (BESS). The proposed project would be located on three parcels with Property Identification Numbers 040-002-017, 040-002-018, and 040-002-019, comprising approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California.

The proposed project is allowed within the M4 Business Park zone with approval of a Conditional Use Permit, as specified under the County of Calaveras (County) Zoning Code, Chapter 17.31. The zoning designation supports industrial and infrastructure-focused developments, making it suitable for the proposed BESS. Additionally, the proposed project aligns with the Industrial Land Use Category under the Calaveras County General Plan because this land use designation supports light and heavy industrial activities, such as a BESS facility (County of Calaveras 2019a).

The proposed project would consist of lithium-ion batteries installed within modular outdoor enclosures, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect the proposed project at the Pacific Gas & Electric (PG&E) Valley Springs Substation (point of interconnection). Within the enclosures, the batteries would be arranged on battery storage racks with relay and communications systems for automated remote monitoring and managing of the batteries to optimize design performance.

A battery management system would be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct-current (DC) electricity, which must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between alternating current (AC) and direct current (DC), along with transformers to step up the voltage, would be included as part of the proposed project.

The proposed facility is designed to help PG&E, or other contracted off-takers, ensure that there is a reliable source of backup power to meet network requirements during peak load (times of high demand) events, and to better integrate intermittent sources of energy onto the system. The facility would receive energy (charging) from the PG&E electric transmission system generally when renewable production is highest, store energy, and then later deliver energy (discharging) back to the point of interconnection when called for by PG&E or other contracted off-takers.

1.2 California Environmental Quality Act Compliance

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to provide the public, lead agency, responsible agencies, and trustee agencies with information about the potential environmental effects of construction and operation of the proposed project. This IS/MND was prepared in accordance with the California Environmental Quality Act (CEQA); California Public Resources Code (PRC) Section 21000 et seq.; and the CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq.

Pursuant to CEQA (PRC Section 21000 et seq.), the lead agency may prepare an IS for discretionary projects, such as the proposed project, to determine whether that project may have a significant adverse effect on the environment. This IS uses the significance criteria outlined in Appendix G of the CEQA Guidelines (14 CCR 15000

et seq.). Article 6, Section 15070, Decision to Prepare a Negative Declaration or Mitigated Negative Declaration, of the CEQA Guidelines states the following (14 CCR 15070):

A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

A. The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
B. The initial study identifies potentially significant effects, but:

   Revisions in the project plans or proposals made by, or agreed to by, the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

Based on the analysis in this IS, it was determined that all project-related environmental impacts would be reduced to a less-than-significant level with the incorporation of feasible mitigation measures. Therefore, adoption of an MND would satisfy the requirements of CEQA.

1.3 Project Planning Setting

The project site is in an industrial landscape within Calaveras County, California. Specifically, the site is designated Industrial by the Calaveras County General Plan (County of Calaveras 2019a) and is zoned M4 Business Park as specified under the Calaveras County Zoning Code, Chapter 17.31. The County Development Code allows for public works and utilities as a conditional use within the M4 Business Park zone; therefore, the proposed project would require a Conditional Use Permit. The project site is adjacent to various industrial and commercial properties. The PG&E Valley Springs Substation is to the east; open space is to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. The proposed project aligns with the intent of the industrial zoning. Additionally, the project site is located immediately adjacent to existing infrastructure, including the PG&E Valley Springs Substation.

2 Project Description

2.1 Project Location

The proposed project would be located on three parcels with Property Identification Numbers 040-002-017, 040-002-018, and 040-002-019, comprising approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California (see Figure 1, Project Vicinity). The project site is adjacent to various industrial and commercial properties. The PG&E Valley Springs Substation is to the east; open space is to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. The proposed project would be accessed from Double Springs Road.

2.2 Environmental Setting

The project site consists of three separate parcels comprising approximately 15.17 acres of undeveloped and partially vegetated land in unincorporated Calaveras County (see Figure 1). The project site is on the north side of Double Springs Road, approximately 0.20 miles west of Highway 26 as measured from the nearest project site boundary (see Figure 2A, Project Site, and Figure 2B, PG&E Interconnection Infrastructure Improvements). As part of the proposed project entitlement, the Applicant proposes a parcel map to merge the three parcels to create a single, cohesive development area, as reflected in Figure 3, Project Site Plan.

The project site is bordered by various industrial and commercial properties. The PG&E Valley Springs Substation is to the east; open grazing and grasslands are to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. The County is the lead agency for compliance with CEQA. The proposed project would adhere to all applicable County laws and regulations. The proposed project's adjacency to the PG&E Valley Springs Substation would minimize the length of required transmission lines, reducing land disturbance and potential environmental impacts and ensuring efficient energy delivery. The following zoning and land use categories are applicable to the project site (see Figure 4, General Plan Land Use, and Figure 5, Zoning).

Site Zoning

The project site is zoned as M4 Business Park, a designation that supports industrial and infrastructure-focused developments in accordance with Calaveras County Zoning Code Chapter 17.31. This zoning allows for "Public Works and Utilities" and other similar uses as conditionally permitted under Table 17.07.020 – Land Use Regulations – Industrial Zones. Pursuant to Zoning Code Section 17.42.050, "Public Works and Utilities" include generating plants; commercial energy facilities, including wind arrays and solar farms; solid waste collection, including transfer stations and materials recovery facilities; landfills; commercial composting and waste reduction facilities; solid waste treatment and disposal; wastewater treatment plants; potable water facilities occupying more than 1 acre of land and/or with treatment facilities; elevated water storage tanks; and similar facilities of public agencies or public/private utilities. This classification also includes private corporation yards, equipment service centers, and similar facilities that primarily provide maintenance and repair services and storage facilities for vehicles and equipment.

The project site is bordered by M4-zoned land to the south and east, and Agriculture Preserve (AP)-zoned land to the north and west (see Figure 5, Zoning). The location is particularly suitable for this development due to its proximity to the PG&E Valley Springs Substation, minimizing land use conflicts and supporting grid infrastructure needs.

Applicable General Plan Use Designation

The proposed project parcels are designated under the Industrial land use category in the Calaveras County General Plan (Figure 4), which supports infrastructure-intensive and energy-related developments that are essential for regional economic and environmental objectives (County of Calaveras 2019a). This designation aligns with the proposed project's purpose as a utility-scale BESS that enhances energy reliability and integrates renewable energy resources into the grid.

Allowed Uses

Per Calaveras County Municipal Code Table 17.07.020 – Land Use Regulations–Industrial Zones, the M4 Business Park zone allows for various public and utility uses and other similar uses, including "Public Works and Utilities," subject to approval of a Conditional Use Permit.

2.3 Project Characteristics

The proposed project would involve development of energy storage facilities and associated infrastructure. The batteries would be housed within modular outdoor BESS enclosures. Power stored or discharged by the proposed project would be transferred to and from the PG&E Valley Springs Substation via an approximately 0.20-mile 60-kilovolt (kV) generation transmission (gen-tie) line.

The proposed project would consist of lithium-ion battery modules (i.e., a series of battery cells) that would be installed in racks located in prefabricated outdoor BESS enclosures, inverters, medium-voltage transformers and a main power transformer, switchgear, a collector substation, and other associated equipment. The proposed project would include the following components, which are described in more detail following the bulleted list:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances would be constructed that would provide dedicated energy storage capacity and dispatch to the electric grid.
- **Power Inverters and Transformers:** Power inverters to convert between alternating current (AC) and direct current (DC) would be included, along with transformers that would step the voltage up and down.
- **Telecommunication Facilities:** Telecommunication equipment would include underground and overhead fiber optics and a supervisory control and data acquisition (SCADA) system, which would facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and motion-activated lighting for safety and security would be provided for the proposed project, which would meet all applicable code requirements.
- **Gen-Tie Line:** A 60 kV gen-tie line, approximately 0.10 miles in length, would be constructed to transfer power between the PG&E Valley Springs Substation and the proposed project. The gen-tie will run to a wood or steel POCO (point of common ownership) pole on the east side boundary of the project site, from where PG&E will connect the gen-tie to an available circuit bay inside the substation. Two underground fiber-optic communication lines, separated by 10 feet, would be installed within the project site, which would terminate at two vaults at the project's eastern boundary. Interconnection to the PG&E Valley Springs Substation is described below under PG&E Facility Upgrades. The proposed gen-tie line route within the project site footprint is subject to minor changes during PG&E's final interconnection engineering.

The facilities would be designed and intended to operate year-round and would be available to receive or deliver energy 24 hours a day, 365 days a year, with the exception of scheduled maintenance outages.

PG&E Facility Upgrades and Interconnection Reliability Network Upgrades

Specific transmission network upgrades were determined via the California Independent System Operator's (CAISO) Large Generator Interconnection Study Process. The following improvements to existing PG&E facilities would facilitate project interconnection to the PG&E Valley Springs Substation. These improvements would be constructed by PG&E and would occur within the existing footprint of the Valley Springs Substation, Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation, or on existing transmission infrastructure (see Figure 2B, PG&E Interconnection Infrastructure Improvements).

Valley Springs Substation

- Install 60 kV circuit breaker and associated equipment to complete existing circuit bay within the Valley Springs Substation footprint. This improvement would require ground disturbance within the Valley Springs Substation existing circuit bay.
- Install a Direct Transfer Trip (DTT) scheme (communications relays) between the Valley Springs Substation and Double Springs Energy Storage on-site collector substation using existing infrastructure for communication circuits. No ground-disturbing activities would be required for installation of the DTT scheme.
  - One transmitter and cutout switch in the new DTT panel in the existing control building should be installed.
  - An auxiliary tripping relay would be included to interface the resistive fault locate with the line relays.
  - New status and alarm points wired to the SCADA and/or the station annunciator are included in the installation. These points may include PG&E communication infrastructure to route the DTT from Valley Springs Substation to the on-site collector substation.
- Install the following related to the new gen-tie line:
  - Three single-phase line potential transformers for the new gen-tie line protection.
  - One-line dead-end structure. Installation of the dead-end structure would require ground-disturbing activities.
  - One set of 60 kV disconnect switches, manually operated, for line disconnect mounted on dead-end structures. The disconnect switches would be installed on the dead-end structure.
- Connect to civil foundations and ground connections:
  - Install line current differential relay scheme on the Valley Springs Substation – Double Energy Springs Storage 60 kV line in new panel within the existing control building. The scheme would include relays compliant with PG&E specifications and requirements at the time of installation.
  - Install generation breakers into the existing bus differential scheme at the Valley Springs Substation. This activity may require ground-disturbing activity.
- Install fiber termination at the Valley Springs Substation:
  - Each line current differential scheme would include redundant fiber circuits with no common point of failure. These relays would be installed within the existing control building.
  - New fiber cable from the station property line to control building should be installed, terminated, and tested.

Tiger Creek Powerhouse

- Install a DTT scheme between the Valley Springs Substation and Tiger Creek Powerhouse within the Tiger Creek Powerhouse footprint using existing T-line infrastructure for communication circuits. Installation of the DTT scheme would not require ground-disturbing activities.

Electra Powerhouse

- Install a DTT scheme between the Valley Springs Substation and Electra Powerhouse within the Electra Powerhouse footprint using existing T-line infrastructure for communication circuits. Installation of the DTT scheme would not require ground-disturbing activities.

Bellotta Substation

- Install a DTT scheme between the Valley Springs Substation and Bellotta Substation within the Bellotta Substation footprint using existing T-line infrastructure for communication circuits. Installation of the DTT scheme would not require ground-disturbing activities.

Although PG&E's facilities are analyzed in this CEQA document as part of the whole of the proposed project, PG&E's interconnection facilities are not being approved by the County's decision. Approval of the PG&E improvements would fall under the permitting jurisdiction of the California Public Utilities Commission. Because CEQA requires analysis of the environmental impacts of the whole of the action, the project description includes the interconnection upgrades, which are considered in the scope of this document and the proposed project. PG&E implements standard measures and best management practices (BMPs) (Appendix A) during construction and operation of projects in its service territory. Mitigation measures adopted for the proposed project would not be applicable to the PG&E facility upgrades and interconnection facility improvements; rather, PG&E would implement standard and applicable measures during construction and operation of the PG&E improvements, consistent with PG&E's construction activities throughout its service area. These measures would likely include environmental awareness trainings and pre-activity surveys to determine presence of biological species and archaeological and cultural resources. PG&E would also outline the procedures to take should unanticipated cultural resources or human remains be encountered during project activities. Construction management measures related to vehicle idling, fugitive dust, hazardous waste management, and noise management would also be implemented by PG&E (Appendix A).

Battery Energy Storage System Facility

The proposed project would consist of the installation and operation of a utility-scale BESS facility consisting of approximately 240 prefabricated BESS enclosures (see Figure 6, Energy Storage Equipment Photos), along with approximately 60 power conversion system (PCS) skids. The BESS facility would consist of individual lithium-ion battery cells assembled in sealed battery modules. These battery modules would be installed in self-supporting racks and electrically would be connected either in series or parallel configurations and housed within the BESS enclosures. The BESS enclosures would be approximately 20 feet × 8 feet × 10 feet (L×W×H). Each BESS enclosure would typically contain the following:

- Internal racks and system control modules
- Fire suppression systems
- Thermal management/heating, ventilation, and air conditioning systems

- Communication systems
- Medium-voltage transformers
- Inverters

The battery modules would be delivered from the manufacturer preassembled and moved into place by forklifts or cranes. These modules would be connected in parallel to aggregate the required energy capacity.

The BESS facility would store and release energy based on market and utility demands. In general, the system would be operated to place energy onto the grid (discharge) during times of high load (demand) and to take energy off of the grid (charge) in times of low load (demand) relative to generation. PG&E, or other contracted off-takers, would have sole authority to determine when to dispatch the system as dictated by the needs of their transmission system.

The proposed project would be remotely monitored on a continuous basis. Remote access to battery status, meters, schedules, and other telemetry data would be available to off-site personnel. In the event that an operational anomaly should occur (e.g., unexpected temperature variation), the monitoring system would immediately alert local contracted operations and maintenance personnel. In addition, multiple fail-safes are embedded in the facility's hardware and software to, if necessary, automatically trigger a temporary shutdown of the facility until the issue is diagnosed and resolved.

Fire Protection System

The Applicant would install battery energy storage systems compliant with National Fire Protection Association (NFPA) 855 standards, Underwriters Laboratories (UL) 9540 and UL9540A certification. Each system includes failsafe features, cooling systems, deflagration mitigation, and thermal runaway prevention mechanisms designed to prevent and control potential fire incidents. The San Andreas Fire Protection District (SAFPD) Fire Chief would have review and approval rights for facility fire access, protection, and suppression requirements. Review/approval by SAFPD would cover all applicable design, construction, and testing requirements of NFPA 855.

Generation Transmission (Gen-Tie) Line

A 60 kV gen-tie line would be constructed that would transfer power to and from the proposed project and the PG&E Valley Springs Substation. The overhead or underground gen-tie line would extend approximately 0.10 miles to a wood or steel POCO (point of common ownership) pole on the eastern boundary of the project site, from where it would interconnect to the PG&E Valley Springs Substation in accordance with the large generator interconnection agreement between the project Applicant and PG&E. The gen-tie line would be located exclusively on the project site and the PG&E Valley Springs Substation property and would require approximately three poles, each up to approximately 57 feet in height.

Outdoor Electrical Equipment

Medium-voltage transformers, inverters, switchgear, electronic switchboards, and additional electrical equipment would be installed outside the BESS enclosures. Underground wires and cabling would run from the BESS enclosures to housings for the inverters and medium-voltage transformers on concrete pads. All electrical equipment would be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view to the extent practical. Underground wires and cabling would run from the medium-voltage

transformers to the on-site collector substation. The on-site collector substation would consist of a main power transformer, control house, and switchgear.

Inverters

The inverters would be unattended, stand-alone units that operate in all weather conditions. They would operate in both a charge mode and a discharge mode. They would be UL listed for bi-directional use and would be monitored and controlled remotely via the SCADA system. There would be on-site disconnects in case of an emergency or unscheduled maintenance, which would be designed to last for the life of the proposed project with proper preventive maintenance, scheduled maintenance, and occasional major overhauls and/or replacements.

Telecommunication Facilities

The proposed project would require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote project operations monitoring. To provide communication with PG&E facilities, fiber-optic cables would be used to connect the project site with the PG&E point of interconnection. Two underground fiber-optic communication lines, separated by 10 feet, would be installed within the project site, which would terminate at two vaults at the project's eastern boundary, from where PG&E would connect to their control house on the substation property.

The proposed project would use local exchange carrier services for telecommunication to support remote monitoring requirements. The proposed project would connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The SCADA system is critical to the PG&E utility interconnection and for the proper operation and maintenance of the proposed project. The SCADA system would use proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication, such as radio links and phase loop communication systems. The SCADA system would function as a remote start, stop, reset, and tag out for the facility, thus minimizing labor and site diagnostic information. The SCADA system would also control the on-site collector substation, allowing for fully centralized operation of the proposed project to meet all utility interconnection requirements.

Site Access and Security

The project site would be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet County standards, including fire safety requirements as outlined in Title 15 of the County Code. A fence would be installed around the perimeter of the project site for safety and security purposes and would remain for the life of the proposed project. A 10-foot-tall chain-link fence with 1 foot of razor wire would enclose the project site, and a 7-foot-tall block wall with razor wire would provide fire protection around the BESS area of the project site. An access gate for operations and maintenance staff and emergency access would be located at the proposed project access driveway. A Knox-style box would be provided for emergency personnel to access the project site.

In accordance with County Zoning Code Section 17.16.100, Lighting and Illumination, permanent security lighting would be installed to illuminate key areas, such as the on-site collector substation and ingress/egress points. The lighting would be motion-activated and designed to minimize off-site glare using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. Security lighting would not exceed a maximum color temperature of 5,000 Kelvin to maintain visual comfort and safety standards. These measures align with the

County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. The project site would be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity would trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

Stormwater Collection and Treatment

The proposed project would implement a comprehensive stormwater management plan designed in accordance with Calaveras County Code Chapter 13.01 – Stormwater Quality and other applicable County and state regulations. This plan would control stormwater runoff to minimize impacts to adjacent properties and natural waterways while ensuring compliance with County drainage standards. A stormwater detention basin would be constructed on the project site to collect and temporarily hold stormwater generated on site. This basin would be engineered to detain stormwater, allowing sediment and potential pollutants to settle out before the water is gradually discharged, ensuring compliance with County drainage standards.

Additionally, the stormwater system would include measures to control the rate and volume of discharge to minimize any impact on downstream properties and natural water bodies, as required by the County Code. Drainage facilities would be designed to prevent an increase in stormwater discharge rates, aligning with best practices in stormwater control.

2.3.1 Construction

Construction and site development activities for the proposed project would last approximately 12 months. Construction activities for the proposed project generally fall into the following main categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, and cleanup.

The on-site construction workforce is expected to peak at approximately 80 individuals; however, the average daily workforce on site during construction is expected to be 5 to 10 individuals, comprising construction, supervisory, support, and construction management personnel. It is anticipated that the construction workforce would commute to the project site each day from local communities and report to the designated construction staging yard within the project site prior to the beginning of each workday. Project construction is expected to temporarily generate 242 average daily worker trips, 20 average daily vendor truck trips, and 34 average daily haul truck trips. Converted to a passenger-car-equivalent number, the total average daily construction trips would equate to approximately 700 trips.

The proposed project would be constructed by specialized construction contractors. Construction would primarily occur during daylight hours, Monday through Saturday between 7:00 a.m. and 7:00 p.m., as required to meet the construction schedule. Any construction work performed outside the normal work schedule would be coordinated with the appropriate agencies and would conform to County regulations. PG&E would also implement standard measures and BMPs (Appendix A) during construction and operation of projects in its service territory.

A temporary trailer would be placed on the project site during the construction period. Portable restrooms would be provided for construction personnel and serviced by a licensed provider, and bottled water would be provided for drinking. Minimal water demand during construction (5 to 10 acre-feet) would be used primarily for dust suppression and soil compaction, as necessary, and would be trucked in by a licensed water purveyor.

2.3.2 Operations and Maintenance Activities

Typical operations and maintenance activities that would occur on the project site during operation include liaison and remote monitoring administration and reporting; semi-annual and annual services; remote operations of batteries, inverters, substation, and site security and management; additional communication protocols; and repair and maintenance of the BESS, electrical transmission lines, and other proposed project facilities. The electrical equipment and security would be automated and monitored remotely.

The project site would be unoccupied but would be monitored 24 hours a day, 7 days a week through a combination of SCADA, an energy management system, and a remote operations center, allowing for real-time oversight, diagnostics, and response capabilities to ensure safe and reliable operations at all times. The project site would be visited periodically by maintenance workers for equipment inspections, monitoring and testing, and maintenance, as needed. Periodically and as needed, batteries (either modules or enclosures) and various system components would be replaced, augmented, or serviced to ensure optimal performance and maintenance of capacity. Although the frequency of site visits may vary depending on operational needs, it is anticipated that routine operations would require one or two workers to visit the facility on a monthly basis. These visits, combined with the proposed project's remote monitoring capabilities, would ensure that the facility is actively managed and that the site has regular operational supervision.

Landscaping

The proposed project would require removal of all existing vegetation within the limits of disturbance, as shown in Figure 3, Project Site Plan. The proposed project would require revegetation of slopes, swales, and the stormwater detention basin using a native seed mix for stabilization (see Figure 7, Landscape Plan). Irrigation is not expected to be required for establishing the native seed mix. A crushed-stone fire break would be installed along the majority of the perimeter of the project site. Stone would be used for slope revetement. A gravel base would be used to provide dust suppression and stabilization at the BESS and on-site collector substation areas, as well as for the access road.

Solid and Nonhazardous Waste

The proposed project would produce a small amount of waste associated with maintenance activities, which could include broken and/or 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.

Hazardous Materials

Limited amounts of hazardous materials may be stored or used on site during operations, including mineral oil to be sealed within the transformers and lithium-ion batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the proposed project. A Hazardous Materials Business Plan, including spill prevention and response measures, and an Emergency Response Plan were developed for site operations.

Hazardous Waste

Fuels and lubricants used in operations would be subject to the spill prevention spill response measures included in the Hazardous Materials Business Plan. Hazardous solid waste, if generated during operations, would be subject to the provisions of the Hazardous Materials Business Plan.

Fire Safety

Per the Office of the State Fire Marshal, the project site is in a High Fire Hazard Severity Zone (CAL FIRE 2025). A Fire Safety Plan and Fire Protection Plan, in accordance with California Fire Code Chapters 33 and 45, were prepared and are incorporated into the proposed project design and operations. The Fire Protection Plan addresses wildfire risk and ensures the facility meets local and state fire code requirements. As a condition of approval, it will be the responsibility of the Applicant and its project contractors to comply with the measures identified in the Fire Protection Plan. Additionally, the Fire Safety Plan provides basic direction for fire safety awareness during construction, operation, and decommissioning activities on the project site. The Fire Safety Plan provides standard protocols and approaches for reducing the potential of accidental ignitions for typical project site activities. Further detailed in the Fire Safety Plan, the SAFPD will have review and approval rights for the facility's fire access, protection, and suppression requirements.

Security and Lighting

The project site would be fenced to prevent access by unauthorized individuals. Limiting access to the project site would be necessary to ensure the safety of the public and to protect the equipment from potential theft and vandalism. A fence would be installed around the perimeter of the project site for safety and security purposes and would remain for the life of the proposed project. A 10-foot-tall chain-link fence with 1 foot of razor wire would enclose the project site, and a 7-foot-tall block wall with razor wire would provide fire protection and additional security around the BESS area of the project site. An access gate for operations and maintenance staff and emergency access would be located at the proposed project access driveway. A Knox-style box would be provided for emergency personnel to access the project site, if needed.

The proposed project's lighting system would provide operations and maintenance personnel with illumination for normal and emergency conditions. In accordance with County Zoning Code Section 17.16.100, Lighting and Illumination, permanent security lighting would be installed to illuminate key areas, such as the on-site collector substation and ingress/egress points. Additionally, the project site would be monitored continuously via security cameras, with footage accessible 24 hours per day, 7 days per week to off-site security personnel. Any unusual activity would trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

2.3.3 Decommissioning

At the end of the proposed project's anticipated operational life of approximately 30 years, the Applicant would either repower the proposed project or decommission the proposed project, as outlined in the Decommissioning Plan (Appendix B).

All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and would be done in accordance with all applicable federal, state, and County regulations. Following the expiration of the proposed project's useful life, the facility would be decommissioned, which would include the proposed project components being removed from the project site. Aboveground equipment to be removed includes

batteries and BESS enclosures, inverters, transformers, substation steel bus work and structures, and electrical wiring. The Applicant would implement measures to ensure the collection and recycling of batteries and to avoid the potential for batteries to be disposed of as municipal waste.

Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off site to be recycled or disposed of at an appropriately licensed disposal facility. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the decommissioning equipment being used. The area would be thoroughly cleaned, all debris removed, and the project site would be readied for a new use. A collection and recycling program would be implemented by the Applicant to promote recycling of the proposed project components and minimize disposal in landfills.

Should the proposed project be repowered at the end of the anticipated operational life, it would be done so in compliance with existing local ordinances and state and federal regulations. A repower would consist of replacing all or many of the battery enclosures and associated components at one given time, whereas normal maintenance (as described in Section 2.3.2, Operations and Maintenance Activities) would involve replacing battery components on an as-needed basis to maintain optimal performance and capacity, and augmentation would provide for scheduled replacement of modules to maintain capacity to meet off-taker contractual requirements.

Removal of PG&E's interconnection facilities is not required upon decommissioning; the interconnection facilities may be used for other purposes or removed by PG&E depending on future needs.

2.4 Project Objectives

The proposed project would provide PG&E or other contracted off-takers, the County, and the State of California with a source of auxiliary energy to stabilize the local transmission grid; electric grid reliability to energy users in California; and an economically viable development to receive, store, and discharge electricity from the electric grid, including shifting renewable energy produced by existing solar and wind resources in the region to periods when the energy demand is highest. The following objectives have been identified for the proposed project:

- Establish a new energy storage facility to reliably capture and manage energy, providing stability to the regional grid, in an economically viable and commercially financeable manner while reducing environmental impacts by developing energy storage adjacent to an existing substation and grid connection.
- Provide economic benefits to the County, the region, and the state through the creation of construction jobs, increased property and sales tax revenue, construction and maintenance services, and increased energy efficiency and reliability.
- Use advanced, safe, and recyclable energy storage technology that operates with high efficiency and low maintenance requirements, consistent with the County's commitment to sustainable and environmentally conscious industrial practices.
- Support California's greenhouse gas emissions reduction goals in accordance with the California Global Warming Solutions Act (Assembly Bill [AB] 32) and Senate Bill (SB) 32, contributing to the state's targets for 2030, and supporting the California Governor's Executive Order B-55-18 goal of achieving carbon neutrality by 2045.

- Facilitate California's transition from fossil-fueled power generation by enabling the storage and dispatch of intermittent renewable energy, ensuring these resources are available on demand to balance grid needs and meet market demands.
- Place minimal demand on public services and infrastructure while providing substantial economic benefits to the community, primarily through increased tax revenue for the County, including tax revenues to support essential public services, including education, infrastructure enhancements, and emergency response capabilities.

2.5 Project Approvals

Table 2-1 provides the potentially required discretionary agency approvals for the proposed project.

Table 2-1. Project Required Permits and Approvals

Agency	Discretionary Approval/Permit Required
County of Calaveras	▪ Approval of Mitigated Negative Declaration ▪ Adopt Mitigation Monitoring and Reporting Program ▪ Conditional Use Permit ▪ Parcel Merger
California Department of Fish and Wildlife	▪ Incidental Take Permit pursuant to California Fish and Game Code Section 2081, if required ▪ Lake and Streambed Alteration Agreement pursuant to California Fish and Game Code Section 1600, if required
U.S. Fish and Wildlife Service	▪ Take authorization pursuant to Section 7 of the Endangered Species Act, if required
U.S. Army Corp of Engineers	▪ Section 404 Permit, if required
Regional Water Quality Control Board	▪ Waste Discharge Requirements and/or Section 401 Water Quality Certification, if required
California Public Utility Commission	▪ Authorization for PG&E substation/powerhouse improvements under General Order 131-E

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3 Initial Study Checklist

1. **Project title:**

   Calaveras County Planning Project 2024-086 Conditional Use Permit
   Double Springs Energy Storage Project

2. **Lead agency name and address:**

   Calaveras County Planning Department
   891 Mountain Ranch Road, Building E
   San Andreas, California 95249

3. **Contact person and phone number:**

   Katherine Stefani
   Senior Planner
   209.754.6394

4. **Project location:**

   Property Identification Numbers 040-002-017, 040-002-018, and 040-002-019

5. **Project sponsor's name and address:**

   Nadara Development US LLC
   Parent affiliate of the prior project sponsor, Novis Renewables LLC
   1 Bridge Street, Suite 11
   Irvington, New York 10533

6. **General plan designation:**

   Industrial

7. **Zoning:**

   M4 (Business Park Zone)

8. **Description of project:**

   The project proposes to construct a utility-scale energy storage system. See Chapter 2, Project Description, of this IS/MND for more details.

9. **Surrounding land uses and setting: Briefly describe the project's surroundings:**

   The project site is adjacent to various industrial and commercial properties. The PG&E Valley Springs Substation is located to the east; open space is to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. See Chapter 2, Project Description, of this IS/MND for more details.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):**

    See Section 2.5, Project Approvals, of this IS/MND for more details.

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**

    Yes. See Section 3.18, Tribal Cultural Resources, of this IS/MND for more information.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology and Soils	☐ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials
☐ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
☐ Noise	☐ Population and Housing	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☐ Utilities and Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Katherine Stefani
Signature

12-2-25
Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to less than significance

3.1 Aesthetics

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS** – Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of public views of the site and its surroundings?	☐	☒	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

This section used the following sources: County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; California Department of Transportation (Caltrans) California State Scenic Highway System Map (Caltrans 2024); and Calaveras County Zoning Code Section 17.16.100, Lighting and Illumination.

a) Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. There are no designated or eligible State Scenic Highways or vistas in the immediate vicinity of the project site. The nearest eligible State Scenic Highway is State Route 49, approximately 3.75 miles east of the project site boundary (Caltrans 2024). New Hogan Lake is approximately 1.30 miles south of the project site boundary. After construction, the proposed BESS enclosures would be approximately 10 feet tall; the substation would be approximately 1 acre with a maximum height of approximately 40 feet tall. The gen-tie line would be installed above ground on steel or wood poles up to 57 feet tall, consistent with the existing equipment and transmission lines at the PG&E Valley Springs Substation. None of the proposed project components are expected to degrade or obstruct views of the surrounding mountains, hills, or New Hogan Lake from the roads or public vantage points surrounding the project site. Any trash, debris, and waste would be removed from the project site during construction, and the site would be screened or partially screened by fencing and a perimeter wall. Adverse visual effects from construction would be temporary, existing only during the construction period. Construction activities, such as rough grading, may produce dust visible from Double Springs Road; however, compliance with Calaveras County Air Pollution Control District Rule 207 would reduce visible dust. Rule 207, Particulate Matter, states a person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas at standard conditions (Calaveras County Air Pollution Control District 2021). Therefore, there would be less-than-significant impacts to scenic vistas.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. There are no designated or eligible State Scenic Highways or vistas in the vicinity of the project site. The nearest eligible State Scenic Highway is State Route 49, approximately 3.75 miles east of the project site boundary (Caltrans 2024). The project site does not contain scenic resources, such as trees, rock-outcroppings, or historic buildings, that would be impacted by the proposed project; therefore, there would be no impact to scenic resources within a State Scenic Highway.

c) Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings?

Less-than-Significant Impact with Mitigation Incorporated. The project site is in a non-urbanized area and surrounding areas are primarily dominated by industrial uses, a PG&E substation, and open space. Although the proposed project would not affect any designated scenic vistas, the proposed project would involve installation of a BESS facility designed to charge and discharge electricity to and from the electrical grid via battery storage cabinets on currently undeveloped land. Thus, changes in the visual characteristics of the project site would occur.

The BESS facility would consist of individual lithium-ion battery cells assembled in sealed battery modules (see Figure 6, Energy Storage Equipment Photos). These battery modules would be installed in self-supporting racks, and electrically would be connected either in series or parallel configurations. The BESS enclosures are not expected to exceed 10 feet in height. The energy would be transported to and from the on-site collector substation to the adjacent PG&E Valley Springs Substation via a proposed gen-tie line, which would operate at 60 kV. The gen-tie line would be installed above ground. It would be supported by up to approximately three steel or wood poles, each up to approximately 57 feet tall, which is consistent with the existing equipment and transmission lines at the PG&E Valley Springs Substation. The number and height of the poles, as well as the type of conductor, would be finalized during detailed design. However, the final heights and structure types are expected to be similar to other electrical transmission structures in the project area. Therefore, the proposed project would not substantially degrade the existing visual character along this corridor, and impacts would be less than significant.

Construction activities and equipment would be visible around the project site during construction of the proposed project. During construction, disturbance areas would appear as large patches of fine, buff-colored rock and soil. Adverse visual effects from construction would be temporary and would occur only during the 12-month construction period and would be consistent with other construction activities in Calaveras County.

The land surrounding the project site include various industrial and commercial properties. The PG&E Valley Springs Substation is to the east; open space is to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. The nearest major public road to the project site is Double Springs Road. The proposed project and associated perimeter wall and fencing would not degrade or obstruct views of the surrounding terrain from the public vantage points surrounding the project site. The surrounding block wall would be 7 feet in height and would be a sufficient distance from the public right-of-way so as to not obstruct the larger viewshed from public viewpoints. The proposed project and perimeter wall would visually blend with other industrial, commercial, and utility uses in the vicinity of the proposed project.

Considering the mix of existing surrounding land uses (i.e., open space, industrial, commercial, and electrical distribution substation), implementation of the proposed project would be generally compatible with the character of the existing surrounding land uses. The utility-related function and aesthetic of the proposed project would not substantially degrade the character of the surrounding area. Pursuant to County Zoning Code Section 17.42.050, BESS facilities are consistent with "Public Works and Utility" uses, are conditionally allowed in the M4 Business Park zone, and are a compatible use in the area when appropriately designed and conditioned.

The proposed BESS enclosures (up to a height of approximately 10 feet) and associated perimeter wall and fencing are not anticipated to create a permanent visual obstruction for the background views of the mountains or New Hogan Lake. Existing perimeter landscape would be left in place to the extent feasible. However, temporary disturbance areas, if left in their disturbed/denuded states after completion of project construction, could degrade public views of the project site. Thus, **Mitigation Measure (MM) VIS-1** would require reseeding with a native seed mix to reduce impacts to public views of the project site from adjacent areas.

A Decommissioning Plan for the proposed project (Appendix B) has been prepared and was submitted to the County for approval. The proposed project would continue to operate for approximately 30 years, which is the useful life of BESS systems. Therefore, any visual impacts created by the proposed project would exist only for the life of the proposed project, and the project site would be restored per County requirements and the Decommissioning Plan thereafter. The project area would be thoroughly cleaned, all equipment and debris removed, and the project site would be restored to pre-construction conditions. **MM-VIS-1** would require implementation of the Decommissioning Plan at the end of the proposed project's useful life. Therefore, impacts would be less than significant with mitigation.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. The project site is in a non-urban environment, but there are several existing surrounding land uses, such as industrial and utilities, that emit ambient light. Existing light sources include everyday outdoor and indoor lighting in industrial areas and security lighting at the PG&E Valley Springs Substation.

Although not anticipated, nighttime construction (if any) would be conducted in accordance with appropriate County safety, noise, and other requirements. This includes the County Noise Ordinance (Section 9.02.060), which prohibits construction (including demolition) noise disturbance between 6:00 p.m. and 7:00 a.m. unless otherwise subject to a valid land use permit that addresses construction noise. Increased truck traffic due to the transport of BESS batteries and construction materials to the project site may temporarily increase glare conditions during construction. However, this increase in glare would be minimal and temporary. Construction activity would occur on focused areas of the project site as construction progresses, and any sources of glare would not be stationary for a prolonged period of time. Additionally, the surface area used by construction equipment would be minimal and consistent with other construction activities in the County. Therefore, construction of the proposed project would not create a new source of substantial glare that would affect daytime views in the area. Impacts would be less than significant during the construction period.

Controlled security lighting would be installed throughout the project site, as necessary. Lighting would only be switched on when personnel enter the area through manual activation (switch); would only be located in areas where it is required for safety, security, or operations; and would be directed on site and include

shielding, as necessary, to minimize illumination of the night sky or potential impacts to surrounding viewers. All project lighting would be consistent with Calaveras County Zoning Code Section 17.16.100, Lighting and Illumination. The BESS containers would be up to 10 feet in height—similar in height to surrounding buildings—and would be painted a matte color. Therefore, the proposed project is not anticipated to create a substantial glare on surrounding land uses. Due to the existing industrial nature of the surrounding land uses, operation of the proposed project would have a less-than-significant impact on substantial light or glare that would adversely affect day or nighttime views in the area.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, Project Description, PG&E would construct interconnection facilities and upgrades to communications systems at existing facilities to facilitate project interconnection. Activities would include the installation of the gen-tie line after THE POINT OF CHANGE OF OWNERSHIP; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. The PG&E Valley Springs Substation, Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation are already developed, and the interconnection improvements and communication system upgrades would not change the industrial character of the site, degrade the existing visual character or quality of the area, or result in additional lighting or sources of glare. PG&E would also implement BMPs during construction and operation, including those regulations that relate to the aesthetics. For example, PG&E would implement a BMP related to parking, in which vehicles would park on pavement, existing roads, and previously disturbed areas. Impacts would be less than significant.

Mitigation Measures

MM-VIS-1 Native Vegetation Reseeding. After construction and prior to the start of project operation, all denuded temporary disturbance areas not supporting project structures/ facilities shall be reseeded with a native seed mix to mimic the existing visual landscape. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Calaveras County Planning Department for each of the three years. Should efforts to reach a density of at least 70% of the native background (pre-construction) vegetative cover prove in the second year to not be successful, re-evaluation of revegetation methods shall be made in consultation with the Calaveras County Planning Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

MM-VIS-2 Decommissioning Plan. At the end of the proposed project's operational life, if the Applicant decides to decommission the facility (as opposed to repowering), the Applicant shall implement the Decommissioning Plan in accordance with the ordinances, regulations, and laws in effect at the time of decommissioning. After decommissioning, the project site shall be thoroughly cleaned, all equipment and debris removed, and the project site shall be restored to pre-construction conditions, including reseeding all disturbed/ denuded areas with a native seed mix to mimic the pre-project landscape.

3.2 Agriculture and Forestry Resources

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**AGRICULTURE AND FORESTRY RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; and California Department of Conservation's California Important Farmland Finder (CDC 2022).

a) ***Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

Less-than-Significant Impact. The project site is designated Grazing Land, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program. The project site is not designated

Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDC 2022); therefore, impacts resulting in the conversion of farmland to non-agricultural uses would be less than significant.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is zoned M4 Business Park, as illustrated in the County Zoning Updates 2024 public viewer (County of Calaveras 2024). The proposed project is considered a "Public Works and Utility" and would be consistent with the County's Zoning Ordinance (Chapter 17.07.020) with approval of a Conditional Use Permit. The proposed project is not located in an Agricultural Resource Area or Agricultural Preserve (AP) designation, nor does the project site contain land subject to a Williamson Act Land Use Contract (CDC 2022). However, adjacent parcels to the project site are under Williamson Act contracts. As such, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act land use contract, and no impacts would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. No lands designated as Farmland or Forestland are located within the vicinity of the project site. Surrounding lands are designated by the FMMP as Grazing Land, Urban and Built-up Land, and Other Land (Figure 8, FMMP Designations) (CDC 2022). Grazing Land is defined as land on which existing vegetation is suitable for the grazing of livestock. Urban and Built-Up Land is defined as land occupied by structures with a minimum density of one structure to 1.5 acres, or approximately six structures to a 10-acre parcel. Other Lands are defined as land not included in any other mapping category. Common examples of Other Lands include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land (CDC 2025a). The project site is zoned M4 Business Park and no agricultural or timberland activities are currently being conducted on or in the vicinity of the project site. Further, project activities would be limited to within the project boundary and would not involve any changes that would impact agricultural or forestry uses; therefore, no impacts would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site is zoned as M4 Business Park and contains no forest land. The proposed project would not result in the removal or conversion of forest land; therefore, no impacts would occur.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. No lands designated as Farmland or Forestland are within the vicinity of the project site. Surrounding lands are designated by the FMMP as Grazing Land, Urban and Built-up Land, and Other Land (CDC 2022). The project site is zoned M4 Business Park and no agricultural activities are currently being conducted on or in the vicinity of the project site. Further, project activities would be limited to within the project boundary and would not involve any changes that would impact agricultural or forestry uses outside of the project site; therefore, no impacts would occur.

PG&E Interconnection Infrastructure Improvements

PG&E would construct interconnection facilities and upgrades to communication systems at existing facilities to facilitate project interconnection. PG&E activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. Because PG&E's proposed upgrades are anticipated to occur within areas previously disturbed and already occupied by existing facilities, they would not result in impacts to agricultural land or forestry resources. Impacts would be less than significant.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

This section relied on the Air Quality and Greenhouse Gas Emissions Analysis Technical Memorandum (Appendix C) as its source of information.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. The Calaveras County Air Pollution Control District (CCAPCD) is responsible for developing and implementing the clean air plans for attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in the Mountain Counites Air Basin (MCAB), specifically for implementation of the State Implementation Plan and Regional Air Quality Strategy. If a project proposes development that is greater than that anticipated in a local plan and/or Calaveras Council of Governments' (CCOG) growth projections, the project might conflict with the State Implementation Plan and Regional Air Quality Strategy, and may contribute to a potentially significant cumulative impact on air quality.

The project site is zoned as M4 Business Park, a designation that supports industrial and infrastructure-focused developments in accordance with Calaveras County Zoning Code Chapter 17.07. This zoning allows for "Public Works and Utilities" as a conditionally permitted use under Table 17.07.020 – Land Use Regulations – Industrial Zones. The proposed project would not include on-site employees or residences; as such, the proposed project would not generate residential or employment growth that may not have been included in CCOG's Regional Growth Forecast and thus, the Regional Air Quality Strategy that relies on CCOG growth projections. As such, the proposed project would not conflict with or obstruct implementation of the CCAPCD Regional Air Quality Strategy, which is the applicable air quality plan. Additionally, as discussed further below, construction and operational emissions for the proposed project would not exceed the CCAPCD's significance thresholds for criteria air pollutants. Impacts would be less than significant.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less-than-Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the CCAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

Construction and Decommissioning

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, and volatile organic compound off-gassing) and off-site sources (e.g., on-road vendor trucks, haul trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activities were quantified using the California Emissions Estimator Model (CalEEMod). Default values provided by CalEEMod were used where detailed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix C.

Development of the proposed project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. As described further in Appendix C, fugitive dust would be limited through compliance with CCAPCD Rule 207.

Table 3.3-1 shows the estimated maximum unmitigated daily construction emissions associated with construction and decommissioning of the proposed project. Complete details of the emissions calculations are provided in Appendix C. "Summer" emissions are representative of the conditions that may occur during the peak ozone (O_3) season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Table 3.3-1. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Construction Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
2026	9.76	79.21	103.80	0.16	4.36	3.15
2057	—	—	—	—	—	—
Winter						
2026	14.56	116.62	270.10	0.51	16.14	8.36
2057	1.89	13.27	18.119	0.07	1.06	0.49
Maximum	***14.56***	***116.62***	***270.10***	***0.51***	***16.14***	***8.36***
Threshold	*150*	*150*	—	—	*150*	—
Threshold exceeded?	**No**	**No**	**—**	**—**	**No**	**—**

Notes: ROG = reactive organic gas; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = coarse particulate matter; PM2.5 = fine particulate matter; — = no emission estimates reported.
Year 2050 was used to model 2057 in CalEEMod.
See Appendix C for complete results.

As shown in Table 3.3-1, daily construction emissions for the proposed project would not exceed the CCAPCD's significance thresholds. Therefore, the proposed project would have a less-than-significant impact related to emissions of criteria air pollutant emissions during construction.

Operation

Operation of the proposed project would generate minimal reactive organic gas (ROG), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) emissions from mobile sources (vehicle trips), area sources (landscape maintenance equipment), and offroad equipment (no air quality-relevant energy sources identified). Criteria air pollutant emissions associated with long-term operations were quantified using CalEEMod (see Appendix C).

Table 3.3-2 presents the unmitigated maximum daily emissions associated with operation of the proposed project in 2027 following completion of construction. Complete details of the emissions calculations are provided in Appendix C.

Table 3.3-2. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Mobile	0.10	0.12	0.84	<0.01	0.11	0.03
Area	1.86	0.02	2.32	<0.01	<0.01	<0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Equipment	0.37	3.28	3.06	0.01	0.13	0.12
Total	***2.32***	***3.42***	***6.22***	***0.01***	***0.25***	***0.16***
Winter						
Mobile	0.09	0.14	0.72	<0.01	0.11	0.03

Table 3.3-2. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Area	1.48	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Equipment	0.37	3.28	3.06	0.01	0.13	0.12
Total	***1.93***	***3.42***	***3.78***	***0.01***	***0.25***	***0.15***
Threshold	150	150	—	—	150	—
Threshold exceeded?	**No**	**No**	**—**	**—**	**No**	**—**

Notes: ROG = reactive organic gas; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = reported value is less than 0.01; — = no emission estimates reported.
See Appendix C for complete results.

As shown in Table 3.3-2, daily operational emissions for the proposed project would not exceed the CCAPCD's significance thresholds for any criteria air pollutant. Therefore, the proposed project would result in less-than-significant impacts related to emissions of criteria air pollutant emissions during operation.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. Project implementation would have the potential to expose sensitive receptors to substantial pollutant concentrations. The following analysis evaluates the severity of impacts during construction and operation.

Carbon Monoxide Hotspots

Mobile source impacts occur on two scales: regionally and locally; however, the proposed project would generate minimal regional and local trips, including no routine daily trips during operation. If traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the MCAB is steadily decreasing.

During construction, the proposed project would result in CO emissions from construction worker vehicles, haul trucks, and off-road equipment. CCR Title 40, Section 93.123(c)(5), Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hot-spot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site." Because construction activities would be temporary, a project-level construction hotspot analysis is not required. Further, the average daily workforce on site during construction is expected to be 5 to 10 individuals, which would not create sufficient trips to form any CO hotspots. These trips would have a negligible impact on existing roadways.

The County does not have guidance regarding CO hotspots; however, the proposed project would not be staffed on site and would only have periodic visits for maintenance. Therefore, traffic during operation would be minimal and would not cause a CO hotspot. As such, potential project-generated impacts associated with CO hotspots would be less than significant.

Health Effects of Criteria Air Pollutants

Construction and operation of the proposed project would not result in emissions that would exceed CCAPCD's emission thresholds for any criteria air pollutants. The CCAPCD thresholds are based on the MCAB complying with the NAAQS and CAAQS, which are protective of public health; therefore, no adverse effects to human health would result from the proposed project. The following provides a general discussion of criteria air pollutants and their health effects.

Regarding ROGs, some ROGs would be associated with motor vehicles and construction equipment, and others would be associated with asphalt off-gassing, the emissions of which would not result in exceedances of CCAPCD thresholds. Generally, the ROGs in architectural coatings and asphalt are of relatively low toxicity.

In addition, ROGs and NO_x are precursors to O_3, for which the MCAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of ROGs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the MCAB due to O_3 precursor emissions tend to be found downwind from the source to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations also depends on the time of year that the ROG emissions occur because exceedances of the O_3 NAAQS and CAAQS tend to occur April through October when solar radiation is highest (Appendix C). The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the ROG and NO_x emissions associated with project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, which would be below CCAPCD thresholds, health impacts would be less than significant.

Regarding nitrogen dioxide (NO_2), which is a constituent of NO_x, construction and operation of the proposed project would not contribute to exceedances of the NAAQS or CAAQS because NO_x emissions would be less than the applicable CCAPCD threshold. NO_2 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment (Appendix C). However, these operations would be relatively short term, and the off-road construction equipment would be operating on various portions of the site and would not be concentrated in one portion of the site at any one time.

Health effects associated with PM_{10} or $PM_{2.5}$ depend on short- or long-term exposure and include premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, restricted activity days, and reduced lung function growth in children (Appendix C). Construction of the proposed project would not exceed thresholds for PM_{10} or $PM_{2.5}$, and would not contribute to exceedances of the NAAQS or CAAQS for particulate matter.

Based on the preceding considerations, health impacts from project-related criteria air pollutant emissions would be less than significant.

Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as toxic air contaminants (TACs) or hazardous air pollutants. State law has established the framework for California's TAC identification and control program, which is

generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants, and has adopted control measures for sources of these TACs (Appendix C). The primary TAC of concern for the proposed project is diesel particulate matter (DPM). The following measures are required by state law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the California Air Resources Board (CARB) Regulation for In-Use Off-Road Diesel Vehicles (13 CCR 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to CCR Title 13, Section 2485 limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading is limited to 5 minutes; electric auxiliary power units should be used whenever possible.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The CCAPCD recommends an incremental cancer risk threshold of 10 in 1 million. “Incremental cancer risk” is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology (Appendix C).

The greatest potential for TAC emissions would be DPM emissions from heavy equipment operations and heavy-duty trucks during construction of the proposed project and the associated potential health impacts to sensitive receptors. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts; however, no short-term, acute relative exposure level has been established for DPM. Total project construction would last approximately 12 months, after which project-related TAC emissions would cease. A 12-month construction schedule represents a short duration of exposure (3% of a 30-year exposure period), and cancer and chronic risk from DPM are typically associated with long-term exposure. Thus, the proposed project would not result in a long-term source of TAC emissions. In addition, the proposed project would not require the extensive operation of heavy-duty diesel construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce DPM emissions, and would not involve extensive use of diesel trucks, which are also subject to a CARB Airborne Toxics Control Measure. Furthermore, as shown in Table 3.3-1, maximum daily particulate matter (i.e., PM_{10} or $PM_{2.5}$) emissions generated by construction equipment and haul-truck trips during construction (exhaust particulate matter, or DPM), combined with fugitive dust generated by equipment operation and vehicle travel, would be minimal.

Of importance, the closest sensitive receptors to the proposed project’s BESS component, where the majority of project construction would occur, is a single-family residence approximately 1,130 feet north. Other sensitive receptors include the Toyon Middle School, located approximately 2,360 feet east of the project site boundary and approximately 3,200 feet southeast of the nearest BESS enclosure. These distances between the source and receptors are substantial, and the potential generation of TAC emissions would be largely dispersed. DPM concentrations decrease dramatically within the first 500 feet of the source, with an 80% drop off in concentration at approximately 1,000 feet from the source (CARB 2005). Furthermore, the predominant wind direction is blowing from the north-northwest away from the closest sensitive receptor to the project site. As such, the potential for the proposed project to result in a long-term exposure of receptors to TACs is limited. Therefore, the exposure of project-related TAC emissions to sensitive receptors would be less than significant.

No residual TAC emissions and corresponding health risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the proposed project. CARB has published the Air Quality and Land Use Handbook: A Community Health Perspective, which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as "schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities" (CARB 2005). The Air Quality and Land Use Handbook is a guide for siting of new sensitive land uses, and CARB recommends that sensitive receptors not be located downwind or in proximity to such sources to avoid potential health hazards. Of note, the proposed project is not considered a source for air quality sensitive receptors. Such sources include the following: high-traffic freeways and roads, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and large gas dispensing facilities (CARB 2005). The proposed project would not include any of the above-listed land uses associated with generation of TAC emissions. In addition, none of the above-listed land uses are within the vicinity of the project site. Potential impacts associated with exposure of sensitive receptors to TACs would be less than significant.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-than-Significant Impact. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving locations each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicle and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. In addition, the closest sensitive receptors are at a substantial distance from the majority of anticipated construction activity (i.e., a single-family residence and the Toyon Middle School, located approximately 1,130 feet and 3,200 feet, respectively, from nearest the BESS component). Therefore, impacts associated with odors during construction would be less than significant.

Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project would include the development of a BESS facility and associated infrastructure and would not create any new sources of odor during operation. Therefore, proposed project operations would result in an odor impact that is less than significant.

PG&E Interconnection Infrastructure Improvements

As part of the proposed project's interconnection, PG&E activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. These improvements would occur within areas previously disturbed and occupied by existing electrical facilities.

As shown in Table 3.3-1, emissions associated with construction of the other aspects of the proposed project would fall below CCAPCD daily localized thresholds. Emissions related to the substation and powerhouse improvements would be minimal compared to construction of the proposed project as a whole. Operation of the power line connection and communications relays would not result in the generation of emissions, and maintenance of the power line connection and communications relays would result in negligible emissions associated with periodic inspections. PG&E would also implement BMPs and comply with all applicable federal and state laws and regulations during construction and operation, including those regulations that relate to the protection of air quality. For example, PG&E would implement BMPs related to dust control by applying water as needed, limiting vehicle speeds to 15 miles per hour, covering loads, and cleaning track-out daily. These improvements would result in less-than-significant impacts to air quality, substantial pollution concentrations, and odors.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

This section used the following sources: Appendix D1, Biological Resources Technical Report; Appendix D2, Biological Assessment; Appendix D3, Aquatic Resources Delineation Report.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact with Mitigation Incorporated. Dudek biologists conducted a general biological reconnaissance of the proposed project site on June 3, 2024, and a general biological reconnaissance, late season rare plant survey, and aquatic resources delineation on September 26, 2024.Dudek biologists also conducted three evenly spaced protocol-level surveys for Crotch's bumble bee between April and June 2025 as well as a focused habitat assessment to evaluate an off-site seasonal pond (approximately 0.16 miles north of the project site boundary) for breeding of California tiger salamander or California red-legged frog on October 10, 2025. The following analysis assesses the proposed project's potential impacts on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Plants

Of the 17 special-status plant species listed in the databases as occurring in the vicinity of the project site, 8 species were determined to have no potential to occur within the project site based on an evaluation of species' ranges/elevation and known habitat preferences. Nine special-status species have potential to occur within the project site based on available habitat, correct elevation and geographic range, and documented occurrences within 5 miles of the project site boundary. None of these species were observed on the project site during early or late season plant surveys, which were performed when these species would be evident and identifiable within the project site based on reference population observations. Impacts on rare plant species would be less than significant as a result of proposed project implementation and operation.

Wildlife

Common wildlife species observed during the biological reconnaissance include those typically found in upland and grassland habitats. Wildlife use of the project site during the biological reconnaissance was minimal. Bird species detected included turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and red-winged blackbird (*Agelaius phoeniceus*). No amphibian, reptile, fish, or mammal species were observed on the project site.

The potential for special-status species to occur was based on a database review and the results of the biological reconnaissance, as well as focused surveys for Crotch's bumble bee (*Bombus crotchii*) and a focus pond habitat assessment for California tiger salamander (*Ambystoma californiense)* and California red-legged frog (*Rana draytonii*) in 2025. Of the 16 special-status wildlife species listed in the databases as occurring in the vicinity of the project site, 9 species are not expected to occur within the project site. Seven special-status species were determined to have potential to occur within the project site. These seven species and their potential to occur on site and to be impacted by the proposed project are discussed below.

California Tiger Salamander

Although the project site and adjacent area (i.e., the area within a 100-foot buffer of the project site) do not provide suitable breeding habitat for California tiger salamanders, the annual grassland and intermittent stream on site provide potential upland aestivation and dispersal habitat.[1] One previously documented occurrence of this species occurs within 5 miles project site, specifically, located approximately 1.68 miles northwest of the project site (Appendix D1). This record documents an adult California tiger salamander found in 2019 near a residence surrounded by grasslands that are used for cattle grazing. No breeding ponds appear to be present within 0.31 miles of that occurrence record; however, there are four potential breeding ponds within 0.62 miles although some contain fish. Based on aerial photography, the location of these potential breeding ponds that are near the occurrence record are all greater than 1.3 miles from the project site.

Based on a review of historical aerial imagery, there are nine potential aquatic habitats (i.e., ponds) within 1.3 miles of the project site. Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs [*Lithobates catesbeianus*]), two of the ponds appear to have both perennial and seasonal features, and one pond is entirely seasonal. The closest pond, located immediately west of the project site, is perennial and contains numerous gamefish and a large population of American bullfrogs, and, as such, does not provide suitable breeding habitat for California tiger salamanders. The closest potential breeding pond is a seasonal pond located approximately 0.16 miles north of the project site. However, based on a site visit to the pond on October 10, 2025, and information obtained from the landowner, this pond typically dries by September or October each year. When the pond fills each winter/spring, numerous American bullfrogs move into the pond from the large stock pond located immediately west of the project site and only leave when it dries in the summer. As a result, this pond does not provide suitable breeding habitat for California tiger salamanders due primarily to the presence of numerous bullfrogs during the spring and summer (Appendix D1). Based on the presence of bullfrogs at the nearby ponds, all the other ponds within 1.3 miles of the Project site may be occupied by bullfrogs and/or gamefish making them unsuitable for breeding by California tiger salamanders. However, since these other ponds could not be accessed, their status could not be verified (Appendix D1).

Although this species was not observed on or off-site during surveys and the ponds closest to the project site do not provide suitable breeding habitat (due to the presence of game fish and bullfrogs), there is still a low potential for this species to occur and therefore, there is potential for direct impacts to occur to California tiger salamanders in the form of injury or death if they are traveling overland or using upland refuge habitat during ground-disturbing activities. This is a potentially significant impact. Measures outlined in **MM-BIO-1,** such as Worker Environmental Awareness Program training, construction BMPs, and

[1] Aestivation is a sleep-like state of inactivity and reduced metabolism.

preparation of an Incidental Take Permit application and relocation plan, if California tiger salamander is found and will be impacted would reduce potential impacts to less than significant. Given the lack of suitable breeding habitat in ponds closest to the project site due to the presence of game fish and American bullfrogs, together with implementation of feasible mitigation, impacts to upland aestivation and dispersal habitat as a result of the proposed project would be less than significant.

California Red-Legged Frog

There is one documented occurrence of California red-legged frog approximately 0.81 miles west of the project site boundary (Appendix D1). Three adults were documented in fall 2003 along Young's Creek, a spring-fed stream with associated riparian canopy within grazed grasslands in oak savannah.

Based on review of aerial imagery, there are eight aquatic habitats (i.e. ponds) within 1 mile of the project site boundary (Appendix D-1). Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs), one of the ponds appears to be perennial/seasonal, and the remaining pond is seasonal. Although the project site does not provide suitable breeding habitat for this species, the grassland and intermittent stream on site provide suitable upland dispersal habitat during the rainy season (generally late fall through early spring). However, the project site and adjacent area (i.e., the 100-foot area surrounding the project-site boundary) do not provide suitable dispersal habitat during the dry season (generally late spring through early fall) when frogs generally remain at or near water sources (Appendix D1). As a result, California red-legged frogs would not be expected to be present in the on-site grasslands during the dry season, either moving through the project site or seeking refuge in small mammal burrows within the grassland.

Furthermore, California red-legged frog populations generally cannot be maintained in ephemeral habitats in which surface water disappears before tadpoles are able to transform completely into adult frogs (i.e., July to September during most years). The on-site intermittent drainage does not provide breeding habitat since the drainage is usually dry by June each year (Appendix D1)

The closest pond, located immediately west of the project site, is perennial and contains numerous gamefish and a large population of American bullfrogs, and does not provide suitable breeding habitat for California red-legged frog. The closest potential breeding pond is a seasonal pond located approximately 0.16 miles north of the project site. This pond typically dries by September or October each year and could potentially provide breeding habitat for California red-legged frogs. However, as stated above in the discussion regarding California tiger salamander, when the pond fills each winter, numerous American bullfrogs move into the pond from the large stock pond immediately west of the Project site. The frogs remain in the pond all summer and leave when the pond dries. As a result, this pond does not provide suitable breeding habitat for California red-legged frogs due primarily to the presence of numerous bullfrogs and lack of complex habitat (Appendix D1. However, there are several additional potential breeding ponds within 1 mile of the project site and all are surrounded by extensive grassland habitat. There is potential for direct impacts to California red-legged frogs in the form of injury or death if they are traveling overland or using upland refuge habitat during ground-disturbing activities. This is a potentially significant impact. Measures outlined in **MM-BIO-1** would reduce potential impacts to less than significant. Given the lack of suitable on-site breeding habitat together with implementation of feasible mitigation, impacts to upland dispersal habitat as a result of the proposed project would be less than significant.

Western Spadefoot

Although western spadefoot (*Spea hammondii*) has not been documented within 5 miles of the project site boundary, it may be underreported in the project region. The nearest documented occurrence for this species is approximately 8 miles southwest of the project site boundary (Occurrence Number: 60) (CDFW 2024). Suitable breeding habitat is potentially present within the intermittent stream in the southern portion of the project site. The grassland habitat within the project site may provide suitable dispersal and foraging habitat, and small mammal burrows provide potential aestivation habitat.

There is potential for direct impacts to western spadefoots in the form of injury or death if they are traveling overland or using upland refuge habitat during ground-disturbing activities. This is a potentially significant impact. Measures outlined in **MM-BIO-1** would reduce potential impacts to less than significant. Given the availability of suitable habitat in the surrounding areas and the limited footprint of the proposed project, impacts to potential habitat as a result of the proposed project would be less than significant.

Tricolored Blackbird

The nearest documented occurrence for tricolored blackbird (*Agelaius tricolor*) is approximately 2 miles southwest of the project site boundary (Occurrence Number: 934) (CDFW 2024). There is no breeding habitat within the project site, although the grassland provides suitable foraging habitat for this species should it be nesting in the region. This species was not observed during any of the site surveys, and the vegetation associated with the pond west of the project site does not contain suitable emergent vegetation to support nesting colonies for this species. It is unlikely this species nests adjacent to the project site, and so foraging potential is also reduced. Although unlikely, potential impacts to nesting tricolored blackbirds could occur during construction. Implementation of **MM-BIO-2** would reduce the potential for impacts to less than significant. Given the availability of suitable habitat in the surrounding areas and the limited footprint of the proposed project, impacts to potential foraging habitat as a result of the proposed project would be less than significant.

Crotch's Bumble Bee

One previously documented occurrence of this species occurs approximately 3.7 miles northeast of the project site boundary (Occurrence Number: 305) (CDFW 2024). One individual was observed along Highway 26 in 2020 (CDFW 2024). One queen Crotch's bumble bee was observed foraging on the western portion of the project site during focused Crotch's bumble bee surveys conducted in 2025. Late-season floral nectar sources are limited within the project site, consisting primarily of tarweed (*Holocarpha virgata*); however, additional nectar sources, such as vetch (*Vicia* spp.), may be available earlier in the species' flight season. Small mammal burrows in the grassland provide potentially suitable nesting habitat for this species. No bumble bee nests were observed within the project area during the site surveys.

This species forages within the project site and has potential to nest within the project site. Ground disturbance associated with construction of the proposed project could cause direct impacts to Crotch's bumble bees in the form of injury or death should they be present at the time of construction. With implementation of **MM-BIO-3**, which includes pre-construction surveys and preparation of an Incidental Take Permit application if the species is found nesting on site and will be impacted, potential impacts would be reduced to less than significant. Additionally, **MM-VIS-1** requires reseeding for native vegetation in temporary disturbance areas, which would contribute restored foraging habitat for the species. If nest

resources are located on the site during preconstruction surveys, **MM-BIO-3** also would require compensatory mitigation for impacts to occupied habitat. Given the availability of suitable habitat in the surrounding areas and the limited footprint of the proposed project, and the MMs discussed above, impacts to potential foraging habitat as a result of the proposed project would be less than significant.

Vernal Pool Fairy Shrimp

The nearest documented occurrence for vernal pool fairy shrimp (*Branchinecta lynchi*) is approximately 2 miles southwest of the project site boundary (Occurrence Number: 419) (CDFW 2024). There is marginal habitat for this species in the flat grassland at the northern end of the project site, where several low-lying areas may pond water; however, these ponded areas did not pond water for a sufficient hydroperiod to support the fairy shrimp life cycle, and thus they are not anticipated to be present. As such, there would be no impact to vernal pool fairy shrimp as a result of project construction or operation.

Northwestern Pond Turtle

Although northwestern pond turtle (*Actinemys marmorata*) has not been documented within 10 miles of the project site boundary, the pond located directly west of the project site provides suitable aquatic habitat for this species, and the grasslands in the western portion of the project site provide suitable nesting habitat (CDFW 2024). No pond turtles were observed in the pond or surrounding uplands during any of the site surveys, so it is unlikely this species is using adjacent aquatic habitat. Thus, there would be no impact to this species.

Nesting and Migratory Birds

No bird species were observed nesting within the project site during the site surveys; however, the grassland and the oak tree on site provide suitable nesting habitat for birds. There is potential for direct impacts to nesting birds should they be using the project site during construction. Implementation of **MM- BIO-2** would reduce the potential for impacts to less than significant. Further, the MM-BIO-5 would require the proposed Project to comply with Avian Power Line Interaction Committee standards for aboveground transmission lines, reducing the likelihood of collision and/or electrocution from power lines. Thus, impacts to migratory birds would be less than significant during operation and maintenance.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. There is no riparian habitat or other sensitive natural communities in or adjacent to the project site. The project site is dominated by annual grassland of wild oat (*Avena* sp.) with intermittent non-native plant species typically associated with ruderal land cover. The only semi-natural vegetation community mapped on the project site is the wild oat association, which occurs throughout the project site. Additionally, there are two intermittent streams—one within the project site fed by a culvert (southern-central part of the project site), the other a natural inlet flowline north and outside of the project site but within the survey buffer (northern part of the project site)—but neither of these intermittent streams includes riparian habitat or other sensitive natural communities. The intermittent streams are dry during most of the year and do not support riparian plant species. The proposed project would have a less-than-significant impact to riparian habitat and other sensitive natural communities.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less-than-Significant Impact with Mitigation Incorporated. Approximately 0.39 acres of aquatic resources on the project site may meet the criteria for jurisdictional waters subject to regulation by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife. The 0.39 acres is contained within an intermittent stream feature in the southern portion of the project site that demonstrates downstream connectivity to a Traditional Navigable Water, relative permanence, and the presence of an observable ordinary high-water mark as indicated by a change in slope, soil, and vegetation. No vegetation communities dominated by hydrophytic plants were observed during the 2024 field survey. There are no wetland types or water resources mapped/recorded on the National Wetlands Inventory (USFWS 2024) or the Environmental Protection Agency's Waters Mapper (EPA 2024) within the project site.

Installation of a culvert to facilitate access road construction would result in direct impacts to the intermittent stream on site. Potential indirect impacts could occur in the form of increased pollutant runoff from the site or disruption of local hydrology during operation of the proposed project. Impacts to this intermittent stream would be reduced to less than significant with implementation of **MM-BIO-4** through compensatory mitigation required as part of the regulatory permit application process to comply with Clean Water Act Sections 404 and 401 and California Fish and Game Code Section 1600.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact. The proposed project would not impact aquatic wildlife movements because there is no aquatic habitat present on site. The project site lacks trees, shrubs, and other vegetative cover, and is adjacent to an existing PG&E substation to the east and other nearby industrial and commercial uses. The project site itself provides a marginal migratory corridor for terrestrial wildlife, and there is other available undeveloped land to the north that may allow for wildlife movements. Impacts would be less than significant.

No active bird nests were identified on the project site. Implementation of **MM-BIO-3** would ensure avoidance of impacts to nesting birds near the project site.

The project site itself does not contain habitat features known to support bat maternity colonies, such as trees, caves, or rock outcrops, or barns, bridges, or other human-made structures. Potential roost features adjacent to the site, such as the PG&E substation, provide marginal roosting habitat for maternity colonies due to the level of human disturbance on site and a general lack of preferred habitat features in the project vicinity, such as streams, wetlands, bridges, or rows of trees. No sign of bats, such as guano or urine stains, was observed in or adjacent to the project site during the 2024 field survey. Therefore, impacts to bat maternity roosts would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less-than-Significant Impact. The proposed project would adhere to ordinances outlined in the County General Plan and Code of Ordinances.

Per County Code Section 17.16.080(B), Stream and Wetland Setbacks, all new development[2] (including land disturbances) must "be setback a minimum fifty feet from the top of bank line of an intermittent or perennial stream and from the outer edge of wetland habitat determined by a field survey. This required setback may be adjusted with administrative use permit approval where the planning director determines, based on a qualified biologist's recommendation, that a different setback is appropriate to adequately protect the stream or wetland from degradation, encroachment, or loss." As stated above in Section 3.4(c), there is no wetland habitat on the project site. There is, however, one intermittent stream in the southern portion of the project site, as well as one off-site intermittent stream to the north. The proposed project would include construction of drainage facilities, fencing, and an on-site access road (and would require grading associated with these improvements) within 50 feet of the on-site intermittent stream. Grading for the access road and perimeter fencing would also be located within 50 feet of the off-site intermittent stream. Furthermore, although the proposed 30,000-gallon water tank would not be within 50 feet of the on-site intermittent stream, grading (i.e., land disturbance) associated with the proposed water tank would be required within 50 feet. Additionally, replacement of an existing culvert with a slightly larger culvert to facilitate access road construction would result in direct impacts to the on-site intermittent stream (please refer to Section 3.4[c] above regarding potential impacts to jurisdictional waters and required compensatory mitigation).

Per County Code Section 17.16.080(B)(2), subsections (b), (c), and (d), activities and development associated with fencing, access, and/or drainage facilities are permitted within the required setback as long as those uses are consistent with the Calaveras County General Plan, other County policy documents, or environmental documents. As discussed below in Section 3.11, Land Use and Planning, the proposed project uses are consistent with the existing General Plan land use designation and zoning. Thus, the drainage facilities, fencing, and on-site access road (as well as grading associated with these improvements) are considered "exceptions" in accordance with County Code Section 17.16.080(B)(2), subsections (b), (c), and (d), and would be permitted within 50 feet of the intermittent streams without requiring an administrative use permit.

Additionally, the proposed grading associated with the 30,000-gallon water tank would be within 50 feet of the intermittent streams. However, this would be considered a temporary impact that would cease following the completion of construction activities. Moreover, as discussed in Section 3.10(a), the Clean Water Act and other federal regulations require any construction project that disturbs 1 acre or more to obtain a National Pollutant Discharge Elimination System (NPDES) Construction General Permit and implement a Stormwater Pollution Prevention Plan (SWPPP). The site-specific SWPPP would identify and implement BMPs to prevent erosion or impacts to the intermittent stream during construction. Thus, an administrative use permit is not required in accordance with County Code Section 17.16.080(B).

[2] "Development" as defined in County Code Section 17.43.040(E) includes "[a]ny manmade change to improved or unimproved real estate, including but not limited to the division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mining, excavation, landfill or land disturbance; and any use or extension of the use of land."

Thus, there would be no conflicts with local policies or ordinances. Impacts would be less than significant.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less-than-Significant Impact. There are no adopted habitat conservation plans or other regional or state conservation plans relevant to the project site or vicinity. Impacts to an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or state habitat conservation plan would be less than significant.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, Project Description, PG&E would construct interconnection facilities and upgrades to communications systems at existing facilities to facilitate project interconnection. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities within the substations and powerhouses. Construction and operation of the interconnection facilities would not impact any sensitive vegetation communities, riparian, wetland, or aquatic resources. Because the improvements would occur in previously disturbed areas that currently are used for electrical transmission infrastructure, the improvements would not have impacts on any special-status species or hamper wildlife movement corridors through the project site or surrounding area. PG&E would also implement standard measures and BMPs during construction and operation. For example, PG&E would implement BMPs related to nesting birds, in which bird nests with eggs and/or chicks will not be disturbed and a biologist or the Avian Protection Program Manager will be contacted for further guidance. Other BMPs include inspection of construction materials for potential wildlife entrapment and guidance in the event of wildlife sightings. Construction, operation, maintenance, and decommissioning of the PG&E interconnection infrastructure would result in a less-than-significant impact to biological resources.

Mitigation Measures

MM-BIO-1 California Tiger Salamander and California Red-Legged Frog Protections. The following measures would be implemented to reduce potential direct impacts to California tiger salamanders and California red-legged frogs should they be using upland habitat at the time of ground disturbance:

10. Environmental Awareness Training. A qualified biologist shall conduct environmental awareness training for all individuals working on the project before work begins. The training shall cover the life history, habitat requirements, and conservation measures for potentially affected species. The training shall also include information on federal and state regulatory protections, restrictions, and guidelines that must be followed by crews to avoid and minimize impacts to threatened and endangered species and their habitat. Upon completion of training, crews shall sign a form stating that they attended the training and understand all conservation measures. If new personnel are added to the project, the new personnel shall receive the training prior to starting work. All workers who complete the training shall be provided with a sticker to place on their helmets.

11. Speed Limits. Project-related vehicles shall observe a daytime speed limit of 15 miles per hour, except on County roads and state and federal highways. Emergency vehicles are exempt from these restrictions in emergency situations.
12. Off-Road Traffic Prohibition. Off-road traffic outside of designated project areas shall be prohibited.
13. Trash Abatement. All food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in a closed container and removed from the project site daily.
14. Spill Prevention. A Spill Prevention Control and Countermeasure Plan shall be prepared prior to project implementation. All machinery shall be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from equipment shall be reported and cleaned up in accordance with applicable local, state, and federal regulations.
15. Fire Prevention. A Fire Prevention and Suppression Plan shall be prepared prior to the start of project activities.
16. Work Window. Project work shall be performed during daylight hours, and any work in amphibian upland dispersal habitat shall occur from May 1 through October 31, if feasible.
17. California Tiger Salamander and California Red-Legged Frog Take Avoidance. Project construction shall occur during daylight hours, and work shall begin on or after May 1 and be completed by October 31 of each year, if feasible. Whether this seasonal restriction can be followed or not, within 7 days prior to clearing existing vegetation or grading, a qualified biologist shall survey for the presence of potential underground refugia for California tiger salamanders (*Ambystoma californiense*) and California red-legged frogs (*Rana draytonii*) (e.g., small mammal burrows). If potential refugia are observed, they shall be excavated by hand (e.g., shovels and non-powered hand tools) to confirm California tiger salamander absence. A qualified biologist shall monitor all refugia excavation. All excavated burrows shall be backfilled after the biologist confirms that tiger salamanders or red-legged frogs are absent. If any California tiger salamanders or California red-legged frogs are found and avoidance is infeasible, the construction shall immediately stop and the Project Applicant shall, prior to commencing or continuing any further construction, consult with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife regarding the potential for project activities to result in take. If an Incidental Take Permit (ITP) for the state-listed California tiger salamander is obtained from CDFW, the Project Applicant shall comply with any mitigation requirements included in the ITP. Additionally, if avoidance is infeasible, consultation with USFWS shall occur prior to commencing or continuing construction regarding the potential for project activities to result in take, and the Project Applicant shall comply with any mitigation requirements in the permit for project impacts to both federally listed species, including authorization for the qualified biologist to capture and relocate animals per a Relocation Plan, as described below.
18. Relocation Plan. If an ITP is obtained and authorizes relocation, a Relocation Plan shall be developed that outlines the specific methods for safely capturing, holding, transporting, and releasing California tiger salamanders and California red-legged frogs,

including equipment sterilization techniques. The Relocation Plan shall also outline where relocated individuals shall be moved and a process for reducing oversaturation. Construction shall not commence or continue until after the amphibians have been removed from the site in conformance with the Relocation Plan.

19. Amphibian Exclusion Fencing. Exclusion fencing shall be installed between work areas and adjacent habitat for California red-legged frogs and California tiger salamanders. The fence shall be a minimum of 2.5 feet tall, and the bottom 6 inches shall be buried to prevent amphibians from crawling under the fence. Placement and installation of fencing around drainage work areas shall be coordinated with any sediment control fencing requirements of other resource agency permits. During work hours, a portion of the fencing around upland staging areas may be removed to facilitate project activities, but must be reinstalled and the bottom secured with sandbags or other heavy material. When fence sections are removed, the section shall be reviewed for resting or hiding species prior to removal. The exclusion fencing shall be maintained until all construction activities are completed and removed within 72 hours of the completion of work.
20. Fence Inspections. A qualified biologist shall inspect the exclusion fence for any California red-legged frogs and California tiger salamanders weekly during construction. If any California red-legged frogs or California tiger salamanders found in the work area, construction shall immediately stop and shall not be continued until the amphibians have been removed from the site in conformance with the approved Relocation Plan that is authorized by the project's ITP for the species.

MM-BIO-2 Nesting Birds. A qualified biologist shall conduct a survey for nesting birds approximately 3 days prior to ground-disturbing or vegetation removal activities during the nesting season (March through August). The survey shall cover the limits of suitable nesting habitat within 500 feet for raptors and 100 feet for other nesting birds (access permitting).

If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance, to be determined by the qualified biologist, typically ranges from 50 to 300 feet, but shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers, and shall be maintained until the chicks have fledged or the nests are no longer active, as determined by the qualified biologist.

MM-BIO-3 Crotch's Bumble Bee. A pre-construction survey for Crotch's bumble bee shall be conducted by a qualified biologist with a Scientific Collecting Permit for the species within the construction footprint prior to the start of ground-disturbing construction activities occurring during the Crotch's bumble bee Colony Active Period (April 1-August 31)). The pre-construction survey shall be conducted no more than five days prior to the start of construction. The survey shall ensure that no nests for Crotch's bumble bee are within the construction area.

If Crotch's bumble bee nests are not detected, no further mitigation would be required. The mere presence of foraging Crotch's bumble bees would not require implementation of additional minimization measures because they can forage up to 10 kilometers from their nests. If nest resources occupied by Crotch's bumble bees are detected within the construction area, no construction activities shall occur within 50 feet of the nest unless the qualified biologist determines it is inactive or the timing is outside the Colony Active Period . The nest resources shall be avoided for the duration of the Crotch's bumble bee Colony Active Period). Outside of the Colony Active Period, live individuals are not expected to be present within the nest because the daughter queens (gynes) usually leave by August 31, and all other individuals (original queen, workers, males) die. The gyne is highly mobile and can independently disperse to outside of the construction footprint to surrounding open space areas that support suitable hibernacula resources.

If the nest resources cannot be avoided, as outlined in this measure, the Project Applicant shall consult with the California Department of Fish and Wildlife (CDFW) regarding the potential for project activities to result in take, and shall comply with any Incidental Take Permit issued by CDFW.

If nest resources cannot be avoided, mitigation for impacts to Crotch's bumble bee occupied habitat shall be fulfilled through compensatory mitigation at a minimum 1:1 habitat replacement of equal or better functions and values to those impacted by the project, or as otherwise determined through the Incidental Take Permit process. Mitigation shall be accomplished either through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank and lands are conserved separately, a cost estimate shall be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities to fulfill the requirements of the conservation easement(s).

MM-BIO-4 Wetlands and Waters Mitigation. To mitigate for the loss of potentially jurisdictional waters of the United States and/or waters of the state, the Project Applicant shall create, preserve, or restore jurisdictional waters to the extent required under the Clean Water Act or Waste Discharge Requirements (WDRs), as applicable. If Section 404, 401, or WDR authorizations are required, mitigation acreage requirements shall be determined in consultation with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. Compensatory mitigation for loss of wetlands shall be no less than 1:1 and shall be in-kind, as negotiated through the permit application process for a U.S. Army Corps of Engineers Section 404 permit, Regional Water Quality Control Board Section 401 Water Quality Certification or WDR, and/or a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife. All required determinations and permits shall be finalized prior to the start of any ground disturbing activities which would impact jurisdictional waters.

MM-BIO-5 Avian Power Line Interaction Standards. The Project shall be designed to meet or exceed the recommended Avian Power Line Interaction Committee standards for aboveground transmission lines to reduce the likelihood of collision and/or electrocution from power lines.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

This section relied on the Archaeological Resources Inventory Report (Appendix E) as the source of information.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact. As discussed in the Archaeological Resources Inventory Report (Appendix E), no historic built-environment resources are present within the project site or in the immediate vicinity, and no impact would occur.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant Impact with Mitigation Incorporated. The North Central Information Center records search identified eight previously recorded cultural resources within 0.5 miles of the project site boundary, none of which intersect with the project site. These resources consist of structures, foundations, ditches, and similar historic-era resources. One archaeological resource, a historic-era mining site, was recorded during an archaeological survey of the project site. This resource was recorded and found ineligible for the California Register of Historical Resources through survey evaluation. The surface of the project site has been partially disturbed by the mining activities related to the newly recorded resource (Appendix E). Given these findings, the potential of encountering and impacting unknown and/or significant archaeological resources during project construction is considered low, but there is potential for inadvertent discovery of cultural resources during project construction, resulting in a significant impact. Implementation of **MM-CUL-1**, which outlines procedures to be followed in the event of an inadvertent discovery of archaeological resources, would reduce impacts to less than significant.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less-than-Significant Impact with Mitigation Incorporated. The North Central Information Center records search did not indicate that burials of prehistoric Native American origin have been identified within 0.5 miles of the project site boundary. The project site is not part of a dedicated cemetery. No prehistoric or historic-era burials were identified within the project site as a result of the records search or survey (Appendix E). Project-related ground disturbance, however, has the potential to unearth previously undiscovered remains, resulting in a potentially significant impact. Implementation of **MM-CUL-2**, which describes procedures to be followed in the event that human remains are discovered, would ensure that impacts are reduced to a less-than-significant level.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, Project Description, PG&E would install a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would require minimal ground disturbance and would occur within areas previously disturbed and occupied by existing electrical facilities within the substations and powerhouses. The Archeological Resources Inventory Report prepared for the proposed project (Appendix E) indicated that there are no known cultural resources within the PG&E substation site. PG&E's standard measures and BMPs include procedures to stop work in the vicinity of an inadvertent discovery, including the immediate notification of the PG&E Cultural Resources Specialist. Impacts would be less than significant.

Mitigation Measures

MM-CUL-1 Unanticipated Archaeological Resources Discovery Plan. In the event that cultural resources (sites, features, or artifacts) are exposed during work activities for the proposed project, all ground-disturbing work occurring within 100 feet of the find shall immediately stop until a qualified specialist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether additional study is warranted. Work on other portions of the project site outside of the buffered area may continue during this assessment period. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole shell, burned or complete bone, nonlocal lithic materials, or characteristics observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or nonfunctional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards; ceramic material; building or domestic refuse; ferrous metal; or old features, such as concrete foundations, privies, or mining features. Depending on the significance of the find under the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If historical discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If significant precontact/ prehistoric cultural resources, as defined by CEQA (as amended, 2015), are discovered

and avoidance cannot be ensured, the archaeologist shall develop a monitoring and treatment plan, which may include data recovery, curation, or other appropriate measures. The County of Calaveras shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. The archaeologist shall monitor the remainder of project activities and implement the plan accordingly.

MM-CUL-2 Unanticipated Human Remains Discovery Plan. In accordance with California Health and Safety Code Section 7050.5, if human remains are found, the County of Calaveras (County) coroner shall be immediately notified of the discovery. No further excavation or disturbance of the project site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County coroner has made a determination, within 2 working days of notification of the discovery, with regard to if the remains are potentially human. If the County coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission in Sacramento within 24 hours. In accordance with California Public Resources Code Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. Upon completing their inspection, the most likely descendant may make recommendations. 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.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; the County Code of Ordinances (Title 15, Section 15.04.050); and CCR Title 24 Green Building Standards Code (CALGreen).

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact. Nonrenewable resources, including fossil fuels (i.e., energy), would be used in the construction of the proposed project. The daily vehicle trips during construction would generally include construction worker trips and truck trips for equipment deliveries and water for dust suppression. Construction of the proposed BESS facility would not be unusually wasteful or excessive in terms of construction materials or fossil fuel use due to the lack of demolition and other waste products generated by typical construction projects (e.g., discarded woody debris). In addition, construction of these types of facilities is not energy-intensive because minimal grading is required for construction. The BESS facilities would not be staffed on site and would not generate significant operational vehicle trips, and minimal use of water would be required for operations. Therefore, the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy, and no impact would occur.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The County Code of Ordinances (Title 15, Section 15.04.050) requires compliance with applicable requirements of the state Title 24 Green Building Standards Code (CALGreen). These standards are applicable to the construction of buildings and are designed to reduce energy consumption, save water and other natural resources, and divert waste from landfills when new buildings are constructed. The proposed project is intended for renewable energy storage and would not include construction of habitable buildings. Therefore, the CALGreen standards are not applicable. No irrigation would be required for the established landscape features. The proposed project is intended to help integrate renewable energy, decreasing California's reliance on fossil fuel energy and increasing its reliance on renewable energy. Both of these items are identified in Appendix F of the State CEQA Guidelines as ways to accomplish the CEQA energy conservation goal. Further, the proposed project would assist the state's greenhouse gas emissions reduction goals in accordance with the California Global Warming Solutions Act (AB 32) and SB 32, contributing to the state's targets for 2030, and supporting the California Governor's Executive Order B-55-18 goal of achieving carbon neutrality by 2045. Therefore, the proposed project would not conflict with state or local plans or ordinances related to renewable energy or energy efficiency, and no impact would occur.

PG&E Interconnection Infrastructure Improvements

PG&E would incorporate upgrades to the existing Valley Springs Substation, Bellotta Substation, Tiger Creek Powerhouse, and Electra Powerhouse. Improvements are described in detail in Chapter 2 and would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. The construction equipment, workers, vehicle trips, and fuel required for upgrades to these facilities would be minimal compared to overall project construction activities. The increase in fuel use during construction would be minor compared to the rest of project construction, and there is no indication that energy use would be any less efficient than other construction projects across the state. Moreover, operational energy use from occasional maintenance activities would be negligible. Therefore, activities associated with the PG&E interconnection infrastructure would result in a less-than-significant impact relating to energy.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; California Building Code; California Geological Survey Seismic Hazards Program: Alquist-Priolo Fault Hazard Zones, U.S. Quaternary Faults; State of California Department of Conservation website – EQ Zapp (CGS 2024); California Earthquake Hazards Zone Application – Earthquake Zones of Required Investigation (CDC

2025b); the proposed project's Geotechnical Feasibility Summary (Appendix F); and the proposed project's Paleontological Resources Memo (Appendix G).

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. There are no known active faults transversing the project site, and the project site is not within an Alquist–Priolo Earthquake Fault Zone or any other established fault zones (CGS 2024). Thus, the proposed project would not be exposed to fault rupture hazards, and no impact would occur.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. The primary seismic hazard for the project site, as with most regions in California, is the susceptibility to ground shaking due to the presence of major active or potentially active faults in the region. The design and construction of the proposed project would comply with all applicable building codes and standards established by regulatory agencies, including the County Department of Public Works and the latest California Building Code (CBC), to minimize damage in the event of an earthquake. There is no indication that project construction or operations would induce strong seismic ground shaking. Additionally, the proposed project does not include habitable structures and would therefore pose very low risk of loss, injury, or death due to strong seismic ground shaking. Complying with all applicable building codes and standards would ensure project impacts related to strong seismic ground shaking would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Potential secondary seismic effects of strong seismic ground shaking include liquefaction, lateral spreading, and seismically induced settlement/differential compaction. Liquefaction is defined as a loss of strength of saturated, cohesionless soil, generally due to seismic shaking. Soil types most susceptible to liquefaction are loose, saturated silty to clean fine sands. There are no Zones of Required Investigation for liquefaction or earthquake-induced landslides on the project site (CGS 2024). Therefore, the potential for the proposed project to exacerbate hazards from liquefaction and subsequent lateral spreading on this site are negligible. Compliance with all applicable building codes and standards would ensure the proposed project would result in a less-than-significant impact.

iv) Landslides?

Less-than-Significant Impact. The project site is within an "unevaluated area" for earthquake-induced landslide zone according to the Earthquake Zones of Required Investigation Valley Springs Quadrangle Map (CGS 2024). Construction of the proposed project would comply with the latest CBC standards to minimize damage in the event of a nearby landslide. The project site has relatively mild slopes of approximately 12% across the building envelope (limits of disturbance). The relatively flat project site reduces the risk of landslide potential (Appendix F). Compliance with standard building code requirements generally minimizes potential geologic risk. There is no indication that construction or operation of the proposed project would

induce or exacerbate the risk of landslides in the project site. Additionally, no project structures are habitable structures and would therefore pose very low risk of loss, injury, or death. Therefore, impacts would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. Soil erosion and the loss of topsoil could occur during grading and construction of the proposed project. The potential impacts of soil erosion on the project site would be minimized through implementation of a SWPPP, in compliance with the requirements of the NPDES General Construction Permit. The SWPPP would prescribe temporary BMPs to control wind and water erosion during and shortly after construction of the proposed project. Further project site slopes would be reseeded with a native seed mix that, once mature, would stabilize soil during operations. With implementation of BMPs as prescribed in the SWPPP and with stabilizing slopes through the use of native plants, the impact on soil erosion and the loss of topsoil would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less-than-Significant Impact. The project site is relatively flat and is not within a geological unit or soils that are considered unstable (Appendix F). Further, according to the Department of Conservation Data Viewer, the project site has not been mapped within a designated liquefaction, landslide, or earthquake fault hazard zone (CDC 2025b). Additionally, seismic hazard zones for liquefaction have not been established in Calaveras County. Based on the presence of shallow bedrock, the potential for liquefaction occurring at the site is considered very low. Although there are slopes at the site, large-scale slope failures are not anticipated based on the bedrock type (Appendix F). No groundwater consumption for operations of the facility is expected, and the proposed project is not expected to exacerbate existing groundwater depletion or subsequent subsidence or collapse. The proposed project would not be expected to result in on-site or off-site impacts due to landslide, liquefaction, lateral spreading, subsidence, or collapse, and complying with the latest CBC requirements would ensure proposed project impacts are less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact. Expansive soils generally have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. Consolidated formations like bedrock are generally less likely to be impacted compared to unconsolidated material such as alluvium. The project site is underlain by Mehrten Formation, a Pliocene to Miocene-age bedrock consisting of interbedded volcanic mudflow breccia and cobble-conglomerate (Appendix F). The deposits are described as lahar beds laden with andesite cobbles that are particularly resistant and not considered expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994). Therefore, impacts related to expansive soils would be less than significant.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed project would not include toilets, kitchens, or bathrooms that would generate wastewater requiring disposal into the sewer system or a septic tank. Thus, the on-site soils would not pose limitations to septic tanks or alternative wastewater disposal systems because none are proposed as part of the proposed project. Therefore, no impact would occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact with Mitigation Incorporated. No paleontological resources were identified within the project site or a 1-mile radius of the project site boundary, but fossil localities have been reported from the same or similar sediments that underlie the project site based on institutional records searches and desktop geological and paleontological review (Appendix G). The project site is not anticipated to be underlain by a unique geological feature. The Mehrten Formation underlying the project site has high paleontological resource sensitivity. Based on the records search results and map and literature review, the project site has high potential to produce paleontological resources during construction activities that occur below the level of fill or disturbed sediments if present (Appendix G). Ground-disturbing activities, such as grading and large-diameter drilling during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. The potential for project activities to damage paleontological resources during construction would result in a potentially significant impact. Adherence to **MM-GEO-1** and **MM-GEO-2** would reduce potentially significant impacts to paleontological resources to a less-than significant level by implementing a Paleontological Resources Mitigation and Monitoring Program, which would detail pre-construction worker awareness training, as well as paleontological monitoring and discovery protocol, treatment, reporting, and collection management.

PG&E Interconnection Infrastructure Improvements

PG&E would incorporate upgrades to the Valley Springs Substation, Bellotta Substation, Tiger Creek Powerhouse, and Electra Powerhouse to support interconnection of the proposed project, including installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure to facilitate project interconnection, which would occur within areas previously disturbed and occupied by existing electrical facilities. PG&E infrastructure improvements would require minimal ground disturbance and would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, ground failure and liquefaction, or landslides. The PG&E improvements also would not result in substantial soil erosion or be located on unstable geological units or expansive soils, and no septic systems would be required. Most planned grading and excavation activities associated with interconnection improvements would occur in previously disturbed areas. It is unlikely that the subsurface high-potential units for paleontological resources would be encountered. However, interconnection of the gen-tie line would entail augering to install poles and a circuit bay. Because high-potential units (Mehrten Formation) may be encountered across the project site, augering for the gen-tie line poles and circuit bays may encounter high-potential units in the subsurface. If this were to occur and were fossils encountered, their damage or destruction would constitute a direct adverse impact to paleontological resources. PG&E would incorporate standard

measures during construction for paleontological resources; would conduct sensitivity training for construction workers, identifying protocols for inadvertent discovery of a paleontological resource; and would establish monitoring protocol during ground-disturbing activities. PG&E would also implement standard measures and BMPs during construction and operation. For example, PG&E would implement BMPs related to erosion and sediment control by scheduling activities to minimize soil disturbance during rain, providing sediment control, and covering all excavations at the end of each workday. Therefore, activities associated with the interconnection infrastructure would result in less-than-significant impacts relating to geology and soils.

Mitigation Measures

MM-GEO-1 Paleontological Resources Mitigation and Monitoring Plan. Prior to commencement of any grading activity on site, the project applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology's (SVP) 2010 guidelines to prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for pre-construction meeting attendance and worker environmental awareness training. It shall also outline where paleontological monitoring is required within the project site based on construction plans and/or geotechnical reports, and provide procedures for adequate paleontological monitoring and discoveries treatment, including paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. The PRIMP shall also include a statement that any fossil lab or curation costs (if necessary due to fossil recovery) are the responsibility of the Project Applicant.

In addition, a qualified paleontological monitor shall be on site during initial rough grading and other significant ground-disturbing activities (including augering) in areas underlain by the Mehrten Formation. No paleontological monitoring is necessary during ground disturbance within artificial fill, if determined to be present. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor shall temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor would allow grading to re-commence in the area of the find.

MM-GEO-2 Worker Paleontological Resources Awareness Training Program. Prior to the commencement of ground-disturbing activities and for the duration of construction activities, a Worker Paleontological Awareness Training Program shall be provided to all construction personnel prior to their commencing work at the project site. The training shall be prepared and conducted by a qualified paleontologist. The training may be in the form of a video. The training may be discontinued when ground disturbance is completed or suspended, but must resume when ground-disturbing activities resume. A sticker shall be placed on hard hats indicating that the worker has completed the environmental/cultural training. Construction personnel shall not be permitted to operate ground-disturbing or earth-moving equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms, shall be submitted to the

County of Calaveras. The purpose of the Paleontological Awareness Training Program shall be to inform and train construction personnel of the types of paleontological resources that may be encountered during construction, and to bring awareness to personnel of actions to be taken in the event of a paleontological resources discovery. This may include a discussion of applicable paleontological resources statutes, regulations, and related enforcement provisions; samples or visuals of fossils that might be found on the project site; implementation of the Paleontological Resources Mitigation and Monitoring Plan; and procedures to be followed in the event of an inadvertent discovery.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

This section relied on the Air Quality and Greenhouse Gas Emissions Analysis Technical Memorandum (Appendix C) as its source of information.

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases (GHGs). There are currently no established thresholds for assessing whether the GHG emissions of a project would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, although GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated at a project level under CEQA.

The State CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the State CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009). The State of California has not adopted emission-based thresholds for GHG emissions under CEQA. The California Governor's Office of Land Use and Climate Innovation's (formerly the Office of Planning and Research) technical advisory on climate change states the following (OPR 2018a):

> Neither the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for perming an impact analysis. This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available

> and applicable. Even in the absence of clearly defined thresholds for GHG emissions, such emissions must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact.

Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Amendments to Section 15064.4 of the CEQA Guidelines were adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. Section 15064.4 specifies that a lead agency "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." Section 15064.4 also provides lead agencies with the discretion to determine whether to assess those emissions quantitatively or to rely on a qualitative analysis or performance-based standards. Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

The CCAPCD has not adopted thresholds of significance for the analysis of GHG emissions related to implementation of a proposed project. However, CARB's 2017 Scoping Plan identifies per-capita emissions rates that may be used in local planning for the assessment of GHG emissions. As discussed in the 2017 Scoping Plan, if a project results in annual per-capita emissions of no more than 6 metric tons (MT) of carbon dioxide equivalent (CO_2e) by the year 2030 and no more than 2 MT CO_2e by the year 2050, that project would be considered in compliance with all adopted state requirements for the reduction of GHG emissions (CARB 2017). However, this type of threshold is not appropriate for a BESS project that is not staffed on site and has no permanent employees or service population to compare to the CARB threshold. Therefore, this analysis considers consistency with regulations and requirements adopted by the 2008 Climate Change Scoping Plan (CARB 2008) and subsequent updates, the Calaveras County General Plan (County of Calaveras 2019a), and CCOG's Regional Transportation Plan (RTP) (CCOG 2021).

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The proposed project would generate GHG emissions during construction and operations activities. However, as discussed above, the State CEQA guidelines do not provide a quantitative threshold at which environmental impacts would occur, nor has CCAPCD adopted quantitative thresholds of significance. Accordingly, the proposed project's impacts related to GHG emissions will be analyzed in the context of whether it conflicts with applicable plans, policies, or regulations for the purpose of reducing emissions of GHGs (see discussion in Section 3.8[b]).

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. Applicable plans for the proposed project include CARB's Scoping Plan, the Calaveras County General Plan, and CCOG's RTP. The applicable plans are described below, along with an analysis of the proposed project's potential to conflict with the related GHG emission reduction goals.

CARB Scoping Plan

The California State Legislature passed the Global Warming Solutions Act of 2006 (AB 32) to provide initial direction to limit California's GHG emissions to 1990 levels by 2020 and initiate the state's long-range climate objectives. Since the passage of AB 32, the state has adopted GHG emissions reduction targets for future years beyond the initial 2020 horizon year. For the proposed project, the relevant GHG emissions reduction targets include those established by SB 32 and AB 1279, which require GHG emissions be reduced to 40% below 1990 levels by 2030, and 85% below 1990 levels by 2045. In addition, AB 1279 requires the state to achieve net zero GHG emissions by no later than 2045, and achieve and maintain net negative GHG emissions thereafter.

As defined by AB 32, CARB is required to develop the Scoping Plan, which provides the framework for actions to achieve the state's GHG emissions targets. The Scoping Plan is required to be updated every 5 years, and requires CARB and other state agencies to adopt regulations and initiatives that will reduce GHG emissions statewide. The first Scoping Plan was adopted in 2008, and was updated in 2014, 2017, and most recently in 2022. Although the Scoping Plan is not directly applicable to specific projects or intended to be used for project-level evaluations,[3] it is the official framework for the measures and regulations that will be implemented to reduce California's GHG emissions in alignment with the adopted targets. Therefore, a project would be found to not conflict with the statutes if it would meet the Scoping Plan policies and would not impede attainment of the goals therein.

The 2017 Climate Change Scoping Plan Update (Second Update) included measures to promote renewable energy and energy efficiency (including the mandates of SB 350), to increase stringency of the Low Carbon Fuel Standard, to promote measures identified in the Mobile Source and Freight Strategies, to promote measures identified in the proposed Short-Lived Climate Pollutant Plan, and to increase stringency of SB 375 targets (CARB 2017). The 2022 Scoping Plan for Achieving Carbon Neutrality (Third Update) builds upon and accelerates programs currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high global warming potential; providing communities with sustainable options for walking, biking, and public transit; and displacing fossil-fuel-fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022). Many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project level.

The 2045 carbon neutrality goal required CARB to expand proposed actions in the Third Update to include those that capture and store carbon, in addition to those that reduce only anthropogenic sources of GHG emissions. However, the Third Update emphasizes that reliance on carbon sequestration in the state's natural and working lands will not be sufficient to address residual GHG emissions, and achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture) (CARB 2022). Given that the specific path to neutrality will require development of technologies and programs that are not currently known or available, the proposed project's role in supporting the statewide goal would be speculative and cannot be wholly identified at this time. Nonetheless, given that the proposed project is also not anticipated to result

[3] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

in substantial increase in operational GHG emission sources, including operational vehicle miles traveled, and would facilitate the state's transition to clean, renewable energy sources, the proposed project would not conflict with the Scoping Plan.

Overall, the proposed project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. The proposed project would not conflict with CARB's 2017 or 2022 Scoping Plan updates, or with the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals, and the proposed project would support decarbonization of the energy sector.

Calaveras County General Plan

The County's General Plan includes several goals and policies related to GHG emissions within Calaveras County (County of Calaveras 2019a):

- Goal COS-4B: Greenhouse gas emissions associated with vehicular travel, electric power generation, and energy use in compliance with applicable state goals and standards.
- Policy COS 4.4: Develop and adopt a comprehensive strategy to assist in achieving emission reduction goals of AB 32 (IM COS-5B, COS-5C and COS5D).
- Policy COS 4.5: Encourage retention of existing mature trees in landscaping for new development, consistent with fire protection needs, to facilitate carbon sequestration (IM LU-4A and LU-4C).
- Policy COS 4.7: Encourage energy conserving construction techniques and the use of alternative energy sources (IM COS-5E and PF-3A).
- Policy COS 4.8: Encourage the use and installation of alternative energy generating systems, including solar, wind, bio fuel, and other systems, in new development and in retrofitting existing structures (IM COS-2E, COS5E and PF-3A).

In addition to the goals and policies presented above, the General Plan includes the following Implementation Measures related to GHG emissions (County of Calaveras 2019a):

- COS-2E Green Waste. Review the zoning ordinance and Air Pollution Control District regulations and amend as necessary to facilitate the development of green waste to energy projects and other projects that convert green waste to products.
- COS-5B GHG Baseline for Calaveras County. Undertake a GHG emissions inventory to establish baseline levels of GHGs generated from all major emission sources in the County consistent with the requirements of Assembly Bill 32.
- COS-5C GHG Reduction Plan. Develop a GHG reduction plan outlining the strategies, goals, and actions for contributing to the overall reduction in GHG emissions consistent with AB 32.
- COS-5D Green Waste Collection. Provide green waste collection programs at County-operated landfill and transfer stations where feasible. Utilize public/private partnerships to utilize green waste in alternative uses and waste to energy facilities.
- COS-5E Incentives for Alternative Energy. Modify the County's development standards and zoning ordinance to provide incentives for providing alternative energy producing facilities compatible with surrounding uses, such as solar arrays in parking lots that serve to provide shade and energy production. Coordinate with and support state and federal programs that assist landowners in energy conservation and production.

- COS-5F Modify the County's development standards and zoning ordinance to provide incentives for providing infrastructure that supports alternative fueled vehicles, such as electric vehicle charging stations, natural gas fueling capabilities, and biodiesel.

The proposed project would be consistent with applicable GHG reduction strategies in the County's General Plan, including Policy COS 4.8 and Implementation Measure COS-5E. Through the storage of excess electricity, the proposed project would help maintain the efficiency and reliability of renewable energy production. The intermittent nature of renewable energy sources presents challenges for electricity supply. Solar panels, for example, can generate electricity only during daylight hours, while wind turbines depend on weather conditions. As power systems increasingly integrate variable renewable energy sources, such as solar and wind, the need for flexible and reliable power grids that can supply electricity at all times has become increasingly important. When renewable power production exceeds demand, batteries store excess electricity for later use, therefore allowing power grids to accommodate higher shares of renewable energy and supply electricity regardless of the time and weather. BESS facilities, such as the proposed project, help address these supply-demand gaps by providing flexibility to balance supply and demand in real-time (IRENA 2025). Thus, although the proposed project itself would not produce renewable energy, it would support development and operation of renewable energy projects by facilitating storage of renewable power. Therefore, the proposed project would not conflict with the County's General Plan.

CCOG General Regional Transportation Plan

CCOG's 2021 RTP provides a coordinated, 20-year vision of the regionally significant transportation improvements and policies needed to efficiently move goods and people within the region (CCOG 2021). As the Regional Transportation Planning Agency, the CCOG is required by California law to adopt and submit an approved RTP to the California Transportation Commission every 4 years. Caltrans assists with plan preparation and reviews draft documents for compliance and consistency. The RTP must be consistent with other planning guidance in the region, such as adopted general plans, airport plans, bicycle plans, and public transit plans.

The CCOG has the following general regional transportation goals (CCOG 2021):

- Goal 1: Safety—Provide a safe and secure transportation system.
- Goal 2: Emergency Access/Climate Resilience—Provide a transportation system that allows for safe and efficient evacuation and is adaptable to future changes in weather patterns.
- Goal 3: Infrastructure—Maintain a high-quality transportation system.
- Goal 4: Quality of Life/Public Health—Enable vibrant and healthy communities.
- Goal 5: Environment—Enhance environmental health and reduce negative transportation impacts.
- Goal 6: Mobility/Accessibility/Equity—Provide a high degree of mobility and reliability for people and goods in Calaveras County using multimodal solutions, which provide accessibility to goods and services for all residents and preserve the rural character of the region.
- Goal 7: Economic Vitality—Support a resilient economy.

The proposed project would be consistent with Goals 2, 4, and 5 through the development of the BESS. The proposed project would facilitate the storage of renewable energy sources, which would help provide climate resilience through bolstering of the electric grid. The proposed project would be consistent with the applicable goals of the CCOG RTP.

As discussed above, the proposed project would not conflict with applicable plans to reduce GHG emissions. Impacts would be less than significant.

Construction and Decommissioning Greenhouse Gas Emissions

For informational purposes, this document provides a quantitative estimate of project-related GHG emissions. Construction and decommissioning of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road vendor and haul trucks, and worker vehicles. Because construction GHG emissions are temporary, construction emissions were amortized over a 30-year project lifetime; therefore, the total construction and decommissioning GHG emissions were calculated as amortized over 30 years.

CalEEMod was used to estimate GHG emissions during construction and decommissioning, as further explained in Appendix C. Construction of the proposed project is anticipated to last up to 12 months, and decommissioning would last 1 month. On-site sources of GHG emissions include off-road equipment, and off-site sources include on-road vehicles (vendor and haul trucks and worker vehicles). Table 3.8-1 presents construction and decommissioning GHG emissions for the proposed project from on-site and off-site emission sources.

Table 3.8-1. Estimated Annual Construction and Decommissioning GHG Emissions

Year	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons per Year				
2026	1,357.88	0.04	0.02	0.16	1,016.83
2054	75.25	<0.01	<0.01	<0.01	76.20
Total	*1,433.13*	*0.04*	*0.02*	0.16	*1,093.03*
				Amortized Emissions (30 years)	36.43

Notes: GHG = greenhouse gas; CO2 = carbon dioxide; CH4 = methane; N2O = nitrous oxide; R = refrigerant; CO2e = carbon dioxide equivalent; <0.01 = reported value is less than 0.01.
Year 2050 used to represent 2054 in CalEEMod.
See Appendix C for complete results.

As shown in Table 3.8-1, the estimated total GHG emissions during construction and decommissioning of the proposed project would be approximately 1,093 MT CO_2e. Estimated project-generated construction and decommissioning emissions amortized over 30 years would be approximately 36 MT CO_2e per year. As with project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the proposed project would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operation

CalEEMod was used to estimate potential project-generated operational GHG emissions from mobile sources, area sources, energy sources (electricity only, no natural gas), water and wastewater, waste, refrigerants, and off-road equipment, as explained further in Appendix C. Table 3.8-2 presents the estimated operational GHG emissions from the proposed project for operational year 2027, which is assumed to be the first year of operation.

Table 3.8-2. Summary of Estimated Annual Greenhouse Gas Emissions

Emissions Source	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons per Year				
Mobile	3.13	<0.01	<0.01	0.01	3.19
Area	0.78	<0.01	<0.01	—	0.78
Energy	162.10	0.03	<0.01	—	163.71
Water	1.33	<0.01	<0.01	—	1.34
Waste	0.00	0.00	0.00	0.00	0.00
Refrigerants	—	—	—	2.30	2.30
Off-Road Equipment	1.80	<0.01	<0.01	—	1.80
Sulfur Hexafluoride (SF_6) Leakage	—	—	—	130.09	130.09
Total	**169.14**	**0.03**	**<0.01**	**132.40**	**303.21**
				Amortized Construction Emissions (30 years)	*36.43*
				Project Operations + Amortized Construction Total	***339.64***

Notes: CO2 = carbon dioxide; CH4 = methane; N2O = nitrous oxide; R = refrigerants; CO2e = carbon dioxide equivalent; <0.01 = reported value is less than 0.01; — = no emission estimates reported.
See Appendix C for complete results.

As shown in Table 3.8-2, the estimated total GHG emissions during operation of the proposed project would be approximately 340 MT CO_2e per year, including amortized construction and decommissioning emissions. As noted above, neither CCAPCD nor the County have adopted quantitative thresholds of significance for GHG emissions. However, as a comparison, other air districts have established such thresholds. For example, Placer County Air Pollution Control District establishes a bright-line threshold of 10,000 MT CO_2e per year for construction and operational emissions and a De Minimis Level for the operational phases of 1,100 MT CO_2e per year (Placer County APCD 2025). The Sacramento Metropolitan Air Quality Management District established a bright-line threshold of 1,100 MT CO_2e per year during construction and 10,000 MT CO_2e per year during operation (SMAQMD 2021). The proposed project would be well below such thresholds. Further, the proposed project is designed to integrate renewable sources to the grid to help meet regional and federal ambient air quality standards and offset GHG emissions that would otherwise have resulted from producing an equivalent amount of electricity from fossil fuel-fired electric generators.

Conclusion

The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, potential cumulative GHG impacts would be less than significant.

PG&E Interconnection Infrastructure Improvements

As part of the proposed project's interconnection process, PG&E would install gen-tie line equipment and the termination of the proposed project's fiber-optic line and install one circuit breaker to facilitate project interconnection, all of which would occur within areas previously disturbed and occupied by existing electrical facilities. The construction equipment, workers, and vehicle trips required for upgrades to these facilities and for maintenance would be minimal compared to the other project construction and operational activities described above. Construction emissions would cease once the substation improvements were performed. Operational activities would include occasional maintenance at the Valley Springs Substation, which would

result in negligible emissions. The GHG emissions generated from construction and operation of the substation improvements would be minor and would not conflict with a plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. Further, as facilities used to transport renewable energy to the grid, the PG&E substation and powerhouse improvements would contribute to achieving the state's renewable energy goals and would not conflict with the state's goals to reduce GHG emissions. Therefore, activities associated with the PG&E interconnection infrastructure would result in a less-than-significant impact relating to GHG emissions.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

This section used the following sources: California Safety Code Division 20 (Miscellaneous Health and Safety Provisions) Chapter 6.95, Section 25505; CCR Title 22 Division 4.5, Environmental Health Standards for the Management of Hazardous Waste; the County Fire Code (Title 8, Section 8.10, Fire and Life Safety Regulations); NFPA standards; the International Fire Code; Occupational Safety and Health Administration (OSHA) regulations; the California Fire Code (CFC); California Environmental Protection Agency regulations; the proposed project's Hazardous Consequences Analysis (Appendix H); the proposed project's Phase I Environmental Site Assessment (Appendix I); the proposed project's UL9540A Testing of Battery Components (Appendix J); and the proposed project's Hazardous Materials Business Plan (Appendix K).

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. The proposed project would use, store, or produce hazardous materials that would pose a significant hazard to the public if not properly managed. Hazardous waste would not be generated on site. Field equipment used during construction would contain various hazardous materials, such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, and other petroleum-based products, contained in construction vehicles, and the levels of hazardous materials used and waste generated on the project site are anticipated to require compliance with California Safety Code Division 20 (Miscellaneous Health and Safety Provisions) Chapter 6.95, Section 25505. The proposed project has a Hazardous Materials Business Plan (Appendix K) and has oversight by a Certified Unified Program Agency for compliance during construction, operations, and decommissioning because the proposed project is anticipated to have materials on site that are greater than the State of California's thresholds for quantities of hazardous materials. Reportable threshold quantities for hazardous materials are at or above 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas. Hazardous materials that could potentially be stored on site would be used biodegradable dielectric fluid and mineral oil from the transformers, and miscellaneous electrical equipment. The proposed project expects oil-filled equipment to be delivered to the project site filled with oil upon arrival. If spent oil is generated, or in the event of a spill, the proposed project would comply with Department of Toxic Substance Control regulations, specifically CCR Title 22 Division 4.5, Environmental Health Standards for the Management of Hazardous Waste. The proposed project would give preference to recycling over disposal, where recycling is allowed and viable, and the spent oil would be recycled at an accepting facility. These materials would only be stored on site temporarily. During operations, maintenance vehicles fueled by gasoline would be present on site, but no gasoline or hazardous materials would be stored on site during operations.

As discussed in Section 2, Project Description, the proposed project would utilize a modular and containerized BESS, consisting of approximately 240 prefabricated battery enclosures along with approximately 60 PCS skids. The BESS enclosures would contain lithium-ion and lithium-metal cells and batteries, which are listed as Class 9 miscellaneous hazardous materials in the United States. However, each enclosure and the surrounding facility would include standard operational safety features in accordance with regulatory requirements and the Hazardous Materials Business Plan (Appendix K) to ensure routine use does not result in a significant hazard to the public. These safety features would include internal racks and system control modules; fire suppression systems; thermal management/heating, ventilation, and air conditioning systems; and communication systems (please refer to Section 3.9[b] below regarding regulatory requirements and safety features to address potential upset and accident conditions,

such as a runaway thermal event).[4] The BESS facility would contain lithium-ion and lithium-metal cells and batteries, which are listed as Class 9 miscellaneous hazardous materials in the United States. The battery manufacturers would take back damaged or dead lithium-ion batteries for recycling.

Compliance with existing hazardous material regulations would ensure that the use of common hazardous materials during construction activities and operation of the proposed project would be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact with Mitigation Incorporated. The BESS facilities would contain quantities of hazardous materials within the lithium-ion battery cells and transformers, and in the event of an emergency or failure, could emit pollutants. BESS facility failure[5] can occur due to thermal abuse (i.e., overheating), physical/mechanical damage (i.e., penetration, excessive vibration, collision, or crushing of battery cells), electrical abuse (i.e., over-charging, over-discharging, or internal short circuit), environmental impacts,[6] internal faults within the battery cell, and other electrical faults or system failures. These types of hazards and potential accidents, although increasingly infrequent and minimized through compliance with codes, regulations, routine maintenance, and inspection,[7] include fires, explosions, and the release of toxic gases, as discussed in further detail below.

The fire and explosion hazards of lithium-ion batteries typically result from thermal runaway events. Thermal runaway is a situation where the current flowing through the battery cell during either operation or a short circuit causes the cell temperature to rise to the point where a feedback loop can cause a thermal chain reaction. Unlike other structural fires, the primary emissions from a thermal runaway event of a BESS are flammable gases, which burn or dissipate within the vicinity of the battery unit. The majority of the battery structure and surrounding enclosure is composed of non-combustible materials (Appendix H). In the event of a battery cell malfunction, it is possible that a thermal runaway event and/or a fire could occur. While modern-day systems, such as the proposed project's BESS, are designed to contain such fires within a single battery module, if a fire does occur, some limited pollutants could be emitted to the atmosphere.

Thermal runaway can also lead to increased temperatures inside the BESS enclosures, which can contribute to increasing pressure inside an enclosure. If the concentration of flammable gases becomes high enough and an ignition source is encountered, such as a hot surface, arc, or spark, an explosion or deflagration can occur (FRA 2025). A battery fire or explosion may also release toxic emissions into the air and atmosphere. However, as stated above, these types of incidents are increasingly infrequent, due in large part to the rapidly evolving regulatory framework and technology surrounding BESS, which has matured significantly in recent years (ESRG 2024).

4 Thermal runaway is a situation where the current flowing through the battery cell during either operation or a short circuit causes the cell temperature to rise to the point where a feedback loop can cause a thermal chain reaction.

5 A facility failure incident is an occurrence caused by a BESS or component failure that results in increased safety risk. For lithium-ion BESS, this is typically a thermal risk, such as fire or explosion.

6 Environmental impacts refer to other natural or environmental hazards outside of the control of the proposed project, such as severe weather events like flooding, wildfires, or earthquakes.

7 According to Electrical Power Research Institute, "The global installed capacity of utility-scale BESS has dramatically increased over the last five years, and while failure incidents continue to occur, the overall rate of incidents has sharply decreased. The failure rate dropped by 98% from 2018 to 2024 as lessons learned from early failures have been incorporated into the latest designs and best practices" (EPRI 2025).

The primary potential upset and accident condition for the proposed project would be the risk of a thermal runaway event. As stated above, a fire may also release toxic chemicals into the air and atmosphere. However, the proposed project is designed to minimize the risk of fire and other accidental upset scenarios, as provided below.

Under day-to-day operations, a BESS does not store or generate hazardous materials in quantities that would represent a risk to off-site receptors. During maintenance activities, limited amounts of hazardous materials may be stored or used on site, including mineral oil to be sealed within the transformers and lithium-ion batteries for emergency backup. Nonetheless, the proposed project would be required to comply with the San Andreas Fire Protection District (SAFPD) rules and regulations; County Fire Code (Title 8, Section 8.10, Fire and Life Safety Regulations); and all federal, state, and local requirements related to design, operations, and accident responses. Further, the proposed project would be subject to and operated in accordance with NFPA, International Fire Code, OSHA, CFC, and California Environmental Protection Agency requirements. Appropriate spill containment and cleanup kits would be maintained during operation of the proposed project. A Hazardous Materials Business Plan, including spill prevention and response measures, and an Emergency Response Plan were developed for site operations. Fuels and lubricants used in operations would be subject to the spill prevention and response measures included in the Hazardous Materials Business Plan. Hazardous solid waste, if generated during operations, would be subject to the provisions of the Hazardous Materials Business Plan through **MM-HAZ-1, Hazardous Materials Business Plan**, which would ensure that hazardous materials are stored and managed in accordance with state and federal laws.

UL9540A testing of battery components (Appendix J) indicates a low probability of a thermal runaway event resulting in fire propagation. The UL9540A testing applied heat to two battery cells within a module to initiate a thermal runaway condition that led to combustion within the BESS. The testing concluded that battery cell malfunction would result in thermal runaway at approximately 47 minutes of intentional heating (1 hour and 8 minutes for module level testing); however, no fire propagation beyond the two cells was achieved in either level of testing. For the unit-level test, the testing monitored the fire behavior of the initiating BESS unit[8] and measured heat release rates (convective and chemical); gas generation and composition; smoke release rate; maximum heat flux on the target BESS unit (i.e., an adjacent stack of BESS modules within a rack), on wall/enclosure surfaces, and within the accessible means of egress; and maximum surface temperatures of the walls and modules within the target BESS unit, and monitored for any explosions, deflagrations, and flying debris (Appendix J). The unit-level results verified that a fire within a single BESS unit would not spread to other units, nor breach the BESS enclosure, and there would be no flying debris or explosive discharge of gas (Appendix J). The results of both the module- and unit-level tests indicate that thermal runaway events would cause manageable hazards, with ground-level toxic materials, and thermal and deflagration hazards remaining on site. Impacts could extend off site if thermal events were unmanaged, but due to 24-hour remote monitoring, the proposed project's battery management system, and the slow development of scenarios (as demonstrated by UL9540A testing), thermal events would be identified at the early stages of the event, and response times would be sufficient to minimize impacts.

Although the UL9540A testing determined that a thermal runaway event in a single module would not be likely to spread from module to module (or unit to unit), nor result in total conflagration of an enclosure, a Hazardous Consequence Analysis (Appendix H) was conducted for the proposed project to evaluate the

8 The BESS unit in the testing scenario consisted of a stack of modules and ancillary equipment within a rack.

potential for hazardous emissions to impact nearby receptors, including Toyon Middle School, in the case of a cell level or enclosure level fire at the proposed project site. The Hazardous Consequence Analysis (Appendix H) determined that emissions to nearby receptors would be well under acute exposure guidelines and reference exposure levels, and the acute hazard index would not exceed thresholds for cancer risk.

Risk of thermal runaway and/or chemical release due to battery failure is low with compliance with CFC 1207 and other applicable codes and standards. Numerous nationally and internationally recognized standards and codes have been developed to inform safe manufacturing, construction, installation, and operation of energy storage systems. An overview of the standards and testing methods are listed below:

- **UL9540:** Safety for Energy Storage Systems. This requirement addresses inherent design and performance, as well as the interface of the energy storage system with the infrastructure. It also addresses construction, performance, electrical, mechanical, environmental, and manufacturing requirements, and markings.
- **UL9540A:** Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. This test methodology evaluates the fire characteristics of a BESS that undergoes thermal runaway. The data generated can be used to determine the fire and explosion protection required for an installation of a BESS. UL9540A requires examining three separate tests: testing on the cell level, testing on the module level, and testing on the entire unit level.
- **UL1973:** Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications. These requirements cover battery systems as defined by this standard for use as energy storage for stationary applications, such as for photovoltaic, wind turbine storage, and uninterrupted power supply applications. This standard evaluates the BESS's ability to safely withstand simulated abuse conditions. This standard evaluates the system based on the manufacturer's specified charge and discharge parameters. It requires that an energy storage system not be an explosion hazard when exposed to an external fire source, and that a single cell failure will not result in a cascading thermal runaway of cells.
- **IEEE C2:** This Institute of Electrical and Electronics Engineers (IEEE) code covers basic provisions for safeguarding persons from hazards arising from the installation, operations, and maintenance of conductors and equipment in electric supply stations, and overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance, and operation of electric supply and communication lines and equipment. This code is applicable to the systems and equipment operated by utilities, or similar systems and equipment, of an industrial establishment or complex under the control of qualified persons.
- **CFC 1207 and International Fire Code:** Specifies the minimum BESS size requiring permits (lithium, all types, 20 kilowatt-hours), the maximum limits on sizing for battery systems (lithium, all types, 50 kilowatt-hours for each array), seismic and structural design, spacing (minimum 3-foot separation of arrays), vehicle impact protection, testing, maintenance and repairs, maximum quantities within a building (lithium of 600 kilowatt-hours), battery management system monitoring, shutdown and notification requirements, automatic smoke detector requirements, automatic fire sprinkler systems, and ventilation specifications. CFC Section 1207 also requires that the battery systems be "listed," which is achieved through testing by an OSHA certified Nationally Recognized Testing Laboratory (NRTL) laboratory.
- **NFPA 1:** The General NFPA Fire Code addressing extracts from other NFPA codes.

- **NFPA 13:** Standard for the Installation of Sprinkler Systems. This standard addresses sprinkler system design approaches, installation, and component options.
- **NFPA 70:** National Electrical Code. This code addresses electrical design, installation, and inspection.
- **NFPA 550:** Guide to Fire Safety Concepts Tree for Protecting Energy Systems. This guide addresses issues such as using compatible equipment, ventilation as needed, fire-resistive separation, array spacing, and signage.
- **NFPA 855:** Standard for the Installation of Stationary Energy Storage Systems. This standard establishes criteria for minimizing the hazards associated with BESSs. NFPA 855 addresses issues including ventilation, smoke and fire detection, fire control and suppression, explosion control, water supply, operations and maintenance, BESS hazards, and firefighting considerations.
- **OSHA NRTL:** The OSHA NRTL program recognizes private sector organizations to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards. Each NRTL has a scope of test standards they are recognized for, and each NRTL uses its own registered certification mark(s) to designate product conformance to the applicable product safety test standards, thereby "listing" the product. After certifying a product, NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the NRTL tested and certified the product and that the product complies with the requirements of one or more appropriate product safety test standards. Two testing laboratories certified for the electrical components discussed in this analysis are Underwriters Laboratory (UL) and TUV Rheinland.

The National Institute for Occupational Safety and Health has established standards or concentrations at which certain pollutants are defined as immediately dangerous to life and health.

Upon approval of the proposed project, the SAFPD would implement the necessary conditions of approval to ensure that any and all technologies used on site have proper accident procedures in place to reduce any potential impacts from failures that could occur during normal operation of the proposed project. The proposed project would also comply with SB 38, which requires BESS facilities in California to have an emergency response and emergency action plan in place that cover the premises of the facility. A Fire Safety Plan has been prepared (Appendix L) to ensure implementation of the proposed project would not constitute a dangerous fire hazard. **MM-HAZ-2** would require approval of the Fire Safety Plan by the SAFD and Calaveras County Planning Department prior to issuance of grading permits and implementation of the FSP during construction, operation and decommissioning.

In the unlikely event of a fire or thermal runaway event, the facility is designed to manage and prevent propagation. In the event of a lithium-ion battery enclosure fire, the fire and smoke produced are similar to a car fire and do not pose a greater risk than other structures. For example, following a recent battery fire in Escondido, California, San Diego County Hazmat conducted air monitoring over a 4-hour period during the incident and found that "only normal products [of] combustion of a structure fire were detected and at levels considered by NIOSH [National Institute for Occupational Safety and Health] and OSHA to be well below exposure thresholds" (San Diego County Hazmat et al. 2024). Air monitoring conducted by a third-party contractor (Haley & Aldrich) also was initiated during the incident and continued for an additional 12 hours after the fire was fully extinguished. Haley & Aldrich found that "[a]t no time during the incident did the levels of oxygen deviate from 20.9 percent which is considered normal atmospheric level. Any decrease in the percentage of oxygen would indicate that there was some unknown gas in the atmosphere that was not able to be detected by monitoring equipment. Fortunately, no such deviation was detected. The use of

fluoride reactive test strips was negative at all locations. Additionally, hydrofluoric acid was not detected at any of the sampling locations" (San Diego County Hazmat et al. 2024). Water samples also were obtained from runoff created by fire suppression personnel. According to public documents, "The analysis of the samples collected from the runoff water suggests that the water quality is within acceptable limits for most contaminants, especially when considering public health standards for drinking water" (City of Escondido 2024). The findings also state that "the low levels of metals detected, combined with the absence of more toxic elements like lead and cadmium, suggest that the water poses minimal risk both to human health and the environment" (City of Escondido 2024).

Furthermore, air quality monitoring and soil sample testing during and after the recent Vistra battery fire in Moss Landing, California, showed that there was no risk to the public throughout the incident, including hydrogen fluoride and particulate matter. Air monitoring was conducted by the U.S. Environmental Protection Agency, Vistra, and CTEH LLC (County of Monterey 2025). DTSC conducted soil sample testing for heavy metals. Although initial surface screening of ash and debris detected elevated levels of metals as did a soil sampling study conducted at locations within the Elkhorn Slough by San Jose State University, Moss Landing Marine Laboratories, subsequent soil samples did not. The study conducted by San Jose State University did not account for previous baseline conditions that may have contributed to elevated levels of metals in the Elkhorn Slough. Drinking water was also tested for metals and found the reported levels within the normal drinking water standards and consistent with each water system's historical data (County of Monterey 2025).

It should be noted that the two example projects discussed above utilized nickel manganese cobalt oxide batteries, which contain a less stable chemistry than the lithium-iron phosphate batteries the proposed project would utilize. Nickel manganese cobalt oxide batteries also contain a higher level of heavy metals resulting in potentially higher emissions of metals emitted during a thermal event (ESRG 2024). The UL9540A testing provided a list of the chemical constituents that could be emitted from LFP batteries during a thermal runaway event. Based on the UL9540A testing for the lithium OO Block 5.015 megawatt-hour lithium-iron phosphate BESS, no heavy metal constituents were observed (Appendices H and J).

With adherence to the existing, applicable standards and codes and mitigation measures as discussed above, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; impacts would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-Significant Impact. No schools are within 0.25 miles of the project site boundary. The nearest school is Toyon Middle School, located approximately 2,360 feet (approximately 0.45 miles) east of the project site boundary and approximately 3,200 feet (approximately 0.61 miles) southeast of the nearest BESS enclosure. A Hazardous Consequence Analysis (Appendix H) was conducted for the proposed project to evaluate the potential for hazardous emissions to impact the school in the case of a thermal runaway event or fire at the proposed project. The Hazardous Consequence Analysis conducted two separate evaluations to evaluate potential impacts of TACs on sensitive receptors from a thermal runaway event. Each method used dispersion modeling to calculate off-site concentrations of TACs. The concentrations were then compared to the Office of Environmental Health Hazard Assessment's acute reference exposure levels, level 1 U.S. Environmental Protection Agency Acute Exposure Guideline Levels if no reference

exposure level exists, and the Office of Environmental Health Hazard Assessment's threshold of 1 for the acute hazard quotient. The analysis also provided a list of the chemical constituents that could be emitted from lithium-iron phosphate batteries during a thermal runaway event, based on the UL9540A testing for the lithium OO Block 5.015 megawatt-hour lithium-iron phosphate BESS (Appendices H and J). The Hazardous Consequence Analysis determined that, under the modeled scenario, emissions at the school would be well under acute exposure guidelines and reference exposure levels, and the acute hazard index would not exceed thresholds for cancer-risk. See Section 3.3(c) for more discussion of health risks associated with a thermal runaway or fire event at the proposed project. Therefore, impacts to schools, school occupants, and visitors would be less than significant.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. As identified in the Phase I Environmental Site Assessment (Appendix I), the project site is not included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. The proposed project would not create a significant hazard to the public or the environment. Therefore, the proposed project would result in no impact associated with hazardous materials sites.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. No public airports or public use airports are within 2 miles of the project site boundary. The closest airport is Calaveras County Airport, which is approximately 7.8 miles from the project site boundary. Therefore, would be no impacts from airport-related noise or safety hazards.

f) Would the project impair implementation of or physically interfere with an adopted emergency response d

Less-than-Significant Impact with Mitigation Incorporated. The project site is accessible via Double Springs Road and is located in an area with sufficient access for emergency service providers to and from the site. No full road closures in the public right-of-way are anticipated that would impact adopted emergency access or response plans. As part of **MM-TRA-1** discussed in Section 3.17, Transportation, all standard construction practices would be followed and adequate circulation and access would be maintained, including coordinating with local emergency response providers (e.g., local police, fire, and medical dispatch) regarding proposed construction activities. The proposed project also would comply with SB 38, which requires BESS facilities in California to have an emergency response and emergency action plan that cover the premises of the facility. As such, with implementation of **MM-TRA-1**, the proposed project would have a less-than-significant impact related to interference with an adopted emergency response plan or emergency evacuation plan.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less-than-Significant Impact. The project site is in a High Fire Hazard Severity Zone (CAL FIRE 2025), and the proposed project would involve installation and maintenance of infrastructure that could potentially constitute a fire hazard. However, the proposed project has been designed to minimize risk of fire hazards, including vegetation removal and the installation of crushed stone to provide a minimum 50-foot setback

from battery modules. Additionally a 7-foot-high non-combustible perimeter wall would be constructed around the BESS yard. Fire apparatus roads within the project site have been designed to County standards to allow emergency response vehicles access to all areas of the project site. The proposed battery packs would be NFPA 855 Code compliant, and would include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire. A fire protection system would be installed to automatically shut down any affected BESS components and prevent the spread of fire to the other BESS modules in the event of an emergency. The proposed project and project-related improvements would be constructed and operated in compliance with the CBC, CFC, and County Fire Code. A Fire Safety Plan has been prepared (Appendix L) to ensure implementation of the proposed project would not constitute a dangerous fire hazard. MM-HAZ-2 would require approval of the Fire Safety Plan by the SAFD and Calaveras County Planning Department prior to issuance of grading permits and implementation of the FSP during construction, operation and decommissioning. Further, no BESS fires in the United States have resulted in offsite fire impacts.

The project site is accessible via an entrance along Double Springs Road and is in an area with sufficient access for emergency service providers, with multiple routes of travel to and from the site. No full road closures in the public right-of-way or driveway closures are anticipated that would impact adopted emergency access or response plans. Although the project site is within a High Fire Hazard Severity Zone, the project site has adequate access that would not impede emergency response or evacuation in the event of fire.

The proposed project would include installation of a 30,000-gallon water tank, located to provide easy access for fire personnel in case of a fire. Water stored in the water storage tank would be used to ensure that fire that propagates on the project site does not spread to nearby vegetation; water is not recommended for direct BESS fire suppression.

Although the proposed project would include components that could potentially constitute a fire hazard, the proposed project has been designed in accordance with applicable regulations which are designed to minimize the risk to people and structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires resulting from the proposed project, and impacts would be less than significant.

PG&E Interconnection Infrastructure Improvements

As noted in Chapter 2, Project Description, PG&E would construct interconnection facilities and upgrades to communications systems at existing facilities to facilitate project interconnection, including installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure, which would occur within areas previously disturbed and occupied by existing electrical facilities. The existing Valley Springs Substation currently provides public safety protections (e.g., restricting public access, posted safety and “No Trespassing” signs). The installation of a new circuit breaker and additional switches would not change this condition. In addition, these activities would not result in the creation of significant hazards through routine transport, use, or disposal of hazardous materials or wastes, or foreseeable upset and accident conditions. In addition, the Valley Springs Substation is not located on a site that would be subject to Government Code Section 65962.5. PG&E would comply with standard BMPs and all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to hazardous materials. For example, PG&E would implement BMPs, such as those that would trigger notification of the Environmental Field Specialist when discharge or spill of hazardous substances occurs and a work stoppage is required. Therefore, activities associated with the PG&E interconnection infrastructure would result in a less-than-significant impact relating to hazards and hazardous materials.

Mitigation Measures

MM-HAZ-1 Hazardous Materials Business Plan. During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan, as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95, by submitting all the required information to the California Environmental Reporting System at http://cers.calepa.ca.gov/ for review and acceptance by the Certified Unified Program Agency. The Hazardous Materials Business Plan shall include the following elements:

1. A delineation of hazardous material and hazardous waste storage areas.
2. A description of proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials.
3. A description of methods to be used to avoid spills and minimize impacts in the event of a spill.
4. A description of procedures for handling and disposing of unanticipated hazardous materials encountered during construction.
5. Public and agency notification procedures for spills and other emergencies, including fires.

The project proponent/operator shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available on the project site at all times.

A copy of the approved Hazardous Materials Business Plan shall be submitted to the Calaveras County Planning Department prior to issuance of a building permit.

MM-HAZ-2 Fire Safety Plan. Prior to the issuance of grading or building permits the project applicant/ operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the San Andreas Fire District for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Calaveras County Planning Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions and be prepared in accordance with existing regulations including California Fire Code Chapters 33 and 45.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
v) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
vi) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site;	☐	☐	☒	☐
vii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
viii) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; NPDES Construction General Permit; and California Department of Water Resources' Dam Breach Inundation Maps (DWR 2025).

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less-than-Significant Impact. The proposed project is not expected to produce any form of wastewater or generate any wastewater or hazardous waste during construction. However, equipment used during construction would contain hazardous materials, such as hydraulic oil, diesel fuel, and other products typically contained in construction vehicles and equipment.

As required by the Clean Water Act and other federal regulations, any construction project that disturbs 1 acre or more must obtain a NPDES Construction General Permit and implement a SWPPP (EPA 2025). The purpose of a SWPPP is to identify and implement BMPs to reduce impacts to surface water from contaminated stormwater discharges. Development and implementation of a SWPPP would apply to both the construction and post-construction phases of the proposed project.

The proposed project would disturb more than 1 acre of land and add more than 10,000 square feet of impervious surface, which is subject to the statewide General Permit for Construction Related Storm Water Discharges. Among other things, the statewide Construction Discharge Permit requires preparation of a site-specific SWPPP and implementation of control measures to reduce or eliminate the runoff of pollutants in stormwater discharges from the site (County of Calaveras 2020). The proposed project would introduce approximately 318,110 square feet of impervious (and semi-impervious) surface to the project site. Because the majority of the proposed impervious area would be concentrated in one area, it is proposed to be treated on site with one detention basin sized to retain pre- to post-development flow rate increase. The detention basin would be fed via two culverts at the lower edge of BESS yard, which would collect stormwater flows. Stormwater would be retained in the on-site basin before overflow from the detention basin would be released from the lower southeast side of the basin to the existing low areas of the project site. Compliance with the SWPPP and County stormwater management regulations would reduce any impacts to surface and groundwater quality to less than significant.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. The proposed project would require minimal amounts of water during its lifespan. Construction and operational water would be provided via water truck service by a local licensed water purveyor from its existing supplies. The proposed project would require 5 to 10 acre-feet of water during construction, primarily for dust suppression during grading activities, similar to other construction projects of this size. Operations would not require regular water use. Water is not recommended to suppress a BESS fire, but on-site water storage would be available for possible firefighting purposes to douse surrounding grassland and reduce the risk of fire propagation, including inbound fire propagation from grassland fire. Because a modest amount of water use is planned for operation and maintenance of the proposed project, the proposed project would not significantly deplete groundwater supplies. Approximately 318,110 square feet of semi-impervious surface would be created as part of the proposed project; therefore, the proposed project would include a detention basin sized to retain the project site's pre- to post-development flow rate increase on site before overflows would be released from the southeast side of the basin to the existing low areas of the project site, resulting in minimal effects to groundwater recharge; therefore, impacts would be less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site?

Less-than-Significant Impact. Construction of the proposed project would result in some grading activities, but, as discussed above, the proposed project must obtain a NPDES Construction General Permit and implement a SWPPP. The SWPPP would include BMPs to reduce runoff, erosion, and siltation. To account for potential modifications to flow and increases in off-site erosion and siltation during operations, the proposed project would include a vegetated stormwater detention basin for on-site infiltration. Therefore, impacts would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site?

Less-than-Significant Impact. Grading and ground disturbance for the proposed project would be minimal and primarily limited to access roads, equipment pads (including conversion equipment and project switchgear), the BESS, and water tanks. Approximately 318,110 square feet of impervious surface would be created as part of the proposed project, and the proposed project would include a detention basin sized to retain the project site's pre- to post-development flow rate increase on site. Additionally, grading activities and site design would not substantially increase the rate or amount of surface runoff. Therefore, impacts would be less than significant.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact. The proposed project would result in some grading activities, but as discussed above, the proposed project must obtain a NPDES Construction General Permit and implement a SWPPP. The SWPPP would include BMPs to reduce runoff, erosion, and siltation. To account for potential modifications to flow and increases in runoff during operations, the proposed project would include a vegetated stormwater detention basin for on-site infiltration. Construction of the proposed project would not substantially contribute to runoff requiring an off-site stormwater drainage system. The proposed project has been designed to minimize impacts to existing site drainage patterns; therefore, impacts would be less than significant.

iv) Impede or redirect flood flows?

Less-than-Significant Impact. The project site is within Flood Zone X which is an "area of minimal flood hazard" (FEMA 2017). The proposed project would retain potential flood flows within the on-site detention basin. The proposed project would have a less-than-significant impact on the existing floodplain.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

No Impact. The project site is approximately 65 miles northeast of the nearest coastline and is outside of the tsunami inundation areas along the coast. The nearest enclosed body of water is New Hogan Lake, which is 1.3 miles south of the project site boundary. Due to the distance of all enclosed bodies of water,

no seiche-related flooding is anticipated to occur at the project site. The topography of the project site is relatively level and the site is not located within any mapped floodplain or landslide zones (FEMA 2017); therefore, mudslides are unlikely to occur. No impacts related to seiche, tsunami, or mudflow would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. As discussed in Sections 3.10(a)–(c)(i), the proposed project would adhere to all required water quality regulation and water quality control plans. The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The proposed project would require negligible amounts of water during its lifespan, and the proposed project would not significantly deplete groundwater supplies. Additionally, the proposed project would incorporate a detention basin sized to retain 100% of the stormwater on site for infiltration, resulting in minimal effects to groundwater recharge. Project impacts related to implementation of a water quality control plan or sustainable groundwater management plan would be less than significant.

PG&E Interconnection Infrastructure Improvements

PG&E would install upgrades to the existing Valley Springs Substation to facilitate project interconnection of the gen-tie line, including installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. Construction of the PG&E infrastructure would likely require minimal ground disturbance (less than 1 acre) and is not expected to violate water quality standards or substantially degrade surface water or groundwater quality. PG&E's improvements within the existing substation would not affect surface water or groundwater supply, alter drainage patterns, or contribute to stormwater runoff. PG&E would also implement BMPs and comply with all applicable federal and state laws and regulations during construction and operation, including those regulations that relate to the protection of water quality. For example, PG&E would implement BMPs related to stormwater runoff and stockpile management. BMPs related to stormwater runoff include properly handling, storing, and using materials to prevent soil contamination or discharge from the project site. Therefore, activities associated with the PG&E interconnection infrastructure would result in less-than-significant impacts relating to hydrology and water quality.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a) and the Calaveras County Zoning Code.

a) Would the project physically divide an established community?

No Impact. The project site consists of undeveloped and partially vegetated land in unincorporated Calaveras County. As described in Section 2.2, Environmental Setting, the PG&E Valley Springs Substation is the only developed land use adjacent to the project site. Moreover, the project site is bordered by M4-zoned land to the south and east, and Agriculture Preserve (AP)-zoned land to the north and west (see Figure 5, Zoning). The location is particularly suitable for this type of development due to its proximity to the PG&E Valley Springs Substation, minimizing land use conflicts and supporting grid infrastructure needs. Construction of the proposed project would not impede on the operations of the PG&E substation, nor would it restrict access to any surrounding uses. Therefore, the proposed project would not divide an established community, and no impact would occur.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less-than-Significant Impact. As discussed in Section 2.2, the project site is designated as Industrial by the Calaveras County General Plan, which supports infrastructure-intensive and energy-related developments (County of Calaveras 2019a). This designation allows a utility-scale BESS, such as the proposed project. The project site is zoned as M4 Business Park, which supports industrial and infrastructure-focused developments. The M4 Business Park zoning designation conditionally permits "Public Works and Utilities" uses. The proposed project aligns with Calaveras County General Plan land use designation and M4 Business Park zoning due to the following:

- Providing critical energy infrastructure that supports grid reliability and renewable energy integration.
- Operating within the zoning intent for the M4 Business Park, which prioritizes industrial and infrastructure-focused developments that complement adjacent uses.
- Ensuring compatibility with surrounding land uses, including industrial facilities, utility infrastructure, and open space.

In accordance with County Zoning Code Section 17.07.020, and with approval of the Conditional Use Permit, the proposed project would be consistent with the M4 Business Park zoning designation. The proposed project would be consistent and would not conflict with relevant policies of the County's General Plan and Zoning Ordinance. Therefore, impacts would be less than significant.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, PG&E would construct, own, and operate the proposed project's interconnection facilities. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. The improvements would not divide an established community and would comply with applicable land use plans, policies, and regulations. Impacts would be less than significant.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a), Calaveras County General Plan Environmental Impact Report (EIR) (County of Calaveras 2018), and the Calaveras County Zoning Code.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. According to Figure 4.2-2, Map of Calaveras County Mines, of the Calaveras County General Plan EIR, the project site is not located on or immediately nearby existing mines (County of Calaveras 2018). Moreover, the project site is not mapped as a Mineral Resource Zone (MRZ), specifically MRZ-2A, MRZ-2B, or MRZ-3, as shown in Figure 4.2-4, Draft General Plan Land Use Map MRZ Overlay, of the Calaveras County General Plan EIR. As such, the proposed project would not result in an impact to a known mineral resource that would be of value to the region and the residents of the state. No impact would occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The project site is not on or immediately near existing mines. Locally, the County includes zoning for mineral extraction, as codified in Chapter 17.56 of the County Code. This zone addresses mineral resource management policies and fulfills the requirements of the Surface Mining and Reclamation Act.

Further, the project site is zoned as M4 Business Park, which does not permit mineral extraction land uses, according to Table 17.07.020, Land Use Regulations – Industrial Zones, of the County Code. Given this, no impact would occur.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, PG&E would construct, own, and operate the proposed project's interconnection facilities. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. The improvements would not result in the loss of a mineral resource of value to the region or state, or a locally important mineral resource recovery site. Impacts would be less than significant.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

This section used the following sources: Calaveras County Municipal Code Chapter 9.02 – Noise Control; Calaveras County General Plan Noise Element (County of Calaveras 2019b); Caltrans' Traffic Census Program (Caltrans 2022); the Handbook of Environmental Acoustics (Cowan 1994); U.S. Department of Transportation's Federal Highway Administration Roadway Construction Noise Model User's Guide (DOT 2006); Federal Highway Administration's Roadway Construction Noise Model, Software Version 1.1 (FHWA 2008); Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA 2018); International Organization of Standardization's (ISO) Standard 9613-2 (Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation) (ISO 1996); and the project's Operational Noise Analysis (Appendix M).

Existing Setting

The proposed project would be located on up to three parcels of land in unincorporated Calaveras County. The proposed project would consist of a modular array of BESS units, together with a high-voltage on-site collector substation and a short high-voltage transmission line connecting the proposed project to the adjacent PG&E Valley Springs Substation. The proposed project would be accessed from the adjacent Double Springs Road.

The project site is bordered by various industrial and commercial properties. The PG&E Valley Springs Substation is to the east; open grazing and grasslands are to the north and west; and Double Springs Road, vacant land, and a Cal-Waste Recovery Station are to the south. According to the Calaveras County General Plan EIR (County of Calaveras 2018), ambient noise levels in Calaveras County range from 43 decibels (dB) in rural areas to 66 dB in residential and commercial areas near Copperopolis. Given the low population density and surrounding land uses, outdoor ambient noise levels in the proposed project vicinity are expected to range from 40 to 50 A-weighted decibels (dBA), measured as the day-night average sound level (L_{dn}), which is consistent with those typically found in rural areas (Cowan 1994).

Regulatory Setting

Federal Regulations and Guidance

In its Transit Noise and Vibration Impact Assessment Manual, the FTA recommends a daytime construction noise level threshold of 80 dBA equivalent sound level (L_{eq}) over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels. As noted below, the County does not include a noise threshold for construction noise, which is exempt from County noise limitations provided it occurs during specific hours. Therefore, the FTA threshold is used to evaluate construction noise from the proposed project.

Local Policies and Regulations

The following are summarized portions or reproductions of applicable Calaveras County noise regulations, policies, and guidance with respect to assessing noise impacts for the proposed project (County of Calaveras 2019b).

Calaveras County General Plan – Noise Element

Goal N-1. Noise levels consistent with the County's rural atmosphere and that maintain compatibility between differing land uses, and protect the health and well-being of residents, visitors and businesses.

Policy N-1.1. Locate and design sensitive noise-receiving land uses so they are not exposed to noise levels exceeding noise standards set forth in Tables N-2 and N-3.

Policy N-1.2. Evaluate the potential impacts of noise on and from existing and planned land uses and public and private transportation facilities during the development review process using noise thresholds set forth in Tables N-2 and N-3.

Policy N-1.3. Determine that a potentially significant adverse noise-related impact exists when a non-transportation related project (excluding temporary initial construction noise) has the potential to increase the overall ambient noise levels at the receiving land use by 3 dB or more when the ambient noise levels exceed the standards in Table Noise-2.

Policy N-1.4. Determine that a potentially significant adverse noise-related impact exists when a project generating transportation noise (excluding temporary initial construction noise) has the potential to do one or more of the following:

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

Policy N-1.14. Limit the use of heavy-duty vibration-generating construction equipment, such as vibratory rollers, within close proximity of existing buildings, particularly buildings of weak structural integrity and/or historical significance to ensure that ground-borne vibration shall not exceed 0.2 in/sec (ips) peak particle velocity (PPV) at the nearest sensitive receptor. For construction projects where vibration-intensive activities are anticipated, a designated person shall be responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted on the construction site.

In addition to the above relevant goals and policies, Table N-2 of the County General Plan's Noise Element establishes an "outdoor activity area" threshold of 60 dB L_{dn}/Community Noise Equivalent Level (CNEL) at residential noise-sensitive land uses, or 45 dB L_{dn}/CNEL in interior spaces, specifically for noise exposure resulting from transportation sources. According to Table N-2, "an outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on a residential property could be an outdoor activity area. Where the location of an outdoor activity area is unknown, the exterior noise level standard shall be applied at the property line of the receiving land use" (County of Calaveras 2019b).

Table N-3 provides the maximum allowable noise exposure from stationary noise sources to noise-sensitive land uses, specifically at outdoor activity areas. These standards are 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.), measured as equivalent continuous sound pressure levels (L_{eq}) on an hourly basis (County of Calaveras 2019b).

Calaveras County Noise Ordinance

Section 9.02.030 of the Calaveras County Municipal Code prescribes the sound level limits at land uses adjacent to a noise-producing land use. For residential uses, such as the nearest noise-sensitive receptor north of the project site, the hourly sound level limit is 60 dBA L_{eq} from 7:00 a.m. to 10:00 p.m., and 50 dBA L_{eq} from 10:00 p.m. to 7:00 a.m. For industrial land uses, such as those south of the project site, the hourly sound level limit is 75 dBA L_{eq} from 7:00 a.m. to 10:00 p.m., and 65 L_{eq} dBA from 10:00 p.m. to 7:00 a.m.

Additionally, Section 9.02.060 exempts temporary construction noise, provided that all construction in or adjacent to residential areas is limited to daytime hours (7:00 a.m. to 6:00 p.m.), unless otherwise subject to conditions in a valid discretionary land use permit that addresses construction noise associated with a project.

Significance Analysis and Determination

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant Impact.

Short-Term Construction Noise

Construction noise and vibration are temporary, with emission levels varying from hour to hour and day to day depending on the equipment in use, the operations performed, and the distance between the source and receptor. Equipment that would be in use during project construction would include, in part, graders, backhoes, rubber-tired dozers, loaders, cranes, forklifts, pavers, rollers, and air compressors. The typical maximum noise levels at a distance of 50 feet from various pieces of construction equipment and activities anticipated for use on the project site are presented in Table 3.13-1. The equipment noise levels presented in Table 3.13-1 are maximum noise levels (L_{max}). Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 3.13-1. Typical Construction Equipment Maximum Noise Levels

Equipment Type	Typical Equipment (L_{max}, dBA at 50 Feet)
All Other Equipment >5 horsepower	85
Backhoe	78
Compressor (air)	78
Concrete Saw	90
Crane	81
Dozer	82
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	72
Grader	85
Man Lift	75
Paver	77
Roller	80
Scraper	84
Welder/Torch	73

Source: D0T 2006.
Notes: L_{max} = maximum sound level; dBA = A-weighted decibels.

Aggregate noise emissions from project construction activities, broken down by sequential phase, was predicted at the nearest position of the construction site boundary. The intent of the nearest distance is to help evaluate anticipated construction noise from equipment or vehicle activity expected to be at the boundary for some period of time, which would be most appropriate for phases such as site preparation, grading, and paving. In this studied scenario, to provide a conservative analysis of construction-related

noise, because of the equipment location uncertainty and to emulate an extremely conservative analysis methodology (i.e. equipment would unrealistically "stack" at the nearest distance, which is not physically possible), all pieces of equipment for a construction phase was assumed to operate at the nearest position of the construction site boundary to the nearest noise-sensitive receptor (Appendix M).

Table 3.13-2 presents the estimated construction noise level (8-hour L_{eq}) for each anticipated phase of project construction activity at the nearest noise-sensitive receptor, a residence north of the project site. Construction activities could occur at a nearest distance of approximately 1,050 feet from the project site boundary within which most project construction would occur (Appendix M).

Details of these predictions in Appendix M, Operational Noise Analysis, show the expected acoustical contribution from each type of operating construction equipment at the nearest distances for each phase and noise-sensitive receptor.

Table 3.13-2. Estimated Per-Phase Construction Noise Levels

Project Construction Activity Phase	Predicted 8-hour L_{eq} (dBA) at Nearest Distance to Single-Family Residence	Exceed FTA-Based Construction Noise Threshold of 80 dBA 8-hour L_{eq}? (Yes/No)
Site Preparation	55	No
Collector Substation Site Preparation	50	No
Grading	55	No
Collector Substation Grading	51	No
Battery Container Installation	55	No
Collector Substation Installation	57	No
Gen-Tie Line Trenching	52	No
Gen-Tie Line Road Resurface and Clean-Up	48	No
Decommissioning	56	No

Source: Appendix M.
Notes: L_{eq} = energy-equivalent sound level; dBA = A-weighted decibel; FTA = Federal Transit Administration.

The predicted aggregate noise levels for the studied construction activity phases occurring closest to the residential noise-sensitive receptor to the north would not exceed the 80 dBA 8-hour L_{eq} FTA-based standard. Construction noise could cause temporary increases to the daytime outdoor ambient sound level at the nearest residential noise-sensitive receptor based on the aforementioned 40 to 50 dBA range of estimated baseline conditions in the vicinity. These temporary increases may or may not be perceptible due to local background acoustic conditions; for example, construction noise could be acoustically masked by nearby traffic noise on Route 12 and Route 26, or by the adjacent industrial land uses. Further, although not applicable to construction noise, it is worth noting that construction noise also would be below the standards set forth in Table N-2 of the County General Plan's Noise Element (60 dB L_{dn}/CNEL). Additionally, under Section 9.02.060 of the County Municipal Code, temporary construction noise is exempt within the hours of 7:00 a.m. to 6:00 p.m. Therefore, project-generated construction would have a less-than-significant impact.

Off-Site Construction Traffic Noise Exposure

The proposed project is not expected to result in a significant increase in traffic noise levels attributed to off-site construction traffic. Project construction traffic would consist of 242 average daily worker trips, 20 average daily vendor truck trips, and 34 average daily haul truck trips. Converted to a passenger-car-equivalent number, the total average daily construction trips would equate to approximately 700. According to 2022 annual average daily traffic data from Caltrans' Traffic Census Program, existing annual average daily traffic volumes on Route 12 and Route 26 (which intersect southeast of the project site) are 8,000 and 11,400, respectively (Caltrans 2022).

According to Policy N.1-4 of the County's General Plan Noise Element, traffic noise would be considered significant if a +3 dB L_{dn} increase in noise levels occurs due to project-generated construction trips at the outdoor activity areas of noise-sensitive uses where existing traffic noise levels range from 60 to 65 dBA L_{dn}. Figure N-1 of the County's Noise Element suggests that the project site and the nearest noise-sensitive land use to the north fall within the 61 to 65 dBA CNEL contour of Route 12 (County of Calaveras 2019b).

Based on the fundamentals of acoustics, a 100% increase in average daily traffic volumes, or a doubling of the existing 8,000 or 11,400 vehicles (per Caltrans 2022), would be needed to result in a 3 dB increase in noise levels, which would be just audible to the average human listener. Such an increase in average daily traffic volumes on off-site roadways attributable to project construction is not expected. Therefore, impacts related to off-site construction traffic noise exposure would be less than significant.

Long-Term Operational Noise

Using DataKustik's CadnaA software, which models three-dimensional outdoor sound propagation based on ISO 9613-2 algorithms and relevant reference data and outputs predicted noise levels in $L_{eq\ (1h)}$, an operational scenario of the proposed project was modeled for the purposes of this analysis (Appendix M). The modeled scenario included the following operating assumptions for the anticipated noise sources: 240 BESS enclosures, a 7-foot tall masonry wall surrounding the BESS enclosures and transformers, each with a compressor speed of 4,500 rotations per minute and cooling system fans operating at 95% capacity; 34 medium-voltage transformers; and one high-voltage transformer operating nominally at 70 MVA [megavolt-amperes]. Facilities are expected to operate at any time, either discharging or charging on-site batteries, up to 24 hours a day, 365 days a year.

The predictive analysis assumed that all of the above equipment would be operating under a charging or discharging condition that may last up to a full continuous hour (i.e. CadnaA outputs predicted levels in 1-hour L_{eq}). For the purposes of the preliminary analysis (Appendix M), the overall A-weighted levels appearing in Table 3.13-3 were used to define the individual project sound sources.

Table 3.13-3. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	Sound Level (dBA) per Octave Band Center Frequency (OBCF, Hz)									Overall Sound Level (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
BESS Container[a]	49.2	42.4	57.1	60.8	67.4	68.7	66.9	62.9	56.7	87.2
HV Transformer[b]	54.0	73.0	85.0	87.0	93.0	90.0	86.0	81.0	72.0	96.2

Table 3.13-3. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	Sound Level (dBA) per Octave Band Center Frequency (OBCF, Hz)									Overall Sound Level (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
MV Transformer[c]	49.7	61.5	69.8	73.7	81.6	83.1	87.2	77	53.2	89.8

Notes: OBCF = Octave Band Center Frequency in cycles per second (Hertz [Hz]); dBA = A-weighted decibels; BESS = battery energy storage system; HV = high voltage; MV = medium voltage.

[a] Reference sound power level data shown herein, derived from sound level data provided by the Applicant's candidate supplier of on-site equipment, represents the 4,500 rpm [rotations per minute] compressor speed and 95% capacity setting for cooling fan operation. This cooling system fan capacity setting and compressor speed are consistent with confidential operational data provided by the Applicant's candidate supplier of on-site equipment.

[b] Based on the Applicant-provided sound pressure level, converted to sound power and with OBCF granularity based on the Electric Power Plant Environmental Noise Guide (Edison Electric Institute 1984).

[c] Reference sound power level data shown herein are derived from sound level data provided by the Applicant's candidate supplier of on-site medium-voltage transformer equipment.

The sound propagation model conservatively neglects terrain, and thus assumes flat topography. Additional modeling assumptions and parameters are as follows: reflection order = 1 (i.e., one "bounce" of a direct sound ray on an encountered structure or barrier is considered); ground absorption = 0.7 (on the 0–1 scale for this coefficient, intends to reflect the surrounding landscape; calm winds (less than 0.5 meters per second in any direction); temperature = 50°F; relative humidity = 70%.

Figure 1 in Appendix M displays the predicted aggregate project operational noise as concentric bands of different colors representing 5-dB-wide ranges of sound pressure level, consistent with the color band legend appearing at the right side of the image.

As shown in Figure 1 in Appendix M and Table 3.13-4, the predicted aggregate sound emission (L_{eq1h})of all operating BESSs, medium-voltage transformers, and the high-voltage transformer stays below 45 dBA L_{eq} at the nearest noise-sensitive receptor to the north of the project site, and below 65 dBA L_{eq} at the industrial receptors to the south of the project site, and thus below the lowest applicable County exterior noise thresholds established in Section 9.02.030 of the Municipal Code and Table N-3 of the General Plan Noise Element (County of Calaveras 2019b). Therefore, impacts related to operational noise levels would be less than significant.

Table 3.13-4. Predicted Operational Sound Pressure Levels at Modeled Receptors

Modeled Receptor (Location)	Receiving Land Use	Sound Pressure Level (dBA L_{eq})	County Municipal Code Nighttime[1] Noise Limit (dBA L_{eq}) and Compliance?[2]	County General Plan Nighttime[1] Noise Limit (dB L_{eq}) and Compliance?[3]
M1 (1733 State Route 26)	Residential	43.2	50 – yes	45 – yes
M2 (Cal-Waste Recovery Systems; 3524 Double Springs Road)	Industrial	49.5	65 – yes	N/A
M3 (3596 Double Springs Road)	Industrial	44.7	65 – yes	N/A

Table 3.13-4. Predicted Operational Sound Pressure Levels at Modeled Receptors

Modeled Receptor (Location)	Receiving Land Use	Sound Pressure Level (dBA L_{eq})	County Municipal Code Nighttime[1] Noise Limit (dBA L_{eq}) and Compliance?[2]	County General Plan Nighttime[1] Noise Limit (dB L_{eq}) and Compliance?[3]
M4 (3651 Double Springs Road)	Residential	41.9	50 – yes	45 – yes

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level; N/A = not applicable

1 Nighttime = 10:00 p.m. to 7:00 a.m.

2 Calaveras County Municipal Code Section 9.02.030.

3 Calaveras County General Plan Noise Element Table N-3 (County of Calaveras 2019b). Noise Sensitive Land Uses do not include industrial uses.

Long-Term Off-Site Operational Traffic Noise Exposure

The project site would be unoccupied but would be visited periodically throughout the year for equipment inspections, monitoring and testing, and maintenance as needed. Because routine operation of the proposed project would not require many on-site personnel, its potentially additive effects on pre-existing nearby roadway traffic volumes, such as Double Springs Road, Route 12, and Route 26, are expected to be modest or even negligible. On these bases, impacts related to long-term off-site operational traffic would be less than significant.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Vibration is oscillatory movement of mass (typically a solid) over time. Depending on their distances to a sensitive receptor, operation of large bulldozers, graders, loaded dump trucks, and other heavy construction equipment and vehicles on a construction site have the potential to cause high vibration amplitudes.

Policy N-1.14 of the County's General Plan Noise Element limits the use of heavy-duty vibration-generating construction equipment, such as vibratory rollers, within close proximity of existing buildings, particularly buildings of weak structural integrity and/or historical significance, to ensure that groundborne vibration not exceed 0.2 inches per second peak particle velocity at the nearest sensitive receptor (County of Calaveras 2019b).

Groundborne vibration attenuates rapidly, even over short distances. The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock can be estimated with expressions found in FTA and Caltrans guidance. Equipment used for proposed project construction, such as a vibratory roller, would operate at a nearest distance of approximately 1,050 feet away from the nearest receiving noise-sensitive land use (measured from the project site boundary); at such distances, groundborne vibration is highly unlikely to be perceptible and is anticipated to be well below the 0.2 inches per second peak particle velocity threshold established in Policy N-1.14 of the County's General Plan Noise Element (County of Calaveras 2019b).

For example, the operation of a roller during grading activities would occur as close as 1,050 feet to the southern façade of the nearest off-site receptor to the north. At this distance, and using a reference typical groundborne peak particle velocity (PPV) of 0.21 inches per second (ips) for a roller at a distance of 25 feet, the estimated PPV at the receiving building façade and likely closest interior occupied space can be estimated as follows:

$$PPV_{rcvr} = 0.21*(25/1{,}050)^{1.5} = 0.001 \text{ ips}$$

Thus, the predicted groundborne vibration velocity peak particle velocity values associated with proposed project construction would be less than significant.

c) ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. There are no public airports or private airfields within 2 miles of the project site boundary, and the project site is far from any aviation traffic noise contour greater than 65 dBA CNEL. Hence, on-site workers involved in proposed project construction would not be exposed to significantly impactful aviation traffic noise levels, and no impact would occur.

PG&E Interconnection Infrastructure Improvements

As noted in Chapter 2, Project Description, the project's proposed 70 kV gen-tie line would extend approximately 1,700 feet north from the proposed project substation to the Valley Springs Substation, which is the proposed project point of interconnection to the grid. As part of the interconnection process, PG&E would install gen-tie line terminal equipment and the termination of the proposed project's fiber-optic line, and install one circuit breaker. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities within the substation. The noise-generating equipment at the Valley Springs Substation would be approximately 1,050 feet from the closest residential property. This distance is approximately the same as the distance used to evaluate construction noise from the main project site to the residence. According to the results presented in Table 3.13-2, worst-case construction noise levels at that distance would comply with the 2018 FTA guidelines and would not exceed anticipated ambient noise levels in the area. Although construction of the PG&E improvements is expected to be substantially less than the project, even assuming the construction equipment used for the interconnection infrastructure is similar to that used for the main project, and again assuming the same distance between the residence and the construction activity, noise levels from construction of the interconnection infrastructure would comply with the 2018 FTA guidelines. Construction traffic associated with PG&E's improvements would be minimal and would not increase average vehicle traffic noise levels. Because the gen-tie line would consist of low-noise-emitting elements, such as power line towers, conductors, insulators, cables, and safety equipment, operation of the gen-tie terminal equipment would result in minimal noise, well below the BESS equipment analyzed above. Further, construction and operation of the interconnection infrastructure would not generate excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a), Calaveras County General Plan EIR (County of Calaveras 2018), and the Calaveras County Zoning Code.

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The proposed project would not induce substantial population growth. It does not propose any housing or commercial development, nor does it propose any significant extension of roads or infrastructure. No change in the County's population or housing would occur with proposed project implementation. Construction jobs would be short term and are expected to be filled by the existing workforce and sourced from the surrounding communities to the maximum extent possible. During operations, the proposed project would not be staffed on site, apart from periodic on-site personnel visitations for security, maintenance, and system monitoring. These intermittent site visits would not create any permanent or substantial demand for housing, goods, or services in the area, and would not induce substantial population growth in Calaveras County or surrounding communities. Therefore, no impact related to population growth would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project does not propose any housing or commercial development, nor does it propose any significant extension of roads or infrastructure. No change in County population or housing would occur with proposed project implementation. There are no residences on the project site, and the proposed project would not displace any existing people or housing. Therefore, the proposed project would not materially affect local or regional population, and no impact would occur.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, PG&E would construct, own, and operate the proposed project's interconnection facilities. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. The purpose of the proposed project is to assist PG&E and the state in meeting their respective renewable energy goals for existing energy customers and accommodate existing energy demands. The improvements would not result in unplanned growth or displace substantial numbers of existing people or housing, and there would be no impact.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a), Calaveras County General Plan EIR (County of Calaveras 2018), the Calaveras County Zoning Code, and the County Fire Code (Title 8, Section 8.10, Fire and Life Safety Regulations).

a) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:***

Fire protection?

Less-than-Significant Impact. The proposed project would not involve the creation of new habitable structures or new population growth that could generate increased demand for fire protection services. The proposed project has the potential to require fire protection services in the event that any of the equipment or landscaping were to catch fire. During construction, there would be workers, machinery, and construction supplies, as well as hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents,

adhesives, paints, and other petroleum-based products contained in construction vehicles on site. There is a possibility that construction activities could accidentally ignite a fire that would require assistance from the SAFPD. However, as described further in Section 3.9, Hazards and Hazardous Materials, and Section 3.20, Wildfire, the proposed project would comply with County and state requirements for fire safety practices, including CFC Chapter 33 regulations, to reduce the possibility of fires during construction activities. Construction equipment also would be properly maintained to reduce the risk of accidental ignition. Additionally, as shown in Section 3.20, **MM-WF-1** (Pre-Construction Requirements) would be incorporated. Implementation of **MM-WF-1** would require the project Applicant to implement all safety standards outlined in the project-specific Fire Protection Plan and Fire Safety Plan, which would reduce fire risk associated with installation and maintenance of the gen-tie line and fiber-optic cables necessary for telecommunication. During operation, the proposed project has been designed to minimize risk of fire hazards through design features and compliance with the CBC, CFC, and County Fire Code, and has prepared a Fire Safety Plan to ensure implementation of the proposed project would not constitute a dangerous fire hazard. Additionally, with implementation of **MM-WF-2** (Vegetation Management), vegetation management would occur up to 100 feet from project facilities, including any BESS modules, PCS, and substation equipment. The nearest fire station, CAL FIRE Valley Springs, is 3.5 miles south of the project site boundary, which could adequately serve the proposed project in the event of a fire. No new or physically altered fire protection facilities would be required to provide fire protection services. Therefore, impacts would be less than significant.

Police protection?

Less-than-Significant Impact. The proposed project would not lead to an increase in residential populations at the project site nor in nearby communities, and thus would not change the officer-to-population ratio for the area. Operation of the proposed project would not require on-site staff and would require minimal support from the County Sherrif Department's protection services. The proposed BESS facility would be enclosed by security fencing and equipped with controlled lighting to deter unauthorized access and enhance nighttime security. No dedicated law enforcement patrols would be required for the facility, and any response needs would continue to be provided by County Sherrif Department personnel. Therefore, construction and operation of the proposed project would have a less-than-significant impact on Sheriff protection services and their staffing and response times.

Schools?

No Impact. The proposed project would not include development of housing units, nor would it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for schools would be generated by the proposed project. Therefore, no impact would occur.

Parks?

No Impact. The proposed project would not include development of housing units, nor would it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for parks would be generated by the proposed project. Therefore, no impact would occur.

Other public facilities?

No Impact. The proposed project would not include development of housing units, nor would it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for other public facilities would be generated by the proposed project. Therefore, no impacts would occur.

PG&E Interconnection Infrastructure Improvements

The project's proposed 60 kV gen-tie would extend approximately 0.20 miles east from the project substation to the Valley Springs Substation, which is the proposed project point of interconnection to the grid. PG&E would incorporate upgrades to the Valley Springs Substation, Bellotta Substation, Tiger Creek Powerhouse, and Electra Powerhouse to support interconnection of the gen-tie line, including installation of a new circuit breaker and additional switches. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. Due to the minor nature of the upgrades within the existing substations and powerhouses, the upgrades would not require new government facilities related to fire protection, law enforcement, or other public services. Therefore, impacts associated with public services would be less than significant.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a) and the Calaveras County General Plan EIR (County of Calaveras 2018).

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed project would not directly or indirectly result in housing development or population growth on the project site or in the surroundings communities. With no new households or residents, the proposed project would not increase the demand or use of local parks or regional recreational facilities. Therefore, the proposed project would have no impact on existing parks or create a need for new neighborhood or regional parks.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. See the discussion in Section 3.16(a). The proposed project would not increase the need for new neighborhood or regional parks. There would be no impact.

PG&E Interconnection Infrastructure Improvements

The project's proposed 60 kV gen-tie line would extend approximately 0.20 miles east from the proposed project substation to the Valley Springs Substation, which is the proposed project point of interconnection to the grid. PG&E would install upgrades to the existing Valley Springs Substation, Bellotta Substation, Tiger Creek Powerhouse, and Electra Powerhouse to support interconnection of the gen-tie line, including installation of a new circuit breaker and additional switches. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. Due to the minor nature of the upgrades within the existing substations and powerhouses, the upgrades would not require new or expanded park or recreational facilities. Therefore, there would be no impacts associated with recreational facilities.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☒	☐	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County General Plan EIR (County of Calaveras 2018); and the California Governor's Office of Land Use and Climate Innovation's Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018b).

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less-than-Significant Impact with Mitigation Incorporated. The nearest transit routes to the project site are provided via Calaveras Connect Red Line, which stops approximately 3.7 miles west of the project site boundary at the intersection of Valley Springs Road and Daphne Street (AMMA Transit Planning 2021). The temporary and minimal increase in construction-related traffic would not interfere with existing public transit or roadways. There are no potential sidewalk or bicycle facility impacts or closures; however, any related impediment to roadways or pedestrian or bicycle facilities would be temporary, and access during construction would be provided through detours or safe areas along the construction zone, as needed. Any affected roadways or pedestrian or bicycle facilities and the alternative facilities or detours would be identified in the Traffic Control Plan (**MM-TRA-1**).

Once construction is complete, pedestrian and bicycle access and safety would be maintained at existing levels in the area because the proposed project would result in a negligible increase in permanent project-related trips. The proposed project would not include any site improvements that would extend into the public right-of-way or alter the existing roadway network. Therefore, the proposed project would not interfere with the County and/or local jurisdictions implementing any planned transit facilities or constructing pedestrian or bicycle improvements in the future. As such, impacts related to conflict with an applicable program, plan, ordinance, or policy addressing the circulation system would be less than significant with mitigation incorporated.

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less-than-Significant Impact. CEQA Guidelines Section 15064.3(b) focuses on vehicle miles traveled (VMT) for determining the significance of transportation impacts. The CEQA Guidelines state that "generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts," and define VMT as "the amount and distance of automobile travel attributable to a project." "Automobile" refers to on-road passenger vehicles, specifically cars and light trucks. The California Governor's Office of Land Use and Climate Innovation clarified in its Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018b) that heavy-duty truck VMT is not required to be included in the estimation of a project's VMT. The County has not yet adopted transportation guidelines for evaluating potential project-related impacts to VMT. In the interim, the California Governor's Office of Land Use and Climate Innovation Technical Advisory has been used to evaluate the proposed project.

Construction

CEQA Guidelines Section 15064.3(b) is divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The proposed project is not a traditional land use project that would generate VMT on a regular basis, and the County has not developed a threshold of significance for VMT for projects of this type. Therefore, for this project, a qualitative analysis of transportation impacts per CEQA Guidelines Section 15064.3(b)(3) with respect to VMT is provided. Furthermore, the California Governor's Office of Land Use and Climate Innovation's project size screening criterium (projects generating 110 daily trips or fewer) are intended to address permanent vehicle trips (OPR 2018b). Therefore, a qualitative analysis of project construction is provided.

The proposed project would involve construction that would generate temporary construction-related traffic for approximately 12 months. Even though worker and vendor trips would generate VMT, once construction is completed, construction-related traffic would cease, and traffic would return to pre-construction conditions. VMT for construction of the proposed project would be comparable to other uses in the County. Further, VMT primarily is a metric for assessing project-related GHG emissions impacts. The analysis related to GHG emissions associated with project-related construction traffic is analyzed elsewhere in this IS/MND (see Section 3.8, Greenhouse Gas Emissions). Overall, because the proposed project would help integrate renewable energy into the grid and provide stability to the regional grid, thereby limiting or offsetting GHG emissions that would have otherwise resulted from producing energy from a non-renewable source, the proposed project would have a net beneficial impact regarding GHG emissions. Accordingly, because the increase in VMT related to construction would be short-term, temporary, and localized, project construction is not anticipated to result in long-term, permanent changes to the surrounding vehicle transportation system. Impacts from project construction would be less than significant.

Operations

It is anticipated that three to five workers would visit the site every 2 to 3 weeks for maintenance activities and general oversight. Therefore, the site would generate a negligible increase in traffic during project operations (assumed to be four daily trips or fewer) and meets the VMT screening criteria of generating fewer than 110 daily trips. Therefore, the proposed project is screened from conducting a VMT analysis and impacts during project operations would be less than significant.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project's transportation infrastructure would not introduce any hazardous geometric design features or incompatible uses. The proposed project would use existing roadways and includes provisions for road improvements, ensuring safety. Road improvements would be constructed to County standards. Therefore, there would be no impacts related to hazards due to geometric design features or incompatible uses.

d) Would the project result in inadequate emergency access?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project has considered emergency access with the inclusion of a primary access location via a site access road/emergency fire response road on Double Springs Road. The site access/emergency fire response road would surround the entire perimeter of the facility and would include a turnaround area that would accommodate a 50-foot-long, 75,000-pound fire truck minimum. This provision would ensure adequate emergency access to the project site. Additionally, the project site is in an area with sufficient access for emergency service providers to and from the site. No full road closures in the public right-of-way are anticipated that would impact adopted emergency access or response plans. As part of **MM-TRA-1**, all standard construction practices would be followed to ensure that adequate circulation and access is maintained, including coordinating with local emergency response providers (local police, fire, and medical dispatch) regarding proposed construction activities. The proposed project also would comply with SB 38, which requires BESS facilities in California to have an emergency response and emergency action plan that cover the premises of the facility. As such, with implementation of **MM-TRA-1**, the proposed project would have a less-than-significant impact related to emergency access.

PG&E Interconnection Infrastructure Improvements

As part of the interconnection process, PG&E would install a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would occur within areas previously disturbed and occupied by existing electrical facilities. As stated above, most of the construction workforce is expected to live in the region and would commute to the site from various local communities. There would be no operational trips associated with the PG&E interconnection infrastructure. Construction and operation of the PG&E improvements would not conflict with a program, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, nor would it conflict with CEQA Guidelines Section 15064.3(b). The improvements would not increase hazards due to a geometric design feature or result in inadequate emergency access. PG&E also would implement standard measures and BMPs during construction and operation. Therefore, these improvements would have a less-than-significant transportation impact.

Mitigation Measure

MM-TRA-1 Traffic Control Plan. A Traffic Control Plan shall be implemented in accordance with the California Manual on Uniform Traffic Control Device to minimize temporary construction-related traffic impacts. The Traffic Control Plan shall be coordinated with the County of Calaveras (County). Any necessary encroachment and trip permits for any specialized haul trucks shall be obtained prior to commencing work. Potential components of the Traffic Control Plan may include the following:

- Restricting truck travel to County-designated truck routes where feasible
- Providing signage to meet County requirements for driver awareness of project construction traffic
- Limiting time for heavy truck deliveries
- Using flaggers and applicable traffic control signs at key locations
- Providing alternate pedestrian and bicycle access, if necessary
- Informing emergency service providers of the construction traffic schedule
- Providing an information packet for affected neighborhoods to bring awareness to project activities and measures to minimize impacts

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

This section relied on the Archaeological Resources Inventory Report (Appendix E) as its source of information.

a) ***Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:***

i) ***Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?***

Less-than-Significant Impact with Mitigation Incorporated. No tribal cultural resources were identified within or immediately adjacent to the project site as a result of a Native American Heritage Commission search of its Sacred Lands File, the California Historical Resources Information System (CHRIS) record search, or during the field survey. A Native American Heritage Commission search of its Sacred Lands File did not indicate the presence of Native American cultural resources on the project site or within the immediate vicinity, and no archaeological deposits of Native American origin were found during the field survey. Similarly, a CHRIS records search conducted at the North Central Information Center did not identify any tribal cultural resources or resources of Native American origin within the project site or a 0.5-mile buffer (Appendix E). Despite these results, there is potential for inadvertent discovery of tribal cultural resources during project implementation, resulting in a significant impact. With implementation of

MM- CUL- 1, which outlines procedures to be followed in the event of an inadvertent discovery of historical resources, impacts to tribal cultural resources would be reduced to less than significant.

ii) ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would not result in a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 5024.1 because no tribal cultural resources were identified within or immediately adjacent to the project site, and the likelihood of discovering in-place resources is low due to historical land disturbance activities (Appendix E). In accordance with AB 52, the County sent letters to five tribes (Calaveras Band of Miwuk Indians, California Valley Miwok Tribe, Ione Band of Miwok Indians, Buena Vista Rancheria, and Washoe Tribe of Nevada and California) requesting consultation and soliciting information related to tribal cultural resources that could be impacted by the proposed project. Among the tribes contacted, only the California Valley Miwok Tribe responded, indicating that they did not have any concerns with the proposed project (Appendix E). As discussed above, a Native American Heritage Commission search of its Sacred Lands File did not indicate the presence of Native American cultural resources on the project site or within the immediate vicinity, and no archaeological deposits were found during the CHRIS records search or field survey. There is the possibility of an inadvertent discovery of a resource that would be considered significant to tribes during project construction. Implementation of **MM-CUL-1**, which includes procedures to follow should such unknown resources be encountered during construction activities, would reduce impacts to less than significant.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, Project Description, PG&E would construct the proposed project's interconnection facilities. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. PG&E's improvements would require minimal, if any, ground disturbance, and would occur within areas previously disturbed and occupied by existing electrical facilities within the substation. There are no known tribal cultural resources within the PG&E substation. PG&E's standard measures and BMPs include procedures to stop work in the vicinity of an inadvertent discovery, including the immediate notification of the PG&E Cultural Resources Specialist. Impacts would be less than significant.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, waste water treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the waste water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County General Plan EIR (County of Calaveras 2018); Calaveras County Municipal Code Chapter 8.12; and the Calaveras County Water District's Urban Water Management Plan (CCWD 2021).

a) ***Would the project require or result in the relocation or construction of new or expanded water, waste water treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

Less-than-Significant Impact. Water consumption during construction would be required for dust suppression and earthwork. The proposed project would require fugitive dust BMPs during earthmoving activities. Construction and operational water would be provided by on-site water tanks. There would be no demand for potable water because there would be no habitable structures on site. The proposed project would not require or result in the relocation or construction of new or expanded water facilities, and impacts would be less than significant. The proposed project would not generate domestic wastewater because no

habitable structures, restrooms, toilets, or kitchen facilities would be constructed. The proposed project would provide a mobile sanitation facility for workers during the construction period. The mobile sanitation facility would be maintained in a safe and sanitary condition so as not to constitute a public hazard or nuisance. During operations, there would be no mobile sanitation facilities. Therefore, no wastewater treatment would be required, and the proposed project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities. Impacts would be less than significant.

The proposed project would not require natural gas or propane; however, it would use minor amounts of electricity for construction and ongoing maintenance operations during its lifespan. For construction activities, electrical power is expected to be obtained from on-site generators. Controlled security lighting would be installed throughout the project site, as necessary. Lighting would be manually activated only when personnel are present, and would be limited to areas where it is required for safety, security, or operational needs. The electricity needs for the proposed project would be provided by backfeed from the BESS facility or electrical grid through the proposed project gen-tie line. The proposed project would not require or result in the relocation or construction of new or expanded electric power or natural gas facilities; therefore, impacts would be less than significant.

The proposed project would require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote project operations monitoring. To provide communication with PG&E facilities, a fiber-optic cable would be used to connect the project site with the PG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable would be installed within the proposed project footprint. The proposed project would use local exchange carrier services for telecommunication to support remote monitoring requirements. The proposed project would connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers. The SCADA system is required for the proper operation and maintenance of the proposed project. The SCADA system would use proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; or other means of communication, such as radio links and phase loop communication systems. The SCADA system would function as a remote start, stop, reset, and tag out for the facility, thus minimizing labor and site diagnostic information. The SCADA system would also control the on-site collector substation, allowing for fully centralized operation of the proposed project to meet all utility interconnection requirements. The potential impacts associated with the proposed telecommunication facilities and connections are discussed throughout this IS/MND. Further, demand associated with the proposed project would be minimal and is expected to be within the planning forecasts of the affected telecommunications providers. Therefore, impacts related to telecommunication facilities would be less than significant.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less-than-Significant Impact. The estimate of water usage for the proposed project is approximately 5 to 10 acre-feet of water over a 12-month period during the construction phase, primarily for dust suppression, similar to other construction projects of this size. Operations would not require regular water use. The proposed project would use water trucks during construction and include on-site water tanks during operation.

Construction and operational water would be provided via water truck service by a local licensed water purveyor from its existing supplies. Therefore, sufficient water supplies are available to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years; therefore, impacts would be less than significant.

c) Would the project result in a determination by the waste water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less-than-Significant Impact. No new wastewater service or connections to existing facilities would be required by the proposed project. There would be no generation of wastewater because there would be no habitable structures on site. Minor amounts of domestic wastewater would be generated by the mobile sanitation facility during construction. The wastewater would be treated using existing facilities; impacts to wastewater system capacity would be less than significant.

d) Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-Significant Impact. The proposed project would result in the generation of minor amounts of construction waste, which would require disposal at the closest landfill in the County, Rock Creek Landfill. During construction, soil waste would be screened and separated for use as backfill to the maximum extent possible. Other waste debris generated during construction (e.g., bolts, packing waste) would be hauled off site for recycling when possible. Chapter 8.12 of the County Municipal Code, the Calaveras County Solid Waste Management Ordinance, establishes regulations governing the collection, transportation, storage, disposal, and management of solid waste within unincorporated Calaveras County. All waste generated during construction of the proposed project would be handled and disposed of in compliance with all applicable federal, state, and local statutes and regulations related to solid waste. Chapter 8.12 of the County Municipal Code requires all waste generated during construction of the proposed project to be handled and disposed of in compliance with all applicable federal, state, and local statutes and regulations related to solid waste.

Solid waste generated by employees and other on-site activities during long-term project activities (e.g., equipment replacement and vegetation management) would be minimal because workers would only be on the project site periodically for maintenance. The long-term solid waste stream would not be large enough to require any measurable landfill capacity. The proposed project would comply with all federal, state, and local statutes regarding the regulation of solid waste disposal and would participate in available industry recycling programs. Impacts would be limited and temporary during construction, and would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less-than-Significant Impact. The proposed project would comply with federal, state, and local statutes and regulations governing solid waste disposal during construction, operation, and decommissioning. Therefore, impacts would be less than significant.

PG&E Interconnection Infrastructure Improvements

As described in Chapter 2, Project Description, PG&E would construct the proposed project's interconnection facilities. Activities would include installation of a gen-tie line after the point of change of ownership; fiber-optic line terminal equipment; DTT scheme and circuit breaker at the existing PG&E Valley Springs Substation; and DTT scheme at the existing PG&E Tiger Creek Powerhouse, Electra Powerhouse, and Bellotta Substation using existing infrastructure. No mitigation would be required specific to the PG&E interconnection infrastructure. The PG&E interconnection infrastructure for the proposed project would not result in the need for new or relocated utilities or service systems, would have little if any water demand and would not result in insufficient supplies, and would not result in substantial wastewater or solid waste generation in excess of available capacity. PG&E's standard BMPs include compliance with all applicable federal and state laws and regulations during construction and operation, including those regulations that relate to solid waste disposal and recycling. For example, PG&E would implement BMPS related to trash, in which all activity and food-related trash would be placed in a covered receptable and remove from the activity area daily. Impacts would be less than significant.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☒	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

This section used the following sources: Calaveras County General Plan (County of Calaveras 2019a); Calaveras County Zoning Code; California Geological Survey Seismic Hazards Program: Alquist-Priolo Fault Hazard Zones, U.S.

Quaternary Faults, and EQ Zapp (CGS 2024); California Building Code; California Earthquake Hazards Zone Application – Earthquake Zones of Required Investigation (CDC 2025b); the proposed project's Geotechnical Feasibility Summary (Appendix F); California Safety Code Division 20 (Miscellaneous Health and Safety Provisions) Chapter 6.95, Section 25505; CCR Title 22 Division 4.5, Environmental Health Standards for the Management of Hazardous Waste; County Fire Code (Title 8, Section 8.10, Fire and Life Safety Regulations); NFPA standards; International Fire Code standards; OSHA standards; the CFC; California Environmental Protection Agency standards; the proposed project's Hazardous Consequences Analysis (Appendix H); and the proposed project's Phase I Environmental Site Assessment (Appendix I).

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact With Mitigation. The project site is within a State Responsibility Area classified as a High Fire Hazard Severity Zone (CAL FIRE 2025) (see Figure 9, Fire Hazard Severity Zone). As analyzed in Section 3.9, Hazards and Hazardous Materials, and Section 3.17, Transportation, primary access to the project site would be from Double Springs Road and would not result in any permanent alterations to vehicular circulation routes nor obstruct public access along adjacent roadways that would impact an adopted emergency response plan or emergency evacuation plan. All construction staging would occur within the boundaries of the project site and would not interfere with circulation along the adjacent roadways or any other nearby roadways. The project site is not located along an evacuation route or designated disaster route, and operations under the proposed project would not interfere with an adopted emergency response plan or emergency evacuation plan. Additionally, the project site is in an area with sufficient access for emergency service providers to and from the site. As part of **MM-TRA-1**, all standard construction practices would be followed and adequate circulation and access would be maintained, including coordinating with local emergency response providers (local police, fire, and medical dispatch) regarding proposed construction activities. The proposed project also would comply with SB 38, which requires BESS facilities in California to have an emergency response plan and emergency action plan that cover the premises of the facility. With implementation of **MM-TRA-1**, impacts would be less than significant.

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-than-Significant Impact with Mitigation Incorporated. The project site is currently vacant. The project site is surrounded on the east by the existing PG&E Valley Springs Substation; on the south by Double Springs Road, Cal-Waste Recovery Systems, and open space; and on the north and west by open space. The project site is relatively flat. The gen-tie line would be installed above ground and would be supported by steel poles up to approximately 57 feet tall, which is consistent with the existing equipment and transmission lines at the PG&E Valley Springs Substation. The project site would be served by the SAFPD and CAL FIRE. The SAFPD would provide all-risk fire protection services to the project site, and CAL FIRE would provide wildfire direct protection on State Responsibility Area lands (County of Calaveras 2018). According to CAL FIRE, the project site is within a High Fire Hazard Severity Zone (CAL FIRE 2025).

Under normal operations, BESS facilities do not contain, store, or generate hazardous materials in quantities that represent a risk to off-site receptors. In addition, the proposed project's preventive measures and fire and safety systems make accident conditions very rare. Nevertheless, because BESS facilities do store energy, a battery thermal runaway can occur if a cell or area within a cell reaches elevated temperatures due to thermal failure, mechanical failure, or internal/external short-circuiting. As discussed in Section 3.9, Hazards and Hazardous Materials, a Hazardous Consequence Analysis (Appendix H) was

conducted for the proposed project to evaluate the potential for hazardous emissions to impact nearby receptors, including a school, in the case of a thermal runaway event or fire at the proposed project. The UL9540 tests for the BESS (Appendix J) showed that in the event of a single battery cell undergoing forced thermal runaway, there was propagation to one additional cell within the module, for a total of two cells. No external flaming or flame venting occurred during the UL9540A testing at the module or unit level, and no module to module or to unit to unit propagation was observed, even under forced conditions. Although the module level test showed propagation to two cells within a single module, the HCA conservatively assumes 20 cells within an enclosure would be affected and therefore presents a reasonably conservative analysis (i.e., a multi-battery cell malfunction). Additionally, an evaluation of an entire Hithium OO Block (4,992 cells) undergoing a thermal runaway event was also conducted, but as noted, nationally recognized testing has demonstrated that propagation is expected to be limited to two cells.

The Hazardous Consequence Analysis determined that, under the modeled scenarios, emissions to nearby sensitive receptors would be well under acute exposure guidelines and reference exposure levels, and the acute hazard index would not exceed thresholds for cancer risk.

Construction of the proposed project would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, the proposed project would be required to comply with state and County requirements for fire safety practices, including CFC Chapter 33 regulations, to reduce the possibility of fires during construction activities. Implementation of **MM-WF-1** (Pre-Construction Requirements) would ensure that before combustible materials are brought onto the site, all utilities and site improvements, fire water storage, all-weather roadways, and fire barriers would be in place and vegetation clearing would be maintained. Adherence to state and County regulatory standards during project construction would reduce the risk of wildfire ignition and spread during construction activities. Therefore, short-term construction-related impacts associated with exacerbating wildfire risk would be less than significant with mitigation incorporated.

The proposed project has been designed to reduce the potential of off-site wildfire propagation onto the project site or causing enough heat to induce a thermal event in the BESS area. The proposed project design includes a multi-layered fire buffer and insulation approach utilizing non-combustible materials and features. The non-combustible design features are as follows starting with the furthest extent from the BESS enclosures:

- 50-foot-wide crushed gravel fire mitigation buffer including stone slope revetment (slope stabilization)
- 26-foot-wide gravel site access and emergency response roadways with turning radiuses to accommodate up to 50-foot-long fire trucks
- 7-foot-tall masonry block wall surrounding the BESS area
- Insulated stone pads beneath the BESS enclosures
- Metal BESS enclosures housing battery racks and ancillary equipment

Additionally, the risk of a wildfire igniting on the project site or spreading onto the project site from an adjacent property can be minimized by maintaining the on-site vegetation in a condition that is unlikely to support a fast-moving or intense wildfire. The combination of the approximately 50-foot-wide crushed gravel fire mitigation buffer for the proposed project equipment, a 7-foot-tall non-combustible block wall, and the non-combustible access roads, and management of the vegetation on the project site would minimize the

risk that an ignition event, such as the failure of energized equipment, would result in a wildfire. With implementation of **MM-WF-2** (Vegetation Management), vegetation management would occur within up to 100 feet of the proposed project facilities, including BESS modules, PCS, and substation equipment. This area would include the equipment pad, the crushed stone fire mitigation buffer, and the access road around the facility. In areas where it would not be possible to maintain the entire 100-foot width, vegetation management would still be conducted to the extent feasible, but these areas would not expose the proposed project facility to increased wildfire risk. Flame lengths in the grasslands outside of the project site are not expected to exceed 10 feet in height (USDA 2024), and the available vegetation management area plus the 7-foot-high wall and access road would provide a more than adequate separation between the proposed project equipment and a wildfire in unmanaged grasslands to prevent direct flame contact with proposed project equipment or facilities. For example, the proposed crushed gravel buffer would be five times wider than the maximum anticipated flame length. Moreover, the fire behavior modeling prepared for the proposed project (provided in Appendix N, Fire Prevention Plan) predicted flame lengths of 4 to 8 feet, which is similar to the 10-foot predicted maximum from the U.S. Department of Agriculture. Since the maximum anticipated flame lengths under extreme weather conditions are 10 feet, the aforementioned fire protection features would be more than adequate to prevent the project components from direct flame contact from off-site wildland fire.

As mentioned above, the proposed batteries would be compliant with all codes and standards and would include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire. No BESS-related fires have spread beyond its project perimeter. A battery management system would be installed to automatically shut down any affected BESS components and prevent the spread of fire to the other battery storage modules in the event of an emergency. Water is not recommended to suppress a BESS fire, but water available for firefighting purposes to douse surrounding grassland would be provided by an on-site water tank to reduce the risk of fire propagation from off site. The on-site water tank would comply with NFPA 22, Standard for Private Fire Protection Water Tanks. The water capacity of the tank and fire flow capacity of the attached fire pump would meet the minimums described in NFPA 1142 and be compliant with CFC requirements. The proposed tank would have a 30,000-gallon capacity (Appendix L, Fire Safety Plan). The proposed project would comply with Chapter 15.04.020 of the County Municipal Code, which adopts regulations from the CFC, and Chapter 8.08 of the County Municipal Code, which pertains to hazardous fire areas. Fire apparatus roads designed to County standards would allow emergency response vehicles access to all areas of the project site. The proposed project and project-related improvements would be constructed and operated in compliance with the CBC, CFC, and County Fire Code, and would be required to prepare a Fire Prevention Plan (Appendix N) and Fire Safety Plan (Appendix L) to be reviewed and approved by the SAFPD prior to issuance of grading permits (**MM-WF-1**). Therefore, the proposed project would not expose people to significant pollutant concentrations resulting from wildland fires or the uncontrolled spread of wildfire. As such, impacts would be less than significant with mitigation incorporated.

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less-than-Significant Impact with Mitigation Incorporated. As described above, the proposed project has been designed to minimize risk of fire hazards. The proposed battery packs would be NFPA 855 Code compliant and include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire. A battery management system would be installed to automatically shut down any affected

battery storage components and prevent the spread of fire to the other battery storage modules in the event of an emergency. The Site Safety Director (or a trained specialist, when necessary) would ensure that the proposed project's PCS and energy transmission equipment are maintained according to manufacturer specifications, National Electrical Code standards, and Public Utilities Code requirements. This would include inspections according to the schedules listed in Public Utilities Code General Order 165. Implementation of **MM-WF-1** would require the proposed project to implement all safety standards outlined in the project-specific Fire Protection Plan and Fire Safety Plan, which would reduce fire risk associated with installation and maintenance of the gen-tie line and fiber-optic cables necessary for telecommunication. Further, the proposed project would be constructed and operated in compliance with the CBC, CFC, and County Fire Code, and the Fire Protection Plan and a Fire Safety Plan would be approved by the SAFPD prior to issuance of grading permits to ensure that implementation of the proposed project would not exacerbate fire risks or result in temporary or ongoing environmental impacts. Additionally, the proposed project's access/emergency fire response road would surround the entire perimeter of the facility and would include a turnaround area that would accommodate a 50-foot-long fire truck minimum. This provision ensures adequate emergency access to the project site. The proposed project also would comply with SB 38, which requires battery energy storage facilities in California to have an emergency response plan and emergency action plan that cover the premises of the facility. Therefore, impacts would be less than significant with mitigation incorporated.

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less-than-Significant Impact. The project site is relatively flat, with slopes ranging from 0% to 10% with an estimated average of 4%; the site is not located within a 100-year floodplain (FEMA 2017). Project operations would include post-construction stormwater management that would implement the Stormwater Management Plan's BMPs, which are designed in accordance with Calaveras County Code Chapter 13.01 – Stormwater Quality, to capture and treat post-construction stormwater runoff. The proposed project is not anticipated to expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, postfire slope instability, or drainage changes. As such, impacts would be less than significant.

PG&E Interconnection Infrastructure Improvements

PG&E would incorporate upgrades to the Valley Springs Substation to support interconnection of the 70 kV gen-tie line, which would occur within areas previously disturbed and occupied by existing electrical facilities. PG&E would construct, own, and operate the proposed project's interconnection facilities. Activities would include installation of the gen-tie line terminal and fiber-optic line terminal equipment and one circuit breaker at the Valley Springs Substation. The Valley Springs Substation is located in a State Responsibility Area classified as a High Fire Hazard Severity Zone (CAL FIRE 2025). Construction of the PG&E improvements would not conflict with implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. The improvements also would not exacerbate fire risks or result in temporary or ongoing impacts to the environment, and would not expose people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes. PG&E would comply with all applicable state laws and regulations during construction and operation, including those related to wildfire risks and fire prevention such as California Public Utilities Commission General Order 95 and General Order 166. As such, impacts associated with the PG&E interconnection upgrades would be less than significant.

Mitigation Measures

MM-WF-1 Pre-Construction Requirements. Prior to the commencement of construction activities, the Project Applicant shall prepare a final Fire Protection Plan and Fire Safety Plan that require the training of construction personnel and provide details related to fire-suppression procedures and equipment to be used on site during construction and operation. The Fire Protection Plan and Fire Safety Plan shall be consistent with the requirements in California Building Code Chapter 33 and California Fire Code (CFC) Chapter 33; shall be subject to review and approval of the San Andreas Fire Protection District (SAFPD); and shall include, at minimum, the following:

- A fuel management zone complying with the SAFPD and California Department of Forestry and Fire Protection (CAL FIRE) shall be installed prior to allowing any combustible material to arrive on the site, and the zone shall be maintained for the duration of the proposed project.
- All construction site activities shall maintain compliance with the CFC.
- The proposed project shall provide and maintain fire department access roadways in accordance with the CFC and the Fire Safe Regulations.
- The address numbers of the property or project location shall be plainly visible and legible from the street or road fronting the property at the fire apparatus access point or as otherwise approved by the SAFPD.
- All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.
- Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) muffler in good condition.
- Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.
- Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- A cache of shovels, Mcleods, and Pulaskis shall be available at staging sites. The amount of equipment shall be determined by consultation between the Site Safety Director (SSD) and the SAFPD. Additionally, on-site pickup trucks shall be equipped with first aid kits, fire extinguishers, and shovels. Contractor vehicles shall be required to include the same basic equipment.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials and provided with a gravel surface.
- A fire watch (i.e., person responsible for monitoring for ignitions) shall be provided during hot work and shall continue for not less than 30 minutes following completion of hot work activities.
- Smoking will not be permitted on the site.

- Each project construction site, if construction occurs simultaneously at various locations on the site, shall be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- The on-site contractor or project staff shall coordinate with the SAFPD to create a training component for emergency first responders to prepare for specialized emergency incidents that may occur at the project site.
- All on-site employees shall participate in fire prevention and response training exercises with the SAFPD.
- The proposed project shall implement ongoing fire patrols during the fire season as defined by local and state agencies. The SSD shall be assigned as fire patrol to monitor work activities when an activity risk exists for fire compliance. The SSD shall verify that proper tools and equipment are on site, assess any fire agency work restrictions, and serve as a lookout for fire starts, including staying behind (e.g., a fire watch) to make certain no residual fire exists. Fire watch may be performed by any site personnel. An SSD shall perform routine patrols of the project site during the fire season and be equipped with a portable fire extinguisher and communications equipment. The project staff shall notify the SAFPD of the name and contact information of the current SSD in the event of any change.
- Fires ignited on site shall be immediately reported to the SAFPD via calling 9-1-1 for Emergency Dispatch.
- The engineering, procurement, and construction contracts for the proposed project shall clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in the Fire Safety Plan.

MM-WF-2 Vegetation Management. Annual grasslands within the project site shall be maintained to a height of 4 inches or less. Maintenance shall begin as soon as the grasslands have fully cured and continue until the end of the fire season or the grasslands have undergone green-up. Vegetation management will not be required while vegetation on the property is green because annual grasslands cannot sustain wildfire when the grass is green, and the vegetation would rapidly grow back, requiring frequent treatment. Vegetation management shall be performed within 100 feet of the project facilities (or the nearest property line, if less than 100 feet), including any battery energy storage system modules, power conversion system, and substation equipment, where feasible. This 100-foot area shall include the equipment pad, the crushed stone fire mitigation buffer, and the access road around the facility.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

This section used the following sources: Biological Resources Technical Report (Appendix D1), Biological Assessment (Appendix D2), Aquatic Resources Delineation Report (Appendix D3), Archaeological Resources Inventory Report (Appendix E), Geotechnical Feasibility Summary (Appendix F), and the Paleontological Resources Memo (Appendix G).

a) ***Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?***

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.4, Biological Resources; Section 3.5, Cultural Resources; and Section 3.7, Geology and Soils, impacts on biological, cultural, and paleontological resources would be less than significant with mitigation incorporated. Regarding biological resources, special-status plant and wildlife species have a low potential to occur on the project site, and implementation of **MM-BIO-1** through **MM-BIO-5** would reduce impacts to wildlife. Due

to a low potential for special-status species to occur on or utilize the project site the proposed project would result in a less than significant effect on fish or wildlife populations, threaten or eliminate a plant or animal community, or substantially restrict the range of rare or endangered plants or animals, No cultural resources (including historic-period or prehistoric archaeological sites, or historic-period architectural resources) were identified on the project site, and implementation of **MM-CUL-1** and **MM-CUL-2**, which outline procedures to be followed in the event of an inadvertent discovery of cultural resources, would reduce impacts to less than significant. The proposed project is not anticipated to disturb unique paleontological resources; however, should paleontological resources be discovered on site, implementation of **MM-GEO-1** would a require a certified paleontologist to be retained to observe grading activities within the Mehrten Formation and to salvage and catalogue paleontological resources as necessary. The paleontologist would develop and execute a Paleontological Resources Impact Mitigation Program; would be present at the pre-grade conference; would establish procedures for paleontologist resource surveillance; and would establish, in cooperation with the project Applicant, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of any artifacts, as appropriate. As a result, the proposed project would not degrade the quality of the environment, including causing a substantial reduction of fish or wildlife habitat, reduction of rare or endangered plant or animal species, or elimination of important examples of the major periods of California history or prehistory. Impacts would be less than significant with mitigation.

As described above, impacts associated with the PG&E interconnection upgrades would be less than significant in all resource areas, and PG&E would implement standard measures and BMPs and comply with applicable laws during construction and operation. PG&E's improvements would require minimal, if any, ground disturbance and would occur within areas previously disturbed and occupied by existing electrical facilities within the substations. As a result, the PG&E interconnection upgrades would not degrade the quality of the environment, including causing a substantial reduction of fish or wildlife habitat, reduction of rare or endangered plant or animal species, or elimination of important examples of the major periods of California history or prehistory. Impacts would be less than significant.

b) ***Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)***

Less-than-Significant Impact. When considered independently, impacts from an individual project may not be significant; however, the combined effects of several projects may be significant when considered collectively. Cumulative impacts associated with the proposed project have been analyzed in a Calaveras County-centered regional context with other past, current, and reasonably foreseeable development projects. Other projects would be required to comply with CEQA, incorporate feasible mitigation to address any potentially significant impacts, and demonstrate consistency with local ordinances, regulation and state and federal law; therefore, cumulative impacts would be less than significant and the project's incremental contribution would not be cumulatively considerable. Existing development in the area, including the PG&E substation and other industrial and commercial uses, is limited and has not resulted in any significant impacts. The proposed project would result in less-than-significant impacts with mitigation incorporated for the following environmental issues: biological resources, cultural resources, transportation, and wildfire. The impacts associated with these resource areas primarily are localized and, as explained in detail above, project-level impacts would be less than significant with mitigation incorporated. All other proposed project impacts were determined either to have no impact or to be less

than significant following compliance with applicable regulations, without the need for mitigation. Given the limited development in the area, there is no evidence of any cumulative impacts to these resource areas. Thus, cumulative impacts would be less than significant, and the proposed project's incremental contribution would not be cumulatively considerable.

Similarly, PG&E's improvements would be minor in scope and occur within areas previously disturbed and occupied by existing electrical facilities, requiring minimal, if any, ground disturbance. All impacts related to PG&E's improvements were determined either to have no impact or to be less than significant following compliance with PG&E's standard measures, BMPs, and applicable regulations. Given the limited development in the area, there is no evidence of any cumulative impacts to these resource areas. Thus, cumulative impacts would be less than significant, and the incremental contribution from PG&E's improvements would not be cumulatively considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact. As demonstrated in the analysis in this IS/MND, construction and operation would not have the potential to generate significant adverse impacts on human beings, and no mitigation would be required for issues related to human health, including air quality, hazards and hazardous materials, hydrology, noise, and water quality. As such, the effects on human beings as a result of the proposed project would be less than significant.

Similarly, the PG&E's improvements would be minor in scope and occur within areas previously disturbed and occupied by existing electrical facilities, requiring minimal, if any, ground disturbance. The improvements would not have the potential to generate significant adverse impacts on human beings, including air quality, hazards and hazardous materials, hydrology, noise, and water quality. As such, the effects on human beings as a result of PG&E's improvements would be less than significant.

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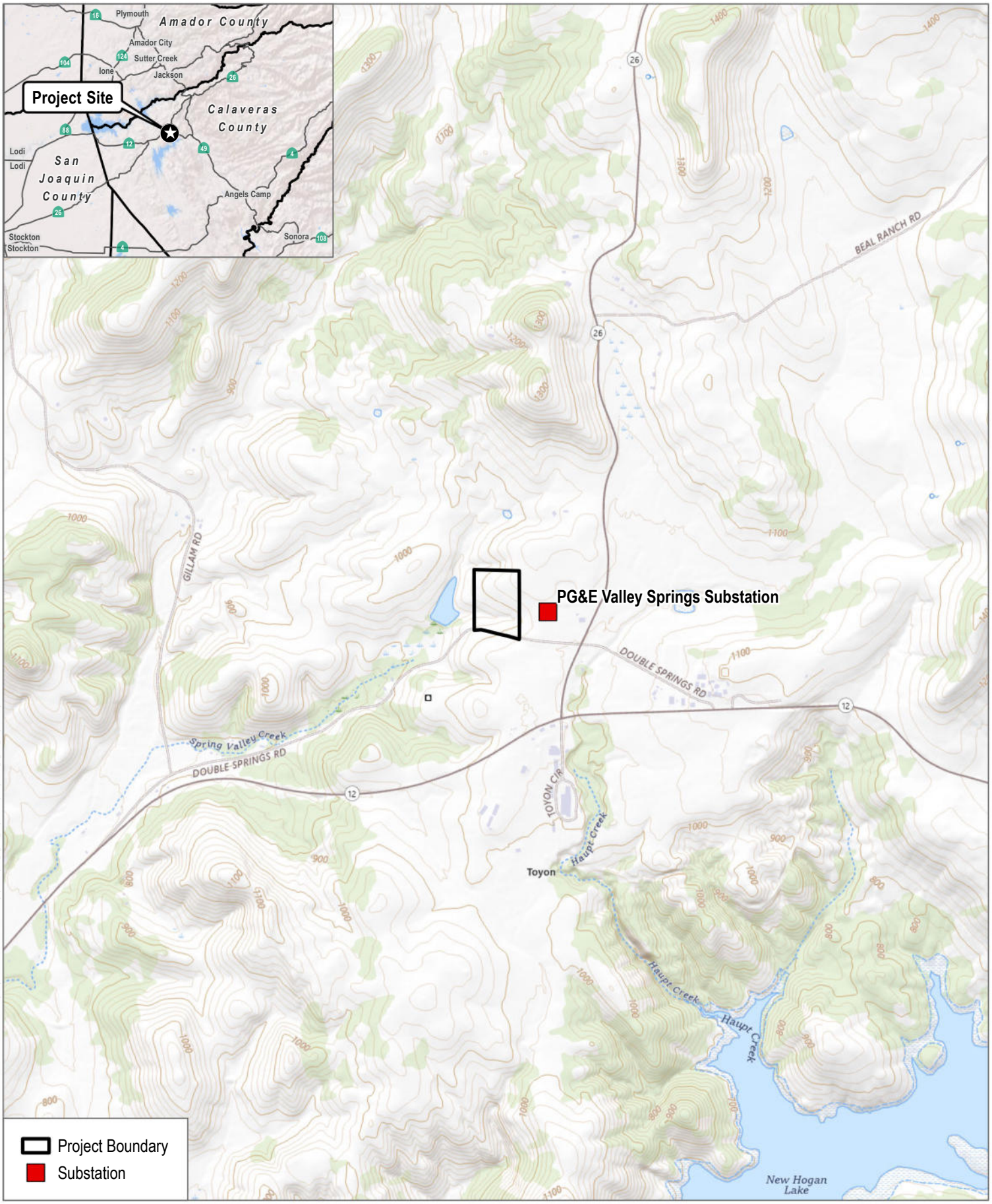
4.2 List of Preparers

Calaveras County

Madeleine Flandreau, Senior Planner
Katherine Stefani, Planner II

Dudek

Cindi Hoover, AICP, Project Manager
Tracy Ortega, Environmental Planner
Brandon Whalen-Castellanos, AICP, Environmental Planner
Samantha Robinson, Environmental Planner
Adam Poll, Air Quality Specialist
Erin Dickman, Biologist



SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

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FIGURE 1

Project Vicinity

Double Springs Energy Storage Project

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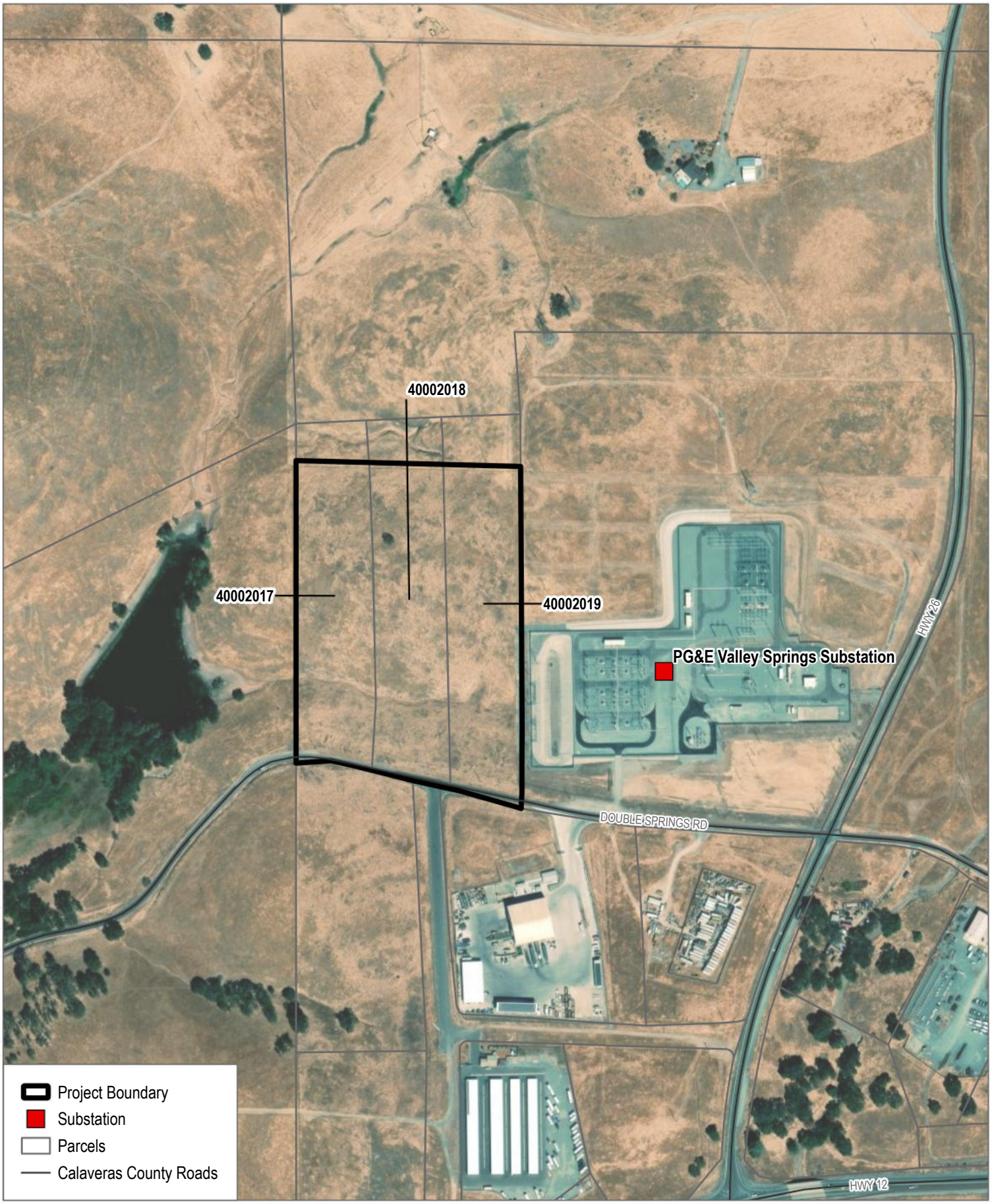

SOURCE: Esri World Imagery Basemap (accessed 2025); Calaveras County 2019; CEC 2024

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FIGURE 2A

Project Site

Double Springs Energy Storage Project

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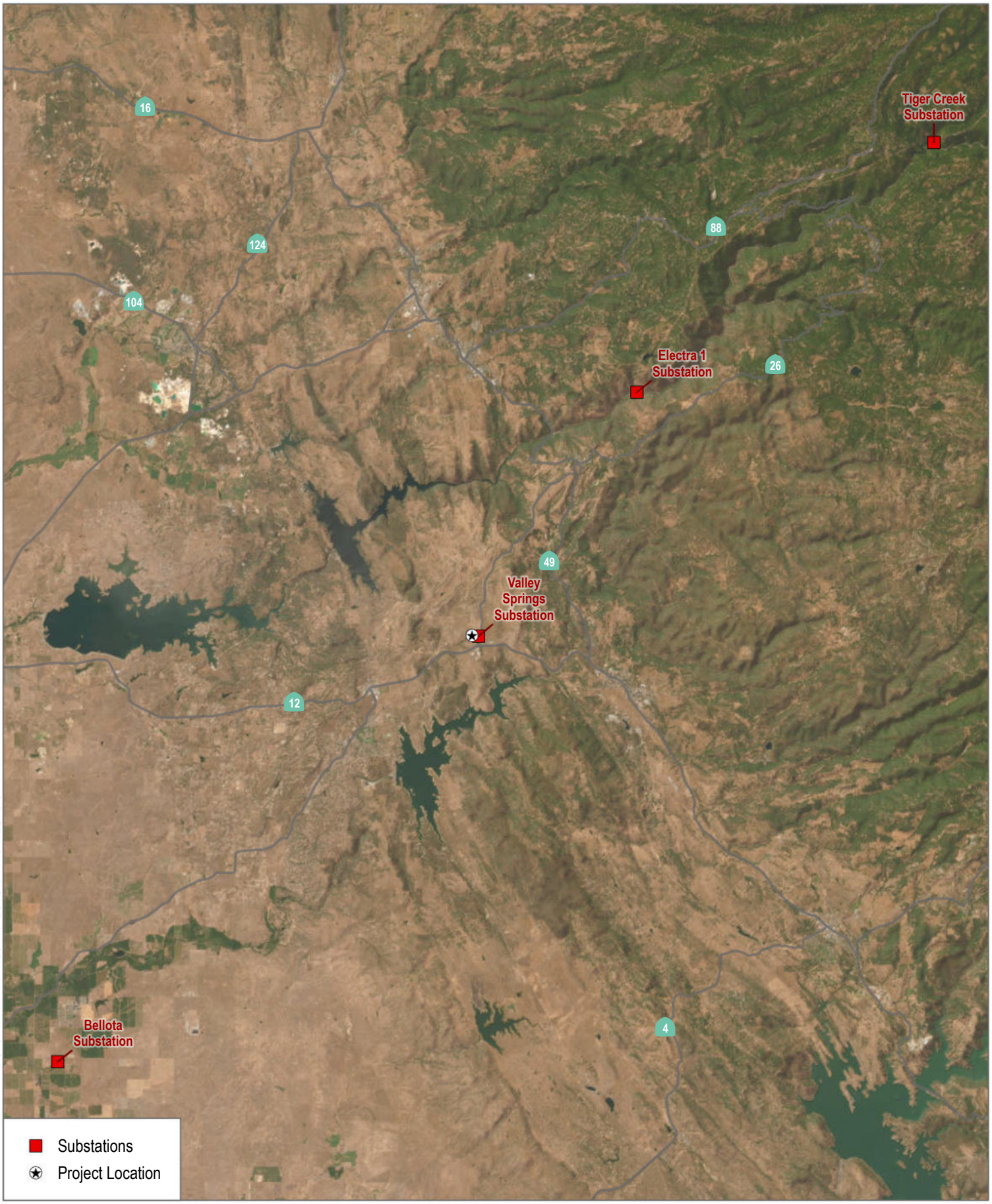

SOURCE: Esri World Imagery Basemap (accessed 2025); Calaveras County 2019; CEC 2024

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FIGURE 2B

PG&E Interconnection Infrastructure Improvements

Double Springs Energy Storage Project

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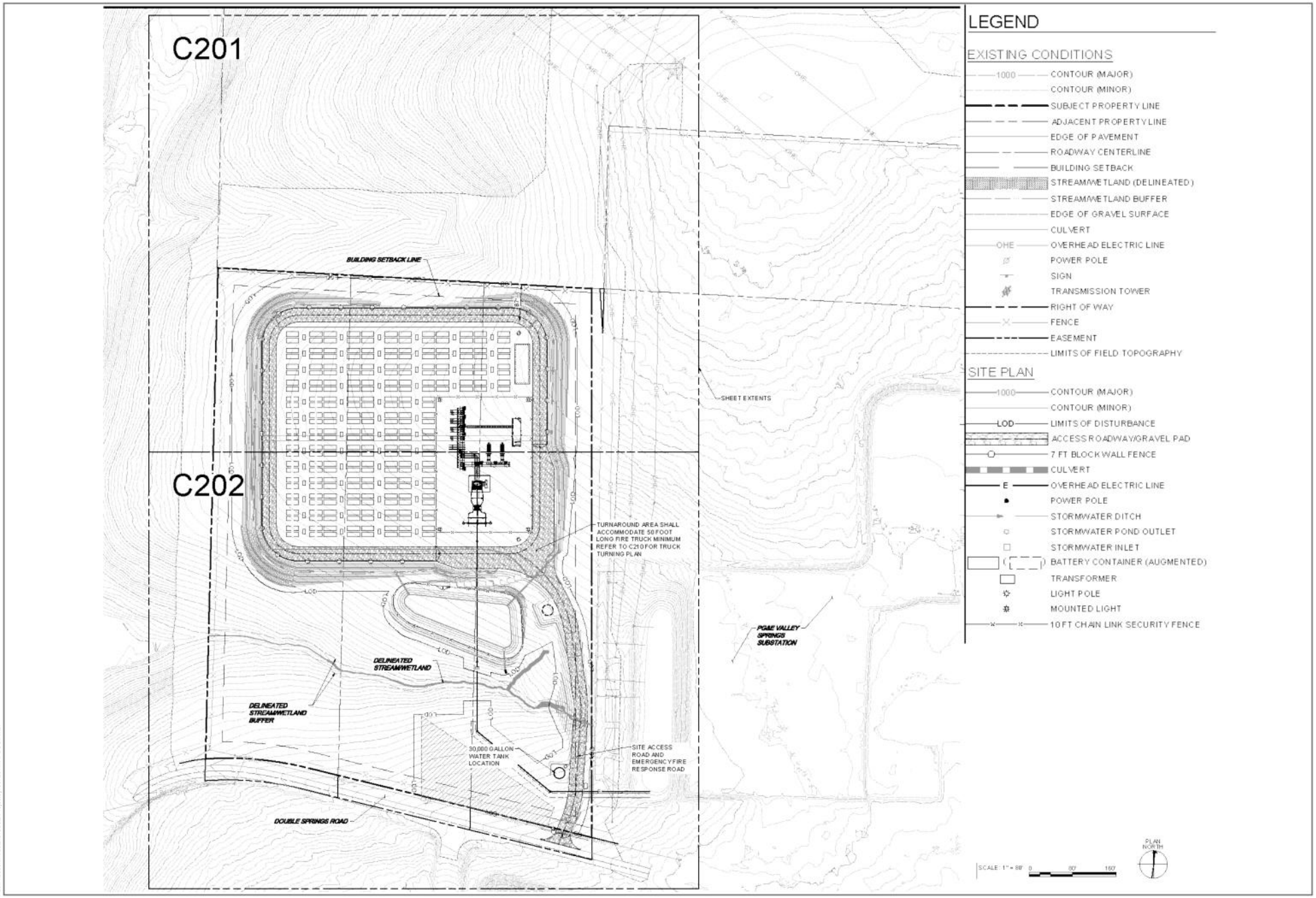

SOURCE: TetraTech, 2025

FIGURE 3

Project Site Plan

Double Springs Energy Storage Project

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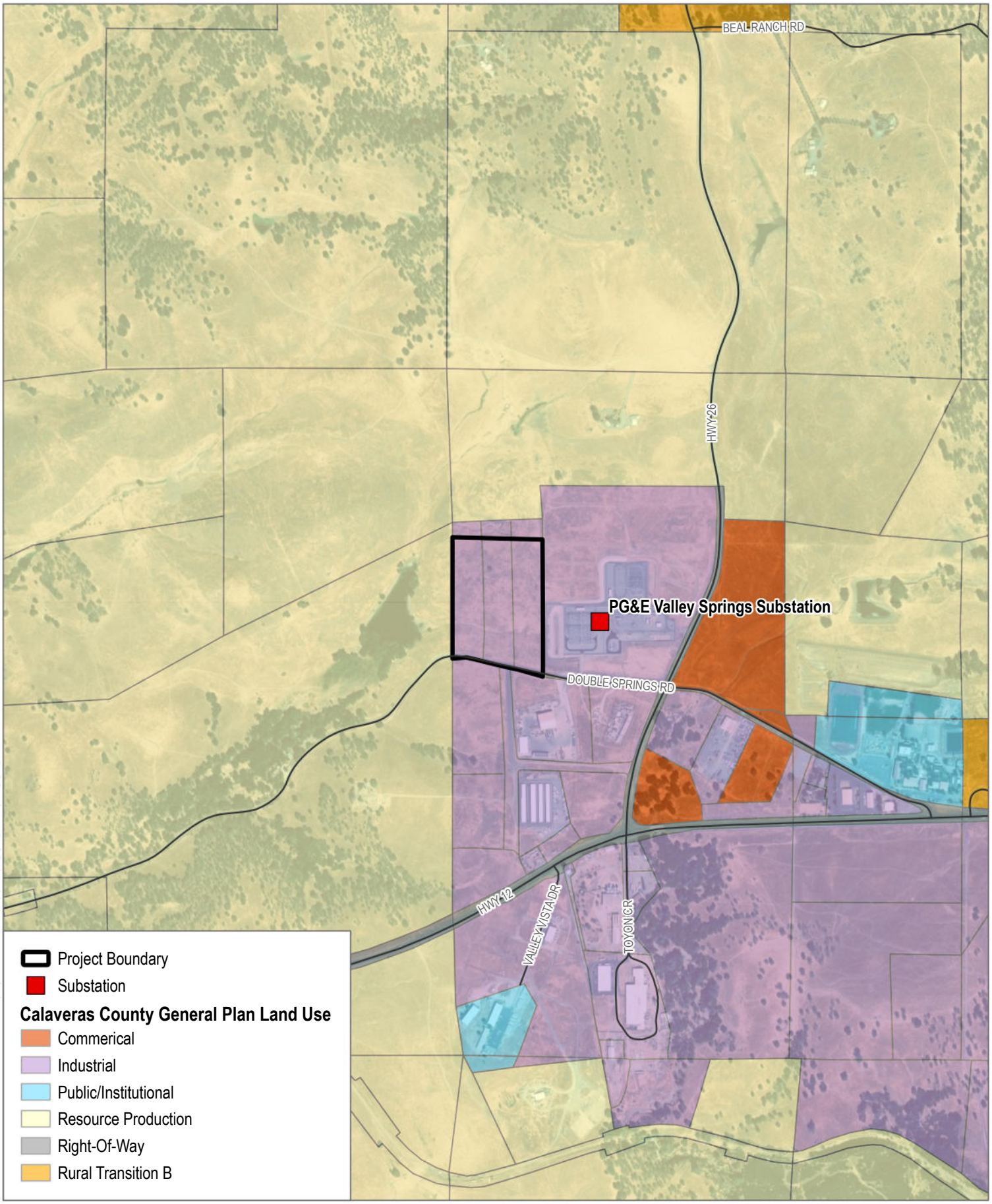

SOURCE: Esri World Imagery Basemap (accessed 2025); Calaveras County 2019

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FIGURE 4

General Plan Land Use

Double Springs Energy Storage Project

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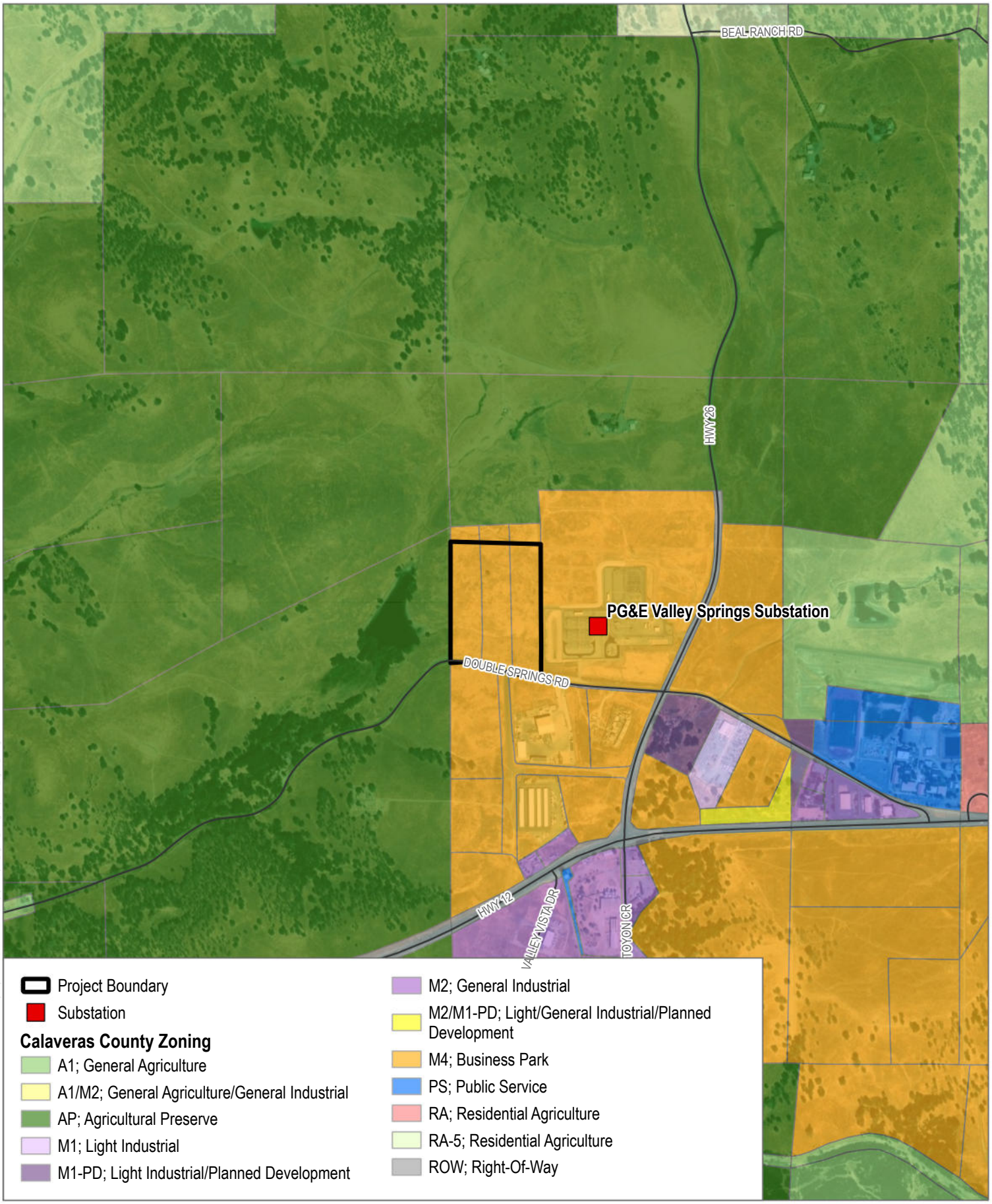

SOURCE: Esri World Imagery Basemap (accessed 2025); Calaveras County 2024

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FIGURE 5

Zoning

Double Springs Energy Storage Project

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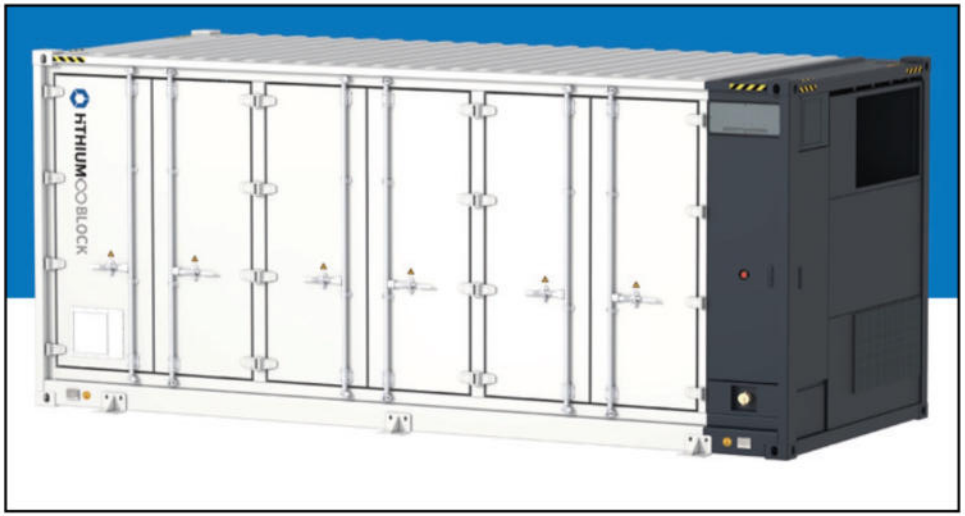
Sample



Sample



Sample



Sample

Path: \\dudek.int\data\GIS\Data\Projects\13672011\MAP\DOC\HMBP

FIGURE 6

Energy Storage Equipment Photos

Double Springs Energy Storage Project

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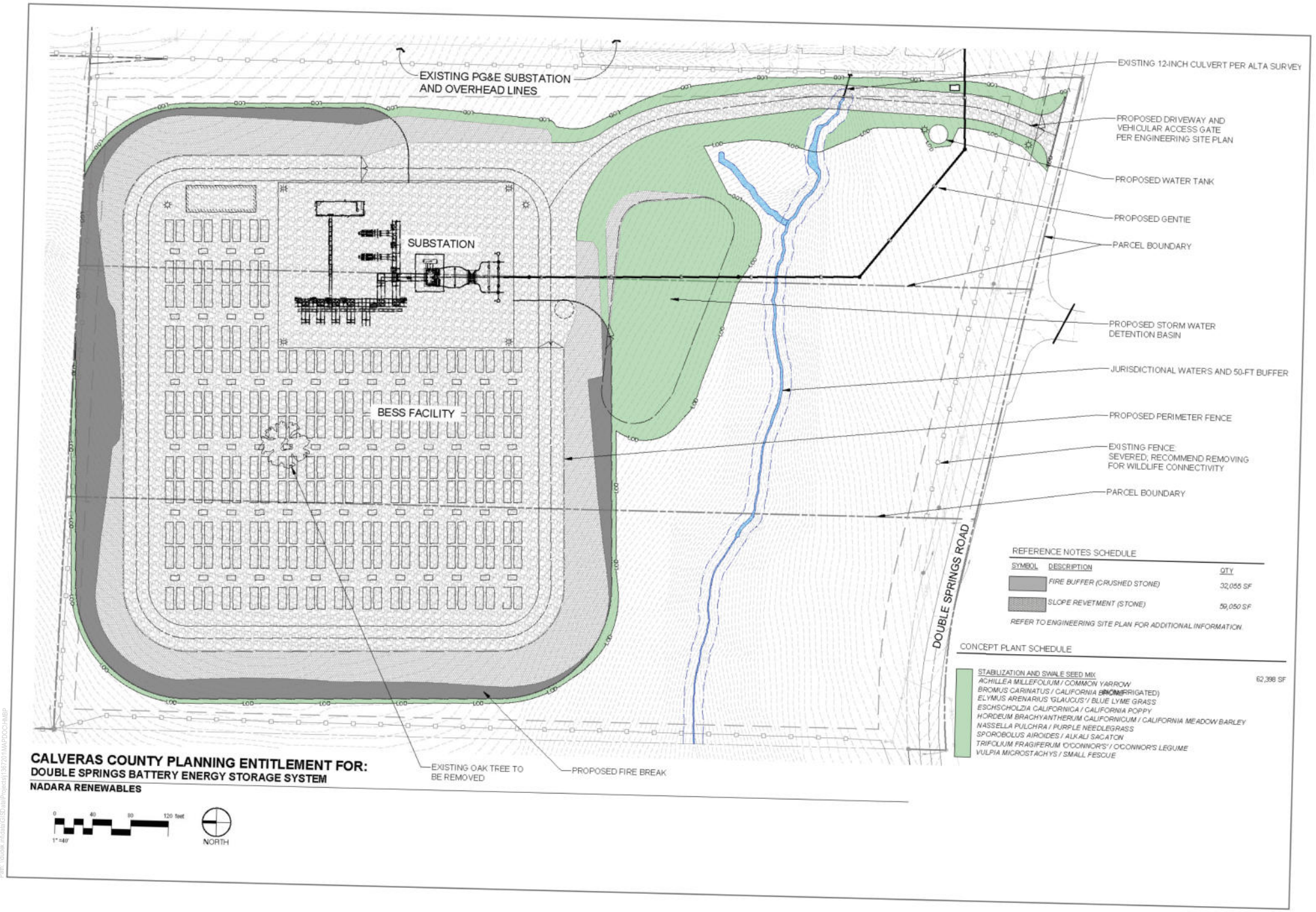

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FIGURE 7

Landscape Plan

Double Springs Energy Storage Project

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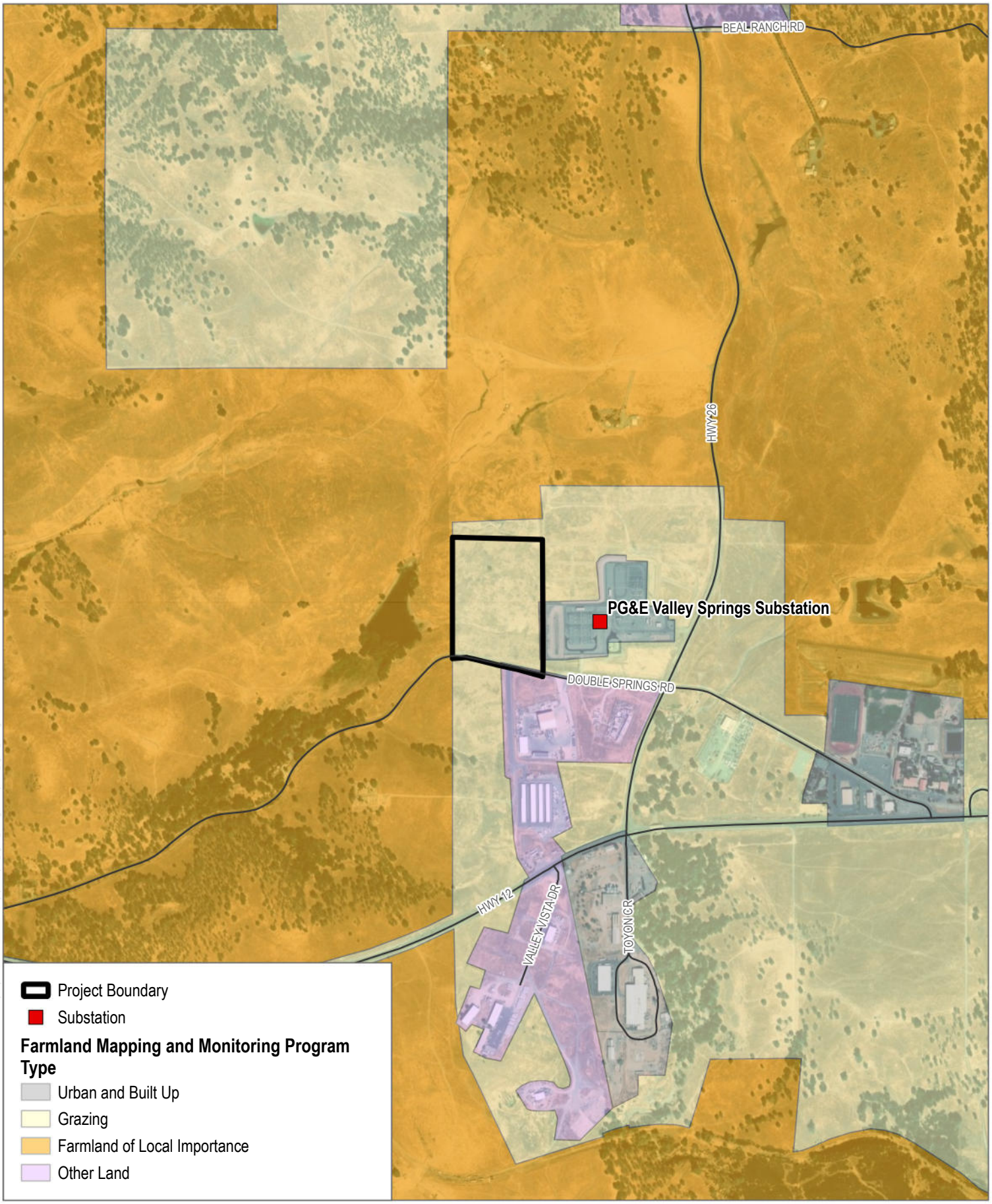

SOURCE: Esri World Imagery Basemap (accessed 2025); Calaveras County 2019; CA Dept. of Conservation 2018

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FIGURE 8

FMMP Designations

Double Springs Energy Storage Project

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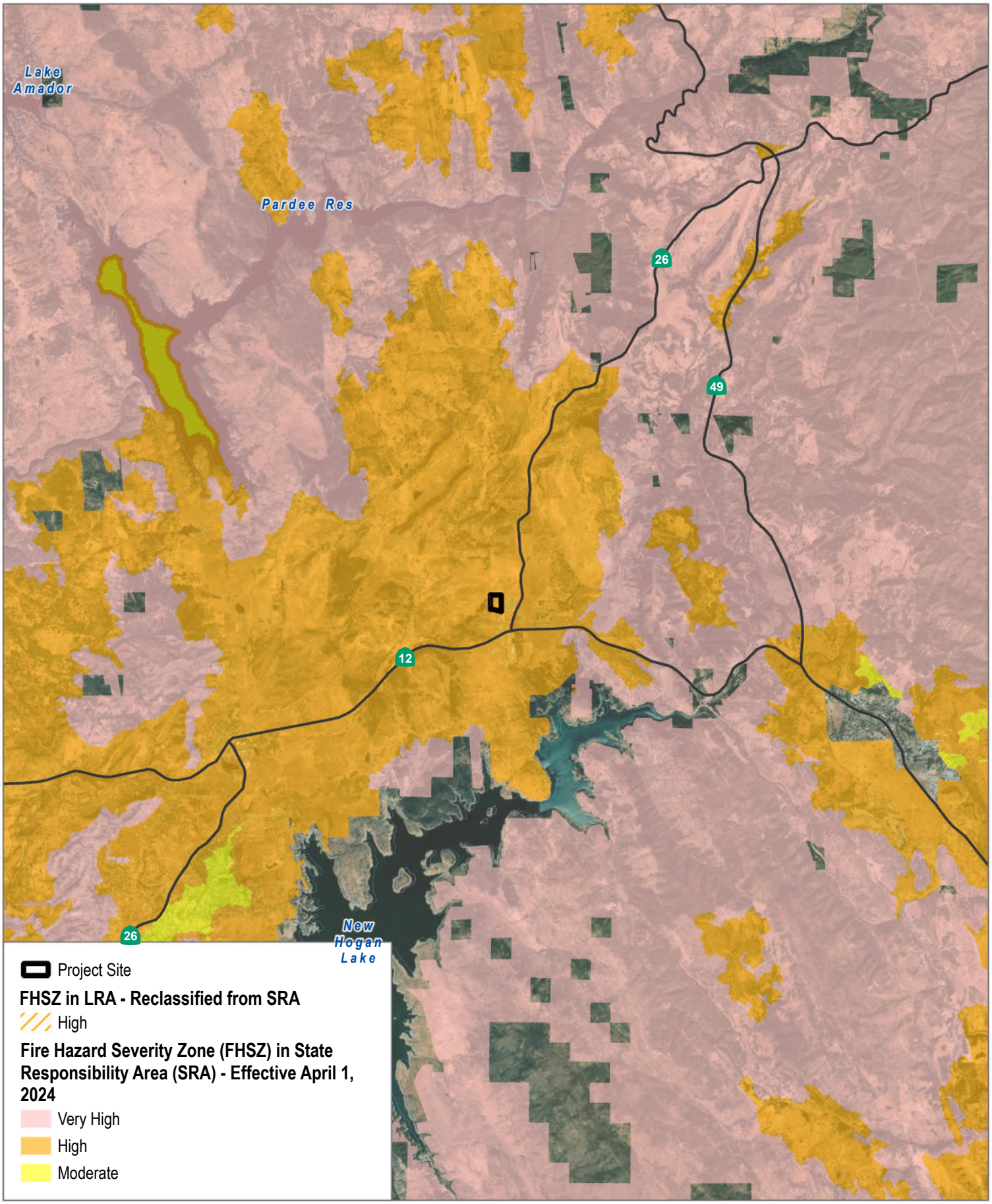

SOURCE: Bing Maps (accessed 2024); Calaveras County 2024

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FIGURE 9

Fire Hazard Severity Zone

Double Springs Energy Storage Project

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Appendix A

PG&E Best Management Practices

APPENDIX P

PG&E Best Management Practices

PG&E Best Management Practices

Measure type	Specific BMP
Dust control	• Apply water as needed • Limit vehicle speed to 15 miles per hour • Cover loads • Clean track-out daily
Parking	• Park on pavement, existing roads, and previously disturbed areas to the extent practicable. • Avoid parking on dry vegetation. • Carry water or fire extinguisher and shovel during dry conditions.
Access	• Vehicles and equipment must use pavement, existing roads, and previously disturbed areas to the extent practicable. • Keep off-road travel, blading, and vegetation clearing to the minimum extent necessary for safe vehicle/equipment access.
Trash	Place all activity and food-related trash in a covered receptacle and remove from the activity area daily.
Refueling	• No vehicles or heavy equipment will be refueled within 100 feet of a wetland, stream, or other waterway, or within 250 feet of vernal pools, unless secondary containment is used. • Vehicles will carry adequately stocked spill kits and staff must be trained in their use. • The fueling operator must always stay with the fueling operation. • Do not top off tanks.
Bird nests	Bird nests with eggs and/or chicks will not be disturbed; contact a biologist or the Avian Protection Program Manager for further guidance.
Wildlife entrapment	Inspect pipes, culverts and other construction material and equipment for wildlife prior to moving them.
Waterway crossings	Vehicles and equipment may cross streams and wetlands only via existing roads and crossings. When possible, activities near streams, wetlands, or on saturated soils should be conducted during the dry season. If work is necessary during the rainy season, it should be conducted during dry spells between rain events. Vehicles and equipment must be checked and maintained daily to prevent leaks.
Vernal pools	If overland access or ground disturbing work is planned within 250 ft. of any water feature, contact a PG&E Biologist.
Wildlife sighting	No wildlife or plant species will be handled or removed from activity areas.
Invasive Species	Clean all vehicles, equipment, clothing, etc. of material potentially containing noxious weeds/seeds prior to entering and existing work locations. Cleaning can be accomplished by brushing, washing, or blowing with compressed air.
Waterways	Cleared or pruned vegetation, woody debris (including chips), and lose or exposed soil, must be disposed of in a manner to ensure that these materials do not enter surface water or a water feature.
Cultural Resource Inadvertent Discovery	If any cultural resources are identified during PG&E activities, stop all work in the vicinity of the discovery and immediately notify the PG&E Cultural Resources Specialist. Archaeological and historic-period resources in the region may include: • Archaeological materials: flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire- affected rock, dark middens, housepit depressions and human interments. • Historic-era resources: may include, but are not limited to, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps.
Herbicide	Herbicides will be applied in a manner to avoid drift, will be stored and transported in a manner to prevent spilling, and will be applied to target species only. Applications must not be made in, immediately prior to, or immediately following rain.
EFS notification	Immediately contact the local EFS and stop work if any of the following conditions occur: • Discharge or spill of hazardous substance; • Visually cloudy/muddy water is observed leaving the work area; • Need for dewatering; • An underground storage tank is discovered; • Potential naturally occurring asbestos (fibrous or flaky rock that can be green, brown, reddish brown, grey and/ or black, may appear waxy or shiny and feel soapy) is identified during excavation; • A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered; or • Unanticipated evidence of contamination is identified (e.g., staining, unusual odors).
Stormwater Runoff	▪ Properly handle, store, and use materials to prevent soil contamination or discharge from site. ▪ Store liquid materials in watertight container with appropriate secondary containment or in a fully enclosed storage shed. ▪ Barricade or cover storm drains with impervious material during demolition activities that involve liquid pollutants or chemicals. ▪ Minimize dry pollutants exposure to precipitation. ▪ Install stabilized entrances and/or implement street sweeping to prevent track out to paved surfaces. ▪ Cover or barricade drains within reasonable proximity to the work area during concrete work. Provide appropriate washout containment and train personnel to wash equipment and tools into the containment BMP. Re-schedule concrete work if rain is forecast. Use vacuum to collect concrete cuttings or slurry and dispose of properly. ▪ Portable toilets must be placed at least 50 feet away from water features, have trays to contain spills and minor leaks, stabilizing features to prevent tipping, and serviced regularly. ▪ Provide waste receptacle (dumpster) adequate in size. Cover all waste containers at end of each day and prior to rain events. Do not allow rinse or wash water (concrete rinse, paint wash, etc.) to contact the ground and/or paved surfaces nor allow rinse or wash water to be directed or dumped into any drain inlet or surface water and properly dispose of all rinse and/or wash water. ▪ Maintain vehicles and equipment in good working condition. Perform fueling and maintenance activities only in areas fitted with appropriate BMPs. Maintain spill kits on-site in case of spill.
Stockpile management	▪ Protect stockpiles from wind, rain, and non-storm water runoff. ▪ Prevent stockpile pollution (from weather, wind, access/tracking, etc…) by ensuring management materials (i.e. cover, tie down supplies, run-on barriers and runoff barriers) are always available. ▪ Protect stockpiles with an upslope and downslope barrier (i.e. biodegradable fiber rolls, gravel bags, etc.). ▪ Keep a minimum separation of 50 feet between stockpiles and concentrated flows of storm water, drainage courses, and storm drain inlets. If space is limited, additional diversion or protection will be implemented. ▪ Contain runoff from high-risk stockpiles (i.e. cold mix asphalt, concrete, contaminated soil, etc.). ▪ Locate high risk stockpiles on impervious surfaces and in areas without run-on and monitor for potential pollutant discharges. If not possible, provide a diversion or berm. If a pollutant discharge is probable, contact the Environmental Field Specialist (EFS). ▪ Bag and place high risk materials on pallets and store under cover if possible.
Erosion and Sediment Control	▪ Schedule activities to minimize soil disturbance during rain. ▪ Preserve existing vegetation by limiting the work area and limiting disturbed soil areas to the extent practicable. ▪ Provide sediment control (i.e. biodegradable fiber rolls, gravel bags, etc.) downslope of any soil disturbances. ▪ Protect drainage inlets within 50 feet of any soil disturbances. ▪ Cover all excavations at the end of each workday. ▪ Ensure that exposed soils are protected from erosion if rain occurs or is forecast. ▪ Inspect BMPs daily and maintain, replace, or repair as necessary.
Restoration	▪ Remove all temporary, non-biodegradable BMPs, and clear debris and construction materials. ▪ Stabilize all activity-related disturbed soils and return the area to pre-activity conditions or equivalent which may include pavement, concrete, gravel/rock, landscaping, soil cover, seeding, or agricultural conditions. ▪ Return activity area to pre-existing conditions to the maximum extent possible.

Appendix B
Decommissioning Plan

Decommissioning Plan

Double Springs Energy Storage Project

DECEMBER 2024

Prepared for:

DOUBLE SPRINGS ENERGY STORAGE, LLC

Prepared by:

DUDEK

687 S. Coast Highway 101, Suite 110
Encinitas, California 92024
Contact: Susan Jennings

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations v

1 Introduction 1
- 1.1 Project Description 1
- 1.2 Project Location and Access 1
- 1.3 Existing Use 1
- 1.4 Planned Use 1

2 Plan Purpose and Objectives 3

3 Project Components 5
- 3.1 Project Components 5
- 3.2 Grading and Civil Work During Construction 6

4 Closure 9

5 Project Decommissioning 11
- 5.1 Decommissioning Preparation 11
- 5.2 Waste Recycling 11
- 5.3 BESS Equipment Removal and Recycling 12
  - 5.3.1 Battery Recycling 12
  - 5.3.2 Battery Recycling Technology 12
- 5.4 Power Collection System 12
- 5.5 Collector Substation 13
- 5.6 Transmission Interconnection Facilities 13
- 5.7 Perimeter Fencing 13
- 5.8 Access Roads 13

6 Site Reclamation 15

7 References 17

FIGURES

1 Project Location 19

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AC	Alternating current
BESS	Battery energy storage system
Cy	Cubic yards
DC	Direct current
EPA	United States Environmental Protection Agency
Gen-tie	Generation tie
LFP	Lithium Iron Phosphate
NFPA	National Fire Protection Association
Plan	Decommissioning Plan
PCS	Power Conversion System
Project	Double Springs Energy Storage Project
PG&E	Pacific Gas and Electric
SCADA	Supervisory control and data acquisition systems

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1 Introduction

1.1 Project Description

Double Springs Energy Storage, LLC, a wholly owned subsidiary of Novis Renewables, LLC, proposes to construct, operate, maintain, and decommission at the end of the operational term the Double Springs Energy Storage Project (Project), on approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California.

The Project will be composed of lithium-ion (or other comparable) batteries installed within modular outdoor enclosures, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect the project at the Pacific Gas & Electric (PG&E) Valley Springs Substation (point of interconnection). Within the enclosures, the batteries will be arranged on battery storage racks with relay and communications systems for automated remote monitoring and managing of the batteries to optimize design performance.

A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC) electricity, which must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included as part of the proposed Project.

1.2 Project Location and Access

The project site consists of approximately 15.17 acres directly adjacent to and west of the Valley Springs Substation in Calaveras County, California. The project site is directly adjacent to and north of, and accessed from, Double Springs Road and northwest of the intersection of Highway 26 and Highway 12 (see Figure 1, Project Vicinity). The Project site is approximately 0.2 miles west of Highway 26 and approximately 0.3 miles north of Highway 12.

1.3 Existing Use

The Project site is undeveloped land surrounded by open grazing and grasslands to the northwest, west, and southwest; industrial buildings and uses to the southeast; the PG&E Valley Springs Substation directly adjacent to the proposed Project to the east; and rural residential lands to the northeast.

The Project site is zoned as M4 Business Park Zone. The Project site is bordered by M4-zoned land to the south and east and Agriculture Preserve (AP) zoned land to the north and west. The M4 Zone implements the Industrial General Plan Land Use Category, making it suitable for the Project's infrastructure-focused development.

1.4 Planned Use

The proposed facility will provide a critical public service by helping PG&E, and/or other contracted off-takers, ensure there is a reliable source of backup power to meet its network requirements during peak load events, and to better integrate intermittent sources of energy onto its system. The facility will receive energy (charging) from the PG&E electric transmission system, store energy, and then later deliver energy (discharging) back to the point of interconnection when called for by PG&E or other contracted off-takers. During operation, the proposed use will not create emissions to air, will not require water or sanitary facilities, and will generate little to no traffic or waste.

Battery energy storage systems (BESS) absorb, hold, and then discharge electricity into the electrical system. Energy storage plays an increasingly important role in integrating renewable energy into the transmission system, and helps to create a more flexible and reliable grid. Energy storage can smooth electricity prices through arbitrage or energy shifting, manage evening energy ramps, mitigate the risk of curtailment, provide black-start capability, and provide backup power.

2 Plan Purpose and Objectives

The purpose of this Decommissioning Plan (Plan) is to ensure that when the Project is no longer operational, it will be decommissioned, and site restoration will be accomplished in a way that is environmentally sound, and protects the public health and safety, as well as adhering to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, state, and Calaveras County regulations. Other requirements applicable to decommissioning activities will be integrated into plans required per mitigation measures.

Decommissioning is a general term used to describe a formal process to remove something from active status, whereas restoration entails the return of the land to some degree of its former state after its disturbance.

All lithium-ion BESS facilities installed in California must meet the installation requirements of the 2022 California Fire Code. The California Fire Code and applicable subcodes provide minimum standards for the safe installation, operation, and maintenance of BESS facilities. The current code does not specifically include regulations describing requirements for decommissioning and reclamation activities; as a result, dismantling the site and returning the parcel to pre-construction conditions, for other intended uses, will follow the standards of any non-hazardous commercial facility.

Future conditions that could affect decommissioning are largely unknown at this time; however, the best available technologies and management practices will be deployed to ensure successful Project decommissioning and site restoration.

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3 Project Components

3.1 Project Components

Project components include BESS enclosures, Power Conversion Systems (PCS), fire protection systems, a generation tie (gen-tie) line, transformers, inverters, switchgear, additional electrical equipment, laydown yard, telecommunication facilities, stormwater facilities, site security, and fencing. This section provides preliminary details of each component.

- **Battery Energy Storage System .** The energy storage facility will utilize a modular and containerized BESS, consisting of approximately 196 prefabricated battery enclosures along with approximately 34 Power Conversion System skids. Each enclosure contains internal racks and system control modules; fire suppression systems; thermal management/heating, ventilation, and air conditioning systems; communication systems; medium voltage transformers; and inverters.

  The energy storage facility will utilize 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.

- **Power Conversion Systems .** The PCS will 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.

- **Fire Protection System.** The Applicant will install battery storage systems compliant with National Fire Protection Association (NFPA) 855 standards and UL certification, ensuring robust safety and fire prevention measures. Each system includes advanced failsafe features, cooling systems, and thermal runaway prevention mechanisms, designed to prevent and control potential fire incidents. The San Andreas Fire Protection District Fire Chief will have review and approval rights for the facility fire access, protection, and suppression requirements. The review/approval by San Andreas Fire Protection District will cover all applicable design, construction, and testing requirements of the NFPA 855 Code.

- **Gen-tie Line.** A 60-kilovolt gen-tie line will be constructed that will transfer power to and from the Project and the PG&E Valley Springs Substation.

- **Outdoor Electrical Equipment.** Medium-voltage transformers, inverters, switchgear, electronic switchboards and additional electrical equipment will be housed in separate enclosures from the BESS enclosures. Underground wires and cabling will run from the battery enclosures to a concrete pad housing the inverters and medium voltage transformers. All electrical equipment will be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view to the extent practical, on all sides. All outside electrical cabling will be run underground. Underground wires and cabling will run from the medium-voltage transformers to the collector substation. The collector substation will consist of a main power transformer, control house, and switchgear.

- **Laydown Yard.** One temporary laydown yard is anticipated to be used during construction of the BESS facility, likely located in the northeast corner of the Project site.

- **Telecommunication Facilities.** The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote Project operations monitoring. To provide for communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of interconnection. Utility

interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The supervisory control and data acquisition systems (SCADA) system is critical to the PG&E utility interconnection and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing the labor and site diagnostic information. The SCADA system will also control the substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.

- **Site Access and Security.** The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet Calaveras County standards, including fire safety requirements as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario will be incorporated into the Project site based on any input from the County. A perimeter fence will be installed around the perimeter of the Project site for safety and security purposes and will remain in place for the life of the Project.

  In accordance with Calaveras County lighting regulations, permanent security lighting will be installed to illuminate key areas, such as the plant substation and ingress/egress points. The lighting will be designed to minimize off-site glare, using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. This approach supports the County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. Security lighting shall not exceed a maximum color temperature of 5,000 Kelvin to maintain visual comfort and safety standards.

  The Project site will be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

- **Stormwater Collection and Treatment.** The Project will implement a comprehensive stormwater management plan in accordance with all applicable County and State regulations, designed to control runoff and protect surrounding land and waterways. A stormwater detention basin will be constructed on the Project site to collect and temporarily hold stormwater generated onsite. This basin is engineered to detain stormwater, allowing sediment and potential pollutants to settle out before the water is gradually discharged, ensuring compliance with County drainage standards.

  Additionally, the stormwater system will include measures to control both the rate and volume of discharge to minimize any impact on downstream properties and natural water bodies, as required by Calaveras County Code. Drainage facilities are designed to prevent an increase in stormwater discharge rates, aligning with best practices in stormwater control.

3.2 Grading and Civil Work During Construction

Following site preparation activities, grading and civil work will commence. Construction activities during this phase will 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 40,000 cubic yards (cy) of cut and up to approximately 43,000 cy of fill, resulting in up to approximately 3,000 cy of import material. As appropriate, all, or a portion of, the Project's material resulting from earthwork may be used beneficially on-site for the construction of the pad, berms, or other onsite needs. Blasting is not anticipated to be required.

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, will 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 access roads, and interior roadways to access the laydown areas and BESS and collector substation yards will be graded, compacted, and surfaced with gravel or aggregate. Class II road base will 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 will be constructed.

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4 Closure

Facility closure can be temporary or permanent. Temporary closure is a shutdown for a period exceeding the time required for normal maintenance, including closure for overhaul or replacement of a major component. Causes for temporary closure could include damage to an integral component from natural events such as earthquake or flood, or a radical and/or unforeseen change in the market for electrical energy. Permanent closure is defined as a cessation in operations with no intent to restart operations because of age, damage beyond repair, economic conditions, or other reasons.

Temporary closures are not discussed in this Plan because it assumes that the Project will be restarted once repairs are made or the condition causing the temporary closure is corrected. As used here, "closure" is synonymous with decommissioning and includes removal of the facilities and materials that were employed to support the operation of the facility and the physical operations necessary to return the surface to a condition wherein revegetation and rehabilitation activities may then take place.

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5 Project Decommissioning

In general, decommissioning attempts to maximize the recycling of all facility components. Specific opportunities for recycling (for example, batteries) are discussed below in the context of various site components. Individual Project components to be decommissioned would be recycled to the maximum extent possible. The key Project components to be affected by decommissioning activities are discussed below. The general decommissioning approach would be the same whether a portion of the Project or the entire Project is decommissioned. Because the operational life of the Project before closure is anticipated to be 30 years or greater, the current laws and regulations at the time of decommissioning will be adhered to throughout the decommissioning process.

5.1 Decommissioning Preparation

The first step in the decommissioning process will be to assess existing site conditions and prepare the site for demolition. Preparation activities may include electrical inspections and inspections of access roads, security fences, and gates. All site decommissioning will occur within the existing security fence which would typically be the last component to be removed. Site decommissioning and equipment removal can be a long process; therefore, access roads, fencing, and electrical power will temporarily remain in place for use by the decommissioning workers until they are no longer needed. If inspections identify electrical, road, fencing, or gate improvements or repairs that must be made prior to decommissioning activities, that will need to occur prior to initiation. Demolition debris will be placed in temporary on-site storage areas prior to final transportation and disposal/recycling according to the procedures provided below. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, state, and Calaveras County regulations. The decommissioning process will be conducted in a manner that aligns with county regulations, particularly concerning noise and traffic management. To minimize disruption to the local community, coordination with the county will ensure all activities are responsibly planned and executed. This will include strict adherence to county noise ordinances, the implementation of measures to mitigate traffic impacts, and the scheduling of work in alignment with local guidelines

Following the expiration of the Project's useful life, the facility will be decommissioned, which will include Project components being removed from the Project site. Above-ground equipment that will be removed includes batteries and battery enclosures, inverters, transformers, substation steel bus work and structures, and electrical wiring. The Applicant will implement measures to ensure the collection and recycling of batteries to minimize the potential for batteries to be disposed of as municipal waste.

Equipment will be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site to be recycled or disposed of at an appropriately licensed disposal facility. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the decommissioning equipment being used. The area will be thoroughly cleaned, all debris will be removed, and the building and site will be readied to be repurposed for a new use. A collection and recycling program will be implemented to promote recycling of Project components and minimize disposal in landfills.

5.2 Waste Recycling

Contractors and their subcontractors will implement measures to minimize waste generation and enhance recycling during decommissioning activities at the Project site. In accordance with current CalGreen Code requirements,

Calaveras County performance goals state that a minimum of 65% by weight of the non-hazardous material waste generated on-site with be recycled and/or salvaged.

A Construction Waste Management Plan will be completed as part of the building permit application. The Project will endeavor to utilize Cal-Waste Recovery Systems and bin rentals through Cal-Waste. The quantity (in tons) of all waste leaving the project will be tracked and the waste diversion rate for the project calculated by Cal-Waste. If the contractors/sub-contractors provide their own debris boxes as part of their scope of work, they will still be required to comply with the Construction Waste Management Plan and will need to track, calculate, and provide Cal-Waste with weight and waste diversion data for their debris boxes (Calaveras County 2024).

5.3 BESS Equipment Removal and Recycling

The decommissioning of BESS components involves dismantling the battery energy storage system and removing it from the site in compliance with applicable federal state, and local rules that govern the safe transport and disposal of used equipment or waste. Batteries that are removed from service are currently designated as "Hazardous Waste" under EPA regulations and generally require recordkeeping, labeling, and storage methods that keep material out of the environment. EPA is working on a proposal for universal waste standards specially tailored for lithium batteries, separate from the existing general battery universal waste category (EPA 2024). The most up-to-date EPA regulations outlining approved recycling or disposal pathways will be adhered to during the decommissioning process.

All fluids, wiring, cables, batteries, heating, metal, and other components will be recycled or reused to the maximum extent possible. All components that cannot be recycled or reused will be disposed of in accordance with state, local and federal regulations.

5.3.1 Battery Recycling

Batteries will be recycled at a specialized recycling plant, and the remaining BESS components will be recycled or disposed of in accordance with the procurement documents provided by the battery manufacturer.

5.3.2 Battery Recycling Technology

End-of-life lithium-ion batteries contain valuable critical minerals needed in the production of new batteries. Clean energy technologies like renewable energy storage systems and electric vehicle batteries will demand large amounts of these minerals, and recycling used lithium-ion batteries is projected to meet a substantial portion of this demand (EPA 2024). As of 2023, eight lithium-ion battery recycling plants were operational in some capacity within the United States, with a further eleven recycling plants announced (ICCT 2023). None of the current operational facilities are located within California. Looking ahead, advancements in recycling technologies and processes are anticipated to further improve the efficiency and cost-effectiveness of lithium-ion battery recycling. . By the projected end of the operational life of the Project, it is expected that these advancements will be in place, enabling the safe and efficient recycling of the project's batteries while supporting the circular economy of clean energy technologies.

5.4 Power Collection System

The power collection system will be dismantled and removed. All underground cables will be cut off and remain in place at a depth of 3 feet below ground surface. All equipment and cabling that is removed will be recycled or otherwise properly disposed.

5.5 Collector Substation

At decommissioning, if it is determined that the on-site substation will not be able to be used by a public or private utility, the control house and electronic components of the substation equipment will be electrically disconnected (de-energized) and made safe for removal. The control house will then be disassembled and removed from the site. The transformers, breakers, buswork, and metal dead-end structures will also be disassembled and removed. Concrete foundations and containment berms/curbs for the transformers will be broken up and all debris will be removed from the site, along with the aggregate rock.

Transformers using insulating oils will be removed from the site and recycled or disposed of at an appropriately licensed facility. Additionally, oils and all other associated hazardous liquids will be removed from the site and disposed of at an appropriately licensed disposal facility. Site personnel involved in handling these materials will be trained appropriately.

As part of preparation for closure, the Spill Containment and Countermeasures Plan (SPCC) for the site willbe updated to cover spill prevention and countermeasures for handling these materials during decommissioning. Procedures to decrease the potential for release of contaminants to the environment and for contact with stormwater will be specified in a decommissioning Stormwater Pollution Prevention Plan or a Surface Water Protection Plan if required.

5.6 Transmission Interconnection Facilities

Transmission interconnection facilities will remain in place for the life of the Project. At the time of full Project decommissioning, if the transmission interconnection facilities will not be further used by a public or private utility or power generator, the line will be decommissioned. Decommissioning of the transmission line will take place only after the substation and line have been fully de-energized and made safe for removal. Dismantling the aboveground portion of the line will entail removal of the overhead conductors, wiring, and poles. All steel and concrete will be recycled to the maximum extent possible, and the foundations will be removed to a depth of at least 3 feet below the ground surface. Aluminum from overhead conductors will be recycled to the maximum extent possible.

5.7 Perimeter Fencing

Perimeter fencing will be removed using skid steers, mini excavators, small dump trailers, full-size pickup trucks or other similar pieces of equipment. Materials will be recycled to the maximum extent possible.

5.8 Access Roads

If the access road will not be needed by the landowners, PG&E, and/or the County for any other purpose, it may be decommissioned. If soils are determined to be compacted at levels that will affect successful revegetation, decompaction will occur. The method of decompaction will depend on how compacted the soil has become over the life of the Project. Following decompaction, re-contouring of the area will be conducted, if necessary, to return the land to approximately match the pre-construction surface conditions.

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6 Site Reclamation

The decommissioning process will remove all BESS-related structures and infrastructure as described in the previous chapters. If site reclamation is required, the Project owner will contract with a qualified reclamation contractor to evaluate and prescribe specific reclamation measures, and coordinate with the Project owner to ensure that the prescriptions are implemented as written.

Reclamation will restore landform features, vegetative cover, and hydrologic function after closure of the facility. The process involves placement of topsoil, brush, rocks, and natural debris over disturbed areas so that the site blends with the surrounding natural landscape. At the conclusion of Reclamation, the site should resemble its pre-construction condition.

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7 References

Calaveras County. 2024. CalGreen. Calaveras County Integrated Waste Management. Accessed 12/11/2024. https://intwaste.calaverasgov.us/Integrated-Waste/Cal-Green

ICCT. 2023. Will the U.S. EV battery recycling industry be ready for millions of end-of-life batteries? International Council on Clean Transportation. Accessed 12/11/2024. https://theicct.org/us-ev-battery-recycling-end-of-life-batteries-sept23/

EPA. 2024. Lithium-Ion Battery Recycling. United States Environmental Protection Agency. Accessed 12/11/2024. https://www.epa.gov/hw/lithium-ion-battery-recycling

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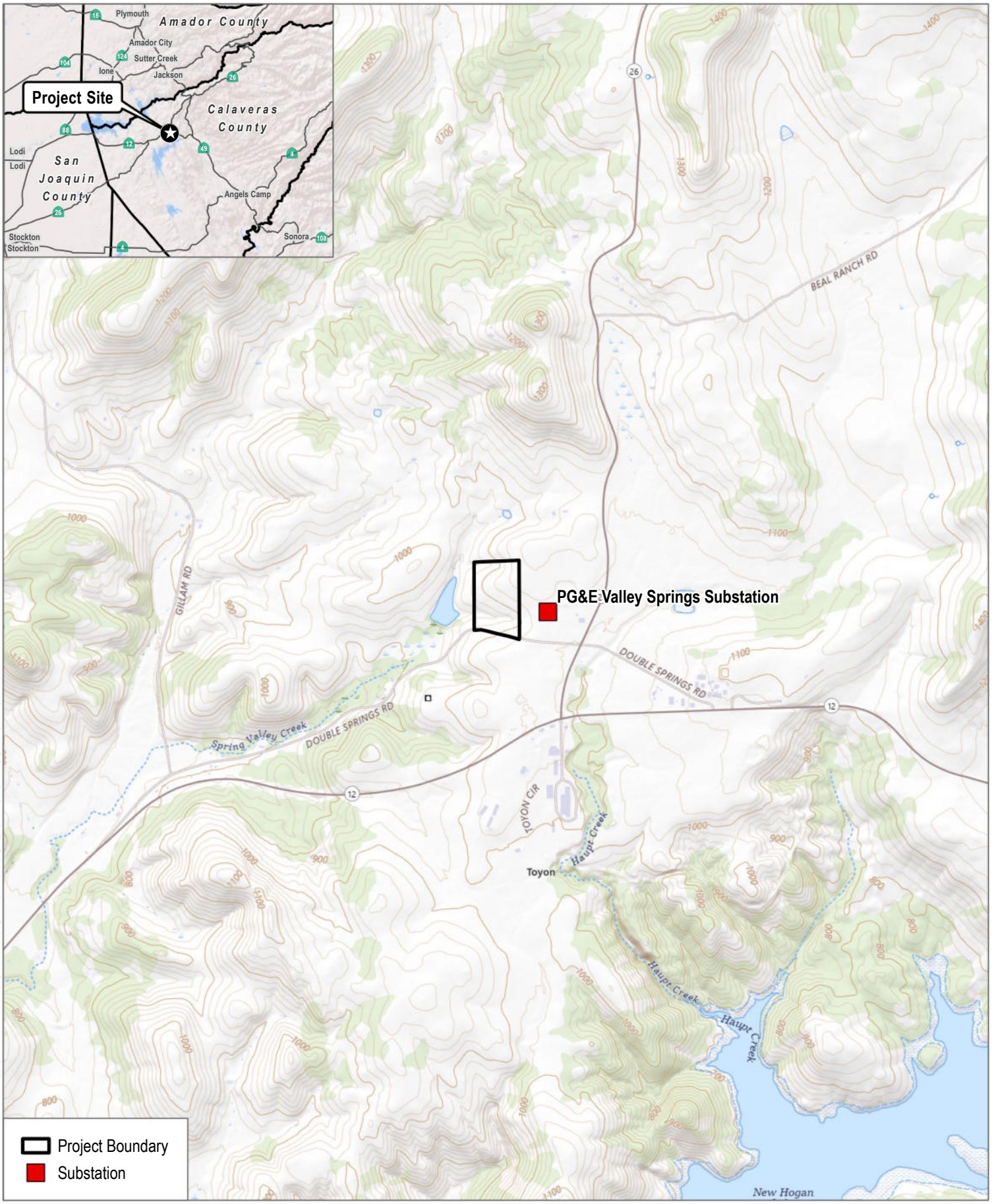

SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Vicinity

Double Springs Battery Energy Storage System Project

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Appendix C

Air Quality and Greenhouse Gas Emissions Analysis Technical Memorandum

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

MEMORANDUM

To:	Double Springs Energy Storage, LLC
From:	Adam Poll, Dudek
Subject:	Double Springs Energy Storage Project Air Quality and Greenhouse Gas Emissions Analysis Technical Memorandum
Date:	October 7, 2025
cc:	Bradley Cole, Cindi Hoover, Dudek
Attachment A:	CalEEMod Emission Outputs

1 Introduction and Purpose

The purpose of this memorandum is to estimate criteria air pollutants and greenhouse gas (GHG) emissions from construction and operation of the Double Springs Energy Storage System (Project) in Calaveras County (County) and evaluate potential air quality and GHG emissions impacts resulting from Project implementation under the California Environmental Quality Act (CEQA).

The contents and organization of this memorandum are as follows: (2) project description; (3) air quality assessment, including brief background, thresholds of significance, methodology, and impact analysis; (4) GHG emissions assessment, including a brief background, thresholds of significance, methodology, and impact analysis (5) a summary of conclusions, and (6) references cited.

2 Project Description

The Project will be located on three parcels with Property Identification Numbers 40002017, 40002018, and 40002019, comprising a total of approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California. The Project site is adjacent to various industrial and commercial properties; the Pacific Gas & Electric (PG&E) Valley Springs Substation is located to the east, open space located to the north and west, Double Springs Road, vacant land and a Cal-Waste Recovery Station is located to the south. The Project would be accessed from Double Springs Road.

The Project will include the development of energy storage facilities and associated infrastructure. The batteries will be housed within modular outdoor enclosures. Power stored or discharged by the Project will be transferred to and from the PG&E Valley Springs Substation via a short 60kV generation transmission (gen-tie) line.

The Project will consist of lithium-ion batteries, which will be installed in racks located in prefabricated outdoor enclosures; inverters; medium-voltage transformers and a main power transformer; switchgear; a collector

substation; and other associated equipment. The Project will include the following components, which are described in more detail following the bulleted list:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances will be constructed that will provide dedicated energy storage capacity and dispatch to the electric grid.
- **Power Inverters and Transformers:** Power inverters to convert between AC and DC will be included, along with transformers that will step the voltage up and down.
- **Telecommunication Facilities:** Essential telecommunication equipment, including underground and overhead fiber optics and supervisory control and data acquisition systems (SCADA), will be installed to facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and motion-activated lighting for safety and security will be provided for the Project, which will meet all applicable code requirements.
- **Gen-Tie Line:** A 60-kilovolt gen-tie line, less than a quarter mile in length, will be constructed to transfer power between the PG&E Valley Springs Substation and the Project.

The facilities will be designed and intended to operate year-round and will be available to receive or deliver energy 24 hours a day, 365 days a year (there may be scheduled outages for maintenance/service).

PG&E Facility Upgrades

Specific transmission network upgrades were determined via the California Independent System Operator's (CAISO) Large Generator Interconnection Study Process.

Battery Energy Storage System Facility

The Project consists of the installation and operation of a utility scale energy storage facility consisting of approximately 240 prefabricated battery enclosures, along with approximately 60 Power Conversion System (PCS) skids, containing the following:

- internal racks and system control modules
- fire suppression systems
- thermal management/heating, ventilation, and air conditioning systems
- communication systems
- medium voltage transformers
- inverters

The battery modules will be delivered from the manufacturer preassembled and moved into place by forklifts or cranes. These modules are connected in parallel to aggregate the required energy capacity.

The Battery Energy Storage System (BESS) facility stores and releases energy based on market and utility demands. In general, the system will be dispatched to both place energy onto the grid (discharge) during times of high load (demand) and to take energy off of the grid (charge) in times of low load (demand) relative to generation. PG&E, or other contracted off-takers, will have sole authority to determine when to dispatch the system as dictated by the needs of their system customers.

The Project will be remotely monitored on a continuous basis. Remote access to battery status, meters, schedules, and other telemetry data will be available to off-site personnel. In the event an operational anomaly should occur (e.g., unexpected temperature variation), the monitoring system will immediately alert local contracted operations and maintenance personnel who will then expeditiously act on the issue. In addition, multiple fail-safes are embedded in the facility's hardware and software to ensure safe and efficient operations, and, if necessary, to automatically trigger a temporary shutdown of the facility until the issue is diagnosed and resolved.

Fire Protection System

The Applicant will install battery energy storage systems compliant with National Fire Protection Association (NFPA) 855 standards 9540 and 9540A certification, ensuring robust safety and fire prevention measures. Each system includes advanced failsafe features, cooling systems, and thermal runaway prevention mechanisms, designed to prevent and control potential fire incidents. The San Andreas Fire Protection District (SAFPD) Fire Chief will have review and approval rights for the facility fire access, protection, and suppression requirements. The review/approval by SAFPD will cover all applicable design, construction, and testing requirements of the NFPA 855 Code.

Generation Transmission Line

A 60-kilovolt overhead gen-tie line approximately 0.2 miles in length will be constructed that will transfer power to and from the Project and the PG&E Valley Springs Substation.

Outdoor Electrical Equipment

Medium-voltage transformers, inverters, switchgear, electronic switchboards and additional electrical equipment will be installed outside the BESS enclosures. Underground wires and cabling will run from the battery enclosures to housings for the inverters and medium voltage transformers on concrete pads. All electrical equipment will be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view to the extent practical. All outside electrical cabling will be run underground. Underground wires and cabling will run from the medium-voltage transformers to the onsite collector substation. The onsite collector substation will consist of a main power transformer, control house, and switchgear.

Inverters

The Applicant will use only industry-standard, nationally (and internationally) recognized equipment. The inverters will be unattended, stand-alone units that operate in all weather conditions. They will operate in both a charge mode and a discharge mode. They will be UL listed for bi-directional use and will be monitored and controlled remotely via the SCADA system. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. They will be robust in their design and are designed to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.

Telecommunication Facilities

The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote Project operations monitoring. To provide communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of

interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The SCADA system is critical to the PG&E utility interconnection and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing labor and site diagnostic information. The SCADA system will also control the onsite collector substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.

Site Access and Security

The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet Calaveras County standards, including fire safety requirements as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario will be incorporated into the Project site based on the County's final determination. A perimeter fence will be installed around the perimeter of the Project site for safety and security purposes and will remain for the life of the Project. The perimeter fence will be at 10 foot high chain-link with razor wire on top.

In accordance with Calaveras County Zoning Code Section 17.50.050 lighting regulations, permanent security lighting will be installed to illuminate key areas, such as the plant substation and ingress/egress points. The lighting will be designed to minimize off-site glare, using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. Security lighting shall not exceed a maximum color temperature of 5,000 Kelvin to maintain visual comfort and safety standards. These measures align with the County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. The Project site will be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

Stormwater Collection and Treatment

The Project will implement a comprehensive stormwater management plan designed in accordance with Calaveras County Code Chapter 15.30 – Stormwater Quality and other applicable County and State regulations. This plan will control stormwater runoff to minimize impacts on adjacent properties and natural waterways while ensuring compliance with County drainage standards. A stormwater detention basin will be constructed on the Project site to collect and temporarily hold stormwater generated onsite. This basin is engineered to detain stormwater, allowing sediment and potential pollutants to settle out before the water is gradually discharged, ensuring compliance with County drainage standards.

Additionally, the stormwater system will include measures to control both the rate and volume of discharge to minimize any impact on downstream properties and natural water bodies, as required by Calaveras County Code.

Drainage facilities are designed to prevent an increase in stormwater discharge rates, aligning with best practices in stormwater control.

At the end of the Project's operational life the Applicant will decommission the Project. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, state, and Calaveras County regulations. Following the expiration of the Project's useful life, the facility will be decommissioned, which will include Project components being removed from the Project site. Above-ground equipment to be removed includes batteries and battery enclosures, inverters, transformers, substation steel bus work and structures, and electrical wiring. The Applicant will implement measures to ensure the collection and recycling of batteries and to avoid the potential for batteries to be disposed of as municipal waste.

Equipment will be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site to be recycled or disposed of at an appropriately licensed disposal facility. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the decommissioning equipment being used. The area will be thoroughly cleaned, all debris removed, and the Project site will be readied for a new use. A collection and recycling program will be implemented by the Applicant to promote recycling of Project components and minimize disposal in landfills.

3 Air Quality Assessment

3.1 Background

The Project is located within the Mountain Counties Air Basin (MCAB) and is within the jurisdictional boundaries of the Calaveras County Air Pollution Control District (CCAPCD), which has jurisdiction over the County where the Project is located. The MCAB is an approximately 11,000-square-mile area that encompasses Amador, Calaveras, Mariposa, Nevada, Plumas, Sierra, and Tuolumne Counties, as well as portions of El Dorado and Placer Counties. Most of the MCAB is located in the northern Sierra Nevada, although the western boundary of the MCAB extends into the Sacramento Valley. California Air Resources Board (CARB) is responsible for the regulation of mobile emissions sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing air quality standards and regulating stationary sources. The CCAPCD is the regional agency responsible for the regulation and enforcement of federal and state regulations.

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants that are evaluated include volatile organic compounds (VOCs; also referred to as reactive organic gases [ROGs]), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), particulate matter with an aerodynamic diameter less than or equal to 10 microns in size (coarse particulate matter, or PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns in size (fine particulate matter, or $PM_{2.5}$). VOCs and NO_x are important because they are precursors to ozone (O_3).

Regarding National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) attainment status,[1] Calaveras County is designated as a nonattainment area for federal O_3 standards, and state O_3 and PM_{10} standards. The MCAB is designated as an attainment or unclassified area for all other criteria air pollutants.

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, older adults, and people with cardiovascular and chronic respiratory diseases. The closest sensitive receptors to the Project site are single-family residences located approximately 1,130 feet north of the BESS.

3.2 Thresholds of Significance

The significance criteria used to evaluate Project impacts to air quality are based on the recommendations provided in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), as follows:

A. Conflict with or obstruct implementation of the applicable air quality plan

B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard

C. Expose sensitive receptors to substantial pollutant concentrations

D. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality. In order to evaluate air pollutant emissions from development projects, the CCAPCD established project-level significance thresholds for emissions of ROG, NO_X, and PM_{10}. The significance thresholds, expressed in pounds per day, serve as air quality standards in the evaluation of air quality impacts associated with proposed development projects. Thus, if a proposed project's emissions exceed the CCAPCD thresholds, the projects could have a significant effect on regional air quality and attainment of federal and State AAQS. The significance thresholds, expressed in pounds per day, listed in Table 1 are the CCAPCD's recommended thresholds of significance for use in the evaluation of air quality impacts associated with proposed development projects.

[1] An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards are set by the Environmental Protection Agency (EPA) and California Air Resources Board (CARB), respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. Attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards.

Table 1. Air Quality Significance Thresholds

Construction or Operational Emissions	
Pollutant	**Total Emissions (Pounds per Day)**
Coarse particulate matter (PM_{10})	150
Oxides of nitrogen (NO_x)	150
Reactive Organic Gasses (ROGs)	150

Source: CCAPCD n.d.

The thresholds listed in Table 1 represent screening-level thresholds that can be used to evaluate whether Project-related emissions would cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the Project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For non-attainment pollutants, if emissions exceed the thresholds shown in Table 1, the Project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

3.3 Approach and Methodology

The California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29 was used to estimate emissions from construction and operation of the project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with construction activities and operation of a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and its size, construction schedule, and anticipated use of construction equipment, were based on information provided by the applicant or default model assumptions if project specifics were unavailable.

3.3.1 Construction

For the purposes of modeling, it was assumed that construction of the Project would commence in January 2026[2] and would last approximately 12 months, ending in December 2026. The project was assumed to be operational for 30 years and then be decommissioned and removed at the end of its lifetime. The analysis contained herein is based on the following subset area schedule assumptions (duration of phases is approximate):

- BESS Site Preparation: January 2026 (2 weeks)
- Collector Substation Site Preparation: January 2026 (2 weeks)
- BESS Grading: January 2026 – March 2026 (2 months)
- Collector Substation Grading: January 2026 – February 2026 (1 month)
- Battery/Container Installation: March 2026 – October 2026 (7 months)
- Collector Substation Construction/Installation: February 2026 – June 2026 (4 months)

[2] The analysis assumes a construction start date of January 2026, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

- Gen-tie Trenching: May 2026 – August 2026 (3 months)
- Gen-Tie Road Resurface and Clean-up: September 2026 – October 2026 (1 month)
- Commissioning: October 2026 – December 2026 (3 months)
- Decommissioning: March 2057 (1 month)[3]

The majority of the phases listed above would occur concurrently and would not occur sequentially in isolation. The estimated construction duration was provided by the Project applicant. Detailed construction equipment modeling assumptions are provided in Attachment A, CalEEMod Outputs. For the analysis, it was assumed that heavy construction equipment would be operating 5 days per week (22 days per month) during Project construction. The construction equipment mix used for estimating the construction emissions of the Project is based on information provided by the project applicant and is shown in Table 2.

Table 2. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
BESS Site Preparation	20	2	0	Graders	2	8
				Rubber Tired Loaders (front end loader)	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Collector Substation Site Preparation	10	2	0	Rubber Tired Dozer	2	8
				Tractors/Loaders/ Backhoes	2	8
BESS Grading	30	2	0	Graders	2	8
				Plate Compactors	2	8
				Rollers	2	8
				Rubber Tired Loaders (front end loader)	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Collector Substation Grading	16	2	0	Rollers	2	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8
Battery/Container Installation	46	4	4	Air Compressors	2	8
				Cranes	2	8

[3] Decommissioning that is anticipated to occur in 2057 was modeled as 2050 in CalEEMod as there are no construction emission factors following 2050.

Table 2. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
				Excavators	2	8
				Generator Sets	2	8
				Graders (Gradall)	2	8
				Plate Compactors (compactor [ground])	2	8
				Rollers	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Collector Substation Construction/Installation	60	2	0	Air Compressors	2	8
				Aerial Lift (man lift)	2	8
				Bore/Drill Rig (auger drill rig)	2	8
				Cranes	2	8
				Excavators	2	8
				Generator Sets	2	8
				Graders (Gradall)	2	8
				Rubber Tired Dozer (dozer)	2	8
				Rollers	2	8
				Skid Steer Loaders	2	8
				Trencher (slurry trenching machine)	2	8
				Tractors/Loaders/ Backhoes	2	8
Gen-tie Trenching	20	2	0	Pumps	2	8
				Skid Steer Loaders	2	8
				Trencher (slurry trenching machine)	2	8
				Tractors/Loaders/ Backhoes	2	8
Gen-Tie Road Resurface and Clean-up	10	2	0	Pavers	1	8
				Rollers	1	8
				Skid Steer Loaders	1	8
				Tractors/Loaders/ Backhoes	1	8
Commissioning	10	0	0	Generator Sets	8	8
Decommissioning	20	2	30	Concrete/Industrial Saws	2	8
				Cranes	2	8

Table 2. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
				Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8

Note: See Attachment A for details.

Implementation of the Project would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application (no architectural; coatings are anticipated). Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of ROGs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of asphalt pavement would also produce ROG emissions. Based on project specific information, no net import or export of material is expected during the grading phase. It was assumed that the generators would be at least CARB Certified Tier 2 during the Commissioning phase. The emission calculations for the generators during the Commissioning phase were estimated using a spreadsheet model.

Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Construction of Project components would be subject to CCAPCD Rule 207 – Particulate Matter. Compliance with Rule 207 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions; however, this best practice was conservatively not included in the emission estimates. A detailed depiction of the construction schedule—including information regarding phases and equipment used during each phase—is included in Attachment A to this memorandum.

3.3.2 Operation

Emissions from the operational phase of the Project were estimated using CalEEMod. Operational year 2027 was assumed, as it would be the first year following completion of construction.

Area Sources

The area source category calculates direct sources of air pollutant emissions located at a Project site, including consumer product use, architectural coatings, hearth, and landscape maintenance equipment; however, only landscape equipment is anticipated to be applicable to the Project.

Consumer products are various solvents used in non-industrial applications which emit ROGs during their product use; however, no cleaning supplies or parking surface degreasers are anticipated to be necessary for the Project containers. Reapplication of architectural coatings (e.g., paints and other finishes) also emit ROGs; however, the Project's prefabricated containers are not anticipated to required interior or exterior finish maintenance. The Project would also not include any hearths (fireplaces or stoves).

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod. The emission factors are multiplied by the number of summer days that represent the number of operational days.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

The battery storage containers would have ventilation and air conditioning systems to keep the batteries in the optimal operating temperatures, which would be provided by electricity. The Project would have no natural gas needs or natural gas connections. As such, no energy criteria air pollutant emissions are presented.

Mobile Sources

The Project would generate minimal mobile sources (vehicular traffic) as a result of the maintenance activity of the Project. It is anticipated that the facility would be operated remotely by the applicant or an affiliated company through the supervisory control and data acquisition (SCADA) system. Only occasional, on-site maintenance is expected to be required following commissioning, including replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. Routine operations would require one or two workers in light-duty vehicles to visit the facility on a monthly basis. Typically, one major maintenance inspection would take place annually. CalEEMod default data, including trip characteristics, vehicle fleet, and emissions factors representing 2027 were used to estimate emissions associated with mobile sources.

Off-Road Sources

The Project is anticipated to involve using a crane once every 5 years during routine maintenance to be able to lift and move the modular containers. CalEEMod default equipment size and load factors were assumed. It was assumed that the crane would operate for 8 hours, 4 days, every 5 years.

3.4 Impact Analysis

3.2.1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

As stated in Section 3.1, Background, the CCAPCD is responsible for developing and implementing the clean air plans for attainment and maintenance of the NAAQS and CAAQS in the MCAB; specifically, the SIP and RAQS. If a project proposes development that is greater than that anticipated in the local plan and Calaveras Council of Government's (CCOG) growth projections, the project might conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality.

The Project site is zoned as *M4 Business Park Zone,* a designation that supports industrial and infrastructure-focused developments in accordance with Calaveras County Zoning Code Chapter 17.31. This zoning allows for

"Public Works and Utilities" as a conditionally permitted use under Table 17.07.020 – Land Use Regulations – Industrial Zones. The project does not include employees or residences, as such, the Project does not generate residential or employment growth that may not have been included in CCOG's Regional Growth Forecast and thus, the RAQS that rely on CCOG growth projections. As such, the Project will not conflict with or obstruct implementation of the CCAPCD RAQs, which is the applicable air quality plan. Impacts would be less than significant.

3.2.2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and CCAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

Construction and Decommissioning

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks, haul trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

Criteria air pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed Project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 3.3.1 above.

Development of the Project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. As described previously, fugitive dust would be limited through compliance with CCAPCD Rule 207.

Table 3 shows the estimated maximum unmitigated daily construction emissions associated with construction and decommissioning of the Project. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*. "Summer" emissions are representative of the conditions that may occur during the O_3 season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Table 3. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Construction Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
2026	9.76	79.21	103.80	0.16	4.36	3.15

Table 3. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Construction Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2057	-	-	-	-	-	-
Winter						
2026	14.56	116.62	270.10	0.51	16.14	8.36
2057	1.89	13.27	18.119	0.07	1.06	0.49
Maximum	***14.56***	***116.62***	***270.10***	***0.51***	***16.14***	***8.36***
Threshold	*150*	*150*	-	-	*150*	-
Threshold exceeded?	**No**	**No**	**-**	**-**	**No**	**-**

Notes: ROG = reactive organic gas; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; – = no emission estimates reported.
Year 2050 was used to model 2057 in CalEEMod.
See Attachment A for complete results.

As shown in Table 3, daily construction emissions for the Project would not exceed the CCAPCD's significance thresholds. Therefore, the Project would have a less than significant impact related to emissions of criteria air pollutant emissions during construction.

Operation

Operation of the Project would generate minimal ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources (landscape maintenance equipment), and offroad equipment (no air quality-relevant energy sources identified). Criteria air pollutant emissions associated with long-term operations were quantified using CalEEMod as explained in Section 3.3.2.

Table 4 presents the unmitigated maximum daily emissions associated with the operation of the Project in 2027 following completion of construction. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 4. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Mobile	0.10	0.12	0.84	<0.01	0.11	0.03
Area	1.86	0.02	2.32	<0.01	<0.01	<0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Equipment	0.37	3.28	3.06	0.01	0.13	0.12
Total	***2.32***	***3.42***	***6.22***	***0.01***	***0.25***	***0.16***
Winter						
Mobile	0.09	0.14	0.72	<0.01	0.11	0.03
Area	1.48	-	-	-	-	-
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Equipment	0.37	3.28	3.06	0.01	0.13	0.12

Table 4. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Total	*1.93*	*3.42*	*3.78*	*0.01*	*0.25*	*0.15*
Threshold	150	150	-	-	150	-
Threshold exceeded?	No	No	-	-	No	-

Notes: ROG = reactive organic gas; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = reported value is less than 0.01; – = no emission estimates reported.
See Attachment A for complete results.

As shown in Table 4, daily operational emissions for the Project would not exceed the CCAPCD's significance thresholds for any criteria air pollutant. Therefore, the Project would result in a less than significant impact related to emissions of criteria air pollutant emissions during operation.

3.2.3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Carbon Monoxide Hotspots

Mobile source impacts occur on two scales – regionally and locally; however, the Project would generate minimal regional and local trips including no routine daily trips. If traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-proposed project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the MCAB is steadily decreasing.

During construction, the Project would result in CO emissions from construction worker vehicles, haul trucks, and off-road equipment. Title 40, section 93.123(c)(5) of the California Code of Regulations, Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hot-spot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site" (Cal. Code Regs., tit. 40, § 93.123). Since construction activities would be temporary, a project-level construction hotspot analysis would not be required.

The County does not have guidance regarding CO hotspots; however, the project is unmanned and would only have periodic visits for maintenance. Therefore, traffic during operation would be minimal and would not cause a CO hotspot. As such, potential Project-generated impacts associated with CO hotspots would be less than significant.

Health Effects of Criteria Air Pollutants

Construction and operation of the Project would not result in emissions that exceed CCAPCD's emission thresholds for any criteria air pollutants. The CCAPCD thresholds are based on the MCAB complying with the NAAQS and CAAQS which are protective of public health; therefore, no adverse effects to human health would result from the Project. The following provides a general discussion of criteria air pollutants and their health effects.

Regarding ROGs, some ROGs would be associated with motor vehicles and construction equipment, while others are associated with asphalt off-gassing, the emissions of which would not result in exceedances of CCAPCD thresholds. Generally, the ROGs in architectural coatings and asphalt are of relatively low toxicity.

In addition, ROGs and NO_x are precursors to O_3, for which the MCAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of ROGs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the MCAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the ROG emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the ROG and NO_x emissions associated with Project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, health impacts would be considered less than significant.

Regarding NO_2, which is a constituent of NO_x, construction and operation of the Project would not contribute to exceedances of the NAAQS and CAAQS for NO_2 since NO_x emissions would be less than the applicable CCAPCD threshold. NO_2 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term, and the off-road construction equipment would be operating on various portions of the site and would not be concentrated in one portion of the site at any one time.

Health effects associated with PM_{10} or $PM_{2.5}$ depending on short- or long-term exposure include premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, restricted activity days, and reduced lung function growth in children. Construction of the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter.

Based on the preceding considerations, health impacts from Project-related criteria air pollutant emissions would be considered less than significant.

Toxic Air Contaminants

In addition to impacts from criteria pollutants, Project impacts may include emissions of pollutants identified by the state and federal government as TACs or hazardous air pollutants. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants, and has adopted appropriate control measures for sources of these TACs. The following measures are required by state law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-use Off-road Diesel Vehicles (13 CCR 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.

- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The CCAPCD recommends an incremental cancer risk threshold of 10 in a million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology.

The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks during construction of the Project and the associated potential health impacts to sensitive receptors. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts; however, no short-term, acute relative exposure level has been established for DPM. Total Project construction would last approximately 12 months, after which Project-related TAC emissions would cease. A 12-month construction schedule represents a short duration of exposure (3% of a 30-year exposure period) while cancer and chronic risk from DPM are typically associated with long-term exposure. Thus, the Project would not result in a long-term source of TAC emissions. In addition, the Project would not require the extensive operation of heavy-duty diesel construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce DPM emissions and would not involve extensive use of diesel trucks, which are also subject to a CARB Airborne Toxics Control Measure. Furthermore, as shown in Table 3, maximum daily particulate matter (i.e., PM_{10} or $PM_{2.5}$) emissions generated by construction equipment operation and haul-truck trips during construction (exhaust particulate matter, or DPM), combined with fugitive dust generated by equipment operation and vehicle travel, is minimal.

Of importance, the closest sensitive receptors to the Project's BESS component, where the majority of Project construction would occur, are single-family residences located approximately 1,130 feet north, and which is a substantial distance between the sources and receptors whereas potential generation of TAC emissions are anticipated to be largely dispersed. As such, the potential for the Project to result in a long-term exposure of receptors to TACs is limited. Therefore, the exposure of Project-related TAC emission impacts to sensitive receptors would be less than significant.

No residual TAC emissions and corresponding health risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the Project. CARB has published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005), which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as "schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities." The *Air Quality and Land Use Handbook* is a guide for siting of new sensitive land uses, and CARB recommends that sensitive receptors not be located downwind or in proximity to such sources to avoid potential health hazards. Of note, the Project is not considered an air quality sensitive receptor. The enumerated facilities or sources include the following: high-traffic freeways and roads, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and large gas dispensing facilities. The Project would not include any of the above-listed land uses associated with generation of TAC emissions. In addition, while the Project is not considered a sensitive receptor, none of the above-listed land uses are located within the vicinity of the Project. Potential impacts associated with exposure of sensitive receptors to TACs would be less than significant.

3.2.4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. In addition, the closest sensitive receptors are at a substantial distance from the majority of anticipated construction activity (i.e., approximately 1,130 feet from the BESS construction). Therefore, impacts associated with odors during construction would be less than significant.

Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. The Project would include the development of a BESS facility and associated infrastructure and would not create any new sources of odor during operation. Therefore, Project operations would result in an odor impact that is less than significant.

4 Greenhouse Gas Emissions Assessment

4.1 Background

GHGs are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2) methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. Climate change is already affecting California: average temperatures have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), which varies among GHGs. Total GHG emissions are expressed as a function of how much warming would be caused by

the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalent (CO_2e). The CO_2e for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons (MT) of CO_2e = (MT of a GHG) × (GWP of the GHG). California Emissions Estimator Model (CalEEMod) assumes that the GWP for CH_4 is 25, which means that emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2, and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007).

4.2 Thresholds of Significance

California has developed guidelines to address the significance of GHG emissions impacts that are contained in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). Appendix G provides that a project would have a significant environmental impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The Appendix G thresholds for GHGs do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009). Additional guidance regarding the assessment of GHGs is discussed below.

CEQA Guidelines

With respect to GHG emissions, CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

1. The extent a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

In addition, the CEQA Guidelines specify that "when adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended

by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

The extent to which a project increases or decreases GHG emissions in the existing environmental setting should be estimated in accordance with Section 15064.4, Determining the Significance of Impacts from Greenhouse Gas Emissions, of the CEQA Guidelines. The CEQA Guidelines indicate that when calculating GHG emissions resulting from a project, lead agencies shall make a good-faith effort based on scientific and factual data (14 CCR 15064.4[a]), and lead agencies have discretion to select the model or methodology deemed most appropriate for enabling decision makers to intelligently assess the project's incremental contribution to climate change (14 CCR 15064.4[c]).

The CEQA Guidelines do not indicate an amount of GHG emissions that constitutes a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (14 CCR 15064.4[a] and 15064.7[c]). Several agencies throughout the state have drafted and/or adopted numerical threshold approaches and guidelines for analyzing the significance of project-related GHG emissions, including the South Coast Air Quality Management District's 3,000 MT CO_2e annual threshold for residential/commercial or mixed use projects (SCAQMD 2010), among others. However, no numerical thresholds have been formally adopted by an air district or lead agency for use in the region.

In the absence of an adopted numerical threshold for the region, the significance of project-related GHG emissions can be determined by evaluating a project's compliance with regulations or requirements adopted to implement statewide, regional, or local plans for the reduction or mitigation of GHG emissions. The state's 2030 target (reduce GHG emissions to 40% below 1990 levels by 2030) has been codified in law through SB 32, and the 2045 target (net zero GHG emissions and reduce anthropogenic GHG emissions to 85% below 1990 levels by 2045) has been codified into law through AB 1279. Therefore, 2030 and 2045 mark the next statutory statewide milestone targets applicable to the Proposed Project.

In this case, the significance of impacts related to Proposed Project-generated GHG emissions can be determined through an assessment of compliance with statewide regulations and requirements adopted to implement GHG reduction plans that align with the SB 32 2030 and AB 1279 2045 targets, such as CARB's 2022 Scoping Plan. The specific threshold approach used to assess the significance of the Project's GHG emission impacts is informed by the guidance summarized here and is discussed in further detail in the following section.

Governor's Office of Planning and Research Guidance

The Governor's Office of Planning and Research technical advisory titled "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review" states the following (OPR 2008):

> Public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact.

Furthermore, the advisory document indicates that, "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2008).

Approach to Determining Significance

The CCAPCD has not adopted thresholds of significance for the analysis of GHG emissions related to implementation of a proposed project. However, as discussed above, the 2017 Scoping Plan identifies per capita emissions rates that may be used in local planning for the assessment of GHG emissions. As discussed in the 2017 Scoping Plan, if a plan results in annual per capita emissions of no more than six MT CO_2e by the year 2030 and no more than two MT CO_2e by the year 2050, the proposed project would be considered in compliance with all adopted State requirements for the reduction of GHG emissions. However, this type of threshold is not appropriate for a BESS project that is unmanned and has no permanent employees or other service population. Therefore, this analysis considers consistency with regulations or requirements adopted by the 2008 Climate Change Scoping Plan (Scoping Plan) and subsequent updates, the County of Calaveras General Plan, and the CCOG RTP. The compliance evaluation is the sole basis for determining the significance of the Project's GHG-related impacts on the environment.

In accordance with Section 15064.4 of the CEQA Guidelines, GHG emissions resulting from construction and operation of the Project also were quantitatively estimated. Project-related GHG emissions were assessed based on the total increase above the existing environmental setting, with some conservative limitations described further below that serve to overestimate the Project's incremental increase above existing, on-site emissions. The GHG emissions associated with implementation of the Project were estimated using industry standard and accepted software tools, techniques, and emissions factors, as described below for construction and operation. Estimation of emissions is for informational purposes only, for comparison with existing environmental conditions.

4.3 Approach and Methodology

4.3.1 Construction

Construction of the Project would result in emissions of GHG emissions primarily associated with use of off-road construction equipment, on-road haul and vendor (material delivery) truck trips, and worker vehicle trips. As discussed previously in Section 3.3.1, emissions from the construction phase of Project components were estimated using the CalEEMod Version 2022.1.1.29. Per preliminary project details, it is assumed that construction of the Project would begin in January 2026 and would last approximately 12 months. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 3.3.1, above, and complete details of the emissions calculations are provided in Attachment A. Per industry standard approaches, construction-related GHG emissions were amortized over the lifetime of the Project, which is assumed to be 30 years and added to operational emissions.

4.3.2 Operation

Emissions from the operational phase of the Project were estimated using CalEEMod. Operational year 2027 was assumed, as it would be the first year following completion of construction.

Area Sources

Area sources relevant to GHGs include hearths and landscape maintenance equipment; however, only landscape equipment is anticipated to be applicable to the Project. As discussed under 3.3.2, landscape equipment emissions were estimated using CalEEMod.

Energy Sources

The battery storage containers would have ventilation and air conditioning systems to keep the batteries in the optimal operating temperatures, which would be provided by electricity. Additionally, there is energy lost when the batteries are discharged, resulting in use. The electricity draw for the Project was provided by the applicant. The Project would have no natural gas needs or natural gas connections. Information regarding energy demand was provided by the Project applicant. Emissions were calculated by multiplying the energy use by the utility's carbon intensity (pounds of GHGs per megawatt-hour for electricity) for CO_2 and other GHGs. Annual electricity emissions were estimated in CalEEMod using the emissions factors for PG&E, which would be the energy source provider for the Project.

Mobile Sources

All relevant information describing the mobile source assumptions in Section 3.3.2 is applicable to the GHG emission quantification for mobile sources.

Water and Wastewater

As previously discussed, the BESS facility would be unstaffed and would include remote operational control; inspections/maintenance would be performed as necessary. The BESS facility would be uninhabited with no bathroom facilities, running water, or office space. Therefore, no indoor water use or wastewater generation during operation of the Project is anticipated. The Project would, however, result in outdoor water use for landscape maintenance. CalEEMod default values were applied to estimate GHG emissions from outdoor water use.

Solid Waste

The Project would not include full-time on-site staff or an operation and maintenance building therefore no permanent sanitary facilities would be required and GHG emissions associated with solid waste disposal are not anticipated.

Refrigerants

CalEEMod was utilized to estimate fugitive GHG emissions from refrigerants used for air conditioning (A/C) and refrigeration equipment. Different types of refrigeration equipment are used by different types of land uses and CalEEMod generates default refrigerant values based on land use subtype and industry data from the US EPA. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate, but does not quantify emissions from the disposal of refrigeration and A/C equipment at the end of its lifetime.

Most of the refrigerants used today are HFCs or blends thereof, which can have high GWP values. However, California is required to reduce HFC emissions 40 percent below 2013 levels by 2030 under Senate Bill 1383 and

regulations have been adopted to place GWP limits on HFCs such as Senate Bill 120. While CalEEMod default refrigerant values were assumed for the land use surrogate of general heavy industrial land use, it is anticipated to be conservative.

Offroad Sources

All relevant information describing the offroad source assumptions in Section 3.3.2 is applicable to the GHG emission quantification for offroad sources.

SF_6 Leakage

The Project would result in fugitive emissions from equipment (i.e., breakers) containing sulfur hexafluoride (SF_6) gas installed at the collector substation during operations and maintenance. SF_6 has a GWP of 23,900 using CO_2 as a reference value of 1 (IPCC 2007). Potential SF_6 emissions were estimated using a spreadsheet (outside of CalEEMod). It is estimated that the Project would maintain a total of 2,400 pounds of SF_6 gas at the substation. Although leakage is unlikely, for the purposes of the Project's emissions inventory, it was assumed that the breakers would have a maximum annual leak rate of 0.5% in accordance with the Institute of Electrical and Electronics Engineers (IEEE) PC37.122 - Standard for High Voltage Gas-Insulated Substations Rated Above 52 kV (IEEE 2018). It is important to note that amendments to the regulation for reducing SF_6 emissions from gas insulated switchgear became effective January 1, 2022, which phase out SF_6 by year depending on voltage capacity and short-circuit rating.

4.4 Impact Analysis

4.4.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

4.4.2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

CARB Scoping Plan

The California State Legislature passed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) to provide initial direction to limit California's GHG emissions to 1990 levels by 2020 and initiate the state's long-range climate objectives. Since the passage of AB 32, the State has adopted GHG emissions reduction targets for future years beyond the initial 2020 horizon year. For the Project, the relevant GHG emissions reduction targets include those established by Senate Bill 32 (SB 32) and AB 1279, which require GHG emissions be reduced to 40% below 1990 levels by 2030, and 85% below 1990 levels by 2045, respectively. In addition, AB 1279 requires the state achieve net zero GHG emissions by no later than 2045 and achieve and maintain net negative GHG emissions thereafter.

As defined by AB 32, CARB is required to develop The Scoping Plan, which provides the framework for actions to achieve the State's GHG emission targets. The Scoping Plan is required to be updated every five years and requires CARB and other state agencies to adopt regulations and initiatives that will reduce GHG emissions statewide. The first Scoping Plan was adopted in 2008, and was updated in 2014, 2017, and most recently in 2022. While the

Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations,[4] it is the official framework for the measures and regulations that will be implemented to reduce California's GHG emissions in alignment with the adopted targets. Therefore, a project would be found to not conflict with the statutes if it would meet the Scoping Plan policies and would not impede attainment of the goals therein.

The 2017 *Climate Change Scoping Plan Update* (Second Update) included measures to promote renewable energy and energy efficiency (including the mandates of SB 350), increase stringency of the Low Carbon Fuel Standard (LCFS), measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increase stringency of SB 375 targets (CARB 2017). The *2022 Scoping Plan for Achieving Carbon Neutrality* (Third Update) builds upon and accelerates programs currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; and displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022). Many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project-level.

The 2045 carbon neutrality goal required CARB to expand proposed actions in the Third Update to include those that capture and store carbon in addition to those that reduce only anthropogenic sources of GHG emissions. However, the Third Update emphasizes that reliance on carbon sequestration in the state's natural and working lands will not be sufficient to address residual GHG emissions, and achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture). Given that the specific path to neutrality will require development of technologies and programs that are not currently known or available, the Project's role in supporting the statewide goal would be speculative and cannot be wholly identified at this time. Nonetheless, given that the Project is also not anticipated to result in substantial increase in operational GHG emission sources, including operational vehicle miles traveled, and would facilitate the state's transition to clean, renewable energy sources, the Project would not conflict with the Scoping Plan.

Overall, the Project would comply will all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. The Project would not conflict with CARB's 2017 or 2022 Scoping Plan updates and with the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals and would support decarbonization of the energy sector.

Calaveras County General Plan

The General Plan includes several goals and policies related to GHG emissions within the County. Goal COS-4B Greenhouse gas emissions associated with vehicular travel, electric power generation, and energy use in compliance with applicable state goals and standards. Policy COS 4.4 Develop and adopt a comprehensive strategy to assist in achieving emission reduction goals of AB 32. (IM COS-5B, COS-5C and COS5D) Policy COS 4.5 Encourage retention of existing mature trees in landscaping for new development, consistent with fire protection needs, to facilitate carbon sequestration. (IM LU-4A and LU-4C) Policy COS 4.7 Encourage energy conserving construction techniques and the use of alternative energy sources. (IM COS-5E and PF-3A) Policy COS 4.8 Encourage the use

[4] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

and installation of alternative energy generating systems, including solar, wind, bio fuel, and other systems, in new development and in retrofitting existing structures. (IM COS-2E, COS5E and PF-3A). In addition to the goals and policies presented above, the General Plan includes the following IMs related to GHG emissions. IM COS-2E Green Waste. Review the zoning ordinance and Air Pollution Control District regulations and amend as necessary to facilitate the development of green waste to energy projects and other projects that convert green waste to products. IM COS-5B GHG Baseline for Calaveras County. Undertake a GHG emissions inventory to establish baseline levels of GHGs generated from all major emission sources in the County consistent with the requirements of Assembly Bill 32. IM COS-5C GHG Reduction Plan. Develop a GHG reduction plan outlining the strategies, goals, and actions for contributing to the overall reduction in GHG emissions consistent with AB 32. IM COS-5D Green Waste Collection. Provide green waste collection programs at County-operated landfill and transfer stations where feasible. Utilize public/private partnerships to utilize green waste in alternative uses and waste to energy facilities. IM COS-5E Incentives for Alternative Energy. Modify the County's development standards and zoning ordinance to provide incentives for providing alternative energy producing facilities compatible with surrounding uses, such as solar arrays in parking lots that serve to provide shade and energy production. Coordinate with and support state and federal programs that assist landowners in energy conservation and production. IM COS-5F Modify the County's development standards and zoning ordinance to provide incentives for providing infrastructure that supports alternative fueled vehicles, such as electric vehicle charging stations, natural gas fueling capabilities, and biodiesel.

The project would be consistent with applicable GHG reduction strategies in the County's General Plan, including Policy COS 4.8 and IM COS-5E. Although the project itself does not produce renewable energy, it supports the development of renewable energy projects by allowing the storage of power when not needed to offset times when the renewable sources are not producing power. Therefore, the project would not conflict with the County's General Plan.

CCOG General Regional Transportation Plan

The Calaveras County 2021 Regional Transportation Plan (RTP) provides a coordinated, 20-year vision of the regionally significant transportation improvements and policies needed to efficiently move goods and people within the region (CCOG 2021). As the Regional Transportation Planning Agency (RTPA), the Calaveras County Council of Governments is required by California law to adopt and submit an approved RTP to the California Transportation Commission (CTC) every four years. The California Department of Transportation (Caltrans) assists with plan preparation and reviews draft documents for compliance and consistency. The RTP must be consistent with other planning guidance in the region such as adopted general plans, airport plans, bicycle plans, and public transit plans.

The CCOG has the following general regional transportation goals: Goal 1: Safety—Provide a safe and secure transportation system. Goal 2: Emergency Access/Climate Resilience—Provide a transportation system that allows for safe and efficient evacuation and is adaptable to future changes in weather patterns. Goal 3: Infrastructure—Maintain a high-quality transportation system. Goal 4: Quality of Life/Public Health—Enable vibrant and healthy communities. Goal 5: Environment—Enhance environmental health and reduce negative transportation impacts. Goal 6: Mobility/Accessibility/Equity—Provide a high degree of mobility and reliability for people and goods in Calaveras County using multimodal solutions, which provide accessibility to goods and services for all residents and preserve the rural character of the region. Goal 7: Economic Vitality—Support a resilient economy.

The project would be consistent with Goals 2, 4, and 5 through the development of the BESS. The project would facilitate the storage of renewable energy sources which would help provide climate resilience through bolstering

of the electric grid. The project would be consistent with the applicable goals of the CCOG Regional Transportation Plan.

As discussed above, the project would not conflict with applicable plans to reduce GHG emissions. Impacts would be less than significant.

Construction and Decommissioning GHG Emissions

Construction and decommissioning of the Project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor and haul trucks, and worker vehicles. As stated above, construction emissions are amortized over a 30-year project lifetime; therefore, the total construction and decommissioning GHG emissions were calculated, amortized over 30 years.

CalEEMod was used to estimate GHG emissions during construction and decommissioning as explained in Section 4.3.1. Construction of the project is anticipated to last up to 12 months and decommissioning 1 month. On-site sources of GHG emissions include off-road equipment and off-site sources include on-road vehicles (vendor and haul trucks and worker vehicles). Table 5 presents construction and decommissioning GHG emissions for the Project from on-site and off-site emission sources.

Table 5. Estimated Annual Construction and Decommissioning GHG Emissions

	CO_2	CH_4	N_2O	R	CO_2e
Year	Metric Tons per Year				
2026	1,357.88	0.04	0.02	0.16	1,016.83
2054	75.25	<0.01	<0.01	<0.01	76.20
Total	*1,433.13*	*0.04*	*0.02*	0.16	*1,093.03*
				Amortized Emissions (30 years)	36.43

Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent, R=refrigerant; <0.01 = reported value is less than 0.01.
Year 2050 used to represent 2054 in CalEEMod.
See Attachment A for complete results.

As shown in Table 5, the estimated total GHG emissions during construction and decommissioning of the Project would be approximately 1,093 MT CO_2e. Estimated Project-generated construction and decommissioning emissions amortized over 30 years would be approximately 36 MT CO_2e per year. As with Project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the Project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operation

CalEEMod was used to estimate potential Project generated operational GHG emissions from mobile sources, area sources, energy sources (electricity only, no natural gas), water and wastewater, waste, refrigerants, and off-road equipment, as explained in Section 4.3.1. Table 6 presents the estimated operational GHG emissions from the Project for operational year 2027, which is assumed to be the first year of operation.

Table 6. Summary of Estimated Annual GHG Emissions

Emissions Source	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons per Year				
Mobile	3.13	<0.01	<0.01	0.01	3.19
Area	0.78	<0.01	<0.01	-	0.78
Energy	162.10	0.03	<0.01	-	163.71
Water	1.33	<0.01	<0.01	-	1.34
Waste	0.00	0.00	0.00	0.00	0.00
Refrigerants	-	-	-	2.30	2.30
Offroad Equipment	1.80	<0.01	<0.01	-	1.80
SF_6 Leakage	-	-	-	130.09	130.09
Total	**169.14**	**0.03**	**<0.01**	**132.40**	**303.21**
			Amortized Construction Emissions (30 years)		*36.43*
			Project Operations + Amortized Construction Total		***339.64***

Notes: GHG = greenhouse gas; MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent, R= refrigerants, <0.01 = reported value is less than 0.01; – = no emission estimates reported.
See Attachment A for complete results.

As shown in Table 6, the estimated total GHG emissions during operation of the Project would be approximately 340 MT CO_2e per year, including amortized construction and decommissioning emissions.

5 Summary of Conclusions

Regarding the potential for the Project to conflict with or obstruct implementation of the applicable air quality plan, the Project would result in a less than significant impact. The Project would not exceed construction or operational thresholds of significance and would result in a less than significant impact regarding the potential for the Project to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard. Regarding the potential for the Project to expose sensitive receptors to substantial pollutant concentrations (related to CO hotspots, criteria air pollutants, and TACs), the Project would result in a less than significant impact during construction and operation. The Project was determined to result in a less-than-significant impact during construction and operation related to the potential to result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs resulting in a potential cumulative GHG impact that would be less than significant.

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Attachment A

CalEEMod Emission Outputs

Table of Contents

Double Springs BESS Detailed Report	2
Double Springs_SF6 Calculations	57
Generator Calculations	58

Double Springs BESS Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Decommissioning (2050) - Unmitigated

3.3. BESS Site Preparation (2026) - Unmitigated

3.5. Collector Substation Site Preparation (2026) - Unmitigated

3.7. BESS Grading (2026) - Unmitigated

3.9. Collector Substation Grading (2026) - Unmitigated

3.11. Battery/Container Installation/Construction (2026) - Unmitigated

3.13. Collector Substation Installation/Construction (2026) - Unmitigated

3.15. Commissioning (2026) - Unmitigated

3.17. Gen-Tie Road Resurface and Clean-up (Paving) (2026) - Unmitigated

3.19. Gen-tie Trenching (2026) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Double Springs BESS
Construction Start Date	1/1/2026
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	43.8
Location	38.21724346643984, -120.76825101751145
County	Calaveras
City	Unincorporated
Air District	Calaveras County AQMD
Air Basin	Mountain Counties
TAZ	3009
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	53.3	1000sqft	82.9	53,314	180,622	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.6	9.76	79.2	104	0.16	3.09	1.26	4.36	2.85	0.30	3.15	—	18,391	18,391	0.74	0.26	6.13	18,493
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.6	10.6	86.1	114	0.18	3.48	14.6	16.1	3.20	6.95	8.36	—	20,261	20,261	0.84	0.30	0.17	20,366
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.97	3.35	27.3	35.5	0.06	1.09	1.75	2.84	1.00	0.71	1.71	—	6,390	6,390	0.26	0.10	0.97	6,426
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.72	0.61	4.97	6.47	0.01	0.20	0.32	0.52	0.18	0.13	0.31	—	1,058	1,058	0.04	0.02	0.16	1,064

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.6	9.76	79.2	104	0.16	3.09	1.26	4.36	2.85	0.30	3.15	—	18,391	18,391	0.74	0.26	6.13	18,493

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	12.6	10.6	86.1	114	0.18	3.48	14.6	16.1	3.20	6.95	8.36	—	20,261	20,261	0.84	0.28	0.17	20,366
2050	2.25	1.89	13.3	18.2	0.07	0.32	0.74	1.06	0.30	0.20	0.49	—	7,538	7,538	0.24	0.30	0.02	7,633
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.97	3.35	27.3	35.5	0.06	1.09	1.75	2.84	1.00	0.71	1.71	—	6,390	6,390	0.26	0.10	0.97	6,426
2050	0.14	0.11	0.80	1.10	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	455	455	0.01	0.02	0.02	460
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.72	0.61	4.97	6.47	0.01	0.20	0.32	0.52	0.18	0.13	0.31	—	1,058	1,058	0.04	0.02	0.16	1,064
2050	0.02	0.02	0.15	0.20	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	75.2	75.2	< 0.005	< 0.005	< 0.005	76.2

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.43	2.32	3.42	6.22	0.01	0.14	0.11	0.25	0.13	0.03	0.16	0.00	2,126	2,126	0.21	0.03	14.4	2,156
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.01	1.93	3.42	3.78	0.01	0.14	0.11	0.25	0.13	0.03	0.15	0.00	2,107	2,107	0.21	0.04	13.9	2,137
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.70	1.68	0.07	1.28	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.00	1,022	1,022	0.16	0.02	13.9	1,046
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.31	0.31	0.01	0.23	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	169	169	0.03	< 0.005	2.30	173

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11	0.10	0.12	0.84	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	140	140	0.01	0.01	0.52	142
Area	1.89	1.86	0.02	2.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.57
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	979	979	0.16	0.02	—	989
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Off-Road	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Total	2.43	2.32	3.42	6.22	0.01	0.14	0.11	0.25	0.13	0.03	0.16	0.00	2,126	2,126	0.21	0.03	14.4	2,156
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.14	0.72	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	130	130	0.01	0.01	0.01	133
Area	1.48	1.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	979	979	0.16	0.02	—	989
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Off-Road	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Total	2.01	1.93	3.42	3.78	0.01	0.14	0.11	0.25	0.13	0.03	0.15	0.00	2,107	2,107	0.21	0.04	13.9	2,137
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.02	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.03	19.3

Area	1.68	1.67	0.01	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.70	4.70	< 0.005	< 0.005	—	4.72
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	979	979	0.16	0.02	—	989
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Off-Road	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.9	10.9	< 0.005	< 0.005	—	10.9
Total	1.70	1.68	0.07	1.28	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.00	1,022	1,022	0.16	0.02	13.9	1,046
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.13	3.13	< 0.005	< 0.005	0.01	3.19
Area	0.31	0.30	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	162	162	0.03	< 0.005	—	164
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	1.33	1.33	< 0.005	< 0.005	—	1.34
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Off-Road	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.80	1.80	< 0.005	< 0.005	—	1.80
Total	0.31	0.31	0.01	0.23	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	169	169	0.03	< 0.005	2.30	173

3. Construction Emissions Details

3.1. Decommissioning (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.17	1.82	11.1	17.4	0.06	0.29	—	0.29	0.27	—	0.27	—	5,805	5,805	0.24	0.05	—	5,825
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.67	1.05	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.01	< 0.005	—	351
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.12	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	< 0.005	< 0.005	—	58.1
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.02	0.39	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	142	142	< 0.005	< 0.005	< 0.005	143
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.2	34.2	< 0.005	0.01	< 0.005	35.8
Hauling	0.04	0.03	2.14	0.43	0.01	0.03	0.54	0.57	0.03	0.15	0.18	—	1,557	1,557	< 0.005	0.25	0.02	1,630
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.79	8.79	< 0.005	< 0.005	< 0.005	8.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.06	2.06	< 0.005	< 0.005	< 0.005	2.16
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	93.8	93.8	< 0.005	0.01	0.02	98.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.45	1.45	< 0.005	< 0.005	< 0.005	1.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	< 0.005	0.36
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	15.5	15.5	< 0.005	< 0.005	< 0.005	16.3

3.3. BESS Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.40	11.8	20.4	0.03	0.56	—	0.56	0.51	—	0.51	—	3,209	3,209	0.13	0.03	—	3,220
Dust From Material Movement	—	—	—	—	—	—	1.06	1.06	—	0.11	0.11	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.32	0.56	< 0.005	0.02	—	0.02	0.01	—	0.01	—	87.9	87.9	< 0.005	< 0.005	—	88.2
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	14.6
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.15	1.53	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	184	184	0.01	0.01	0.02	187
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	5.17	5.17	< 0.005	< 0.005	0.01	5.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.59
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Collector Substation Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.41	2.03	18.8	17.9	0.03	0.81	—	0.81	0.74	—	0.74	—	3,338	3,338	0.14	0.03	—	3,350
Dust From Material Movement	—	—	—	—	—	—	13.1	13.1	—	6.73	6.73	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.07	0.06	0.51	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.5	91.5	< 0.005	< 0.005	—	91.8
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.1	15.1	< 0.005	< 0.005	—	15.2
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	92.1	92.1	0.01	< 0.005	0.01	93.4
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.63
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.59
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.43
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. BESS Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	1.73	14.1	22.8	0.03	0.65	—	0.65	0.60	—	0.60	—	3,562	3,562	0.14	0.03	—	3,574
Dust From Material Movement	—	—	—	—	—	—	1.06	1.06	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.21	1.70	2.74	< 0.005	0.08	—	0.08	0.07	—	0.07	—	429	429	0.02	< 0.005	—	431
Dust From Material Movement	—	—	—	—	—	—	0.13	0.13	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.31	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	—	71.1	71.1	< 0.005	< 0.005	—	71.3
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.23	2.29	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	276	276	0.02	0.01	0.03	280
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.1	34.1	< 0.005	< 0.005	0.06	34.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.70	6.70	< 0.005	< 0.005	0.01	7.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.16
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Collector Substation Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.73	2.29	20.5	19.9	0.03	0.88	—	0.88	0.81	—	0.81	—	3,622	3,622	0.15	0.03	—	3,634
Dust From Material Movement	—	—	—	—	—	—	13.1	13.1	—	6.73	6.73	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.24	1.20	< 0.005	0.05	—	0.05	0.05	—	0.05	—	218	218	0.01	< 0.005	—	219
Dust From Material Movement	—	—	—	—	—	—	0.79	0.79	—	0.41	0.41	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.23	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.1	36.1	< 0.005	< 0.005	—	36.3
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.12	1.22	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	147	147	0.01	0.01	0.02	149
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.10	9.10	< 0.005	< 0.005	0.02	9.24
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	< 0.005	3.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.51	1.51	< 0.005	< 0.005	< 0.005	1.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Battery/Container Installation/Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.77	23.8	28.7	0.05	0.97	—	0.97	0.89	—	0.89	—	5,386	5,386	0.22	0.04	—	5,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.77	23.8	28.7	0.05	0.97	—	0.97	0.89	—	0.89	—	5,386	5,386	0.22	0.04	—	5,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.17	10.0	12.1	0.02	0.41	—	0.41	0.38	—	0.38	—	2,272	2,272	0.09	0.02	—	2,280
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.21	1.83	2.21	< 0.005	0.07	—	0.07	0.07	—	0.07	—	376	376	0.02	< 0.005	—	378
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.35	0.28	4.66	0.00	0.00	0.41	0.41	0.00	0.10	0.10	—	473	473	0.02	0.02	1.83	480
Vendor	0.01	0.01	0.19	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.28	117
Hauling	0.01	0.01	0.47	0.06	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	285	285	< 0.005	0.05	0.56	299
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.32	0.35	3.52	0.00	0.00	0.41	0.41	0.00	0.10	0.10	—	423	423	0.03	0.02	0.05	430
Vendor	0.01	0.01	0.20	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
Hauling	0.01	0.01	0.50	0.06	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	285	285	< 0.005	0.05	0.01	299
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.14	1.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	183	183	0.01	0.01	0.33	186
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.05	49.1
Hauling	< 0.005	< 0.005	0.21	0.02	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	120	120	< 0.005	0.02	0.10	126
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.28	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.3	30.3	< 0.005	< 0.005	0.06	30.8
Vendor	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.77	7.77	< 0.005	< 0.005	0.01	8.13
Hauling	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.02	20.9

3.13. Collector Substation Installation/Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	6.14	5.15	46.3	51.6	0.09	1.85	—	1.85	1.70	—	1.70	—	9,554	9,554	0.39	0.08	—	9,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.14	5.15	46.3	51.6	0.09	1.85	—	1.85	1.70	—	1.70	—	9,554	9,554	0.39	0.08	—	9,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	11.2	12.4	0.02	0.45	—	0.45	0.41	—	0.41	—	2,303	2,303	0.09	0.02	—	2,311
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.04	2.27	< 0.005	0.08	—	0.08	0.07	—	0.07	—	381	381	0.02	< 0.005	—	383
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.52	0.46	0.36	6.08	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	617	617	0.03	0.02	2.39	626
Vendor	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	0.14	58.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.41	0.46	4.59	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	552	552	0.04	0.02	0.06	560
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.15	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	137	137	0.01	0.01	0.25	139
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.4	13.4	< 0.005	< 0.005	0.01	14.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.6	22.6	< 0.005	< 0.005	0.04	22.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.22	2.22	< 0.005	< 0.005	< 0.005	2.32
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Commissioning (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	92.1	92.1	0.01	< 0.005	0.01	93.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.03	14.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Gen-Tie Road Resurface and Clean-up (Paving) (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.52	0.44	4.26	6.46	0.01	0.17	—	0.17	0.16	—	0.16	—	992	992	0.04	0.01	—	996
Paving	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.26	6.46	0.01	0.17	—	0.17	0.16	—	0.16	—	992	992	0.04	0.01	—	996
Paving	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.1	57.1	< 0.005	< 0.005	—	57.3
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.45	9.45	< 0.005	< 0.005	—	9.49
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	1.01	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	103	103	0.01	< 0.005	0.40	104
Vendor	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	0.14	58.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	92.1	92.1	0.01	< 0.005	0.01	93.4
Vendor	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	< 0.005	58.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	0.01	5.51
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.90	0.90	< 0.005	< 0.005	< 0.005	0.91
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.55
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Gen-tie Trenching (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	1.01	0.85	7.47	10.5	0.02	0.27	—	0.27	0.25	—	0.25	—	1,649	1,649	0.07	0.01	—	1,654
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.35	1.91	< 0.005	0.05	—	0.05	0.04	—	0.04	—	298	298	0.01	< 0.005	—	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.4	49.4	< 0.005	< 0.005	—	49.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.12	2.03	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	206	206	0.01	0.01	0.80	209
Vendor	< 0.005	< 0.005	0.09	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.6	55.6	< 0.005	0.01	0.14	58.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.1	34.1	< 0.005	< 0.005	0.06	34.7
Vendor	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	0.01	5.74
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.66	1.66	< 0.005	< 0.005	< 0.005	1.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	979	979	0.16	0.02	—	989
Total	—	—	—	—	—	—	—	—	—	—	—	—	979	979	0.16	0.02	—	989
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	979	979	0.16	0.02	—	989
Total	—	—	—	—	—	—	—	—	—	—	—	—	979	979	0.16	0.02	—	989
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	162	162	0.03	< 0.005	—	164
Total	—	—	—	—	—	—	—	—	—	—	—	—	162	162	0.03	< 0.005	—	164

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.34	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.38	0.02	2.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.57
Total	1.89	1.86	0.02	2.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.57
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.34	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.48	1.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Product	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Total	0.31	0.30	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.01	8.01	< 0.005	< 0.005	—	8.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	1.33	1.33	< 0.005	< 0.005	—	1.34
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	1.33	1.33	< 0.005	< 0.005	—	1.34

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	13.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cranes	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Total	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cranes	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Total	0.43	0.37	3.28	3.06	0.01	0.13	—	0.13	0.12	—	0.12	—	990	990	0.04	0.01	—	993
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cranes	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.80	1.80	< 0.005	< 0.005	—	1.80
Total	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.80	1.80	< 0.005	< 0.005	—	1.80

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Decommissioning	Demolition	3/1/2050	3/31/2050	5.00	22.0	—

BESS Site Preparation	Site Preparation	1/1/2026	1/14/2026	5.00	10.0	—
Collector Substation Site Preparation	Site Preparation	1/1/2026	1/14/2026	5.00	10.0	—
BESS Grading	Grading	1/15/2026	3/17/2026	5.00	44.0	—
Collector Substation Grading	Grading	1/15/2026	2/13/2026	5.00	22.0	—
Battery/Container Installation/Construction	Building Construction	3/16/2026	10/15/2026	5.00	154	—
Collector Substation Installation/Construction	Building Construction	2/14/2026	6/17/2026	5.00	88.0	—
Commissioning	Building Construction	10/16/2026	12/31/2026	5.00	55.0	—
Gen-Tie Road Resurface and Clean-up (Paving)	Paving	9/16/2026	10/14/2026	5.00	21.0	—
Gen-tie Trenching	Trenching	5/16/2026	8/17/2026	5.00	66.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Decommissioning	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Decommissioning	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Decommissioning	Cranes	Diesel	Average	2.00	8.00	367	0.29
Decommissioning	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
BESS Site Preparation	Graders	Diesel	Average	2.00	8.00	148	0.41
BESS Site Preparation	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
BESS Site Preparation	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37

BESS Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Collector Substation Site Preparation	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Collector Substation Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
BESS Grading	Graders	Diesel	Average	2.00	8.00	148	0.41
BESS Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
BESS Grading	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
BESS Grading	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
BESS Grading	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
BESS Grading	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37
Collector Substation Grading	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Collector Substation Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Collector Substation Grading	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Battery/Container Installation/Construction	Cranes	Diesel	Average	2.00	8.00	367	0.29
Battery/Container Installation/Construction	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Battery/Container Installation/Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Battery/Container Installation/Construction	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Battery/Container Installation/Construction	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Battery/Container Installation/Construction	Graders	Diesel	Average	2.00	8.00	148	0.41
Battery/Container Installation/Construction	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43

Battery/Container Installation/Construction	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Battery/Container Installation/Construction	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37
Collector Substation Installation/Construction	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Collector Substation Installation/Construction	Aerial Lifts	Diesel	Average	2.00	8.00	46.0	0.31
Collector Substation Installation/Construction	Bore/Drill Rigs	Diesel	Average	2.00	8.00	83.0	0.50
Collector Substation Installation/Construction	Cranes	Diesel	Average	2.00	8.00	367	0.29
Collector Substation Installation/Construction	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Collector Substation Installation/Construction	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Collector Substation Installation/Construction	Graders	Diesel	Average	2.00	8.00	148	0.41
Collector Substation Installation/Construction	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Collector Substation Installation/Construction	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Collector Substation Installation/Construction	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37
Collector Substation Installation/Construction	Trenchers	Diesel	Average	2.00	8.00	40.0	0.50
Collector Substation Installation/Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Gen-Tie Road Resurface and Clean-up (Paving)	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Gen-Tie Road Resurface and Clean-up (Paving)	Rollers	Diesel	Average	1.00	8.00	36.0	0.38

Gen-Tie Road Resurface and Clean-up (Paving)	Skid Steer Loaders	Diesel	Average	1.00	8.00	71.0	0.37
Gen-Tie Road Resurface and Clean-up (Paving)	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Gen-tie Trenching	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Gen-tie Trenching	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37
Gen-tie Trenching	Trenchers	Diesel	Average	2.00	8.00	40.0	0.50
Gen-tie Trenching	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
BESS Site Preparation	—	—	—	—
BESS Site Preparation	Worker	20.0	12.7	LDA,LDT1,LDT2
BESS Site Preparation	Vendor	2.00	8.78	HHDT,MHDT
BESS Site Preparation	Hauling	0.00	20.0	HHDT
BESS Site Preparation	Onsite truck	—	—	HHDT
BESS Grading	—	—	—	—
BESS Grading	Worker	30.0	12.7	LDA,LDT1,LDT2
BESS Grading	Vendor	2.00	8.78	HHDT,MHDT
BESS Grading	Hauling	0.00	20.0	HHDT
BESS Grading	Onsite truck	0.00	—	HHDT
Battery/Container Installation/Construction	—	—	—	—
Battery/Container Installation/Construction	Worker	46.0	12.7	LDA,LDT1,LDT2

Battery/Container Installation/Construction	Vendor	4.00	8.78	HHDT,MHDT
Battery/Container Installation/Construction	Hauling	4.00	20.0	HHDT
Battery/Container Installation/Construction	Onsite truck	—	—	HHDT
Gen-Tie Road Resurface and Clean-up (Paving)	—	—	—	—
Gen-Tie Road Resurface and Clean-up (Paving)	Worker	10.0	12.7	LDA,LDT1,LDT2
Gen-Tie Road Resurface and Clean-up (Paving)	Vendor	2.00	8.78	HHDT,MHDT
Gen-Tie Road Resurface and Clean-up (Paving)	Hauling	0.00	20.0	HHDT
Gen-Tie Road Resurface and Clean-up (Paving)	Onsite truck	—	—	HHDT
Decommissioning	—	—	—	—
Decommissioning	Worker	20.0	12.7	LDA,LDT1,LDT2
Decommissioning	Vendor	2.00	8.78	HHDT,MHDT
Decommissioning	Hauling	30.0	20.0	HHDT
Decommissioning	Onsite truck	—	—	HHDT
Collector Substation Site Preparation	—	—	—	—
Collector Substation Site Preparation	Worker	10.0	12.7	LDA,LDT1,LDT2
Collector Substation Site Preparation	Vendor	2.00	8.78	HHDT,MHDT
Collector Substation Site Preparation	Hauling	0.00	20.0	HHDT
Collector Substation Site Preparation	Onsite truck	—	—	HHDT
Collector Substation Grading	—	—	—	—
Collector Substation Grading	Worker	16.0	12.7	LDA,LDT1,LDT2
Collector Substation Grading	Vendor	2.00	8.78	HHDT,MHDT
Collector Substation Grading	Hauling	0.00	20.0	HHDT
Collector Substation Grading	Onsite truck	—	—	HHDT

Collector Substation Installation/Construction	—	—	—	—
Collector Substation Installation/Construction	Worker	60.0	12.7	LDA,LDT1,LDT2
Collector Substation Installation/Construction	Vendor	2.00	8.78	HHDT,MHDT
Collector Substation Installation/Construction	Hauling	0.00	20.0	HHDT
Collector Substation Installation/Construction	Onsite truck	—	—	HHDT
Gen-tie Trenching	—	—	—	—
Gen-tie Trenching	Worker	20.0	12.7	LDA,LDT1,LDT2
Gen-tie Trenching	Vendor	2.00	8.78	HHDT,MHDT
Gen-tie Trenching	Hauling	0.00	20.0	HHDT
Gen-tie Trenching	Onsite truck	—	—	HHDT
Commissioning	—	—	—	—
Commissioning	Worker	10.0	12.7	LDA,LDT1,LDT2
Commissioning	Vendor	0.00	8.78	HHDT,MHDT
Commissioning	Hauling	0.00	20.0	HHDT
Commissioning	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Decommissioning	0.00	0.00	0.00	0.00	—
BESS Site Preparation	0.00	0.00	10.0	0.00	—
Collector Substation Site Preparation	0.00	0.00	10.0	0.00	—
BESS Grading	0.00	0.00	44.0	0.00	—
Collector Substation Grading	0.00	0.00	22.0	0.00	—
Gen-Tie Road Resurface and Clean-up (Paving)	0.00	0.00	0.00	0.00	0.50

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.50	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2050	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Total all Land Uses	0.00	10.0	0.00	521	0.00	150	0.00	7,821

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	79,971	26,657	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,752,000	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

General Heavy Industry	0.00	2,699,245

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Cranes	Diesel	Average	1.00	8.00	367	0.29

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.9	annual days of extreme heat

Extreme Precipitation	7.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	15.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	67.0
AQ-PM	39.1
AQ-DPM	4.78
Drinking Water	43.8
Lead Risk Housing	21.9
Pesticides	55.8
Toxic Releases	14.4
Traffic	5.72

Effect Indicators	—
CleanUp Sites	0.00
Groundwater	56.1
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	66.7
Solid Waste	97.7
Sensitive Population	—
Asthma	49.6
Cardio-vascular	79.3
Low Birth Weights	40.7
Socioeconomic Factor Indicators	—
Education	46.8
Housing	43.9
Linguistic	0.00
Poverty	20.4
Unemployment	41.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	63.33889388
Employed	23.88040549
Median HI	61.88887463
Education	—
Bachelor's or higher	22.76401899
High school enrollment	18.20864879
Preschool enrollment	11.26652124

Transportation	—
Auto Access	61.56807391
Active commuting	2.540741691
Social	—
2-parent households	63.62119851
Voting	64.67342487
Neighborhood	—
Alcohol availability	88.60515848
Park access	6.518670602
Retail density	3.990760939
Supermarket access	40.74169126
Tree canopy	81.39355832
Housing	—
Homeownership	92.2751187
Housing habitability	80.6236366
Low-inc homeowner severe housing cost burden	51.31528295
Low-inc renter severe housing cost burden	59.77158989
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	60.00256641
Arthritis	0.0
Asthma ER Admissions	37.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0

Life Expectancy at Birth	42.2
Cognitively Disabled	21.0
Physically Disabled	18.7
Heart Attack ER Admissions	34.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	3.8
SLR Inundation Area	0.0
Children	96.1
Elderly	12.0
English Speaking	95.3
Foreign-born	6.5
Outdoor Workers	18.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	95.7
Traffic Density	3.7
Traffic Access	0.0
Other Indices	—
Hardship	45.2

Other Decision Support	—
2016 Voting	74.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0
Healthy Places Index Score for Project Location (b)	45.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project-specific information and surrogate land uses for the BESS.
Construction: Construction Phases	Project-specific values.
Construction: Off-Road Equipment	Project-specific values.
Construction: Dust From Material Movement	Project-specific information.
Construction: Paving	Project-specific estimates.
Construction: Electricity	2050 used to represent 2054.

Operations: Vehicle Data	Project-specific values.
Operations: Energy Use	Project-specific information.
Construction: Trips and VMT	Project-specific assumptions.
Operations: Refrigerants	Project-specific values estimate
Operations: Water and Waste Water	No indoor water use. Default values for outdoor water use.
Operations: Solid Waste	No solid waste generated.
Construction: Off-Road Equipment EF	Based on tier 4 Final emission standards for generators.

Double Springs BESS
Sulfur Hexafluoride (SF6) Leakage GHG Emission Calculations

lb SF_6	Percent leak rate	lb SF_6/year	SF_6 GWP	lb/MT	CO_2e/year
2,400	0.50%	12	23900	2204.62	130.09

Notes:

lb	pounds
MT	metric tons
SF_6	sulfur hexafluoride
CO_2e	carbon dioxide equivalent
GWP	global warming potential

Double Springs BESS

Generator Sets

Construction - Commissioning

Equipment Description	Quantity	Rating		Operating Parameters/unit[1]			Emission Factors[2]									Emission Rates												
		kW	HP	Load Factor	hr/day	hr/yr	ROG g/hp-hr	NOx g/hp-hr	CO g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO2 g/hp-hr	CH4 g/hp-hr	N2O g/hp-hr	ROG lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	ROG ton/yr	NOx ton/yr	CO ton/yr	SOx ton/yr	PM10 ton/yr	PM2.5 ton/yr	CO2 MT/yr	CH4 MT/yr	N2O MT/yr	CO2e MT/yr
Construction/Commissioning: Diesel Generators - 2028	2	750	1,006	0.73	8	440	0.3	4.50	2.6	0.0049	0.15	0.15	521.64	0.020944	0.004087	7.77	116.54	67.33	0.13	3.88	3.88	0.21	3.20	1.85	0.00	0.107	0.107	337.03	0.01	0.00	338.16

Source:

1. Operational information based on applicant input.
2. Tier 2 engines for Construction/Commissioning Diesel Generators were assumed.

Conversions:

1 kW =	1.34102	hp
1 lb =	453.6	g
1 MT =	2204.623	lb
1 MT =	1000000	g

Appendix D1

Biological Resources Technical Report

DUDEK
853 LINCOLN WAY, SUITE 105
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.887.1250

November 21, 2025 13672.01

Paul Gascoigne
Senior Manager- Site Acquisition & Strategy
Double Springs Energy Storage, LLC
One Bridge Street, Suite 11
Irvington, New York 10533

Subject: Biological Resources Technical Report for the Double Springs Battery Energy Storage System Project, Calaveras County, California

Dear Paul Gascoigne:

This biological resources technical report documents the existing biological conditions for the subject property located adjacent to and bordering the western side of the Pacific Gas and Electric Company (PG&E) Valley Springs Substation at 3524 Double Springs Road, Valley Springs, Calaveras County, California. The proposed Project would construct and operate a battery energy storage system on privately owned lands. The Project site totals approximately 16.4 acres. This report includes a discussion of the sensitive biological resources observed and with a potential to occur, an analysis of potential impacts to biological resources as a result of project implementation, and next-step recommendations to avoid or minimize impacts.

1 Project Location

The Project site is located within the unincorporated community of Valley Springs generally northwest of the intersection of California Highway 12 and California North Highway 26 (Figure 1, Project Vicinity; all figures are provided in Attachment 1). The Project site is specifically located northwest and near the intersection of 3524 Double Springs Road and California North Highway 26, Assessor's Parcel Numbers 040002017, 040002018, and 040002019 (Figure 2, Project Site). For the purpose of this report, the area investigated included the entire Project site of 16.4 acres plus a 100-foot buffer around the Project site boundary of 8.7 acres, for a total of 25.1 acres (Biological Study Area [BSA]). The BSA accounts for both on-site and off-site biological resources that may impacted by the proposed Project.

2 Project Description

Double Springs Energy Storage, LLC (Applicant) proposes to construct and operate a utility-scale battery energy storage facility on privately owned lands directly adjacent to the west of PG&E Valley Springs Substation in Calaveras County, California.

The Project would be composed of lithium iron phosphate batteries installed in racks, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation (i.e., point of interconnection). The batteries would be installed in purpose-built enclosures, with

battery storage racks and relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system would control the charging/discharging of the batteries, along with monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current electricity that must be converted to alternating current for compatibility with the existing electric grid. Power inverters would convert between alternating current and direct current, and transformers would step up the voltage to match that of the interconnection. Internal circulation roads, pads for the battery enclosures, and an access road connecting to Double Springs Road would be graded and paved.

The proposed facility would provide a service to the regional electric grid by receiving energy (charging) from the PG&E Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use would not create emissions to air, would not require sanitary facilities, and would not require water except to maintain water-efficient and low-impact landscaping design along the Project frontage.

3 Methods

3.1 Literature Review

To evaluate the natural resources found or potentially occurring within the BSA, literature searches and database reviews were conducted by Dudek biologists. The database review included the most recent versions of the California Department of Fish and Wildlife California Natural Diversity Database (CDFW 2024b), the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2024), the United States Fish and Wildlife Service Information for Planning and Consultation occurrence data (USFWS 2024b), and iNaturalist (collectively referred to as databases) were reviewed to determine the potential for special-status wildlife and plant species to occur in and near the BSA (Attachment 2, Environmental Database Review). These databases were reviewed to identify sensitive biological resources present or potentially present within the U.S. Geological Survey 7.5-minute quadrangle on which the BSA is located (Valley Springs) and the eight surrounding quadrangles (i.e., Wallace, Ione, Jackson, Mokelumne Hill, San Andreas, Salt Spring Valley, Jenny Lind, Valley Springs SW).

Potential and/or historic drainages and aquatic features were investigated based on a review of U.S. Geological Survey topographic maps (1:24,000 scale), aerial photographs, the U.S. Fish and Wildlife Service National Wetland Inventory database (USFWS 2024c), Environmental Protection Agency's, and the Natural Resource Conservation Service's Web Soil Survey (USDA 2024).

3.2 Soil Survey Review

According to the Natural Resources Conservation Service's Web Soil Survey (USDA 2024), the BSA occurs within the Central Sierra Foothills Area and includes three non-hydric soil types listed below

Inks-Angelscreek complex, 3% to 15% slopes. Inks soils consist of cobbly loam and bedrock with parent material of Residuum weathered from conglomerate and/or tuff breccia creating ridges and lahars. Angelscreek soils consist of cobbly clay loam with parent material of colluvium over residuum derived from conglomerate and/or tuff breccia creating saddles on ridges on lahars.

Angelscreek-Pentz complex, 15% to 30% slopes. Angelscreek soils consist of gravelly loam and very cobbly clay loam with parent material colluvium over residuum derived from conglomerate and/or tuff breccia creating lahars. Pentz soils consist of fine sandy loam and bedrock with parent material colluvium and/or residuum derived from basic tuff with minor components of inks soils creating lahars.

Urban land-Amador complex, 2% to 15% slopes. Amador soils consist of sandy loam and bedrock with residuum weathered from acidic tuff with minor components of inks, pardee, hornitos, mollic fluvaquents (cobbly) soils creating low hills.

3.3 National Wetlands Inventory and Environmental Protection Agency Review

There are no wetland types or water resources mapped/recorded on National Wetland Inventory (USDA 2024) or the Environmental Protection Agency's Waters Mapper (EPA 2024) within the BSA. The pond adjacent and to the west of the BSA is mapped in four different sections and feature types on National Wetlands Inventory, including freshwater pond habitat (PUBHh), freshwater forested/shrub wetland (PFOA and PFOB), freshwater emergent wetland (PEM1A and 1C), and riverine (R4SBC). According to the Environmental Protection Agency Waters Mapper, the channel that feeds into and drains out of the pond is Spring Valley Creek. National Wetland Inventory records this feature as freshwater emergent wetland north of the pond and riverine southwest of the pond.

3.4 Biological Surveys

A Dudek biologists conducted a general biological reconnaissance of the study area on June 3, 2024, and Dudek biologists conducted additional general biological reconnaissance, late season rare plant survey, and aquatic resources delineation on September 26, 2024. The June pass was conducted from 0900 to 1400; weather conditions were favorable with 10% cloud cover, wind speeds from 0 to 10 miles per hour, and temperatures from 72°F to 85°F. The September pass was conducted from 0600 to 1300; weather conditions were favorable with 0% cloud cover, wind speeds from 0 to 5 miles per hour, and temperatures from 54°F to 85°F.

3.4.1 Reconnaissance

General, reconnaissance-level surveys included walking meandering transects through the BSA to document existing conditions and potential habitat for special-status species. Native and naturalized plant species encountered in the BSA were identified and recorded. The potential for special-status plant and wildlife species to occur within the BSA was evaluated based on the vegetation communities and soils present. Dudek used California Department of Fish and Wildlife's California Natural Communities List (CDFW 2023) to classify vegetation communities and map the BSA. Vegetation communities and land covers were delineated to the vegetation alliance level, and where appropriate the association level. Some modifications, such as the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986; Oberbauer 2008), were incorporated to accommodate the lack of conformity of the observed communities to those included in these references. General assessments for habitat suitability for special-status species such as California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and western spadefoot (*Spea hammondii*) were conducted during reconnaissance surveys.

3.4.2 Botanical

During the September 26, 2024, site visit, a botanical survey was conducted in accordance with guidance presented in California Department of Fish and Wildlife's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities and List of Vegetation Alliances and Associations (CDFW 2023), and the California Native Plant Society's CNPS Botanical Survey Guidelines (CNPS 2001). The survey was floristic in nature, meaning that all plant species observed were identified and documented to a taxonomic level sufficient to determine rarity.

Reference populations for spicate calycadenia (*Calycadenia spicata)* and Hoover's calycadenia (*Calycadenia hooveri)* were visited on September 26, 2024. Reference population checks involve locating known off-site populations of special-status plant species during a time frame when they are known to be blooming or exhibiting other phenological characteristics that allow for species identification. Observations of reference populations during peak phenology provide assurance to lead agencies and resource agencies that these species would be identifiable and detectable if they are present in the BSA. The reference population for spicate calycadenia contained approximately 50 plants that were 70% in bloom, 10% vegetative, and 20% senescent. The reference population for Hoover's calycadenia could not be located based on old records nearby and likely no longer occurs at those locations.

3.4.3 Aquatic Resources Delineation

During the September 26, 2024, site visit, Dudek also conducted an assessment for the presence of waters or wetlands potentially subject to regulation by the US Army Corps of Engineers under the Clean Water Act Section 404, California Regional Water Quality Control Board under the Clean Water Act Section 401 or the Porter-Cologne Water Quality Act, or the California Department of Fish and Wildlife under the California Fish and Game Code Section 1600 et seq. Methods followed the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with Esri Field Maps on a mobile device with an EOS Arrow satellite antenna for sub-meter location accuracy. The widths of each non-wetland water were determined in the field according to the OHWM manual.

3.4.4 Protocol-Level Bumble Bee Surveys

Surveys for Crotch's bumble bee were conducted in accordance with the CDFW Survey Considerations for CESA Candidate Bumble Bee Species document that was issued June 6, 2023 (CDFW 2023b) and follow the methods below. All passes were conducted by biologists who holds a Memorandum of Understanding and Scientific Collecting Permit to capture and handle Crotch's bumble bee (*Bombus crotchii*).

Dudek conducted three evenly spaced protocol level surveys for Crotch's bumble bee spaced from April through June 2025. Surveys occurred after sunrise and 3 hours before sunset and were not conducted during wet conditions (e.g., foggy, raining, or drizzling) or windy conditions (i.e., sustained winds greater than 8 mph). The surveys were conducted during optimal conditions when there were sunny to partly sunny skies that were greater than 60° Fahrenheit. Suitable habitat within the study area was visually surveyed for 1 person-hour per 3 acres of potential habitat.

Biologists walked meandering transects through these resources with a goal of observing bumble bees in passing and observing bumble bee nest sites associated with small mammal burrow or other appropriate soil cavities. Nets were used to capture bumble bees which were then placed in clean vials and on ice for no more than 120 minutes. Once sedated by the cold, the bees were photographed and identified to species and caste (queen, worker, male). The bees were then released back to the original habitat from which they were collected.

3.4.5 Focused Pond Habitat Assessment

A focused habitat assessment was conducted to evaluate the habitat characteristics of a nearby pond for breeding of California tiger salamander or California red-legged frog. A Dudek Senior Ecologist visited the pond on October 10, 2025 to document pond conditions and interview the property owners regarding the seasonal and interannual conditions at the pond.

4 Results

4.1 Biological Study Area Description

The BSA is predominantly undeveloped and generally characterized by low rolling hillsides dominated by annual grassland with two drainages flowing from east to west. There are multiple energy transmission lines and communications lines supported by metal towers or wooden poles bordering the BSA to the south, north and east. The majority of the area immediately east of the BSA is a developed PG&E substation. The BSA is located in a region that experiences a semi-arid climate similar to that of the adjacent San Joaquin Valley. According to the Camp Pardee Station (041428), annual average temperatures range from 38.1°F to 95.8°F, and the average annual precipitation is 21.48 inches. On average, the months with the highest rainfall are January and February; July has the least precipitation (WRCC 2024).

Land use within the BSA is currently zoned for business park(s) and agricultural preserve uses (County 2020). The property appears to have no current or recent uses for grazing or other uses, although it may have been utilized for cattle grazing in the past. No significant topographic features occur on the BSA. The BSA contains low elevation rolling hills at 1,060 feet above mean sea level with a drainage at the lowest site elevation of 930 feet above mean sea level. Representative photographs of the BSA are included in Attachment 3.

4.2 Vegetation Communities and Land Covers

The BSA is dominated by annual grassland of wild oat (*Avena* sp.) with intermittent occurrences of other non-native plant species typically associated with ruderal land cover. The only semi-natural vegetation community mapped on the BSA is the *Avena* sp. association, which occurs throughout the BSA (Figure 3, Vegetation Communities and Land Cover Types). Additionally, there are two drainages, one within the Project area fed by a culvert (southern-central part of the BSA), the other a natural inlet flowline north and outside of the Project area but within the survey buffer of the BSA (northern part of the BSA). These natural vegetation communities and land covers were mapped based on general physiognomy, species composition, and/or ground cover and are discussed in detail further below. Table 1 summarizes the extent of each vegetation community or land cover within the BSA.

There are no special-status vegetation communities within the BSA.

Table 1. Vegetation Communities and Land Covers Within the Biological Study Area

Vegetation Community or Land Cover	Project Site (acres)	Buffer (acres)	Total Biological Study Area (acres)
Semi-Natural Vegetation Communities			
Annual Grassland	14.85	6.66	21.52
Aquatic Features - Drainage	0.35	0.44	0.79
Anthropogenic Land Cover Types			
Developed	0.0	1.24	1.24
Totals	**15.20**	**8.34**	**23.55**

4.2.1 Semi-Natural Vegetation Communities

California Annual Grassland - California annual grassland resembles the wild oats and annual brome grassland alliance, which includes wild oat and brome dominant or co-dominant in the herbaceous layer. The herbaceous layer is open to continuous and less than 4 feet in height. California annual grassland occurs in disturbed areas, rangelands, and openings in woodlands (CNPS 2024).

California annual grassland is located throughout the BSA. Dominant species vary and include oats, bromes (*Bromus* spp.), rose clover (*Trifolium hirtum*), barley (*Hordeum* spp.), and Italian rye grass (*Festuca perennis*). There is one valley oak tree (*Quercus lobata*) present within this community.

Aquatic Features -Drainages. There are two drainages in the BSA:

- ***South Drainage.*** The South Drainage is an intermittent stream fed by a culvert with an inlet near the southeastern area of the Project site. This intermittent stream varies in width (6 inches to 15 feet) and depth (6 inches to 2 feet). The bottom of the drainage/channel consists of rocks, stones, and barren soils. The wider and deeper sections are nearest to the culvert outlet at the eastern border of the Project site. Water from the South Drainage flows to the large stock pond immediately west of the Project boundary.
- ***North Drainage.*** The North Drainage is not located in Project site but part of this feature is located within the Biological Survey Area and has been created by natural flowlines in the topography. This has less defined banks and is dominated by the annual grassland community. The North Drainage flows into the freshwater emergent wetland section in the northern portion of Spring Valley Creek.

4.2.2 Anthropogenic Land Cover Types

Developed – Developed land covers, also sometimes referred to as 'urban,' refer to areas that have been constructed on or otherwise physically altered to the point where vegetation is no longer present. Developed areas are characterized by permanent or semi-permanent structures, hardscapes, and landscaped areas that require irrigation. The eastern BSA buffer includes a portion of the PG&E substation, which is the only developed land cover present (CDFW 2024a).

4.3 Floral Diversity

A total of 29 species of vascular plants were recorded within the BSA, consisting of 8 native (28%) and 21 non-native (72%) species (Attachment 4a, Plant Species Observed). The dominant plant species detected within the BSA was wild oat (*Avena fatua*).

4.4 Wildlife

Wildlife use of the BSA was minimal during the reconnaissance surveys. Bird species detected included turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), and other common species. No active bird nests were observed during the field visit; however, the BSA and adjacent pond could support nesting migratory birds. Wildlife species observed within the BSA are listed in Attachment 4b. Details regarding the potential for special-status species to occur within the BSA are discussed further below.

4.5 Special-Status Plant Species

As summarized in Attachment 5, Special-Status Species with Potential to Occur, special-status plants include those listed, or candidates for listing, as threatened or endangered by USFWS or CDFW, or species identified as rare by CNPS (particularly CRPR 1A – Presumed extinct in California; CRPR 1B – Rare, threatened, or endangered throughout its range; and CRPR 2 – Rare or Endangered in California, more common elsewhere). A total of 17 special-status plant species were reported in the databases as occurring in the vicinity of the BSA. For each species evaluated, a determination was made regarding the potential for the species to occur on site based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

No special-status plant species were detected within the BSA. Additionally, there is no USFWS-designated critical habitat for listed plant species within the BSA (USFWS 2024a).

Of the 17 special-status plant species listed in the databases as occurring in the vicinity of the BSA, 8 species were determined to have no potential to occur within the BSA based on an evaluation of species ranges/elevation and known habitat preferences. Nine special-status species have potential to occur within the BSA based on available habitat, correct elevation and geographic range, and documented occurrences within 5 miles of the BSA (Table 2). Attachment 5 includes details of the special-status species occurrence determinations.

Table 2. Special-Status Plant Species with Potential to Occur Within the Biological Study Area

Scientific Name	Common Name	Federal/State/CNPS Status
Balsamorhiza macrolepis	big-scale balsamroot	None/None/1B.2
Calycadenia hooveri	Hoover's calycadenia	None/None/1B.3
*Calycadenia spicata**	spicate calycadenia	None/None/1B.3
Eryngium pinnatisectum	Tuolumne button-celery	None/None/1B.2
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	None/None/1B.2
Legenere limosa	legenere	None/None/1B.1

Table 2. Special-Status Plant Species with Potential to Occur Within the Biological Study Area

Scientific Name	Common Name	Federal/State/CNPS Status
Navarretia myersii ssp. *myersii*	pincushion navarretia	None/None/1B.1
*Navarretia paradoxiclara**	Patterson's navarretia	None/None/1B.3
Sphenopholis obtusata	prairie wedge grass	None/None/2B.2

Source: CNPS 2024.
California Native Plant Society Status
California Rare Plant Rank (CRPR)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Threat Ranks:
.1 Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 Moderately threatened in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Ahart's dwarf rush, legenere, pincushion navarretia, and Patterson's navarretia are all associated with vernal pool and seasonally ponded areas. No vernal pools were observed within the BSA during the site surveys. Prairie wedge grass is primarily associated with mesic habitat in woodland and riparian areas. Limited suitable ephemerally inundated habitat is present within the drainage in the southern portion of the BSA. The remaining species are associated with annual grassland, which is present throughout the BSA. Those species are big-scale balsamroot, Hoover's calycadenia, spicate calycadenia, and Tuolumne button-celery.

Late-season surveys were conducted at the time when Hoover's calycadenia and spicate calycadenia were evident and identifiable, as verified at reference populations and review of historic records. No calycadenia species were observed during the September site survey. Thus, these species are considered to be not present on site.

4.6 Special-Status Wildlife Species

Special-status wildlife include those listed, or candidates for listing, as threatened or endangered by USFWS or CDFW, or designated as a Species of Special Concern by CDFW. A total of 16 special-status wildlife species were reported in the databases as occurring in the vicinity of the BSA. Attachment 5 summarizes the special-status wildlife species that were included in these databases and evaluated as part of this assessment. For each species evaluated, a determination was made regarding the potential use of the site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of their relative distributions in the area.

No wildlife species listed or proposed for listing as rare, threatened, or endangered by either CDFW or USFWS were detected within the BSA during the site surveys.

Of the 16 special-status wildlife species listed in the databases as occurring in the vicinity of the BSA, nine species are not expected to occur within the BSA. A total of seven special-status species were determined to have potential to occur within the BSA (Table 3). None of these species have existing records at the BSA in databases. Attachment 5 includes details of the special-status species occurrence determinations.

Table 3. Special-Status Wildlife Species with Potential to Occur Within the Biological Study Area

Scientific Name	Common Name	Federal/State Status
Amphibians		
Ambystoma californiense pop. 1*	California tiger salamander - central California DPS	FT/ST, WL
*Rana draytonii**	California red-legged frog	FT/SSC
Spea hammondii	western spadefoot	FPT/SSC
Birds		
*Agelaius tricolor** (nesting colony)	tricolored blackbird	BCC/ST, SSC
Invertebrates		
*Bombus crotchii**	Crotch's bumble bee	None/SCE
*Branchinecta lynchi**	vernal pool fairy shrimp	FT/None
Reptiles		
Actinemys marmorata	northwestern pond turtle	FPT/SSC

Federal Status
BCC: Bird of conservation concern
FPT: Federally proposed threatened
FT: Federally listed as threatened
State Status
SCE: State candidate endangered
ST: State threatened
SSC: California species of special concern
WL: Watch List

California Tiger Salamander

The central California population of California tiger salamander are federally and state listed as threatened. California tiger salamander require two main habitat components: aquatic habitat for breeding and upland terrestrial habitat with small mammal burrows for refugia. California tiger salamander typically occupy grasslands of the Central Valley that support suitable aquatic breeding habitat and grassland/oak savannah vegetation communities of the Sierra Nevada and Coast Range that similarly support suitable aquatic breeding habitat. They are generally found below 1,500 feet above mean sea level (Shaffer et al. 2004), although the known elevational range extends up to 3,458 feet above mean sea level (Jennings and Hayes 1994). The northernmost known extant California tiger salamander population occurs as an isolated population near Dunnigan in Yolo County, and the southernmost is in Santa Barbara County (Shaffer and Trenham 2005). Few populations are currently known from the Central Valley; most recent records are from surrounding hills along the eastern and western edges of the Central Valley, where most grassland communities are primarily distributed. Consequently, the California tiger salamander population is also primarily distributed within these same areas. It is likely that the species is uncommon or absent in much of the southernmost San Joaquin Valley—from approximately Los Banos in south Merced County—and the foothills of the Sierra Nevada—south of Visalia in Tulare County—because habitat is unsuitable (USFWS 2014).

While the BSA does not provide suitable breeding habitat for this species, the annual grassland and drainage on site provide potential upland aestivation and dispersal habitat. One previously documented occurrence of this

species occurs within 5 miles (mi) of the BSA and is located 1.68 mi northwest of the BSA (Occurrence Number 1111) (CDFW 2024b). This record documents an adult California tiger salamander found in 2019 near a residence surrounded by grasslands that are used for cattle grazing. No breeding ponds appear to be present within 0.31 mi (500 m) of that occurrence record; however, there are four potential breeding ponds within 0.62 mi (1 km) although some contain fish. Based on aerial photography, the location of these potential breeding ponds that are near the occurrence record are all greater than 1.3 mi from the BSA.

Based on a review of historical aerial imagery (Google Earth Pro 2003 – 2024, where available), there are nine potential aquatic habitats (ponds) within 1.3 mi (2.2 km) of the BSA. Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs); two of the ponds appear to be perennial/seasonal features, and one pond is seasonal.

The closest pond, located immediately west of the BSA, is perennial and contains numerous gamefish and a large population of American bullfrogs, and does not provide suitable breeding habitat. The closest potential breeding pond is a seasonal feature located approximately 0.16 mi north of the BSA. However, based on a site visit to the pond on October 10, 2025, and information obtained from the owner, this pond typically dries by September or October each year. When the pond fills each winter/spring numerous American bullfrogs move into the pond from the large stock pond located immediately west of the BSA. According to the owner, the frogs remain in the pond all summer and leave when the pond dries. As a result, this pond does not provide suitable breeding habitat for California tiger salamanders due primarily to the presence of numerous bullfrogs during the spring and summer. However, some of the other seven ponds within 1.3 mi of the BSA may provide California tiger salamander breeding habitat and all are surrounded by extensive grassland habitat. Based on the presence of bullfrogs at the nearby ponds, all of the other ponds within 1.3 mi of the Project site may be occupied by bullfrogs and/or gamefish making them unsuitable for breeding by California tiger salamanders. However, since these ponds could not be accessed, their status could not be verified.

California Red-legged Frog

California red-legged frog is federally listed as threatened and a California species of special concern. Distribution of this species currently ranges from sea level to 5,200 feet (1,585 meters) above mean sea level in the Coast Ranges from Mendocino County to Los Angeles County, excluding Orange and San Diego counties, and as far south as the Sierra San Pedro Mártir in northern Baja California, Mexico. It remains relatively widespread in the coastal mountains from the San Francisco Bay Area to Point Conception. Isolated populations persist in the Sierra Nevada foothills and Riverside County, but the species is believed to be extirpated from the floor of the Central Valley and the southern Transverse and Peninsular Ranges (USFWS 2002; Bulger et al. 2003; Barry and Fellers 2013).

California red-legged frogs occupy a variety of habitat types, including various aquatic, riparian, and upland habitats. Preferred aquatic habitat of California red-legged frog is characterized by dense shrubby or emergent riparian vegetation, such as arroyo willow, cattail (*Typha* spp.), and bulrush (*Scirpus* spp.), associated with deep (greater than 2 feet), still or slow-moving water. California red-legged frog will also utilize ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, man-made aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry thickets, nonnative annual grasslands, and oak savannas. California red-legged frog have been known to breed successfully in artificial ponds with little or no emergent vegetation, although they generally use emergent aquatic vegetation to anchor egg mass (USFWS 2002).

The BSA is within the Sierra Nevada Foothills and Central Valley Recovery Unit for this species (USFWS 2002). Additionally, the BSA is within designated critical habitat, specifically the Young's Creek Unit (CAL-1) (USFWS 2002). The Young's Creek Unit encompasses approximately 2,764 acres of private land in Calaveras County. The eastern edge of this critical habitat unit overlaps with the majority of the BSA, except for a very small area in the southeast corner of the BSA.

There is one documented occurrence of California red-legged frog within 5 mi, located approximately 0.81 mi west of the BSA (Occurrence Number: 671) (CDFW 2024b). Three adults were documented in fall of 2003 along Young's Creek, a spring-fed stream with associated riparian canopy within grazed grasslands in oak savannah.

Based on review of historical aerial imagery (Google Earth Pro 2025: 2003 to 2024, where available), there are eight aquatic habitats (ponds) within 1-mile of the BSA. Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs), one of the ponds appears to be perennial/seasonal, and the remaining pond is seasonal. While the BSA does not provide suitable breeding habitat for this species, the grassland and drainage on site provide suitable upland dispersal habitat during the rainy season (generally late fall through early spring). However, the BSA does not provide suitable dispersal or refugia habitat during the dry season (generally late spring through early fall) when frogs generally remain at or near water sources, especially in xeric environments. As a result, California red-legged frogs would not be expected to be present in the on-site grasslands during the dry season, either moving through the BSA or seeking refuge in small mammal burrows within the grassland.

While California red-legged frogs can occur in either ephemeral or perennial aquatic habitats, populations generally cannot be maintained in ephemeral habitats in which surface water disappears before metamorphosis is completed (July to September during most years). The intermittent drainage present within the BSA does not provide breeding habitat since the drainage is usually dry by June each year.

The closest pond, located immediately west of the BSA, is perennial and contains numerous gamefish and a large population of American bullfrogs, and does not provide suitable breeding habitat. The closest potential breeding pond is a seasonal feature located approximately 0.16 mi (255 m) north of the BSA. Based on a site visit to the pond on October 10, 2025, and information obtained from the owner, this pond typically dries by September or October each year and could potentially provide breeding habitat for California red-legged frogs. However, when the pond fills each winter numerous American bullfrogs move into the pond from the large stock pond immediately west of the BSA. According to the owner, the frogs remain in the pond all summer and leave when the pond dries. As a result, this pond does not provide suitable breeding habitat for California red-legged frogs due primarily to the presence of numerous bullfrogs and lack of complex habitat. However, there are several additional potential breeding ponds within 1-mi of the BSA and all are surrounded by extensive grassland habitat.

Western Spadefoot

Western spadefoot is a California Species of Special Concern and is proposed to be listed as threatened under the federal Endangered Species Act. Western spadefoot requires two separate habitat components to complete their life cycle, and these habitats need to be near each other. The species is almost completely terrestrial and requires upland areas for foraging and overwintering, and adjacent wetland areas for breeding and reproduction (USFWS 2005a). Adult spadefoot toads aestivate in upland habitats near potential breeding pools in burrows. Spadefoot toads aestivate in upland habitats near potential breeding sites in burrows approximately 3 feet (1 meter) in depth

(Stebbins 1972), and adults emerge from underground burrows during relatively warm rainfall events to breed. Adults emerge from burrows during or after warm rainfall events from January through March, but they may also emerge in any month from October to April if rain thresholds are met. Western spadefoots use a range of permanent and temporary wetland habitats for breeding, including creeks, rivers, pools in intermittent streams, vernal pools, and temporary rain pools. Vernal pools and other temporary wetlands are considered optimal for breeding due to the absence or reduced abundance of both native and non-native predators, many of which require more permanent water sources (USFWS 2005a).

Although this species has not been documented within 5 miles of the BSA, it may be underreported in the Project region. The nearest documented occurrence for this species is located approximately 8 miles southwest of the BSA (Occurrence Number: 60) (CDFW 2024b). Suitable breeding habitat is potentially present within the drainage in the southern portion of the BSA. The grassland habitat within the BSA may provide suitable dispersal and foraging habitat and small mammal burrows provide potential aestivation habitat.

Tricolored Blackbird

Tricolored blackbirds are listed as Threatened under the California Endangered Species Act. Tricolored blackbirds are colonial passerine birds belonging to the family Icteridae. Adults are medium sized, ranging from 7.5 to 9 inches in length from beak to tail, and weighing approximately 1.5 to 2.5 ounces (Beedy et al. 2020). They are sexually dimorphic and are most recognized by the black glossy plumage contrasted with the distinctive red shoulder patches and white median coverts found on mature, breeding males. Courtship begins in late February to mid-March. Males select the breeding site and females typically arrive 1 to 3 days later. As colony nesters, tricolored blackbirds breed in relatively high densities; breeding efforts are often synchronous (Emlen 1985).

The nearest documented occurrence for this species is located approximately 2 miles southwest of the BSA (Occurrence Number: 934) (CDFW 2024b). There is no breeding habitat within the BSA, although the grassland provides suitable foraging habitat for this species.

Crotch's Bumble Bee

As of October 2024, Crotch's bumble bee (*Bombus crotchii*) is a candidate for listing under the California Endangered Species Act, affording them the legal protections of an endangered or threatened species (California Fish and Game Code Sections 2074.2 and 2085). The California Department of Fish and Wildlife is currently completing a status review that will inform the listing decision by the California Fish and Game Commission.

There are three foundational habitat requirements for all bumble bee species: sufficient floral resources across the colony's duration (spring, summer, fall), suitable nesting sites, and suitable overwintering sites (CDFW 2019). Crotch's bumble bee primarily occurs in open grassland and scrub communities supporting suitable floral resources. Suitable habitat may contain any of the following: (1) areas of grasslands and upland scrub that contain requisite habitat elements, such as small-mammal burrows and forage plants; (2) potential nest habitat (late February through late October) containing underground abandoned small-mammal burrows, perennial bunch grasses and/or thatched annual grasses, brush piles, old bird nests, and dead trees or hollow logs (Williams et al. 2014; Hatfield et al. 2015); and (3) overwintering sites (November through early February).

One previously documented occurrence of this species occurs within 5 miles, approximately 3.7 miles northeast of the BSA (Occurrence Number: 305) (CDFW 2024b). One individual was observed along Highway 26 in 2020 (CDFW

2024b). Late-season floral nectar sources are limited within the BSA, consisting primarily of tarweed (*Holocarpha virgata*); however, additional nectar sources such as vetch (*Vicia* spp.) may be available earlier in the species flight season. Small mammal burrows in the grassland provide potentially suitable nesting habitat for this species. One Crotch's bumble bee queen was observed on site during protocol-level bumble bee surveys in 2025. No bumble bee nests were observed within the Project area during the site surveys.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is listed as Threatened under the federal Endangered Species Act. This species is a small freshwater crustacean belonging to the branchiopod order Anostraca. Vernal pool fairy shrimp reproduction is structured around the ephemeral nature of its freshwater habitats, where the entire adult population dies during dry seasons and is revived during the next inundation event from eggs that have undergone a diapause period in the dried pond sediments. They typically require cooler water temperatures than other vernal pool species, with hatching believed to be triggered by water temperatures of 50°F (Eriksen and Belk 1999; Gallagher 1996; Helm 1998). Vernal pool fairy shrimp are restricted to their aquatic habitats during their larval and adult stages, but the eggs can be passively dispersed via overland flooding or migratory birds (Simovich 1998; USFWS 2005b).

The BSA is within the Southeastern Sacramento Valley Vernal Pool Recovery Unit (USFWS 2005a). The BSA is not within designated critical habitat for this species.

The nearest documented occurrence for this species is located approximately 2 miles southwest of the BSA (Occurrence Number: 419) (CDFW 2024b). There is marginal habitat for this species in the flat grassland at the northern end of the BSA, where several low-lying areas may pond water long enough to support this species' life cycle.

Northwestern Pond Turtle

Northwestern pond turtle is a California Species of Special Concern and a candidate for listing as Threatened under the federal Endangered Species Act. It is typically found in open water such as lakes, streams, ponds, reservoirs, estuaries, and brackish waters throughout California. This species prefers areas with cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow-moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Northwestern pond turtles spend most of the warmer months (April through September) in aquatic habitats that provide favorable environments for foraging, mating, basking, and predator avoidance (Bury and Germano 2008).

Northwestern pond turtles use terrestrial habitats for nesting and overwintering. They normally lay their eggs near water; however, females may climb hillsides along foothill streams, sometimes traveling over 330 feet to find a suitable nest site. Generally, 3 to 11 eggs are laid from March to August depending on local conditions and are incubated for approximately 73 to 80 days. Although nesting sites should contain deep soils (at least 4 inches deep), the type of soil can vary from sandy to very hard (CDFW 2024b).

Although this species has not been documented within 10 miles of the BSA, the pond located directly west of the Project site provides suitable aquatic habitat for this species, and the grasslands in the western portion of the BSA provide suitable nesting habitat (CDFW 2024b).

4.7 Jurisdictional Waters and Wetlands

There are approximately 0.39 acres of aquatic resources on the Project site that may meet the criteria for jurisdictional waters subject to regulation by the US Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife.

5 Conclusions and Recommendations

This section provides next steps/ recommendations for the proposed Project to determine jurisdiction, necessary permits, and associated mitigation requirements.

5.1 Special-Status Plant Species

The botanical survey conducted in September 2024 was sufficient to determine that no late-blooming special-status plant species occur in the BSA. Dudek recommends a focused botanical survey conducted during the bloom period for early blooming plant species determined to have 'Potential to Occur.' For the purposes of this preliminary biological (reconnaissance-level) survey, some assumptions were made about presence of some micro habitats. A spring botanical survey when the other potentially occurring special-status plant species are evident and identifiable would potentially rule out the potential to occur for some or all of the other potentially occurring special-status plant species.

5.2 Potential Jurisdictional Aquatic Resources

Dudek qualified wetland specialists identified and mapped the extent of aquatic resources within the BSA that are potentially subject to regulation under federal Clean Water Act Sections 401 and 404, California Fish and Game Code Section 1600, and/or the provisions of the Porter-Cologne Act. The intermittent stream on site is potentially jurisdictional.

If the Project cannot be designed to fully avoid the intermittent stream, project-specific avoidance and minimization measures should be designed and implemented. Measures should include, but not be limited to, best management practices to avoid impacts to Spring Valley Creek and riparian vegetation adjacent to the BSA. Exclusion fencing should be installed between avoided aquatic resources and the limits of disturbance to protect these resources. A qualified wetland specialist should guide installation of the exclusion fencing. Appropriate best management practices and spill prevention measures should also be implemented to ensure protection of jurisdictional aquatic resources during project implementation.

Direct modifications to the intermittent stream would require consultation with the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife to obtain appropriate permits.

5.3 Special-Status Wildlife

A total of seven special-status wildlife species have potential to occur within the BSA: California tiger salamander, California red-legged frog, western spadefoot, tricolored blackbird, Crotch's bumble bee, vernal pool fairy shrimp. Because tricolored blackbird and Townsend's big-eared bat would not nest, roost, or overwinter on or near the site,

impacts are not expected to require avoidance, minimization, or mitigation. A summary of recommendations to reduce potentially significant impacts to the remaining species are provided below.

- California tiger salamander. The BSA lacks suitable breeding habitat but the grasslands may provide suitable upland aestivation habitat for California tiger salamanders if breeding ponds are present within the general area of the site. It is likely that some of the small mammal burrows present within the grasslands on the site provide suitable aestivation habitat for CTS.
  - Project activities that could potentially result in take of CTS or loss of habitat would require consultation under Section 7 of the federal ESA or incidental take authorization via Section 10 of the federal ESA if there is no federal nexus for the Project (e.g., federal funding, federal permitting, etc.). Take authorization from the USFWS and CDFW would be necessary if the proposed Project would result in loss of individuals or impacts to species habitat.
- California red-legged frog. The BSA lacks suitable breeding habitat but may provide suitable upland dispersal and temporary refugia habitat if California red-legged frogs are present within 1-mile of potentially suitable breeding habitats. Some of the small mammal burrows on site may provide temporary refugia for dispersing frogs during the wet season, but would not be present on the site during the dry summer months.
  - Any project activities that could potentially result in take of California red-legged frog or loss of designated Critical Habitat would require consultation under Section 7 of the federal ESA or incidental take authorization via Section 10 of the federal ESA if there is no federal nexus for the Project (e.g., federal funding, federal permitting, etc.). Take authorization from the US Fish and Wildlife Service would be necessary if the proposed Project would result in loss of individuals or impacts to species habitat. Additional avoidance and minimizations measures may also be necessary, such as implementation of best management practices, preconstruction surveys, riparian habitat avoidance, etc.
  - The Project is within California red-legged frog Critical Habitat; therefore, coordination with the US Fish and Wildlife Service is recommended early in the planning process.
- Western spadefoot. Dudek recommends that work within potentially suitable breeding habitat (the on-site drainage) be conducted when the feature is dry. Additionally, a qualified biologist should conduct pre-activity surveys prior to ground disturbance to ensure no western spadefoot are within the work area.
- Crotch's bumble bee. One Crotch's bumble bee queen was observed on the Project site during protocol-level surveys in 2025. Project activities could potentially result in take of Crotch's bumble bee or loss of habitat would require compliance with Section 2081 of the California Fish and Game Code. To avoid potential for take, the following measures should be implemented:
  - A qualified biologist with a Scientific Collecting Permit for the species should conduct a pre-construction survey no more than 5 days prior to construction start to identify any active nests.
  - If an active nest is detected, construction within 50 feet of the nest should not occur until the qualified biologist determines it is inactive or the timing is outside the Colony Active Period (April 1-August 31).
- Vernal Pool Fairy Shrimp. No vernal pools are present on site; however, there are several low-lying areas in the northern extent of the Project site that may provide sufficient hydroperiod to support the life cycle of this species (Figure 5, Potential Habitat for Listed Large Brachiopods).
  - Potential habitat should be avoided by a buffer of no less than 50 feet.
  - If avoidance is not feasible, focused surveys for vernal pool fairy shrimp and mitigation for should be performed and implemented.

- **Northwestern pond turtle.** Northwestern pond turtle is known to occur in within 5 miles of the Project site. The pond/wetland and Spring Valley Creek provide suitable habitat for this species, and the BSA provides only suitable upland and nesting habitat.
  - This species is federally proposed for listing as a threatened species. Official listing of the species is expected by 2025. Therefore, formal consultation with the USFWS and subsequent take authorization pursuant to Section 7 of the Endangered species act may be required.
  - Dudek recommends a pre-construction survey for northwestern pond turtle where a biologist experienced with this species surveys the BSA for individuals and nests or evidence of nesting activity of this species. To avoid impacts to potential nests, potential nesting habitat adjacent to the off-site pond should be avoided. Additional conservation measures to protect the species, if determined to be necessary, may include establishment of BMPs including exclusionary fencing, as well as preconstruction surveys, monitoring, and as-needed turtle relocation by a qualified biologist during Project activities.

5.3.1 Nesting Birds and Raptors

The BSA provides limited nesting habitat for native or migratory birds and raptors due to the presence of buildings/ structures, trees, shrubs, and other ground cover. Nesting activity typically occurs in the region from February through August. Disturbing or destroying active nests is a violation of the federal Migratory Bird Treaty Act. In addition, nests and eggs are protected under CFGC Section 3503. Impacts to nesting birds can be prevented through preconstruction surveys for active nests, nest avoidance buffers, and as-needed nest monitoring.

If you have any questions regarding the contents of this report, please call me at 530.613.9875 or mhenry@dudek.com.

Sincerely,



Michael Henry
Associate Practice Director of Biology

Att.: *1, Figures*
2, Environmental Database Review
3, Site Photographs
4, Species Observed
5, Special-Status Species with Potential to Occur

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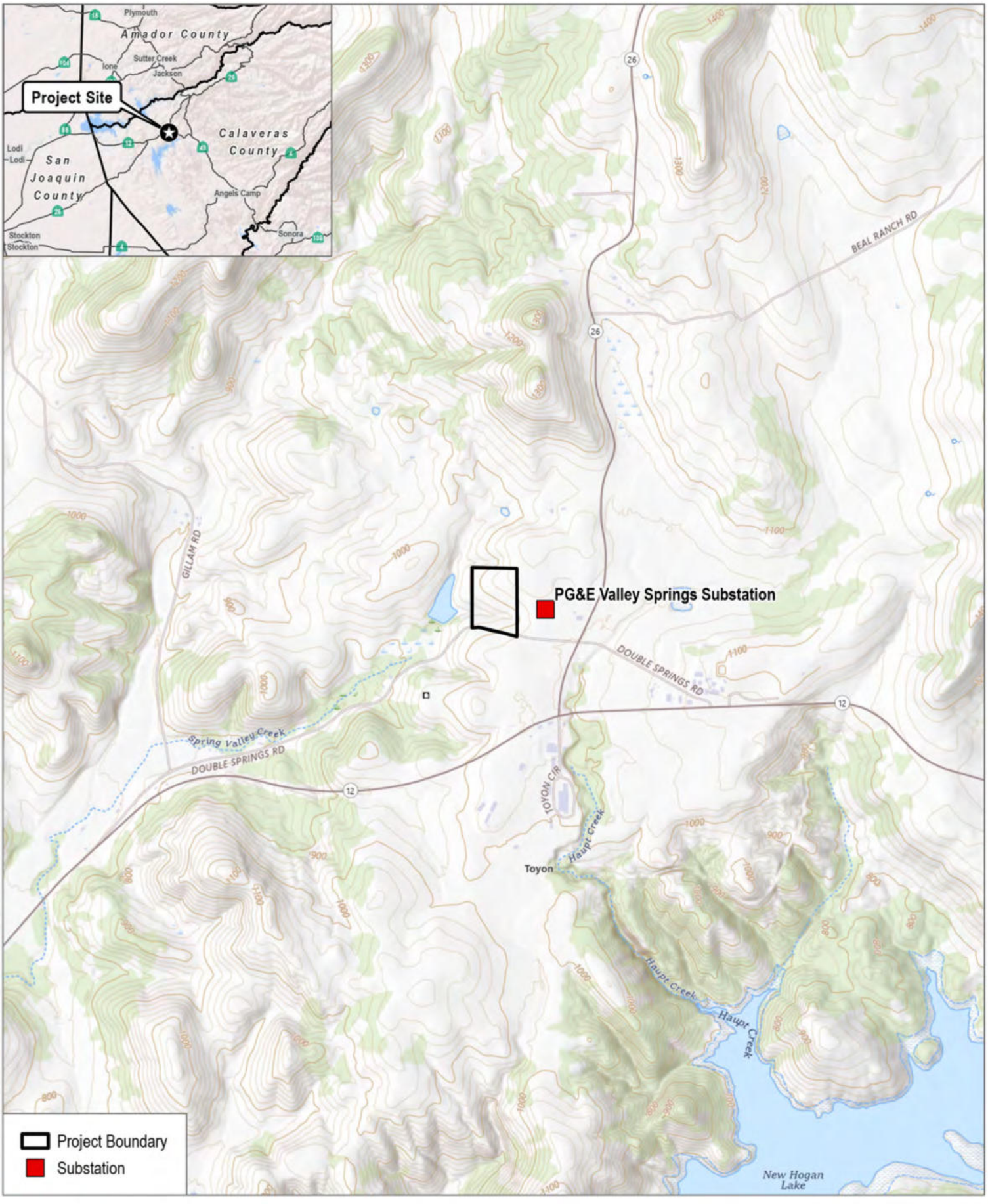
Attachment 1
Figures



SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Vicinity

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

0 175 350 Feet

FIGURE 2

Project Site

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

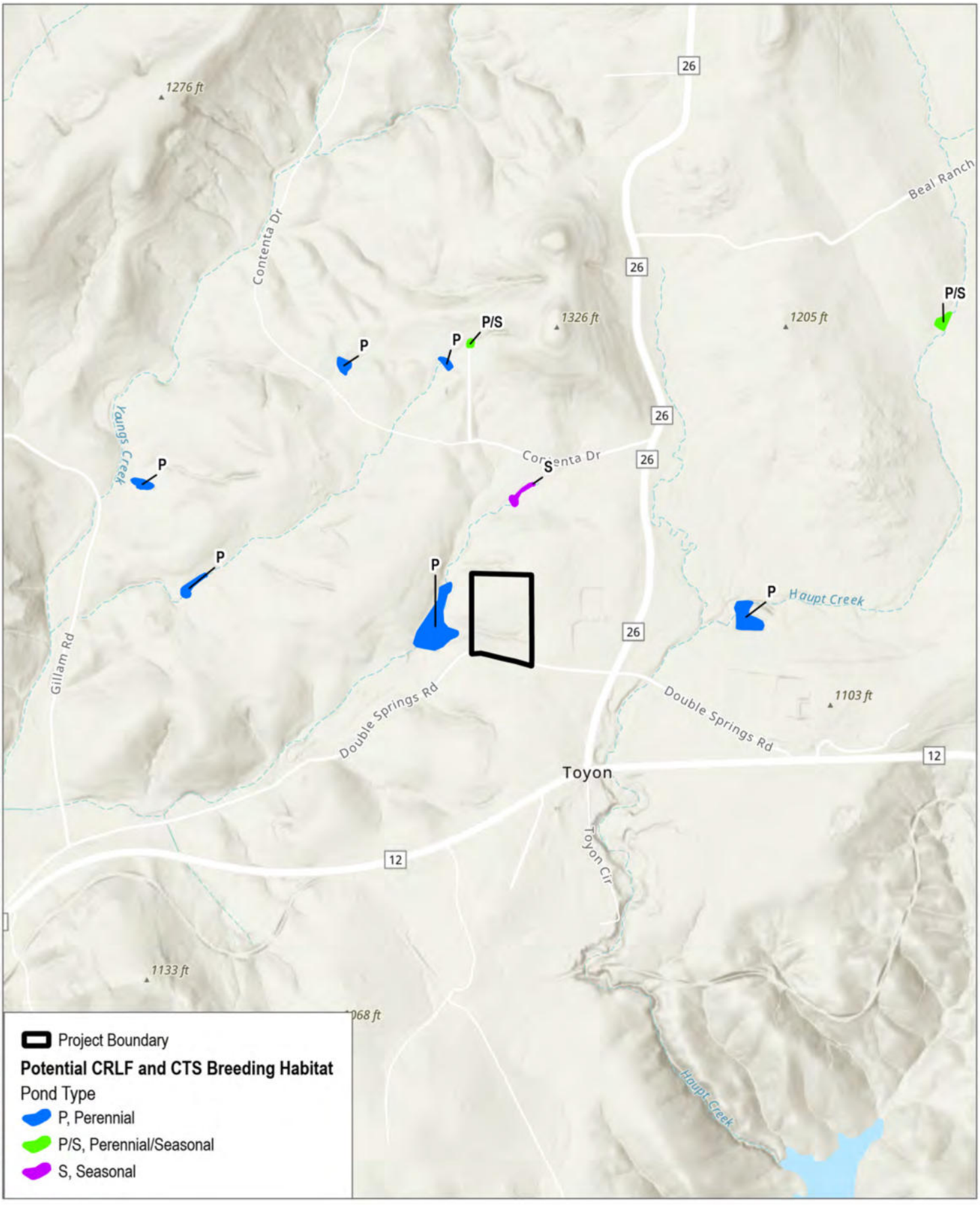
DUDEK

0 175 350 Feet

FIGURE 3

Vegetation Communities and Land Cover Types

Double Springs BESS Project



SOURCE: USGS Topo Maps

DUDEK

0 0.125 0.25 Miles

FIGURE 4

Potential CA Red-Legged Frog and CA Tiger Salamander Breeding Habitat

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

FIGURE 5

Potential Habitat for Listed Large Branchiopods

Double Springs BESS Project

DUDEK

0 0.0275 0.055 Miles

Attachment 2

Environmental Database Review

CNPS Rare Plant Inventory

Search Results

25 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812027:3812028:3812038:3812037:3812036:3812026:3812016:3812017:3812018]

▲ 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
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2		1974-01-01	 ©2005 Steve Matson
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	FT	None	G1	S1	1B.2	Yes	1974-01-01	 © 2006 Steve Matson
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	Yes	2019-01-07	 © 2011 Steven Perry
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	G2	S2	1B.3	Yes	1980-01-01	No Photo Available
Calycadenia spicata	spicate calycadenia	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	 © 2023 Christopher Bronny
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	No Photo Available
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	Yes	2006-09-29	No Photo Available

Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	Apr-Aug	None	None	G2?Q	S2?	3.2	Yes	1974-01-01	No Photo Available
Cryptantha mariposae	Mariposa cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G2G3	S2S3	1B.3	Yes	1974-01-01	No Photo Available
Eriogonum apricum var. *apricum*	Ione buckwheat	Polygonaceae	perennial herb	Jul-Oct	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriophyllum confertiflorum var. *tanacetiflorum*	tansy-flowered woolly sunflower	Asteraceae	perennial shrub	May-Jul	None	None	G5T2?Q	S2?	4.3	Yes	2001-01-01	No Photo Available
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual/perennial herb	May-Aug	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2007 Robert E. Preston, Ph.D.
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2017 Debra L. Cook
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	None	None	G2?	S2?	1B.1	Yes	1974-01-01	No Photo Available
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2009 Barry Breckling
Jepsonia heterandra	foothill jepsonia	Saxifragaceae	perennial herb	Aug-Dec	None	None	G3	S3	4.3	Yes	1994-01-01	 © 2014 Belinda Lo
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Lomatium congdonii	Congdon's lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	Yes	1994-01-01	 © 2020 Leigh Johnson
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	None	None	G2	S2	1B.3	Yes	2016-04-27	No Photo Available
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	None	None	G5	S2	2B.2		1974-01-01	No Photo Available

Showing 1 to 25 of 25 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 17 June 2024].

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Valley Springs (3812027) OR Ione (3812038) OR Jackson (3812037) OR Mokelumne Hill (3812036) OR San Andreas (3812026) OR Salt Spring Valley (3812016) OR Jenny Lind (3812017) OR Valley Springs SW (3812018) OR Wallace (3812028))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Agrostis hendersonii Henderson's bent grass	PMPOA040K0	None	None	G2Q	S2	3.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S1	
Arctostaphylos myrtifolia Ione manzanita	PDERI04240	Threatened	None	G1	S1	1B.2
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Banksula rudolphi Rudolph's cave harvestman	ILARA14080	None	None	G1	S1	
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G2	S2	1B.3
Calycadenia spicata spicate calycadenia	PDAST1P090	None	None	G3?	S3	1B.3
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2?Q	S2?	3.2
Cryptantha mariposae Mariposa cryptantha	PDBOR0A1Q0	None	None	G2G3	S2S3	1B.3
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum apricum var. apricum Ione buckwheat	PDPGN080F1	Endangered	Endangered	G2T1	S1	1B.1
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Eryngium racemosum Delta button-celery	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Erythranthe marmorata Stanislaus monkeyflower	PDPHR01130	None	None	G2?	S2?	1B.1
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Horkelia parryi Parry's horkelia	PDROS0W0C0	None	None	G2	S2	1B.2
Hydroporus leechi Leech's skyline diving beetle	IICOL55040	None	None	G1?	S2S3	
Ione Chaparral Ione Chaparral	CTT37D00CA	None	None	G1	S1.1	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lomatium congdonii Congdon's lomatium	PDAPI1B0B0	None	None	G2	S2	1B.2
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1T2	S1S2	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Navarretia paradoxiclara Patterson's navarretia	PDPLM0C150	None	None	G2	S2	1B.3
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Rana boylii pop. 5 foothill yellow-legged frog - south Sierra DPS	AAABH01055	Endangered	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
Spea hammondii western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Sphenopholis obtusata prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2

Record Count: 42

Observations

Filters 5

Show
- [ ] Wild
- [ ] Captive
- [x] Verifiable
- [x] Research Grade
- [ ] Needs ID
- [x] Threatened
- [ ] Introduced
- [ ] Popular
- [ ] Has Sounds
- [ ] Has Photos

Description / Tags blue, butterfly, etc.

Categories

Rank
High
Low

Sort By
Date Added
Desc

Date Observed
(•) Any ( ) Exact Date YYYY-MM-DD ( ) Range Start End ( ) Months Select Options

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Person
Username or User ID

Project
Name or URL slug, e.g. my

Place
Place

Photo Licensing All

Reviewed
(•) Any ( ) Yes ( ) No

Date Added
(•) Any ( ) Exact Date YYYY-MM-DD ( ) Range Start End

Update Search Reset Search Filters

Identify Atom Download

Species

Double Springs Road, Valley Go

Custom Boundary
27
observations
13
species
36
Identifiers
21
Observers

Map Grid List

Media	Name	User	Observed	Place	Added
2	Valley Oak Quercus lobata Research Grade 4	dylapodiformes	April 2024	California, US	May 2024
	Rufous Hummingbird Selasphorus rufus Research Grade 2	bluegrace	April 2024	California, US	April 2024
3	Western Pond Turtle Actinemys marmorata Research Grade 3 3	scottlewis1	Apr 6, 202412:08 PM PST	Gold Dust Dr, Valley Springs, CA, US	Apr 6, 202412:10 PM PST
	Sharp-shinned Hawk Accipiter striatus Research Grade 3	bluegrace	February 2024	California, US	February 2024
2	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	kees_hood	December 2023	California, US	December 2023
9	Bald Eagle Haliaeetus leucocephalus Research Grade 2	madfox	November 2023	California, US	November 2023
	Valley Oak Quercus lobata Research Grade 3	ddonald247	Aug 10, 202311:02 AM PST	Valley Springs, CA 95252, USA	Aug 10, 202311:50 AM PST
	Western Pond Turtle Actinemys marmorata Research Grade 3	ddonald247	Aug 1, 202310:36 AM PST	Valley Springs, CA 95252, USA	Aug 3, 202312:20 PM PST
2	Osprey Pandion haliaetus Research Grade 2	mitchm44	Mar 15, 20237:42 AM PST	Calaveras County, CA, USA	Mar 15, 20235:28 PM PST
3	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	norikonbu	February 2023	California, US	February 2023
4	Ione Manzanita Arctostaphylos myrtifolia Research Grade 3	alex_wentworth	December 2022	California, US	December 2022
3	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	madfox	September 2022	California, US	September 2022
5	Osprey Pandion haliaetus Research Grade 3	joerich	Aug 13, 20224:10 PM PST	Calaveras County, CA, USA	Aug 17, 20228:26 PM PST
4	Osprey Pandion haliaetus Research Grade 3	joerich	Jul 30, 20226:16 AM PST	Calaveras County, CA, USA	Jul 31, 20227:03 PM PST
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 3	allison_robertson1	May 2021	California, US	May 2021
	Yellow Star-Tulip Calochortus monophyllus Research Grade 4	rmoger	April 2021	California, US	April 2021
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 4	liza12	April 2021	California, US	April 2021
4	Cooper's Hawk Accipiter cooperii Research Grade 3	scottlewis1	Jan 6, 20217:34 AM PST	N Branch Ct, Valley Springs, CA, US	Jan 6, 20219:33 AM PST
3	Crotch's Bumble Bee Bombus crotchii Research Grade 5	kittyb	May 23, 20205:02 PM PDT	CA-26, Mokelumne Hill, CA, US	May 25, 20203:52 PM PDT
8	Bald Eagle Haliaeetus leucocephalus Research Grade 2 1	mitchm44	Mar 11, 20205:05 PM PDT	Calaveras County, CA, USA	Mar 12, 20207:02 PM PDT
	Foothill Shoulderband Snail Helminthoglypta cypreophila Research Grade 2	oftheflowers	January 2020	Calaveras County, US-CA, US	January 2020
	Bald Eagle Haliaeetus leucocephalus Research Grade 4	micaelavanderpool	Jan 6, 2020	Valley Springs	Jan 6, 20206:39 PM UTC
7	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	silversea_starsong	July 2019	California, US	July 2019
4	Yellow Star-Tulip Calochortus monophyllus Research Grade 3	sekihiker	May 2018	California, US	May 2018
3	Irish Hill Buckwheat Eriogonum apricum prostratum Research Grade 2	joeysantore	February 2018	California, US	February 2018
4	Mokelumne Lancetooth Snail Haplotrema mokelumnense Research Grade 2 1 2	kueda	March 2017	California, US	March 2017
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 2 1	tiwane	March 2017	California, US	March 2017

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- English (UK)
- Español
- Español (Argentina)
- Español (Colombia)
- Español (Costa Rica)
- Español (México)
- Esperanto
- Euskara
- français
- Français (Canada)
- Galego
- Georgian
- Hrvatski
- Indonesia
- Italiano
- Latviešu
- Lietuvių
- Lëtzebuergesch
- magyar
- Nederlands
- Norsk Bokmål
- Occitan
- Polski
- Portuguese
- Português (Brasil)
- Santali
- Shqip
- Slovenský
- Slovenščina
- srpski
- suomi
- Svenska
- Te reo Māori
- Türkçe
- česky
- Ελληνικά
- Беларуская
- български
- македонски
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- मराठी
- ಕನ್ನಡ
- ภาษาไทย
- 日本語
- 简体中文
- 繁體中文
- 한국어
-
- Help Translate!

- All

- None
-

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

IPaC resource list

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

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

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Location

Calaveras County, California



Local office

Sacramento Fish And Wildlife Office

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

Federal Building

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

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Endangered species

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

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

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

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

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

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

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

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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

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

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog Rana boylii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5133	Endangered
Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS

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

Crustaceans

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

Flowering Plants

NAME	STATUS
Ione Manzanita Arctostaphylos myrtifolia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1806	Threatened

Critical habitats

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

This location overlaps the critical habitat for the following species:

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

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Bald & Golden Eagles

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

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

Additional information can be found using the following links:

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

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

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NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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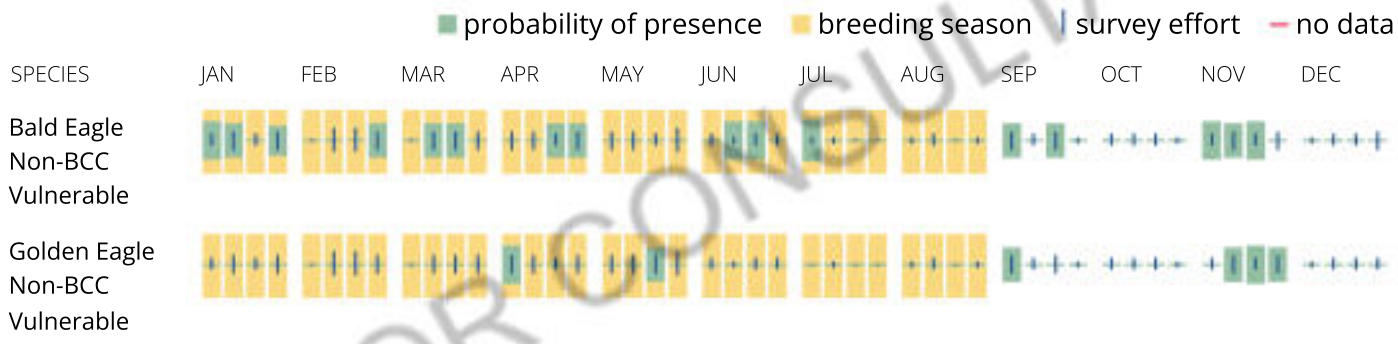
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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

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

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

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



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

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

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

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

What if I have eagles on my list?

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

Migratory birds

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

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

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

Additional information can be found using the following links:

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

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around

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your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Cassin's Finch *Haemorhous cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

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Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

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Santa Barbara Song Sparrow Melospiza melodia graminea This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5513	Breeds Mar 1 to Sep 5
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Western Screech-owl Megascops kennicottii cardonensis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jun 30
White-headed Woodpecker Dryobates albolarvatus gravirostris This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 15
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

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

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

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

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

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

probability of presence breeding season survey effort no data

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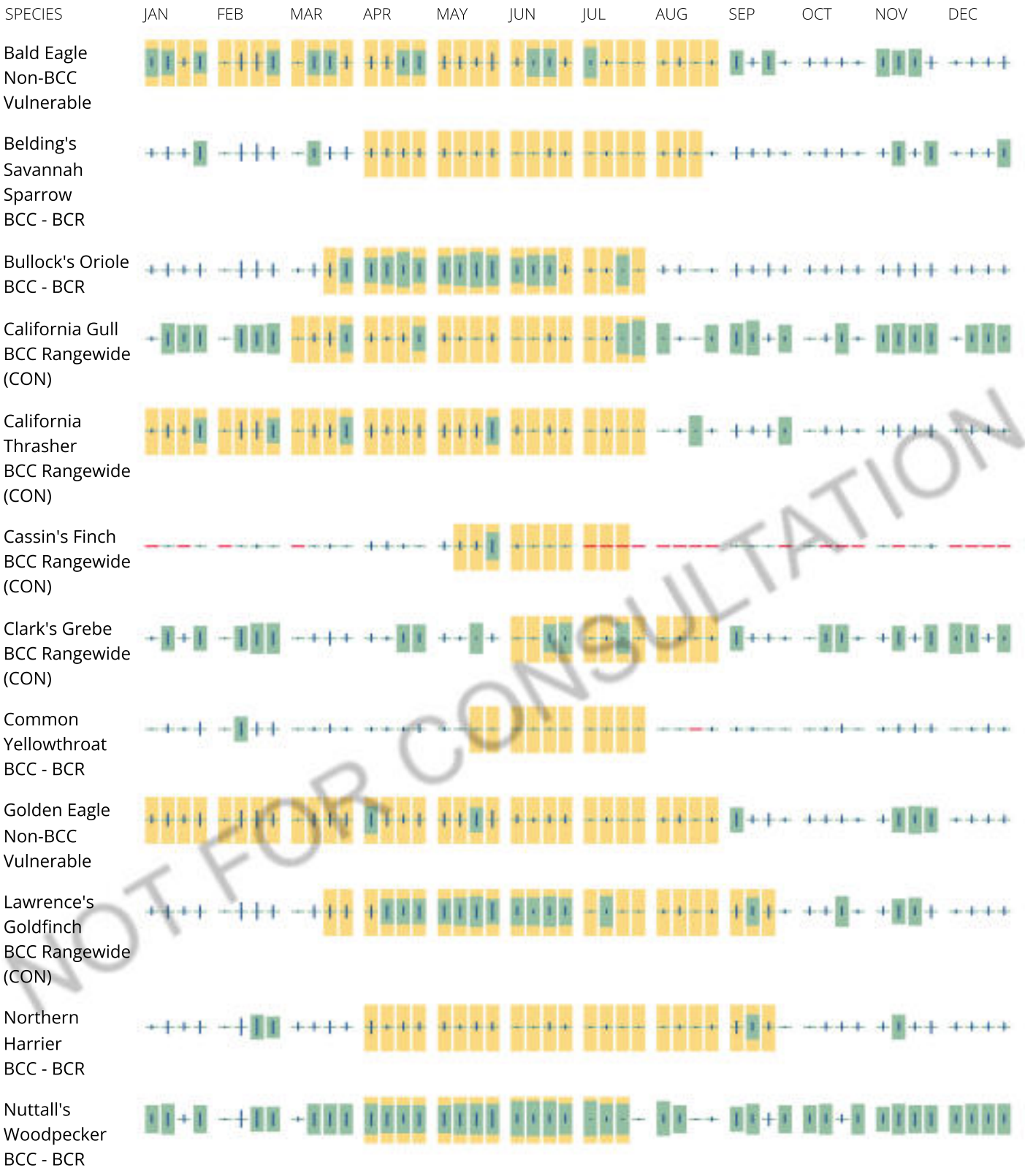

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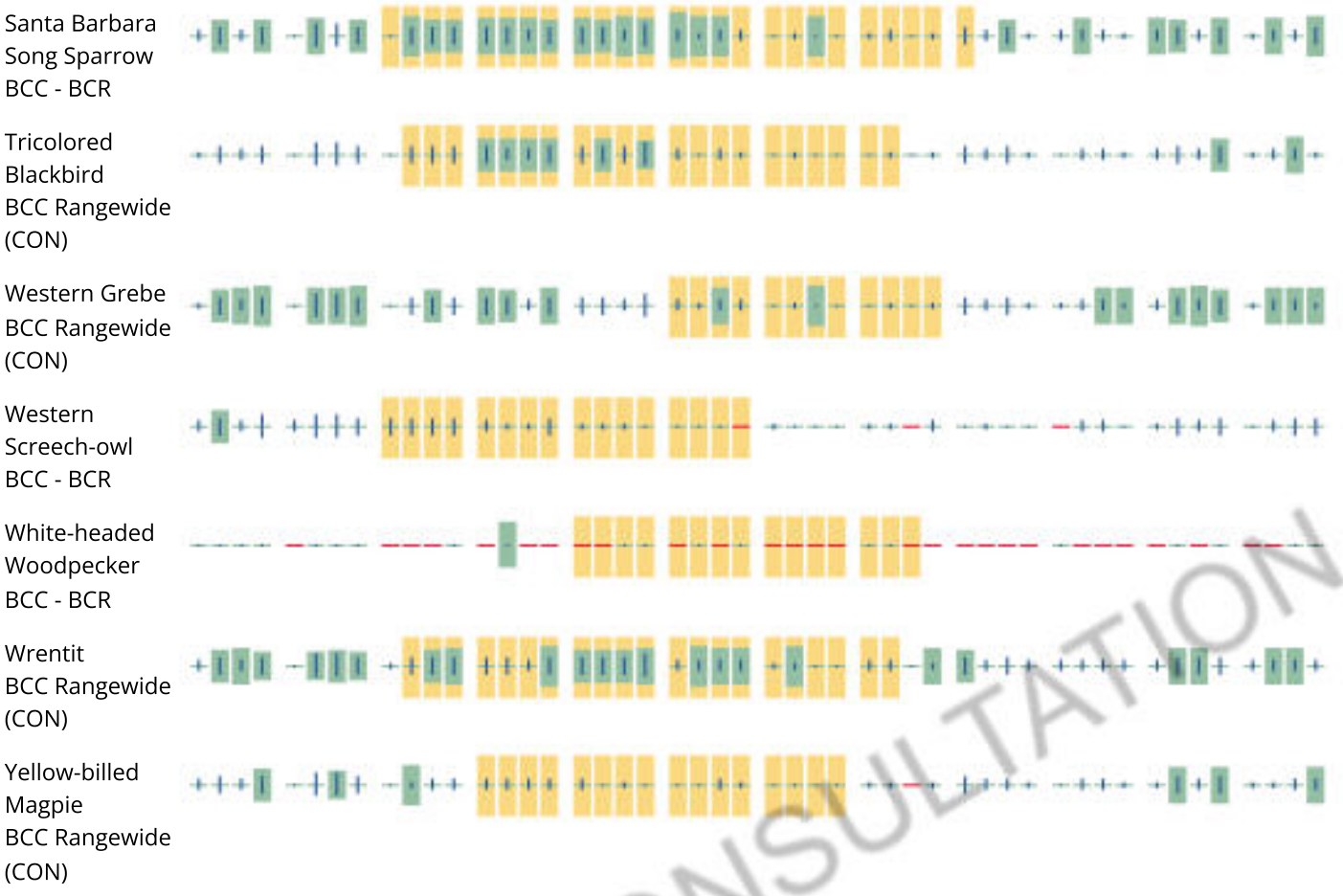

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

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Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

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

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

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM1Fh
- PEM1B
- PEM1Ch
- PEM1Ax
- PEM1Ah
- PEM1Cx

FRESHWATER FORESTED/SHRUB WETLAND

- PFOC
- PFOA
- PSSC
- PSSA
- PFOCh
- PFOB
- PSSB
- PSSCh
- PFOCx
- PFOAh

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FRESHWATER POND

- PUBHh
- PUBFh
- PUBHx
- PUBFx
- PUSCh
- PUSAh
- PUSA

LAKE

- L1UBHh
- L2USCh

RIVERINE

- R4SBC
- R3UBH
- R4SBA
- R3UBHx
- R3USC
- R4SBAx
- R5UBF
- R4SBCx

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

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

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Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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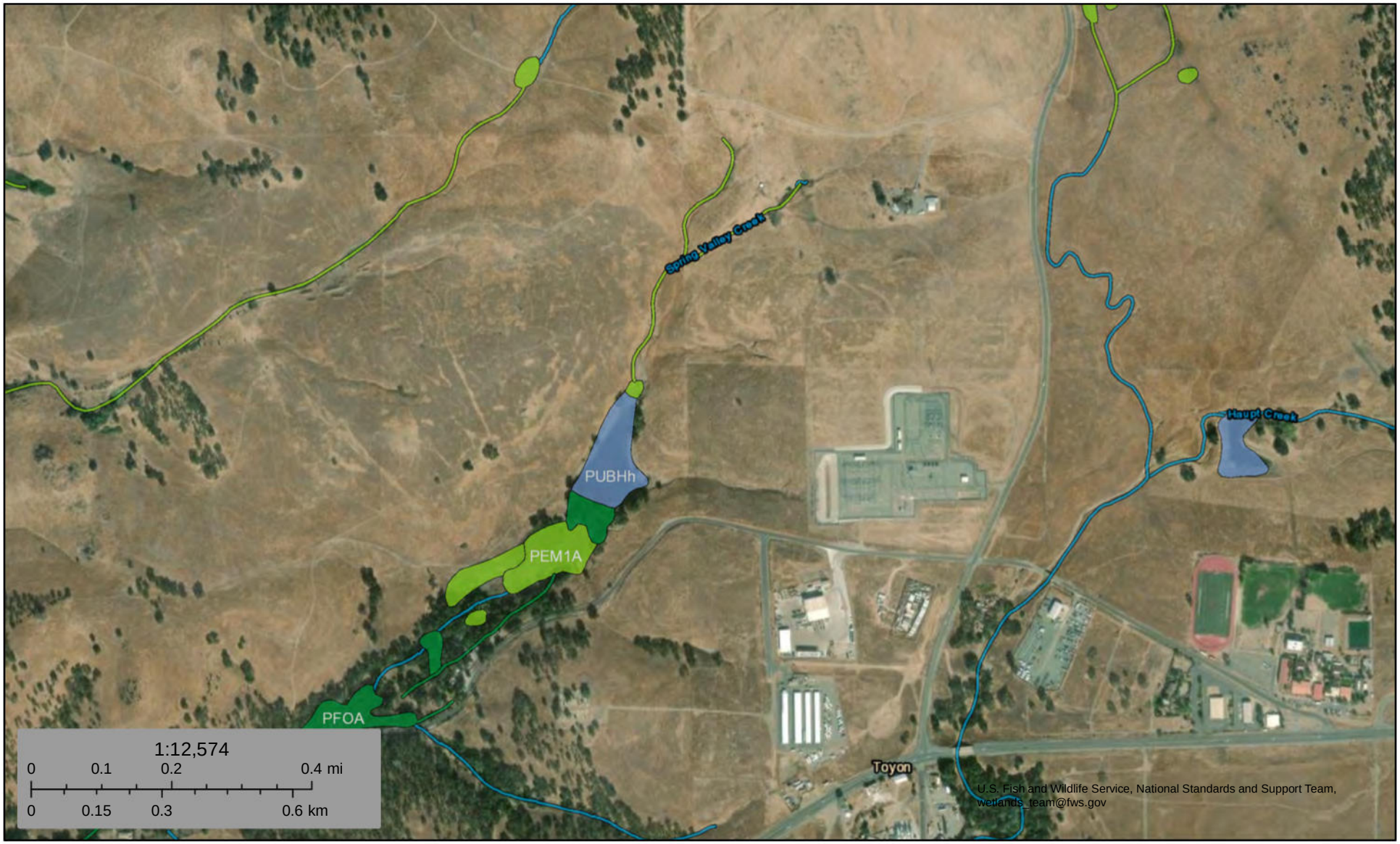
U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI - Wetlands Mapper



June 22, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Soil Map—Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties



Map Scale: 1:2,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties
Survey Area Data: Version 8, Aug 31, 2023

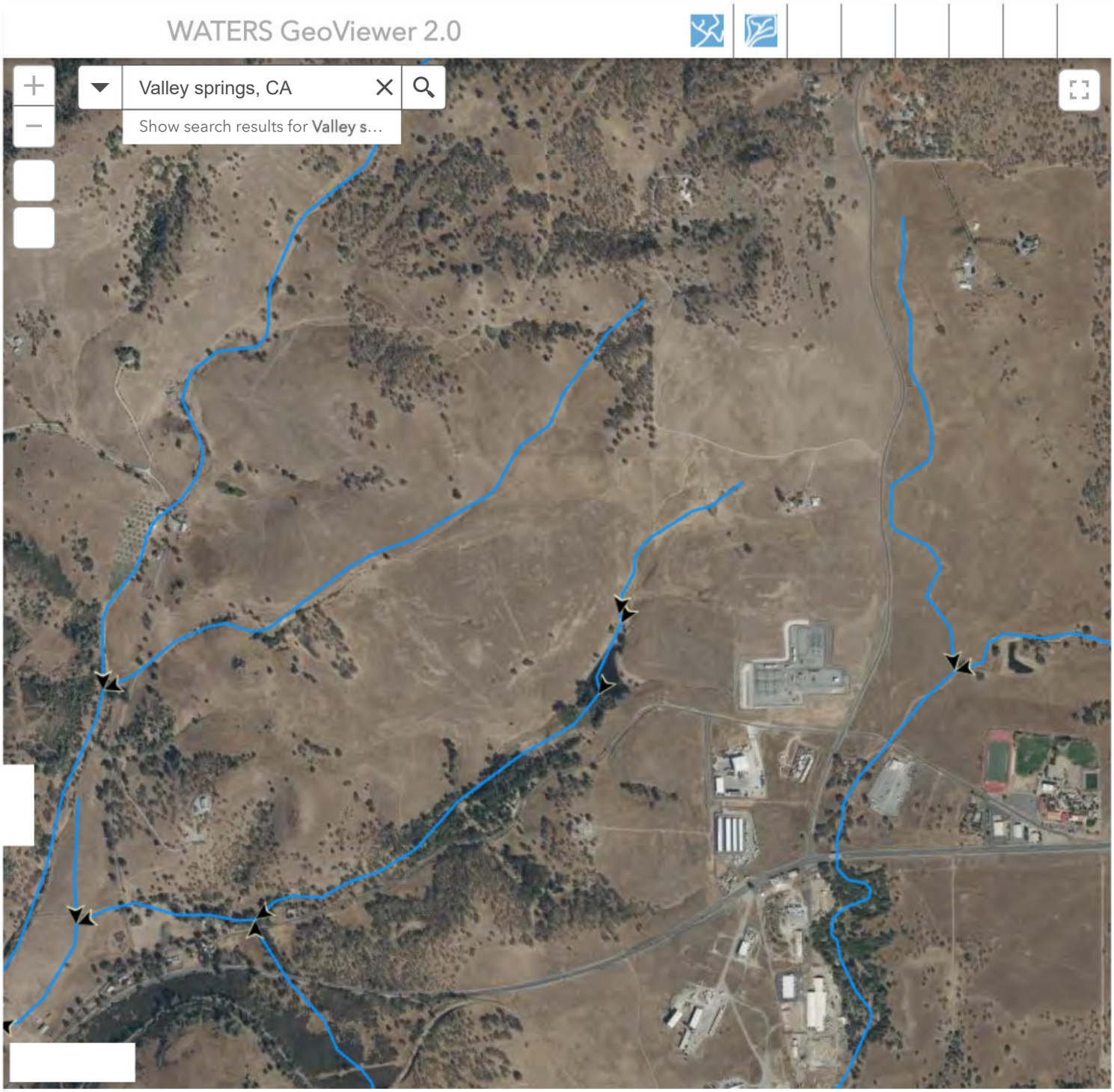
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2022—Oct 6, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4200	Inks-Angelscreek complex, 3 to 15 percent slopes	9.3	28.6%
4201	Angelscreek-Pentz complex, 15 to 30 percent slopes	19.3	59.3%
9017	Urban land-Amador complex, 2 to 15 percent slopes	3.9	12.1%
Totals for Area of Interest		**32.5**	**100.0%**


WATERS GeoViewer 2.0
Valley springs, CA
Show search results for Valley s...
0.2mi
-120.761 38.217 Degrees
App State
Click to restore the map extent and layers visibility where you left off.

CNPS Rare Plant Inventory

Search Results

25 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812027:3812028:3812038:3812037:3812036:3812026:3812016:3812017:3812018]

▲ 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
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2		1974-01-01	 ©2005 Steve Matson
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	FT	None	G1	S1	1B.2	Yes	1974-01-01	 © 2006 Steve Matson
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	Yes	2019-01-07	 © 2011 Steven Perry
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	G2	S2	1B.3	Yes	1980-01-01	No Photo Available
Calycadenia spicata	spicate calycadenia	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	 © 2023 Christopher Bronny
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	No Photo Available
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	Yes	2006-09-29	No Photo Available

Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	Apr-Aug	None	None	G2?Q	S2?	3.2	Yes	1974-01-01	No Photo Available
Cryptantha mariposae	Mariposa cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G2G3	S2S3	1B.3	Yes	1974-01-01	No Photo Available
Eriogonum apricum var. *apricum*	Ione buckwheat	Polygonaceae	perennial herb	Jul-Oct	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriophyllum confertiflorum var. *tanacetiflorum*	tansy-flowered woolly sunflower	Asteraceae	perennial shrub	May-Jul	None	None	G5T2?Q	S2?	4.3	Yes	2001-01-01	No Photo Available
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual/perennial herb	May-Aug	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2007 Robert E. Preston, Ph.D.
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2017 Debra L. Cook
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	None	None	G2?	S2?	1B.1	Yes	1974-01-01	No Photo Available
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2009 Barry Breckling
Jepsonia heterandra	foothill jepsonia	Saxifragaceae	perennial herb	Aug-Dec	None	None	G3	S3	4.3	Yes	1994-01-01	 © 2014 Belinda Lo
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Lomatium congdonii	Congdon's lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	Yes	1994-01-01	 © 2020 Leigh Johnson
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	None	None	G2	S2	1B.3	Yes	2016-04-27	No Photo Available
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	None	None	G5	S2	2B.2		1974-01-01	No Photo Available

Showing 1 to 25 of 25 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 17 June 2024].

CNPS Rare Plant Inventory

Search Results

25 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812027:3812028:3812038:3812037:3812036:3812026:3812016:3812017:3812018]

▲ 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
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2		1974-01-01	 ©2005 Steve Matson
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	FT	None	G1	S1	1B.2	Yes	1974-01-01	 © 2006 Steve Matson
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G5T3	S3	4.2	Yes	2019-01-07	 © 2011 Steven Perry
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	G2	S2	1B.3	Yes	1980-01-01	No Photo Available
Calycadenia spicata	spicate calycadenia	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	 © 2023 Christopher Bronny
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	No Photo Available
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	Yes	2006-09-29	No Photo Available

Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	Apr-Aug	None	None	G2?Q	S2?	3.2	Yes	1974-01-01	No Photo Available
Cryptantha mariposae	Mariposa cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G2G3	S2S3	1B.3	Yes	1974-01-01	No Photo Available
Eriogonum apricum var. *apricum*	Ione buckwheat	Polygonaceae	perennial herb	Jul-Oct	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriophyllum confertiflorum var. *tanacetiflorum*	tansy-flowered woolly sunflower	Asteraceae	perennial shrub	May-Jul	None	None	G5T2?Q	S2?	4.3	Yes	2001-01-01	No Photo Available
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual/perennial herb	May-Aug	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2007 Robert E. Preston, Ph.D.
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2017 Debra L. Cook
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	None	None	G2?	S2?	1B.1	Yes	1974-01-01	No Photo Available
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2009 Barry Breckling
Jepsonia heterandra	foothill jepsonia	Saxifragaceae	perennial herb	Aug-Dec	None	None	G3	S3	4.3	Yes	1994-01-01	 © 2014 Belinda Lo
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Lomatium congdonii	Congdon's lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	Yes	1994-01-01	 © 2020 Leigh Johnson
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	None	None	G2	S2	1B.3	Yes	2016-04-27	No Photo Available
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	None	None	G5	S2	2B.2		1974-01-01	No Photo Available

Showing 1 to 25 of 25 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 17 June 2024].

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Valley Springs (3812027) OR Ione (3812038) OR Jackson (3812037) OR Mokelumne Hill (3812036) OR San Andreas (3812026) OR Salt Spring Valley (3812016) OR Jenny Lind (3812017) OR Valley Springs SW (3812018) OR Wallace (3812028))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Agrostis hendersonii Henderson's bent grass	PMPOA040K0	None	None	G2Q	S2	3.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S1	
Arctostaphylos myrtifolia Ione manzanita	PDERI04240	Threatened	None	G1	S1	1B.2
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Banksula rudolphi Rudolph's cave harvestman	ILARA14080	None	None	G1	S1	
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G2	S2	1B.3
Calycadenia spicata spicate calycadenia	PDAST1P090	None	None	G3?	S3	1B.3
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2?Q	S2?	3.2
Cryptantha mariposae Mariposa cryptantha	PDBOR0A1Q0	None	None	G2G3	S2S3	1B.3
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum apricum var. apricum Ione buckwheat	PDPGN080F1	Endangered	Endangered	G2T1	S1	1B.1
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Eryngium racemosum Delta button-celery	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Erythranthe marmorata Stanislaus monkeyflower	PDPHR01130	None	None	G2?	S2?	1B.1
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Horkelia parryi Parry's horkelia	PDROS0W0C0	None	None	G2	S2	1B.2
Hydroporus leechi Leech's skyline diving beetle	IICOL55040	None	None	G1?	S2S3	
Ione Chaparral Ione Chaparral	CTT37D00CA	None	None	G1	S1.1	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lomatium congdonii Congdon's lomatium	PDAPI1B0B0	None	None	G2	S2	1B.2
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1T2	S1S2	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Navarretia paradoxiclara Patterson's navarretia	PDPLM0C150	None	None	G2	S2	1B.3
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Rana boylii pop. 5 foothill yellow-legged frog - south Sierra DPS	AAABH01055	Endangered	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
Spea hammondii western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Sphenopholis obtusata prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2

Record Count: 42

Observations

Filters 5

Show
- [ ] Wild
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- [x] Verifiable
- [x] Research Grade
- [ ] Needs ID
- [x] Threatened
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- [ ] Popular
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Description / Tags blue, butterfly, etc.

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Place
Place

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Date Added
(•) Any ( ) Exact Date YYYY-MM-DD ( ) Range Start End

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Species

Double Springs Road, Valley Go

Custom Boundary
27
observations
13
species
36
Identifiers
21
Observers

Map Grid List

Media	Name	User	Observed	Place	Added
2	Valley Oak Quercus lobata Research Grade 4	dylapodiformes	April 2024	California, US	May 2024
	Rufous Hummingbird Selasphorus rufus Research Grade 2	bluegrace	April 2024	California, US	April 2024
3	Western Pond Turtle Actinemys marmorata Research Grade 3 3	scottlewis1	Apr 6, 202412:08 PM PST	Gold Dust Dr, Valley Springs, CA, US	Apr 6, 202412:10 PM PST
	Sharp-shinned Hawk Accipiter striatus Research Grade 3	bluegrace	February 2024	California, US	February 2024
2	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	kees_hood	December 2023	California, US	December 2023
9	Bald Eagle Haliaeetus leucocephalus Research Grade 2	madfox	November 2023	California, US	November 2023
	Valley Oak Quercus lobata Research Grade 3	ddonald247	Aug 10, 202311:02 AM PST	Valley Springs, CA 95252, USA	Aug 10, 202311:50 AM PST
	Western Pond Turtle Actinemys marmorata Research Grade 3	ddonald247	Aug 1, 202310:36 AM PST	Valley Springs, CA 95252, USA	Aug 3, 202312:20 PM PST
2	Osprey Pandion haliaetus Research Grade 2	mitchm44	Mar 15, 20237:42 AM PST	Calaveras County, CA, USA	Mar 15, 20235:28 PM PST
3	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	norikonbu	February 2023	California, US	February 2023
4	Ione Manzanita Arctostaphylos myrtifolia Research Grade 3	alex_wentworth	December 2022	California, US	December 2022
3	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	madfox	September 2022	California, US	September 2022
5	Osprey Pandion haliaetus Research Grade 3	joerich	Aug 13, 20224:10 PM PST	Calaveras County, CA, USA	Aug 17, 20228:26 PM PST
4	Osprey Pandion haliaetus Research Grade 3	joerich	Jul 30, 20226:16 AM PST	Calaveras County, CA, USA	Jul 31, 20227:03 PM PST
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 3	allison_robertson1	May 2021	California, US	May 2021
	Yellow Star-Tulip Calochortus monophyllus Research Grade 4	rmoger	April 2021	California, US	April 2021
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 4	liza12	April 2021	California, US	April 2021
4	Cooper's Hawk Accipiter cooperii Research Grade 3	scottlewis1	Jan 6, 20217:34 AM PST	N Branch Ct, Valley Springs, CA, US	Jan 6, 20219:33 AM PST
3	Crotch's Bumble Bee Bombus crotchii Research Grade 5	kittyb	May 23, 20205:02 PM PDT	CA-26, Mokelumne Hill, CA, US	May 25, 20203:52 PM PDT
8	Bald Eagle Haliaeetus leucocephalus Research Grade 2 1	mitchm44	Mar 11, 20205:05 PM PDT	Calaveras County, CA, USA	Mar 12, 20207:02 PM PDT
	Foothill Shoulderband Snail Helminthoglypta cypreophila Research Grade 2	oftheflowers	January 2020	Calaveras County, US-CA, US	January 2020
	Bald Eagle Haliaeetus leucocephalus Research Grade 4	micaelavanderpool	Jan 6, 2020	Valley Springs	Jan 6, 20206:39 PM UTC
7	Ione Manzanita Arctostaphylos myrtifolia Research Grade 2	silversea_starsong	July 2019	California, US	July 2019
4	Yellow Star-Tulip Calochortus monophyllus Research Grade 3	sekihiker	May 2018	California, US	May 2018
3	Irish Hill Buckwheat Eriogonum apricum prostratum Research Grade 2	joeysantore	February 2018	California, US	February 2018
4	Mokelumne Lancetooth Snail Haplotrema mokelumnense Research Grade 2 1 2	kueda	March 2017	California, US	March 2017
2	Yellow Star-Tulip Calochortus monophyllus Research Grade 2 1	tiwane	March 2017	California, US	March 2017

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- Español (Colombia)
- Español (Costa Rica)
- Español (México)
- Esperanto
- Euskara
- français
- Français (Canada)
- Galego
- Georgian
- Hrvatski
- Indonesia
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- ಕನ್ನಡ
- ภาษาไทย
- 日本語
- 简体中文
- 繁體中文
- 한국어
-
- Help Translate!

- All

- None
-

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

IPaC resource list

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

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

NOT FOR CONSULTATION

Location

Calaveras County, California



Local office

Sacramento Fish And Wildlife Office

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

Federal Building

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

NOT FOR CONSULTATION

Endangered species

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

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

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

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

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

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

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

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

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

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

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog Rana boylii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5133	Endangered
Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS

NOT FOR CONSULTATION

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

Crustaceans

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

Flowering Plants

NAME	STATUS
Ione Manzanita Arctostaphylos myrtifolia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1806	Threatened

Critical habitats

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

This location overlaps the critical habitat for the following species:

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

NOT FOR CONSULTATION

Bald & Golden Eagles

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

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

Additional information can be found using the following links:

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

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

NOT FOR CONSULTATION

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

NOT FOR CONSULTATION

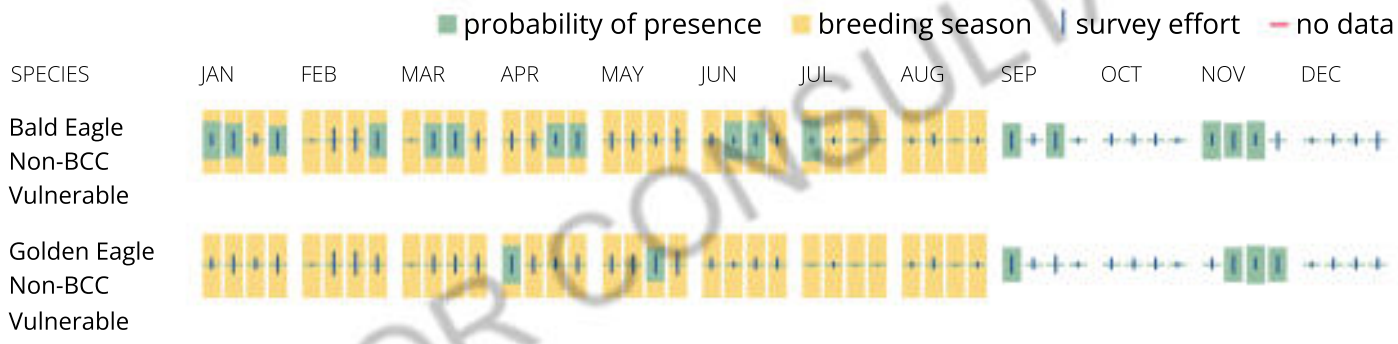
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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

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

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

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



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

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

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

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

What if I have eagles on my list?

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

Migratory birds

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

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

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

Additional information can be found using the following links:

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

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around

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your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Cassin's Finch *Haemorhous cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

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Clark's Grebe *Aechmophorus clarkii* — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat *Geothlypis trichas sinuosa* — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle *Aquila chrysaetos* — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch *Spinus lawrencei* — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Northern Harrier *Circus hudsonius* — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker *Dryobates nuttallii* — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse *Baeolophus inornatus* — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher *Contopus cooperi* — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

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Santa Barbara Song Sparrow Melospiza melodia graminea This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5513	Breeds Mar 1 to Sep 5
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Western Screech-owl Megascops kennicottii cardonensis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jun 30
White-headed Woodpecker Dryobates albolarvatus gravirostris This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 15
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

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

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

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

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

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

probability of presence breeding season survey effort no data

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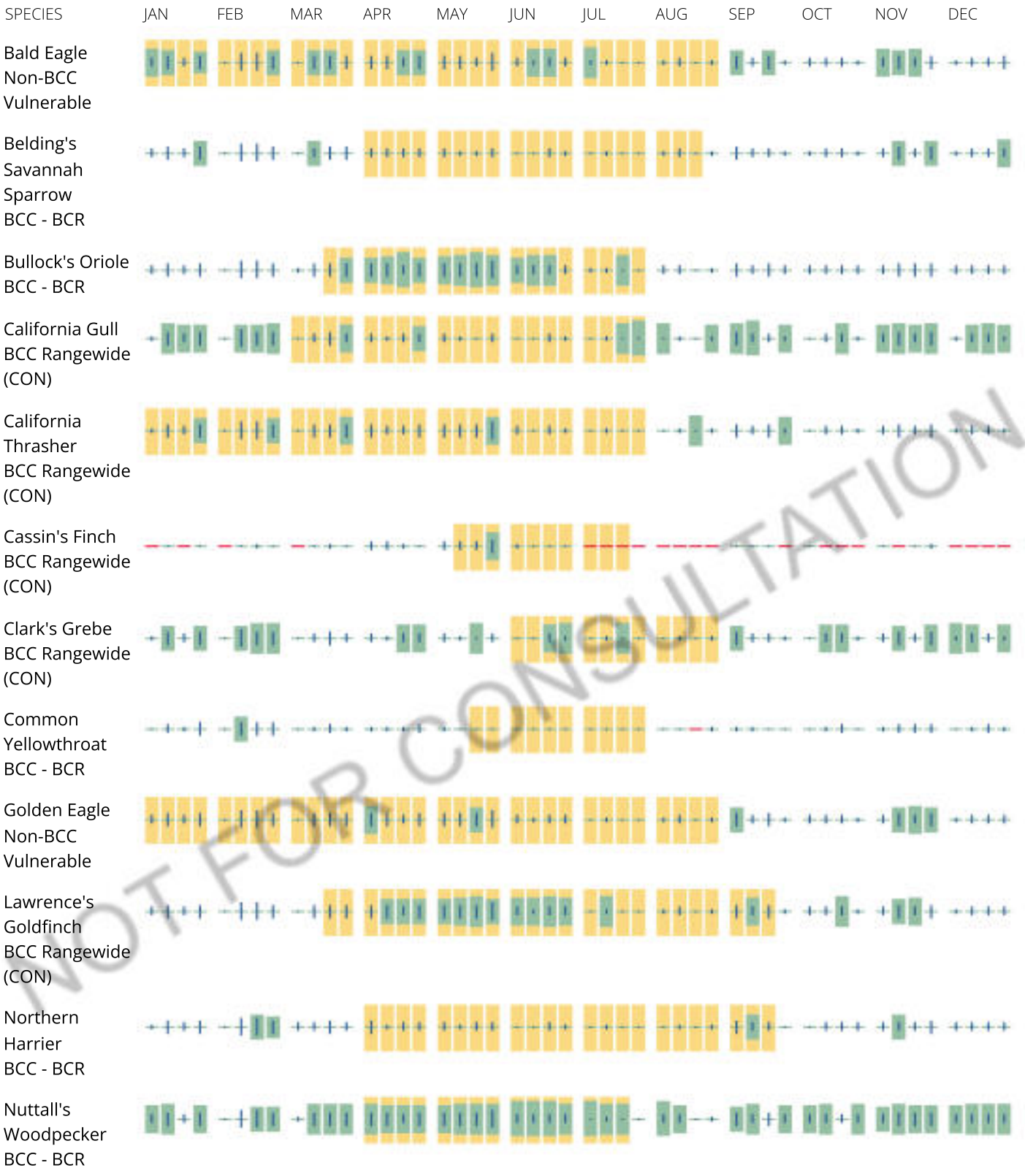

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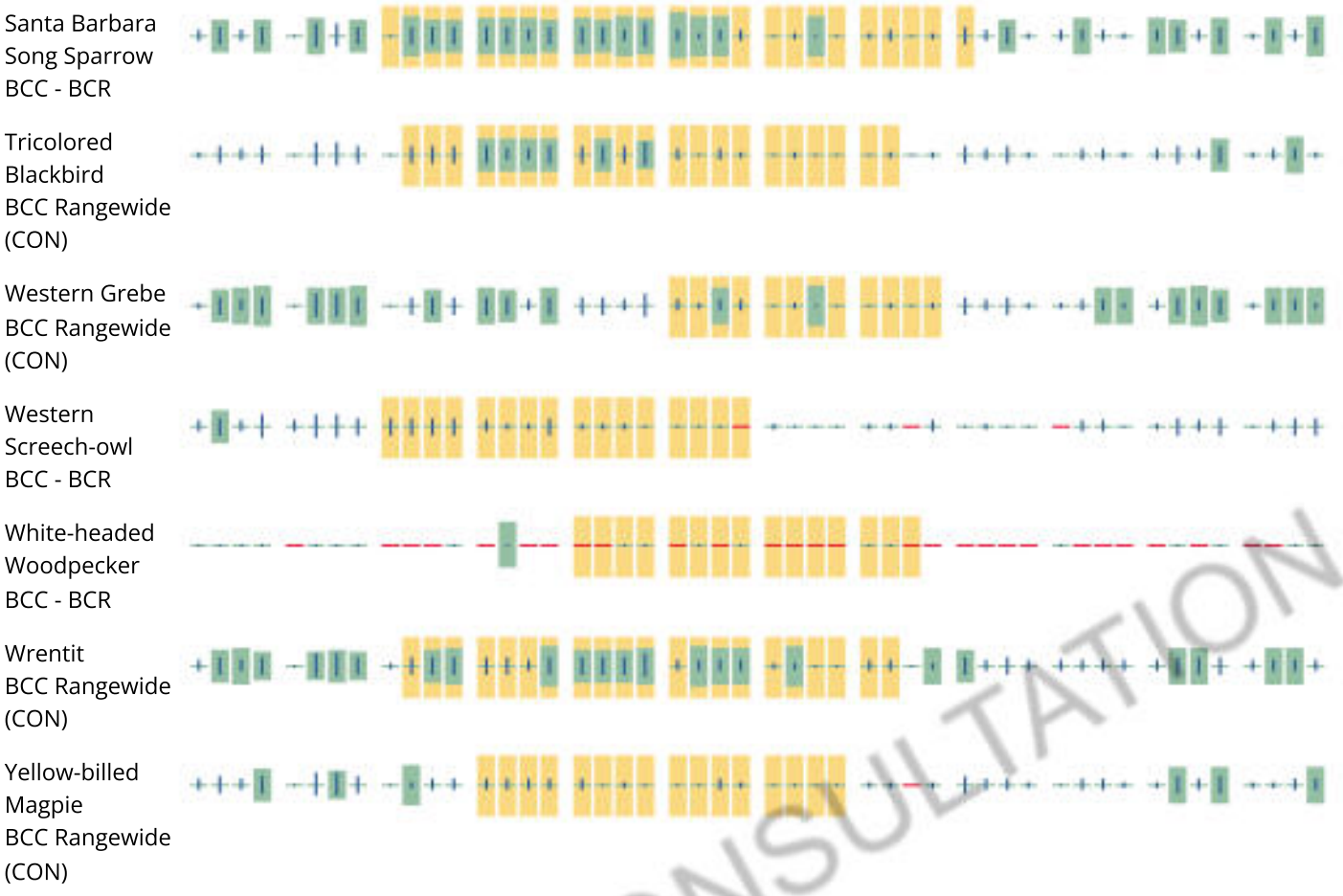

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

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Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

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

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

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM1Fh
- PEM1B
- PEM1Ch
- PEM1Ax
- PEM1Ah
- PEM1Cx

FRESHWATER FORESTED/SHRUB WETLAND

- PFOC
- PFOA
- PSSC
- PSSA
- PFOCh
- PFOB
- PSSB
- PSSCh
- PFOCx
- PFOAh

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FRESHWATER POND

- PUBHh
- PUBFh
- PUBHx
- PUBFx
- PUSCh
- PUSAh
- PUSA

LAKE

- L1UBHh
- L2USCh

RIVERINE

- R4SBC
- R3UBH
- R4SBA
- R3UBHx
- R3USC
- R4SBAx
- R5UBF
- R4SBCx

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

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

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Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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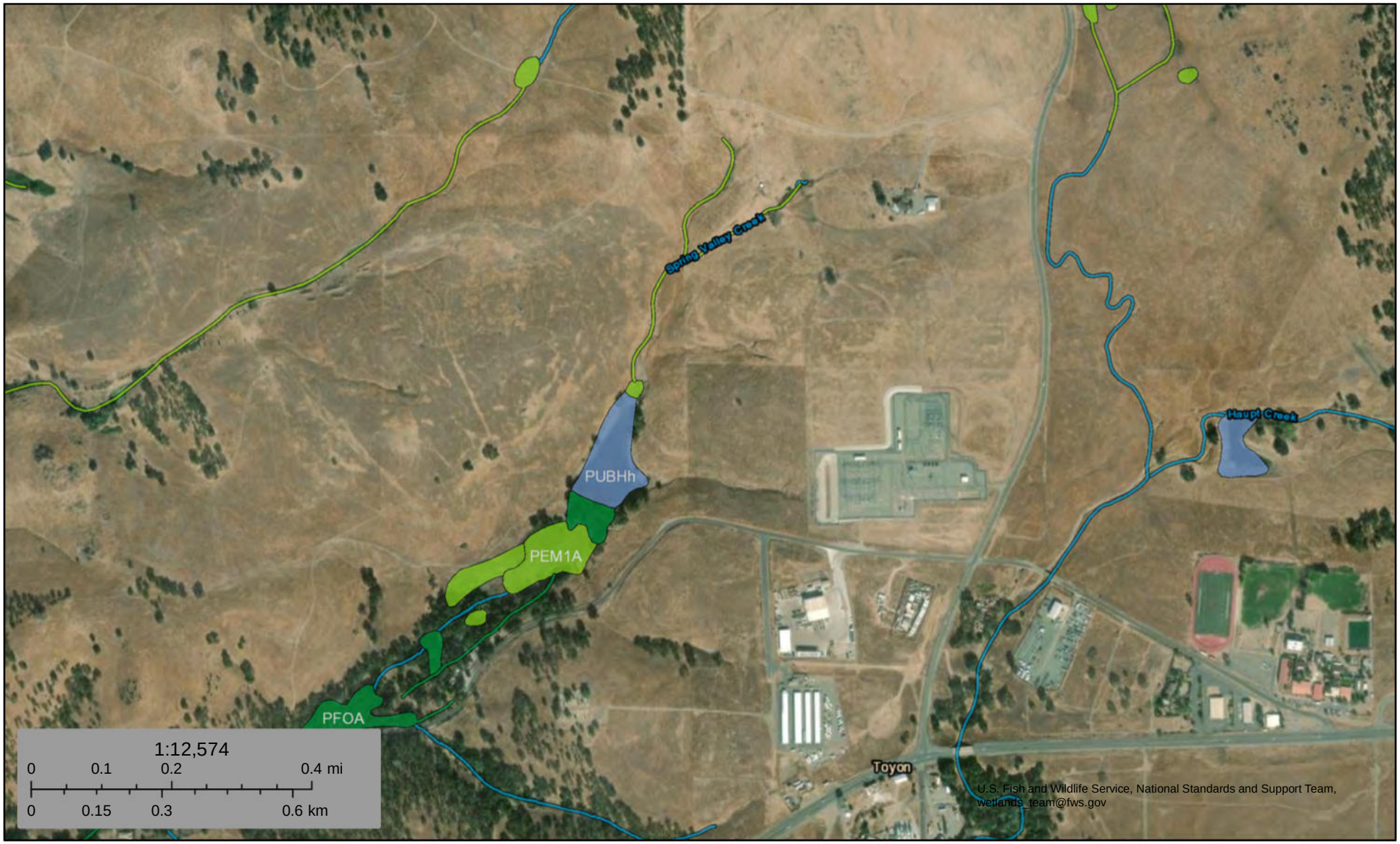
U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI - Wetlands Mapper



June 22, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Soil Map—Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties



Map Scale: 1:2,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties
Survey Area Data: Version 8, Aug 31, 2023

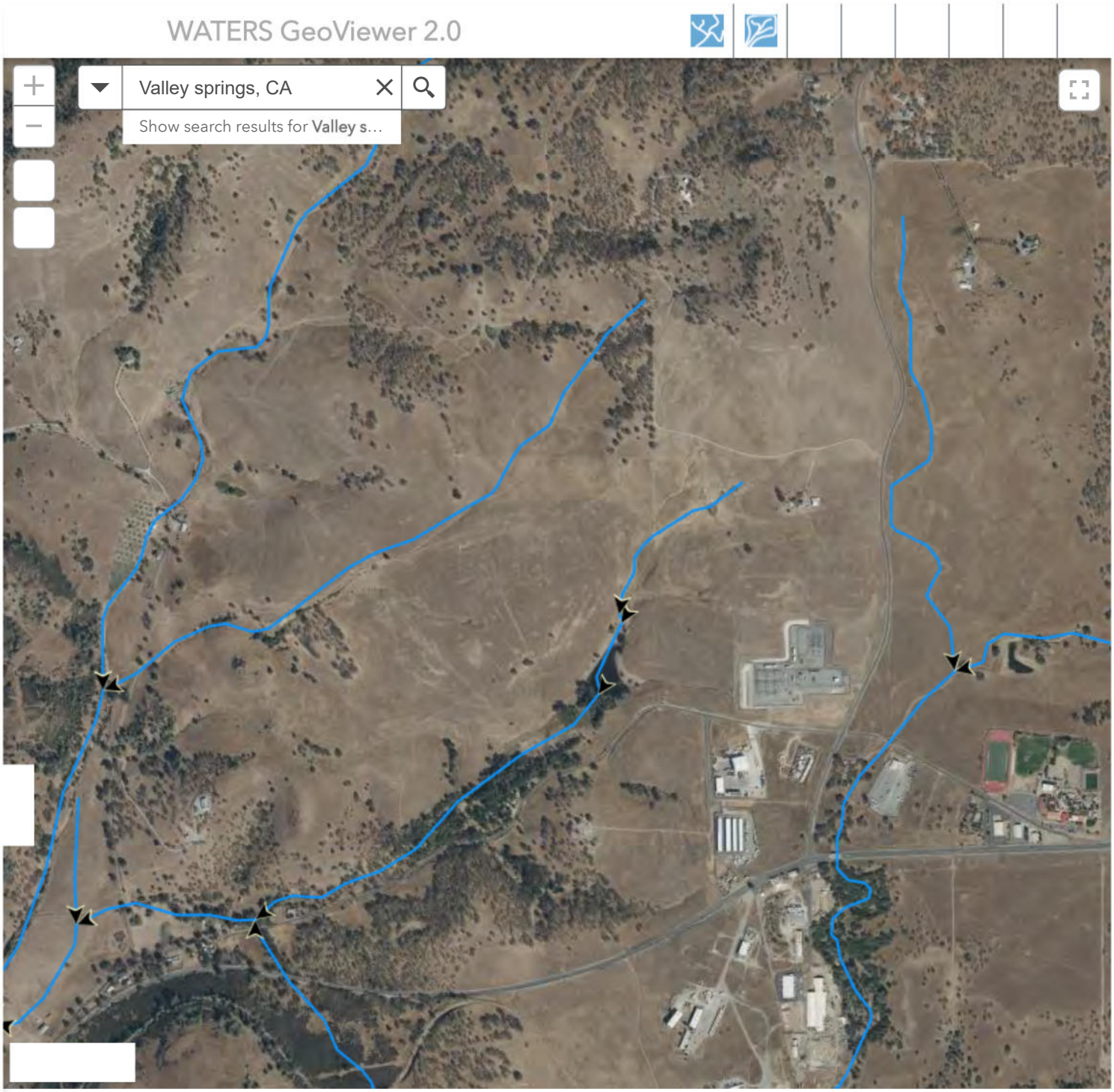
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2022—Oct 6, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4200	Inks-Angelscreek complex, 3 to 15 percent slopes	9.3	28.6%
4201	Angelscreek-Pentz complex, 15 to 30 percent slopes	19.3	59.3%
9017	Urban land-Amador complex, 2 to 15 percent slopes	3.9	12.1%
Totals for Area of Interest		**32.5**	**100.0%**


WATERS GeoViewer 2.0
Valley springs, CA
Show search results for Valley s...
0.2mi
-120.761 38.217 Degrees
App State
Click to restore the map extent and layers visibility where you left off.

Attachment 3

Site Photographs



Photo 1. Facing northwest toward the pond/wetland and the west side of the BSA.



Photo 2. Facing west from the southeast corner of the BSA. South drainage pictured right-center.



Photo 3. View facing west-northwest from the northeast corner of the BSA. North drainage pictured center.



Photo 4. View facing southeast at the BSA from the southern-central area of the BSA.



Photo 5. View facing east from western edge of BSA at South Drainage.



Photo 6. View facing east at culvert inlet of South Drainage near PG&E Substation.

Attachment 4

Species Observed

Attachment 4a. Plant Species Observed

Scientific Name	Common Name
Ambrosia artemislifolia	common ragweed
Avena barbata	wild oat
Avena fatua	wild oat
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft brome
Carduus pycnocephalus	Italian thistle
Chlorogalum pomeridianum	wavy-leaf soap plant
Claytonia perfoliata	Miner's lettuce
Croton setigerus	dove weed
Elymus caput-medusae	medusahead
Erodium cicutarium	redstem stork's bill
Erythranthe guttata	seep monkeyflower
Festuca myuros	rat-tail fescue
Festuca perennis	perennial rye grass
Hirschfeldia incana	shortpod mustard
Holocarpha virgata	yellowflower tarweed
Hordeum marinum	seaside barley
Hordeum murinum	mouse barley
Hypericum perforatum	St. John's Wort
Juncus bufonius	toad rush
Kickxia elatine	sharpleaf cancerwort
Lactuca serriola	prickly lettuce
Leontodon saxatilis	rough hawkbit
Lythrum hyssopifolia	hyssop loosestrife
Plantago erecta	dwarf plantain
Quercus lobata	Valley oak
Silybum marianum	milk thistle
Trifolium hirtum	rose clover
Vicia villosa	hairy vetch

Attachment 4b. Wildlife Species Observed

Scientific Name	Common Name
Agelaius phoeniceus	Red-winged Blackbird
Aphelocoma californica	California Scrub-Jay
Baeolophus inornatus	Oak Titmouse
Bombus crotchii	Crotch's Bumble Bee
Buteo jamaicensis	Red-tailed hawk
Callipepla californica	California Quail
Cathartes aura	Turkey Vulture
Catherpes mexicanus	Canyon Wren
Corvas corax	Common raven
Dryobates pubescens	Downy Woodpecker
Haemorhous mexicanus	House Finch
Icteria virens	Yellow-breasted Chat
Icterus bullockii	Bullock's Oriole
Melanerpes formicivorus	Acorn Woodpecker
Melozone crissalis	California Towhee
Molothrus ater	Brown-headed Cowbird
Pheucticus melanocephalus	Black-headed Grosbeak
Pipilo maculatus	Spotted Towhee
Psaltriparus minimus	Bushtit
Salpinctes obsoletus	Rock Wren
Spinus psaltria	Lesser Goldfinch
Stelgidopteryx serripennis	Northern Rough-winged Swallow
Tachycineta bicolor	Tree Swallow
Tyrannus verticalis	Western Kingbird
Zenaida macroura	Mourning Dove

Attachment 5

Special-Status Species with Potential to Occur

Table 1. Potential for Special-Status Plant Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
Flowering Plants				
*Arctostaphylos myrtifolia**	Ione manzanita	FT/ 1B.2	Chaparral, Cismontane woodland; Acidic, Clay (sometimes), Sandy (sometimes)/perennial evergreen shrub/Nov–Mar/195–1,905 ft	**Not expected to occur.** There are CNDDB and IPaC occurrence records within 5 miles, but no CNDDB, IPaC, or iNaturalist records onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat.
Balsamorhiza macrolepis	big-scale balsamroot	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; Serpentinite (sometimes)/ perennial herb/Mar–June/ 150–5,100 ft	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA does provide suitable habitat.
Calycadenia hooveri	Hoover's calycadenia	1B.3	Cismontane woodland, Valley and foothill grassland; Rocky/annual herb/July–Sep/215–985 ft	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA does provide suitable habitat.
*Calycadenia spicata**	spicate calycadenia	1B.3	Cismontane woodland, Valley and foothill grassland; Adobe, Clay, Disturbed areas, Dry, Gravelly, Openings, Roadsides, Rocky/ annual herb/May–Sep/ 130–4,595 ft	**Potential to occur.** There are CNDDB occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The BSA does provide suitable habitat.
Chlorogalum grandiflorum	Red Hills soaproot	1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; Gabbroic, Serpentinite/perennial bulbiferous herb/(Apr)May–June/ 805–5,545 ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat.
Cryptantha mariposae	Mariposa cryptantha	1B.3	Chaparral (rocky, serpentinite)/ annual herb/Apr–June/ 655–2135ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Species nor habitat were observed on site. The BSA does not provide suitable habitat.

Table 1. Potential for Special-Status Plant Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
Eriogonum apricum var. *apricum*	Ione buckwheat	E/E, 1B.1	Chaparral, in gravelly openings on Ione formation soil/perennial herb/Jul-Oct/280-500 ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Species nor habitat were observed on site. The BSA does not provide suitable habitat/Ione soil.
Eryngium pinnatisectum	Tuolumne button-celery	1B.2	Cismontane woodland, Lower montane coniferous forest, Vernal pools; Mesic /annual /perennial herb/May–Aug/230–3,000 ft	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA has the potential[2] to provide suitable habitat.
Eryngium racemosum	Delta button-celery	CE/1B.1	Riparian scrub (vernally mesic clay depressions), annual/perennial herb/ (May)Jun-Oct, 10-100 ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat/ riparian scrub.
Erythranthe marmorata	Stanislaus monkeyflower	1B.1	Cismontane woodland, Lower montane coniferous forest/annual herb/Mar–May/330–2955 ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat.
Horkelia parryi	Parry's horkelia	1B.2	Chaparral, Cismontane woodland/ perennial herb/ (May)Jun-Oct Apr-Sep/260–3510 ft	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat.
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	1B.2	Valley and foothill grassland (mesic)/annual herb/ Mar-May/ 100-750 ft	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA provides suitable habitat.

Table 1. Potential for Special-Status Plant Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
Legenere limosa	legenere	1B.1	Vernal pools/annual herb/ Apr–June/ 5–2885 ft	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA has the potential[2] to provide suitable habitat.
Lomatium congdonii	Congdon's lomatium	1B.2	Chaparral, Cismontane woodland; Serpentinite/perennial herb/ Mar–June/985–6,890	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. Neither species nor habitat were observed on site. The BSA does not provide suitable habitat.
Navarretia myersii ssp. *myersii*	pincushion navarretia	1B.1	Vernal pools; Acidic (often)/annual herb/Apr–May/65–1,085	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA has the potential[2] to provide suitable habitat.
*Navarretia paradoxiclara**	Patterson's navarretia	1B.3	Meadows and seeps; Openings, Serpentinite, Vernally Mesic/ annual herb/May–June (July)/ 490–1,410	**Potential to occur.** There are CNDDB occurrences within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The BSA has the potential[2] to provide suitable habitat.
Sphenopholis obtusata	prairie wedge grass	2B.2	Cismontane woodland, Meadows and seeps; Mesic/perennial herb/ Apr–July/985–6,560	**Potential to occur.** There are no CNDDB, IPaC, or iNaturalist occurrence records within 5 miles or onsite. The BSA has the potential[2] to provide suitable habitat.

Table 2. Potential for Special-Status Wildlife Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
Amphibians				
Ambystoma californiense pop. 1*	California tiger salamander - central California DPS	FT/ST, WL	Annual grassland, valley–foothill hardwood, and valley–foothill riparian habitats; vernal pools, other ephemeral pools, and (uncommonly) along stream courses and man-made pools if predatory fishes are absent	**Potential to occur.** The BSA is within the species range. There are CNDDB and IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The pond adjacent to the site provides breeding habitat. The BSA provides upland habitat.
Rana boylii pop. 5	foothill yellow-legged frog - south Sierra DPS	FE/SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland	**Not expected to occur.** The BSA is within the species range. There are IPaC occurrence records within 5 miles. There are no CNDDB or iNaturalist records onsite. The BSA does not provide suitable habitat.
*Rana draytonii**	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	**Potential to occur.** The BSA is within the CRLF Critical Habitat. There are CNDDB[1] and IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The pond adjacent to the BSA provides breeding habitat. The BSA provides upland habitat.
Spea hammondii	western spadefoot	FPT/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	**Potential to occur.** The BSA is within the species range. There are IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The pond adjacent to the BSA provides breeding habitat. The BSA provides upland habitat.

Table 2. Potential for Special-Status Wildlife Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
Reptiles				
Actinemys marmorata	northwestern pond turtle	FPT/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	**Potential to occur.** The BSA is within the species range. There are IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The pond adjacent to the BSA provides aquatic habitat. The BSA provides upland/nesting habitat.
Birds				
*Agelaius tricolor** (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	**Potential to occur.** The BSA within the species range. There are CNDDB occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. While there is no nesting habitat within the BSA, the pond adjacent to the BSA provides potential nesting habitat. The BSA provides foraging habitat.
Buteo swainsoni (nesting)	Swainson's hawk	None/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	**Not expected to occur.** The BSA is within the species range. There are no IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The BSA provides marginal hunting habitat.
Falco mexicanus (nesting)	prairie falcon	None/WL	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	**Not expected to occur.** The BSA is within the species range. There are no IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The BSA provides marginal hunting habitat.

Table 2. Potential for Special-Status Wildlife Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
*Haliaeetus leucocephalus** (nesting and wintering)	bald eagle	FPD/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	**Not expected to occur.** The BSA is within the species range. There are CNDDB[1] occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The adjacent pond outside the BSA provides marginal habitat.
Fishes				
Mylopharodon conocephalus	hardhead	None/SSC	Low- to mid-elevation streams in the Sacramento–San Joaquin drainage; also present in the Russian River	**Not expected to occur.** There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite. There is no habitat present.
Oncorhynchus mykiss irideus pop. 11*	steelhead - Central Valley DPS	FT/None	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead	**Not expected to occur.** There is no habitat present. There are no CNDDB, IPaC, or iNaturalist records within 5 miles or onsite.
Mammals				
*Corynorhinus townsendii**	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	**Not expected to occur.** The BSA is within the species range. There are CNDDB occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. The pond and associated riparian habitat adjacent to the BSA provide hunting habitat; however, there is no suitable roosting habitat in the BSA.
Invertebrates				
*Bombus crotchii**	Crotch's bumble bee	None/SCE	Open grassland and scrub communities supporting suitable floral resources.	**Potential to occur.** The BSA is within the species range. There are CNDDB occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. Flowering

Table 2. Potential for Special-Status Wildlife Species to Occur within the BSA

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur?
				plant species, especially *Vicia* sp., provide suitable foraging habitat. Small mammal and insect burrows onsite provide evidence of suitable nesting habitat.
*Branchinecta lynchi**	vernal pool fairy shrimp	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	**Potential to occur.** The BSA is within the species range. There are CNDDB and IPaC occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. No vernal pool habitat is present; however, several low-lying areas may provide suitable seasonal wetland habitat in the northern portion of the BSA.
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	**Not expected to occur.** The BSA is within the species range. There are CNDDB occurrence records within 5 miles. There are no CNDDB, IPaC, or iNaturalist records onsite. No overwintering trees occur within the BSA and no larval host plants are present.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT/None	Occurs only in the Central Valley of California, in association with blue elderberry (Sambucus nigra ssp. caerulea)	**Not expected to occur.** The BSA is outside of the expected range. There are IPaC occurrence records within 5 miles, but no CNDDB, IPaC, or iNaturalist records onsite. There are no host plants/shrubs present.

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Appendix D2
Biological Assessment

Biological Assessment

Double Springs Battery Energy Storage System Project

OCTOBER 2025

Prepared for:

DOUBLE SPRINGS ENERGY STORAGE, LLC
One Bridge Street, Suite 11
Irvington, New York 10533
Contact: Paul Gascoigne

Prepared by:

DUDEK
853 Lincoln Way
Auburn, California 95603
Contact: Michael Henry



Michael Henry
Associate Biology Practice Director

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

Executive Summary v

1 Introduction 1
- 1.1 Purpose 1
- 1.2 Background 1
- 1.3 Previous Coordination with U.S. Fish and Wildlife Service 2

2 Project Description 3

3 Conservation Measures 5
- 3.1.1 General Avoidance and Minimization Measures 5
- 3.1.2 Species Take Avoidance Measures 6
- 3.1.3 Compensatory Mitigation 7

4 Action Area 9
- 4.1 General Setting 9
- 4.2 Topography 9
- 4.3 Soils 9
- 4.4 Hydrological Resources 10
- 4.5 Vegetation Communities and Land Covers 10
  - 4.5.1 California Annual Grassland 11
  - 4.5.2 Developed Land 11

5 Species/Critical Habitat Considered 13
- 5.1 California Red-Legged Frog 13
  - 5.1.1 Status 13
  - 5.1.2 Distribution 13
  - 5.1.3 Life History 13
  - 5.1.4 Status in the Vicinity of the Action Area 15
- 5.2 California Tiger Salamander 16
  - 5.2.1 Status 16
  - 5.2.2 Distribution 16
  - 5.2.3 Life History 17
  - 5.2.4 Status in the Vicinity of the Action Area 18

6 Effects Analysis 21
- 6.1 California Red-Legged Frog 21
  - 6.1.1 Loss of Habitat 22

6.2 California Tiger Salamander 23
6.2.1 Loss of Habitat 23
6.3 Cumulative Effects 24
7 Conclusion and Determination of Effects for Each Protected Resource 25
8 References 27

TABLES

1 Listed Species and Effect Determinations vi
2 Vegetation Communities and Land Covers Within the Biological Study Area 11
3 Project Impacts on California Red-Legged Frog and California Tiger Salamander Habitat 21

APPENDICES

A Figures
B Environmental Database Searches
C Site Photographs

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BA	Biological Assessment
CDFW	California Department of Fish and Wildlife
DPS	Distinct Population Segment
ESA	Endangered Species Act
NMFS	National Marine Fisheries Service
PG&E	Pacific Gas and Electric Company
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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Executive Summary

The purpose of this biological assessment (BA) is to review the proposed Double Springs Battery Energy Storage System Project (Project) in compliance with Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. Section 7 of the ESA requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service (USFWS) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of any federally listed threatened or endangered species, or result in the destruction or adverse modification of designated Critical Habitat of such species. Section 7 of the ESA also provides for federal action agencies to request a conference with NMFS or USFWS when a proposed federal action is likely to jeopardize the continued existence of a species proposed for listing or destroy or adversely modify proposed Critical Habitat. However, this BA does not evaluate effects on essential fish habitat, as required by the Magnuson-Stevens Fishery Conservation and Management Act, since aquatic habitat is not present on the Project site. The U.S. Army Corps of Engineers (USACE) is the federal lead agency for the proposed Project.

This BA has been prepared to support informal Section 7 consultation with the USFWS regarding potential effects to the California red-legged frog (*Rana draytonii*) and designated Critical Habitat and to the Central Valley Distinct Population Segment (DPS) of California tiger salamander (*Ambystoma californiense*). This BA also supports informal consultation with the California Department of Fish and Wildlife (CDFW). Additional federal and state listed species known to occur in the proposed Project vicinity but were determined to have no potential to occur in the Project site include: foothill yellow-legged frog (*Rana boylii*; Endangered); vernal pool fairy shrimp (*Branchinecta lynchi;* Threatened), and Ione manzanita (*Arctostaphylos myrtifolia*; Threatened). Species with no potential to occur within the Project site are not discussed further.

The purpose of the proposed Project is to provide a service to the regional electric grid by receiving energy (charging) from the Pacific Gas and Electric Company (PG&E) Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. The proposed Project includes construction of lithium iron phosphate batteries, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation. The proposed Project includes construction of an internal project access road connecting to Double Springs Road that will be graded and paved with gravel, resulting in permanent and temporary impacts to an intermittent stream under the jurisdiction of the Sacramento District of the USACE and Sacramento Fish and Wildlife Office of the USFWS.

Proposed Project activities are anticipated to commence as early as 2026, contingent upon receipt of all required permit and approvals. These activities will be limited to a work window from May 1 through October 30 to minimize potential effects to California red-legged frog and California tiger salamander.

No federal or state listed species or species proposed for listing were observed in the Project site or Action Area (defined as the area where Project construction would take place within the larger project site), during the field assessments. The grassland in the Project site provides suitable upland dispersal and temporary refugia habitat for the California red-legged frog and is almost completely located within designated Critical Habitat; and also provides suitable aestivation habitat for the California tiger salamander.

Potential effects to the California red-legged frog or to the California tiger salamander as a result of the proposed Project are either non-existent or minimal, since neither species is expected to be present within the Project site during the construction period (May 1 to October 30). With implementation of the conservation measures discussed in Section 1.4.5 and summarized below, the proposed Project is not likely to affect the California red-legged frog (since project activities will only occur during the dry season when they are not expected to be present in grassland habitat away from water) and is also not likely to affect California red-legged frog Critical Habitat since Primary Constituent Elements are not present within the Project site. However, the proposed Project may affect, but is not likely to adversely affect, the California tiger salamander (Table 1), since the only potentially suitable breeding habitats are located greater than 800 m from the Project site and are all surrounded by extensive open grassland aestivation habitat.

Table 1. Listed Species and Effect Determinations

Common Name	Scientific Name	Listing Status	Presence of Species, Critical Habitat in Action Area	Effect Determination
Threatened, Endangered, Proposed Species				
California Red-legged Frog	*Rana draytonii*	FT	Yes	Not likely to affect
California Tiger Salamander, Central California DPS	*Ambystoma californiense*	FT	No	May affect, not likely to adversely affect
Designated Critical Habitat				
Critical Habitat Unit CAL-1	Rana draytonii	NA	Yes	Not likely to affect

Abbreviations: FT = federally threatened.

The species and Critical Habitat determinations are based on the following:

1. The Project site consists of grassland habitat with a narrow intermittent stream located in the southern portion of the Project site. There is no breeding habitat for California red-legged frog or California tiger salamander within the Project site. The large perennial pond located immediately west of the Project site contains gamefish and a large population of American bullfrogs and does not provide habitat for either species. Other potential habitats in the vicinity of the Project site that could potentially provide breeding habitat for either species are all located greater than 0.5 mi from the Project site surrounded by extensive aestivation habitat which substantially reduces the potential for utilization of the site by either species.
2. The extremely low likelihood of California red-legged frog being present within the Project site during the proposed dry season work window (May 1 through October 30) when overland travel away from water sources does not typically occur; thereby avoiding direct effects to California red-legged frogs.
3. The low likelihood of presence of California tiger salamanders within the grassland habitat on the Project site due to the substantial distance to potentially suitable breeding habitats. The nearest potential breeding habitats are located greater than 0.5 mi from the Project site with extensive aestivation habitat surrounding each of these potential breeding ponds. Suitable aestivation habitat is present within the Project site and Action Area; however, information obtained during the site evaluation indicates that suitable burrows for use as aestivation habitat by California tiger salamander appear to be relatively sparse and scattered throughout the Project site.

4. The proposed Project will be limited to upland grassland habitat since aquatic breeding habitat is not present on the Project site.
5. The contractor will comply with a SWPPP through the duration of the proposed Project. The SWPPP includes a spill prevention and response plan for any incidental project-related spills.
6. All temporary disturbed areas will be restored to pre-project conditions.

The conservation measures presented in Section 3 will be implemented to avoid and minimize potential effects to federal and state listed species and their habitat.

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1 Introduction

1.1 Purpose

The purpose of this BA is to review the proposed Double Springs Battery Energy Storage System Project (Project) in sufficient detail to determine to what extent the Project may affect species listed under the ESA as threatened or endangered as well as any designated Critical Habitat for these species. This BA provides the necessary information in support of the request to initiate consultation with USFWS. The BA is prepared in accordance with requirements in Section 7 of the ESA (16 USC 1536[c]), relating to interagency cooperation, and follows the standards established in the USFWS Endangered Species Consultation Handbook (USFWS and NMFS 1998). The two federally listed threatened species (hereafter referred to as Covered Species) determined to potentially occur within or adjacent to the Project Action Area (defined in Section 4, Action Area,) include the following:

- California red-legged frog (*Rana draytonii*); threatened
- California tiger salamander (*Ambystoma californiense*), Central California Distinct Population Segment (DPS); threatened

The Project also occurs within designated Critical Habitat for California red-legged frog. This BA includes a comprehensive description of the proposed Project, a description of the environmental setting of the Action Area, ecological requirements and occurrence status (within and adjacent to the Action Area) for the two Covered Species, an analysis of the effects of the proposed Project on the Covered Species, and measures to avoid direct and indirect impacts on the Covered Species. In addition, the USACE is responsible for permitting the crossing of the intermittent drainage within the Project area pursuant to Section 404 of the Clean Water Act, and as such will act as the Lead Agency for this consultation.

1.2 Background

Double Springs Energy Storage, LLC (Applicant) is currently proposing a utility-scale battery energy storage system on privately owned lands directly adjacent to the west of PG&E Valley Springs Substation in Calaveras County, California.

The proposed facility will provide a service to the regional electric grid by receiving energy from the adjacent PG&E Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require permanent sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping design along the project frontage.

1.3 Previous Coordination with U.S. Fish and Wildlife Service

At the time this BA was drafted, no meetings have yet been held with representatives from the USFWS. An initial request to brief USFWS on the overall Project, summarize data collection methods and results, and to obtain feedback and input on the overall approach to biological issues, potential permitting, and documentation was provided. A summary of coordination to date is presented below.

June 13, 2024	Applicant's biological consultant (Dudek) conducted an informal search of the USFWS' IPaC resource list for the proposed Project site.
May 21, 2025	Dudek obtained a formal list of threatened and endangered species that may occur in the Project site from the Sacramento District USFWS.

2 Project Description

Double Springs Energy Storage, LLC (Applicant) proposes to construct and operate a utility-scale battery energy storage facility on privately owned lands directly adjacent to the west of PG&E Valley Springs Substation in Calaveras County, California.

The project would be composed of lithium iron phosphate batteries installed in racks, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation (i.e., point of interconnection). The batteries would be installed in purpose-built enclosures, with battery storage racks and relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system would control the charging/discharging of the batteries, along with monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current electricity that must be converted to alternating current for compatibility with the existing electric grid. Power inverters would convert between alternating current and direct current, and transformers would step up the voltage to match that of the interconnection. Internal circulation roads, pads for the battery enclosures, and an access road connecting to Double Springs Road would be graded and paved.

The proposed facility would provide a service to the regional electric grid by receiving energy (charging) from the PG&E Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use would not create emissions to air, would not require sanitary facilities, and would not require water except to maintain water-efficient and low-impact landscaping design along the project frontage.

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3 Conservation Measures

This section identifies measures incorporated into the project to minimize and compensate for potential effects on listed species. It includes general avoidance and minimization measures that will be implemented at the site, species-specific avoidance and minimization measures, and compensatory habitat mitigation measures.

3.1.1 General Avoidance and Minimization Measures

Applicant proposes to implement the following measures to avoid and minimize effects on listed species that could result from the proposed Project. These measures will be implemented throughout the entire project.

1. **Approved Biologists.** At least 15 days prior to start of project activities, the Applicant shall submit the names and credentials of personnel seeking to act as approved biologists to the USFWS and CDFW for review. Biologists shall have appropriate training and experience with the species for which they are seeking approval. All biologists shall be approved in writing by the USFWS and CDFW prior to conducting proposed project activities.
2. **Environmental Awareness Training.** An approved biologist shall conduct environmental awareness training for all individuals working on the project before work begins. The training shall cover the life history, habitat requirements, and conservation measures for potentially affected species. The training shall also include information on federal and state regulatory protections, restrictions, and guidelines that must be followed by crews to avoid and minimize impacts to threatened and endangered species and their habitat. Upon completion of training, crews shall sign a form stating that they attended the training and understand all conservation measures. If new personnel are added to the project, the new personnel shall receive the training prior to starting work.
3. **Approved Biologist Authority.** An approved biologist shall be available to inspect all project activities to ensure compliance with avoidance and minimization measures and shall monitor all ground-disturbing activities. Approved biologists shall perform weekly surveys of the Project site to ensure appropriate application of all general and species-specific measures. Approved biologists shall have the authority to stop work if a listed species is encountered within active work areas or activities may result in take of listed species.
4. **Speed Limits.** Project-related vehicles shall observe a daytime speed limit of 15 miles per hour, except on county roads and state and federal highways. Emergency vehicles are exempt from these restrictions in emergency situations.
5. **Off-Road Traffic Prohibition.** Off-road traffic outside of designated project areas shall be prohibited.
6. **Trash Abatement.** All food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in a closed container and removed from the Project site daily.
7. **Spill Prevention.** A Spill Prevention Control and Countermeasure Plan shall be prepared prior to project implementation. All machinery shall be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from equipment shall be reported and cleaned up in accordance with applicable local, state, and/or federal regulations.
8. **Fire Prevention.** A Fire Prevention and Suppression Plan shall be prepared prior to the start of project activities.
9. **Reporting.** A final report containing details of the construction activities and any observations of listed species shall be submitted to the U.S. Fish and Wildlife Service within 30 days of project completion. The report shall document the number of each species encountered.

3.1.2 Species Take Avoidance Measures

The Applicant proposes to implement the following measures to avoid take of listed species.

1. **Work Window.** Project work will be performed during daylight hours, and any work in amphibian upland aestivation and/or dispersal habitat will occur between May 1 and October 30.
2. **California Tiger Salamander Take Avoidance.** The project will be performed during daylight hours, and work shall begin on or after May 1 and be completed by October 30 of each year. Within 7 days prior to clearing existing vegetation or grading, an approved biologist shall survey for the presence of potential underground refugia for California tiger salamanders (i.e., small mammal burrows). If potential refugia are observed and burrow excavations are required by the agencies, they shall be excavated by hand (e.g., shovels and non-powered hand tools) to confirm California tiger salamander absence. An approved biologist shall excavate and monitor all refugia excavation. All excavated burrows will be backfilled after the biologist confirms that tiger salamanders are absent. If any California tiger salamanders are observed, the approved biologist will capture and relocate the animal per the Relocation Plan as described below.
3. **Relocation Plan.** Prior to implementation of this measure, a relocation plan will be developed that outlines the specific methods for safely capturing, holding, transporting, and releasing California tiger salamanders, including equipment sterilization techniques. The plan, which must be approved by the agencies, shall also outline where relocated individuals will be moved and a process for reducing oversaturation.
4. **Amphibian Exclusion Fencing.** Exclusion fencing will be installed between work areas and adjacent habitat for California red-legged frog and California tiger salamander. The fence shall be a minimum of 2.5 feet tall and the bottom 6 inches shall be buried to prevent amphibians from crawling under the fence. Placement and installation of fencing around drainage work areas shall be coordinated with any sediment control fencing requirements of other resource agency permits. During work hours, a portion of the fencing around upland staging areas may be removed to facilitate project activities but must be reinstalled and the bottom secured with sandbags or other heavy material. When fence sections are removed, the section shall be reviewed for resting or hiding species prior to removal. The exclusion fencing shall be maintained until all construction activities are completed and removed within 72 hours of the completion of work.
5. **Fence Inspections.** An approved biologist will survey the work area for California red-legged frogs and California tiger salamanders daily during construction. Additionally, the approved biologist will conduct daily fence inspections prior to commencement of construction activities to ensure that the work area is isolated from adjacent habitat. Any breach in the fence must be immediately repaired prior to the beginning of work activities. In the unlikely event that a California red-legged frog or California tiger salamander is found in the work area, it will be captured by an approved biologist and transported to a predetermined relocation site, and released following procedures provided in the Relocation Plan above. Only approved biologists shall capture and handle frogs or salamanders. The biologist will monitor any relocated frog or salamander until such time that the animal is safe from any obvious or immediate hazard or danger.
6. **Habitat Mitigation.** Impacts to areas determined to be habitat for California red-legged frog and/or California tiger salamander will be fully mitigated, in consultation with the USFWS and CDFW.

3.1.3 Compensatory Mitigation

To compensate for potential Project impacts to upland dispersal habitat for the California red-legged frog and to aestivation habitat for the California tiger salamander, Applicant will provide for the permanent protection and management of habitat management lands. This will be accomplished by purchasing credits from a USFWS-approved mitigation or conservation bank and/or development of a project-specific compensatory mitigation project that provides for the permanent protection and management of off-site habitat management lands as approved by USFWS. Based on the type and extent of permanent and temporary impacts to California red-legged frog dispersal habitat and to California tiger salamander aestivation habitat at the Project site, compensatory mitigation is proposed at a 1:1 ratio for permanent impacts to upland dispersal and aestivation habitat (7.85 acres). In total, 7.85 acres of compensatory mitigation credits, if required, will be purchased or habitat management lands protected.

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4 Action Area

4.1 General Setting

The Project is located within the unincorporated community of Valley Springs generally northwest of the intersection of California Highway 12 and California North Highway 26 (Figure 1, Project Location). The Project site is specifically located northwest and near the intersection of 3524 Double Springs Road and California North Highway 26, Assessor's Parcel Numbers 040002017, 040002018, and 040002019 (Figure 2, Project site). For the purpose of this report, the area investigated included the entire Project site, for a total of 16.4 acres (Action Area). The Biological Study Area (BSA) for the Project is the Action Area plus a 100-foot buffer of 8.7 acres which accounts for biological resources that may be impacted by the proposed project, for a total of 25.1 acres (Appendix A - Figure 3).

4.2 Topography

The Action Area is in the Northern Sierra Nevada Foothills region of the Sierra Nevada. Geology at the site is classified as colluvium and/or residuum derived from agglomerate, tuff breccia, or latite. Site geology is associated with lahars and side slopes of lava plateaus, undulating to hilly tabular volcanic ridges and their side slopes associated with the Mehrten Formation and on rounded hills and steep slopes associated with Tuscan Formation sediments (USDA 2024). Elevations within the Action Area range from approximately 942 to 1,068 feet above mean sea level. The Action Area is generally sloped east to west and comes to crest in the northern portion of the Action Area. In the northeastern portion of the Action Area, the topography begins to slope from west to east down towards State Route 26.

4.3 Soils

According to the Natural Resources Conservation Service's Web Soil Survey (USDA 2024), the Action Area occurs within the Central Sierra Foothills Area and includes three non-hydric soil types listed below

Inks-Angelscreek complex, 3% to 15% slopes. Inks soils consist of cobbly loam and bedrock with parent material of residuum weathered from conglomerate and/or tuff breccia creating ridges and lahars. Angelscreek soils consist of cobbly clay loam with parent material of colluvium over residuum derived from conglomerate and/or tuff breccia creating saddles on ridges on lahars.

Angelscreek-Pentz complex, 15% to 30% slopes. Angelscreek soils consist of gravelly loam and very cobbly clay loam with parent material colluvium over residuum derived from conglomerate and/or tuff breccia creating lahars. Pentz soils consist of fine sandy loam and bedrock with parent material colluvium and/or residuum derived from basic tuff with minor components of inks soils creating lahars.

Urban land-Amador complex, 2% to 15% slopes. Amador soils consist of sandy loam and bedrock with residuum weathered from acidic tuff with minor components of inks, pardee, hornitos, mollic fluvaquents (cobbly) soils creating low hills.

4.4 Hydrological Resources

The Action Area occurs within the Calaveras River watershed (Hydrologic Unit Code 1804001103). In the majority of the Action Area, the site slopes from east to west and water drains into either an intermittent stream in the southern portion of the Action Area or surface flows down the slope. All of these flows eventually drain into the pond immediately west of the Action Area. This pond has a dike on its southern end, which impounds waters from the site and Spring Valley Creek. During extreme rain events, the pond releases water downstream into Spring Valley Creek. Spring Valley Creek flows for approximately 3.75 miles southwest before joining with Cosgrove Creek, flowing south for approximately 2.5 miles to join the Calaveras River, flowing 30–35 miles before joining the San Joaquin River delta, which connects to the Pacific Ocean.

There are no USFWS National Wetlands Inventory identified features in the Action Area (USFWS 2024). None of the Action Area is within the 100-year flood zone according to the Federal Emergency Management Agency.

There are no wetland types or water resources mapped/recorded on National Wetland Inventory (USDA 2024) or the Environmental Protection Agency's Waters Mapper (EPA 2024) within the Action Area. The pond adjacent and to the west of the Action Area is mapped in four different sections and feature types on National Wetlands Inventory, including freshwater pond habitat (PUBHh), freshwater forested/shrub wetland (PFOA & PFOB), freshwater emergent wetland (PEM1A & 1C), and riverine (R4SBC). According to the Environmental Protection Agency Waters Mapper, the channel that feeds into and drains out of the pond is Spring Valley Creek. National Wetland Inventory records this feature as freshwater emergent wetland north of the pond and riverine southwest of the pond.

Aquatic Features within BSA

There are two drainages in the BSA:

- ***South Drainage.*** The South Drainage is an intermittent stream fed by a culvert with an inlet near the southeastern area of the Project site. This intermittent stream varies in width (6 inches to 15 feet) and depth (6 inches to 2 feet). The bottom of the drainage/channel consists of rocks, stones, and barren soils. The wider and deeper sections are nearest to the culvert outlet at the eastern border of the project site. Water from the South Drainage flows to the large stock pond immediately west of the Project boundary.
- ***North Drainage.*** The North Drainage is not located in Project site but part of this feature is located within the Biological Study Area and has been created by natural flowlines in the topography. This has less defined banks and is dominated by the annual grassland community. The North Drainage flows into the freshwater emergent wetland section in the northern portion of Spring Valley Creek.

4.5 Vegetation Communities and Land Covers

The Action Area is dominated by annual grassland of wild oat (*Avena* sp.) with intermittent non-native plant species typically associated with ruderal land cover (Table 2). The only semi-natural vegetation community mapped on the Action Area is the *Avena* sp. association, which occurs throughout the Action Area (Figure 3, Vegetation Communities and Land Cover Types). Additionally, there is one drainage within the Action Area fed by a culvert at its eastern end and draining west to an offsite pond. These natural vegetation communities and land covers were mapped based on general physiognomy, species composition, and/or ground cover and are discussed in detail further below.

There are no special-status vegetation communities within the Action Area.

Table 2. Vegetation Communities and Land Covers Within the Biological Study Area

Vegetation Community or Land Cover	Project Site (acres)	Buffer (acres)	Total Biological Study Area (acres)
Semi-Natural Vegetation Communities			
Annual Grassland	15.63	7.17	22.80
Aquatic Features - Drainage	0.35	0.44	0.79
Anthropogenic Land Cover Types			
Developed	0.46	1.11	1.57
Totals	16.44	8.72	25.16

4.5.1 California Annual Grassland

California annual grassland resembles the wild oats and annual brome grassland alliance, which includes wild oat and brome dominant or co-dominant in the herbaceous layer. The herbaceous layer is open to continuous and less than 1.2 meters (4 feet) in height. California annual grassland occurs in disturbed areas, rangelands, and openings in woodlands (CNPS 2025).

California annual grassland is located throughout the Action Area. Dominant species observed in the Action Area include oats, bromes (*Bromus* spp.), rose clover (*Trifolium hirtum*), barley (*Hordeum* spp.), and Italian rye grass (*Festuca perennis*). There is one valley oak tree (*Quercus lobata*) present within this community.

Based on information obtained during a focused evaluation of the grassland habitat within the Project site on October 5, 2025, by Dudek biologist Mikaela Bissell, small mammal activity within the site consisted primarily of Botta's pocket gophers (*Thomomys bottae*) with very few California ground squirrel (*Otospermophilus beecheyi*) burrows. Unfortunately, the grasses were long and lying flat throughout the site making it difficult to determine the relative abundance of suitable burrows (i.e., burrows that are not collapsed or filled in). However, information obtained during this evaluation indicates that burrows suitable for use as aestivation habitat by California tiger salamander appeared to be relatively sparse and scattered throughout the Project site.

4.5.2 Developed Land

Developed land covers, also sometimes referred to as 'urban,' refer to areas that have been constructed on or otherwise physically altered to the point where vegetation is no longer present. Developed areas are characterized by permanent or semi-permanent structures, hardscapes, and landscaped areas that require irrigation. The eastern Action Area buffer includes a portion of the PG&E substation, which is the only developed land cover present near the Project site.

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5 Species/Critical Habitat Considered

5.1 California Red-Legged Frog

5.1.1 Status

The California red-legged frog was listed as a threatened species by the USFWS on May 23, 1996 (61 FR 25813-25833); and in 2002, the USFWS published the *Recovery Plan for the California Red-Legged Frog* (*Rana draytonii*) (USFWS 2002).

On April 13, 2006, the USFWS designated Critical Habitat for the California red-legged frog (Federal Register Vol. 70, No. 71:19243-19346) pursuant to the ESA. Additionally, USFWS finalized a special rule associated with final listing of the California red-legged frog as threatened, for existing routine ranching activities pursuant to Section 4(d) of the Act (USFWS 2004). In total, approximately 450,288 acres (182,225 hectares) fall within the boundaries of the Critical Habitat designation. However, on September 16, 2008, the USFWS published in the Federal Register (Federal Register, Volume 73, No. 180; Tuesday, September 16, 2008) a proposed rule to designate 1.8 million acres of Critical Habitat (49 units in 28 California counties) for the federally protected California red-legged frog. Based on this final ruling, the entirety of the Proposed Action Area is located within Critical Habitat Unit CAL-1.

5.1.2 Distribution

The historic range of the California red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California and inland from the vicinity of Redding, Shasta County, California; southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). California red-legged frogs were historically documented in 46 counties; however, California red-legged frogs are now only known from three distinct regions in 28 California counties in the Sierra Nevada, the North and Central Coast Ranges, and Southern California (USFWS 2002). This represents a loss of 70 percent of its former range (USFWS 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central coast. Within the current distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. California red-legged frogs are believed to be extirpated from the southern Transverse and Peninsular ranges (USFWS 2002), but are still present in Baja California, Mexico (Jennings and Hayes 1985; Hayes and Krempels 1986).

5.1.3 Life History

California red-legged frogs are primarily an aquatic species with required breeding habitat typically consisting of permanent deep >2.3 feet, slow-moving waters with dense, shrubby or emergent riparian vegetation to which egg masses may be attached (USFWS 2010; Hayes and Jennings 1988). Breeding sites can also include lakes, ponds, reservoirs, slow-flowing stream reaches, or a deep pool within a stream, marshes, and bogs. California red-legged frogs have also been found breeding in ephemeral and intermittent streams and in ponds that may or may not have riparian vegetation, with water depths less than 2.3 feet. The largest densities of California red-legged frogs are typically associated with deep pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988).

During the non-breeding season, habitat includes nearly any area within one to two miles of a breeding site that remains moist and cool through the summer (Fellers 2005), which can include vegetated areas with coyote bush (*Baccharis pilularis*), California blackberry thickets (*Rubus ursinus*), and root masses associated with willow (*Salix* spp.) and California bay trees (*Umbellularia californica*). California red-legged frogs will use adjacent upland habitats for foraging, shelter and aestivation, and non-dispersal movement, particularly during the non-breeding season. Non-breeding habitat used by California red-legged frog can be extremely limited in size (e.g., non-breeding California red-legged frog have been found in a 6-foot wide coyote bush thicket growing along a tiny intermittent creek surrounded by heavily grazed grassland (Fellers 2005). In addition, any landscape features that provide cover (such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris) or agricultural features (such as drains, watering troughs, spring boxes, abandoned sheds, or haystacks) may also be used by California red-legged frog. Aestivation typically occurs within 300 feet of aquatic habitat, aestivation habitat can include spaces under boulders/rocks, small mammal burrows, and under organic (e.g., moist leaf litter) or industrial (e.g., watering troughs, drains) debris (USFWS 2010). Tatarian (2008) found that terrestrial microhabitats chosen by this species (in xeric environments) were quite variable. These included a barn door laying on the ground that had what appeared to be a ground squirrel burrow under it; five different ground squirrel burrows; and two large logs (including an erosion control log jam). Other sites in grasslands lacked any shelter. Based on the study data, ground squirrel burrows should not be considered as wholly suitable cover in xeric environments (Tatarian 2008).

Incised stream channels with portions narrower and depths greater than 1.5 feet may also provide important winter/spring sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed and can be a factor limiting population numbers and survival. Feeding activity generally occurs along shorelines and on the surface of the water, where California red-legged frog feed on a wide variety of invertebrates. While California red-legged frogs can occur in either intermittent or perennial aquatic habitats, populations generally cannot be maintained in intermittent habitats in which surface water disappears before metamorphosis is completed (July to September during most years).

During the rainy season, individual California red-legged frogs may disperse from their breeding habitat and migrate toward other populations or new habitats. During dispersal, California red-legged frogs have been known to travel long distances, from 0.25 miles to 2 miles (Fellers 2005; Fellers and Kleeman 2007; Bulger et al. 2003), in a straight line (i.e., point-to-point migrations) rather than using corridors in between habitats (USFWS 2002). Dispersal distances are highly dependent upon habitat availability and environmental conditions, such as precipitation or moisture levels, that are influenced by the local landscape (USGS 2007). A study conducted by Tatarian (2008) in Contra Costa County near the base of Mount Diablo tracked 49 adult California red-legged frogs during the fall, winter, and spring from March 1999 to June 2001. Results of this study showed that most of the frogs remained at the source pond, and the remainder generally only moved short distances. The greatest movements occurred during the pre-breeding period (following the first rainfall event), when California red-legged frog moved an average of 138 feet terrestrially and 351 feet aquatically (via a stream channel). The latest seasonal movements occurred in February of Year 1 and April of Year 2. Data on the time California red-legged frogs spent away from their source pool or creek imply that individuals in the population do not leave their summer aquatic habitat for new over-wintering habitat. Based on the results of the Tatarian study, California red-legged frog terrestrial movement from breeding sites or other aquatic habitats in xeric environments (such as the southern Diablo Range in which the Project occurs) was found to occur from the first rainfall event in the late fall through early spring. During the dry and hot summer months (May through October), California red-legged frogs typically remain at or in the vicinity of aquatic sites.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water, with some California red-legged frogs remaining at breeding habitat all year while others disperse. Dispersal distances are typically less than 0.5 mile (mi), with a few individuals moving 1 to 2 mi (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, may move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005). Dispersing California red-legged frog in northern Santa Cruz County were documented to travel distances from 0.25 mi to more than 2 mi without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003). Fellers and Kleeman (2007) and Bulger et al. (2003) found that California red-legged frog migration corridors can be less "pristine" (e.g., closely grazed fields, plowed agricultural lands) than breeding or non-breeding habitats. Bulger et al. (2003) observed that California red-legged frog did not appear to avoid or prefer any landscape feature or vegetation type. Tagged California red-legged frogs were documented crossing agricultural land, including recently tilled fields and areas with mature crops. Threats facing migrating California red-legged frog include being run over by vehicles on roads (Gibbs 1998), degradation of habitat (Vos and Stumpel 1995; Findlay and Houlahan 1997; Gibbs 1998), predation (Gibbs 1998), and desiccation (Rothermel and Semlistch 2002; Mazerolle and Desrochers 2005).

In California, the decline and eventual local disappearance of California red-legged frog and northern red-legged frogs (*Rana aurora*) has been observed in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish (*Procambarus clarkia)*, signal crayfish (*Pacifastacus leniusculus*), and several species of warm water fish including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*) (Reclamation 2016). These declines and disappearances have been attributed to predation, competition, and reproduction interference. Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range.

5.1.4 Status in the Vicinity of the Action Area

5.1.4.1 Occurrence Records within or Near the Action Area

There is one documented occurrence of California red-legged frog within 2-miles of the Project site, located approximately 0.81 mile west of the Action Area (Occurrence Number: 671) (CDFW 2025). Three adults were documented in 2003 along Young's Creek, a spring-fed stream with associated riparian canopy within grazed grasslands in oak savannah (Appendix A- Figure 5).

Based on review of historical aerial imagery (Google Earth Pro 2025: 2003 to 2024, where available), there are eight aquatic habitats (ponds) within 1-mile of the Action Area. Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs which would substantially decrease the potential for breeding by California red-legged frogs); one of the ponds appears to be perennial/seasonal, and the remaining pond is seasonal (Appendix A- Figure 4).

The closest pond, located immediately west of the Project site, is perennial and contains numerous gamefish and a large population of American bullfrogs, and does not provide suitable breeding habitat. Based on the large number of American bullfrogs in this pond, it is highly likely that a large number of juveniles disperse from this pond to other nearby ponds every winter. As a result, all of the other ponds within 1-mile of the Project site may also be occupied by bullfrogs, which would make them generally unsuitable for breeding by California red-legged frogs. However, not all ponds were accessible so this could not be verified.

The next closest potential breeding pond is a seasonal feature located approximately 0.16 mi (255 m) north of the Project site. Based on a site visit to the pond on October 10, 2025, and information obtained from the owner, this pond typically dries by September or October each year and could potentially provide breeding habitat for California red-legged frogs. However, when the pond fills each winter numerous American bullfrogs move into the pond from the large stock pond immediately west of the Project site. According to the owner, the frogs remain in the pond all summer and leave when the pond dries. As a result, this pond does not provide suitable breeding habitat for California red-legged frogs due primarily to the presence of numerous bullfrogs and lack of complex habitat (no aquatic vegetation present to provide cover). Based on the general abundance of American bullfrogs in several of the ponds near the Project site, it is likely that bullfrogs have dispersed to most or all of the other ponds within 1-mile of the Project site.

While California red-legged frogs can occur in either intermittent or perennial aquatic habitats, populations generally cannot be maintained in intermittent habitats in which surface water disappears before metamorphosis is completed (July to September during most years). The intermittent drainage present within the Project site does not provide breeding habitat since the drainage is usually dry by June each year.

While the BSA does not provide suitable breeding habitat for this species, the grassland and drainage on site provide suitable upland dispersal habitat during the rainy season (generally late fall through early spring). However, the Action Area does not provide suitable dispersal or refugia habitat during the dry season (generally late spring through early fall). As a result, California red-legged frogs would not be expected to be present in the on-site grasslands during the dry season, either moving through the Project site or seeking refuge in small mammal burrows within the grassland.

5.2 California Tiger Salamander

5.2.1 Status

All California tiger salamander are federally listed; however, three distinct entities, or Distinct Population Segments (DPSs), are state listed: the Sonoma County DPS, the Santa Barbara County DPS, and the Central California DPS. The Central California DPS includes the Action Area which is discussed in this document.

The Central California DPS of California tiger salamander was listed as threatened by USFWS on August 4, 2004 (69 FR 47212–47248). In 2010, the State of California listed the California tiger salamander as a single entity throughout its range as a threatened species (California Fish and Game Commission 2010). On 23 August 2005, the USFWS published a final rule designating Critical Habitat for the Central Population of California tiger salamander (70 FR 49380–49458) (USFWS 2005). Included in this designation is approximately 97,045 acres (39,273 hectares) in 12 Critical Habitat units within the Central Valley Region. These 12 units are situated between the town of Dunnigan (Unit 1) in Yolo County and Unit 11 located in Madera County.

5.2.2 Distribution

The historic and current range of the Central California tiger salamander extends from Yolo County south through the Central Valley to Kern County (USFWS 2003) and includes the San Joaquin-Sacramento River valleys, bordering foothills, and coastal valleys of Central California (Stebbins 1985; Shaffer et al. 2013). The Action Area is located within the Central California tiger salamander Recovery Unit.

5.2.3 Life History

Central California tiger salamander are typically associated with annual grassland habitats but may also occur within open woodland areas of low hills and valleys (Stebbins 1985; Shaffer et al. 2013). Necessary habitat components include suitable breeding ponds and underground refugia, since tiger salamanders spend most of their adult life underground. The Central California tiger salamander requires upland habitat that is occupied by small burrowing mammals such as California ground squirrel and Botta's pocket gopher that create underground burrow systems utilized by the CTS throughout the year (Shaffer et al. 1993; Seymour and Westphal 1994; Loredo et al. 1996; Pittman 2005).

Upland habitats surrounding known Central California tiger salamander breeding pools are usually dominated by grassland, oak savanna, or oak woodland; large tracts of upland habitat, preferably with multiple breeding ponds, are necessary for the species to persist. Although California tiger salamander are adapted to breeding in natural vernal pools and ponds, they now frequently use livestock ponds and other modified ephemeral and permanent ponds (USFWS 2014). Suitable breeding sites include vernal pools, seasonal wetlands that remain inundated through the spring, stock ponds, or slow-moving streams that do not support fish, although streams are rarely used for reproduction. Breeding ponds must have a sufficient ponding duration for adults to breed and for larvae to mature into juveniles capable of dispersing from the aquatic breeding site to suitable terrestrial habitat. Ephemeral habitats provide optimum breeding habitat for California tiger salamander, which prevents bullfrogs or non-native fish species from establishing breeding populations (USFWS 2005). However, California tiger salamanders can also be found in permanent ponds; but these features are usually free of predatory fish or breeding bullfrog populations (Shaffer et al. 1993; Fisher and Shaffer 1996). Stock ponds that contain populations of exotic fishes and bullfrogs are unsuitable as breeding habitat (Shaffer and Stanley 1992; Fisher and Shaffer 1996; Trenham and Shaffer 2005). This species is not known to breed in streams or rivers; however, breeding populations have been reported in ditches that contain seasonal wetlands (USFWS 2017, USFWS 2016, Cook et al 2005, Seymour and Westphal 1994) and in slow-moving swales and creeks situated near other suitable breeding habitat (Alvarez et al. 2013).

Adult Central California tiger salamander, which are generally nocturnal, 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 (Hansen and Tremper 1993; Loredo and Van Vuren 1996; Petranka 1998; Trenham et al. 2000). During these rain events, adults leave their underground burrows and return to breeding ponds to mate and then return to their underground burrows. Males typically arrive before the females and generally remain in the ponds longer than females (Loredo and Van Vuren 1996; Trenham et al. 2000). Adult Central California tiger salamander have been reported to migrate up to 1.3 mi between breeding ponds and upland habitat (Orloff 2007); however, only a small number of individuals likely travel this distance (Orloff 2011). Searcy and Shaffer (2011) estimated average migration distance to be 0.35 mi. Several studies have indicated that, depending on habitat and life stage, the majority of California tiger salamander (between 50% and 95% of adults) travel between 0.09 to 0.5 mi (Trenham and Shaffer 2005, Orloff 2011). In addition, Trenham and Shaffer (2005) found that captures of adults declined with distance from the breeding pond. Captures of subadults increased steadily from 33 to 1312 feet from the breeding site, but there were no captures at 0.5 mi. A negative exponential function fit to the adult capture data suggested that 50%, 90%, and 95% were within 492, 1608, and 2034 feet of the pond, respectively. For subadults, the data similarly suggested that 95% were within 2067 feet of the pond, but that 85% of this life stage were concentrated between 656 and 1968 feet from the pond.

Based on available distribution data, adult California tiger salamanders do not necessarily migrate following the easiest terrain but rather move in a relatively straight line to and from breeding ponds regardless of the topography (Orloff 2011), which has also been found in other ambystomatids (Douglas and Monroe 1981). Additionally, radio tracking data did not show any indication of movement along creeks or riparian vegetation (Trenham 2001).

The California tiger salamander has a metapopulation structure, which is a set of local populations or breeding sites within an area, where dispersal from one local population or breeding site to other areas containing suitable habitat is possible, but not routine. Central California tiger salamanders appear to have high site fidelity, returning to their natal pond as adults; after breeding, they commonly return to the same terrestrial habitat areas (Orloff 2007 and 2011). However, some salamanders disperse to new breeding ponds (Trenham 2001; Wang et al. 2009). Most studies indicate that California tiger salamander juveniles (recent metamorphs) generally remain near breeding sites until the onset of autumn rains, at which time they disperse to upland areas, although juvenile California tiger salamanders have been found more than 1,200 feet from their natal ponds. The distance that metamorphs travel from the pond during emergence varies from year-to-year and is likely driven by whether or not there is a major rain event during the emergence period. According to rainfall data recorded at the Pacheco State Park weather station, very little if any rainfall occurs from May through October in most years. Loredo et al. (1996) found that tiger salamanders may use burrows that are first encountered during movements from breeding to upland sites. In their study area, where the density of California ground squirrel burrows was high, the average migration distances between breeding and refuge sites for adults and juveniles was 118 feet and 85 feet, respectively. Metamorphs emerging from the pond on average travel 443 feet from the breeding site (CDFW 2015). Breeding and egg laying typically occurs between November and February (Shaffer and Fisher 1991), following relatively warm rain events.

Central California tiger salamanders breed only once or twice during their lifetime, and their lifetime reproductive success is fairly low (Trenham et al. 2000, 2001). While individuals may survive for more than 10 years, most individuals do not reach sexual maturity until they are two to five years old. Females lay their eggs singly or in clumps on both submerged and emergent vegetation and submerged debris in shallow water (Anderson 1968, Stebbins 1972, Shaffer and Fisher 1991, Barry and Shaffer 1994). Adult females will usually remain at the pond for only a few days following egg laying, whereas adult males may stay for several weeks. The larval stage of the Central California tiger salamanders usually lasts 3 to 6 months, with metamorphosis beginning in late spring or early summer (Petranka 1998), usually by the first week of July. Larvae feed upon various planktonic aquatic invertebrates and occasionally larvae of other amphibian species. Following metamorphosis, juveniles typically depart their natal ponds at night and enter terrestrial habitat in search of underground burrows. Peak periods for metamorphs to leave their natal ponds have been reported from May to July (Loredo and Van Vuren 1996; Trenham et al. 2000); however, peak timing of migration may vary based on locality.

The main threat to California tiger salamanders is the loss and fragmentation of habitat from human activities such as urban and agricultural development and land conversion (USFWS 2004). Another threat to both adult and larval tiger salamanders is the establishment of non-native predators into the vernal pools. Bullfrogs, crayfish, and introduced fish prey upon adult and larval salamanders.

5.2.4 Status in the Vicinity of the Action Area

5.2.4.1 Occurrence Records within or Near the Action Area

There are no documented occurrences of California tiger salamander within 1.3 mi of the Action Area. There is only one occurrence record within 3.1 mi located approximately 1.68 mi northwest of the Action Area (Occurrence Number: 1111) (CDFW 2025). An adult California tiger salamander was found near a residence surrounded by grasslands that are used for cattle grazing. No breeding ponds appear to be present within 0.3 miles of this occurrence record; however, there are four potential breeding ponds within 0.62 mi although some contain fish. Based on aerial photography, the location of these potential breeding ponds are all greater than 1.3 mi from the Project site.

While the Project site does not provide suitable breeding habitat for this species, the grasslands on site provide suitable aestivation habitat. Based on a review of historical aerial imagery (Google Earth Pro 2003 – 2024, where available), there are nine potential aquatic habitats (ponds) within 1.3 mi of the BSA. Six of the ponds appear to be perennial (some of which may contain gamefish and/or American bullfrogs which would eliminate these features as potential breeding habitats); two of the ponds appear to be perennial/seasonal features, and one pond is seasonal. Some of these ponds may contain predatory aquatic species such as gamefish and American bullfrogs. The closest pond, located immediately west of the Project site, is perennial and contains numerous gamefish and a large population of American bullfrogs, and does not provide suitable breeding habitat. Based on the large number of American bullfrogs in this pond, it is highly likely that a large number of juveniles disperse from this pond to other nearby ponds every winter. As a result, all of the other ponds within 1.3 mi of the Project site may be occupied by bullfrogs and/or gamefish making them unsuitable for breeding by California tiger salamanders. However, since these ponds could not be accessed, their status could not be verified.

The closest potential breeding pond is a seasonal feature located approximately 0.16 mi (255 m) north of the Project site. However, based on a site visit to the pond on October 10, 2025, and information obtained from the owner, this pond typically dries by September or October each year. When the pond fills each winter/spring numerous American bullfrogs move into the pond from the large stock pond located immediately west of the Project site. According to the owner, the frogs remain in the pond all summer and leave when the pond dries. As a result, this pond does not provide suitable breeding habitat for California tiger salamanders due primarily to the presence of numerous bullfrogs during the spring and summer (no aquatic vegetation present to provide cover). There are several additional ponds located greater than 0.5 mi from the Project site with extensive upland aestivation habitat in all directions from these ponds making it unlikely that California tiger salamanders, if present in these ponds, would aestivate in the Project site. Trenham and Shaffer (2005) found that captures of adults declined with distance from the breeding pond.

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6 Effects Analysis

The effects analysis refers to all consequences to listed species or Critical Habitat that may be caused by the Proposed Action, including the consequences of other activities that are caused by the Proposed Action. A consequence is caused by a Proposed Action if it will not occur except for the Proposed Action and it is reasonably certain to occur. Effects of an action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

Potential effects of the proposed Project to California red-legged frog include temporary and permanent loss of dispersal habitat; and potential affects to California tiger salamander include loss of aestivation habitat and the potential but unlikely loss of individuals due to ground disturbance activities such as grading, vegetation clearing, and mowing. These potential effects are discussed in more detail below for each of the two Covered Species.

The Proposed Action will result in the loss and modification of existing habitat for both California red-legged frogs and California tiger salamanders. Approximately 7.87 acres of habitat will be permanently lost or modified, and 2.61 acres of Critical Habitat will be temporarily rendered unsuitable (Table 3 and Figure 2, Project site and Action Area).

Table 3. Project Impacts on California Red-Legged Frog and California Tiger Salamander Habitat

Project Component	Acres Affected	
	Permanent	Temporary
Development Footprint (Battery Storage and Road)	7.87	0
Laydown and Staging Area	0	0.51
Temporary Grading Areas	0	2.10
Total[a]	**7.87**	**2.61**

Note:
[a] Totals may not sum due to rounding.

6.1 California Red-Legged Frog

The proposed Project is not likely to adversely affect the California red-legged frog since the site only provides suitable dispersal and temporary refugia habitat for this species during the wet season and breeding and permanent refugia habitat is not present.

Vegetation removal and ground disturbance activities (i.e., grading, etc.) during the summer and early fall will not affect California red-legged frogs since dispersal from breeding sites only occurs during the wet season (late fall through early spring). During the summer and early fall, California red-legged frogs typically remain at or near aquatic sites and would not be present within the on-site grasslands. As a result, Project construction or personnel will not affect California red-legged frogs since they will not be present during ground disturbance activities within the Action Area. Following completion of the Project, dispersal patterns for California red-legged frogs that might be present in the general region may be slightly altered to avoid the Action Area, which would cause individuals to disperse through adjacent similar habitats.

The Action Area is located within and at the eastern edge of California red-legged frog Critical Habitat Unit CAL-1 (Figure 7, Critical Habitat). This Critical Habitat Unit is approximately 2,764 acres in size and is comprised entirely of private land. (50 CFR Part 17). However, no Critical Habitat Primary Constituent Elements are present within the 16.1 acres of Critical Habitat present within the 16.4 acre Project site. As a result, any impact to Critical Habitat within the Action Area will not remove any Primary Constituent Elements for California red-legged frog from this Critical Habitat Unit.

6.1.1 Loss of Habitat

Dispersal Habitat

Breeding ponds are not present within or adjacent to the Action Area. Therefore, no direct or indirect effects on breeding habitat is expected to occur. However, the entire Action Area is potentially suitable upland dispersal and temporary refugia habitat for the California red-legged frog.

The loss of suitable dispersal habitat for California red-legged frog may affect existing movement corridors and cause dispersing individuals to travel through adjacent habitats which could increase the amount of time required to move between refugia. The area of permanent removal of habitat (7.87 acres) and temporary impacts associated with laydown and staging and temporary grading (2.61 acres) is small, and temporary features will be restored to pre-existing conditions following the completion of the Project. Additionally, the Proposed Action Area directly abuts existing development to the east (PG&E Diamond Springs Substation) and roadways to the east and south, which do not provide dispersal habitat and constitutes a barrier to overland movement or a potential source of mortality. Thus, this temporary and permanent loss of habitat is not expected to adversely affect California red-legged frog.

Designated Critical Habitat

The Proposed Action Area is located within and at the eastern edge of California red-legged frog Critical Habitat Unit CAL-1 (Figure 7, Critical Habitat). Primary Constituent Elements for California red-legged frog within designated Critical Habitat consist of breeding and non-breeding aquatic habitat; upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat that provide shelter, forage, and predator avoidance; and accessible upland or riparian habitat within and between occupied locations within a minimum of 1 mile of each other and that support movement between such sites. The closest aquatic habitat that have known California red-legged frog populations is Spring Creek, located 0.81 miles northwest of the Action Area. The remaining ponds/streams with documented occurrences of California red-legged frog are all located greater than 5 miles from the Action Area. Potentially suitable upland habitat (that contains small mammal burrows for temporary refugia) is present within the Action Area; however, many of the burrows do not provide refugia habitat.

The impacts associated with the Proposed Action will result in grading and development of 7.87 acres, which will result in the permanent removal of this acreage from suitable upland dispersal habitat. The impacts associated with the material laydown areas will be temporary in nature and will be revegetated to pre-disturbance conditions once the Proposed Action is completed. Revegetation will be conducted pursuant to the Habitat Restoration Plan discussed in Section 3 that will be prepared for the Project prior to any ground-disturbance activities such that these areas will eventually be returned to pre-disturbance conditions following the completion of construction activities. As a result, no permanent loss of suitable upland habitat is expected in these temporary disturbance areas. Additionally, because the Proposed Action Area directly abuts the PG&E substation that presents a barrier to movement, any California red-legged frog movements and/or dispersal through the Action Area is not expected to be altered over the life of the construction phase of the Project, particularly if construction occurs during the dry season (May 1 through October 30) when California red-legged frogs are restricted to aquatic habitats in this region.

The Proposed Action will result in the permanent removal of 7.87 acres and temporary disturbance to 2.61 acres of Critical Habitat. Areas within Critical Habitat that will be temporarily impacted by laydown and staging activities will be restored to pre-existing conditions. No Critical Habitat Primary Constituent Elements are present within the Action Area, so they will not be adversely affected. The removal of 7.87 acres will constitute a 0.003% reduction in the overall upland habitat available in Critical Habitat Unit CAL-1.

6.2 California Tiger Salamander

The Proposed Action/project may affect, but is not likely to adversely affect, the California tiger salamander, even though small mammal burrows (primarily pocket gopher) are present within the annual grassland and may provide suitable aestivation habitat for this species. However, since the nearest potential breeding ponds are located greater than 0.5 mi from the Project site and extensive upland aestivation habitat is present in all directions from these ponds, it is highly unlikely that California tiger salamanders if present in these ponds, would aestivate in the Project site. Trenham and Shaffer (2005) found that captures of adults declined with distance from the breeding pond. Captures of subadults increased steadily from 33 to 1,312 ft from the breeding site, but there were no captures at 2,625 ft. A negative exponential function fit to the adult capture data suggested that 50%, 90%, and 95% were within 492, 1,608, and 2,034 ft of the pond, respectively.

Based on available information, the seasonal pond located 836 feet north of the site does not provide suitable breeding habitat for California tiger salamanders, The other potential breeding habitats in proximity to the Project site are located from about 0.5 mi to 1.1 mi from the site and are surrounded by extensive open grasslands with abundant aestivation habitat. These distances are all greater than the 0.5 mi stated above where no captures occurred. As a result, it is highly unlikely that California tiger salamanders, if present in these ponds, would disperse to the Project site to aestivate.

Even though it is highly unlikely that California tiger salamanders currently utilize the project site for aestivation, ground disturbance associated with grading activities could cause injury or mortality to individual salamanders that might be present within small mammal burrows on the site. Additionally, vibrations from construction equipment may cause the collapse of nearby small mammal burrows or other refugia that may be used by California tiger salamanders. If present, individual salamanders inhabiting these burrows or other refugia during ground disturbance activities may be killed or injured unless burrow excavation is conducted. However, due to the substantial distance to other potential breeding habitats, the need for burrow excavations is likely low. If necessary, procedures that will be utilized to excavate burrows and relocate salamanders is provided in Section 3.1.2 Species Take Avoidance Measures in measure 11.

6.2.1 Loss of Habitat

Refugia Habitat

Breeding ponds are not present within or adjacent to the Action Area. Therefore, no direct or indirect effects on breeding habitat is expected to occur. However, the entire Action Area is potentially suitable upland aestivation habitat for California tiger salamanders, and any individuals present on the site might be killed or injured during ground disturbance activities.

The loss of suitable aestivation habitat for California tiger salamanders within the Project site is unlikely to adversely affect California tiger salamander populations in the region since the nearest occurrence record is located 1.68 mi (2.7 km) northwest of the Project site and extensive open grasslands with aestivation habitat is present throughout

the general area. There are no suitable breeding ponds within 0.5 mi of the Project site; however, there are several potentially suitable breeding ponds greater than 0.5 mi from the Project site. Even though these ponds may provide suitable breeding habitat for California tiger salamanders if fish and American bullfrogs are absent, it is unlikely that the Project site is utilized for aestivation habitat since there are obstructions to movement between some of these ponds and the Project site and there is extensive aestivation habitat around the ponds and throughout the whole region. The obstructions consist of a very large perennial pond located immediately west of the Project site that contains non-native gamefish and a large American bullfrog population, roadways to the south and east of the Project site, and a large PG&E substation immediately east of the Project site.

6.3 Cumulative Effects

Cumulative effects are future state, local, and private activities not involving federal activities that are "reasonably certain to occur within the Proposed Action area of an action subject to consultation" (50 CFR 402.02). Future federal actions that are unrelated to the Proposed Action are not considered in this section because they require separate consultation, pursuant to Section 7 of the Endangered Species Act.

Non-federal actions that are reasonably certain to occur in the Action Area include project approvals by the County of Calaveras. Approval of the proposed project by these state or local agencies is not expected to result in any changes to the environment beyond those disclosed in this Biological Assessment. Aside from the proposed project, there are no future changes in land practices in the Action Area that are reasonably certain to occur. Therefore, no cumulative effects are expected.

7 Conclusion and Determination of Effects for Each Protected Resource

The Proposed Action is not likely to affect California red-legged frogs, and may affect but is not likely to adversely affect California tiger salamanders. California red-legged frogs and California tiger salamanders have been documented in a few aquatic habitats within the general region of the Proposed Action and suitable upland dispersal and temporary refugia habitat is present for California red-legged frogs and potentially suitable aestivation habitat is present for California tiger salamanders. Based on the distance to the nearest documented occurrences for both species and the substantial distance to potentially suitable breeding habitats, it is unlikely that either species would be present within the Project site during the construction period (May 1 to October 30). Additionally, California red-legged frogs would not be present within the Project site during the dry season as they typically remain near water sources during the dry summer months, and are not expected to be present within the Project site during construction of the Project. As a result, there is extremely low probability of impacts to California red-legged frogs during construction of the Project. Due to the substantial distance from the Project site to potentially suitable California tiger salamander breeding habitats (greater than 0.5 mi), there is likely very low probability that this species would aestivate on the Project site. However, the Project will result in temporary and permanent impacts to dispersal habitat for both species and to potential aestivation habitat for California tiger salamanders.

Additionally, the Project will result in temporary and permanent impacts to California red-legged frog Critical Habitat; however, since Primary Constituent Elements are not present within the Project site, it is unlikely that the Project will adversely affect Critical Habitat. With implementation of the conservation measures listed in Section 3, incidental take of individual California red-legged frogs and California tiger salamanders is not expected to occur, and proposed compensatory habitat is intended to offset any incidental take and permanent habitat loss. Based on these measures, the environmental baseline described in Chapter 5, and analysis of potential effects provided in Chapter 6, the proposed project is **not likely to adversely affect** either of these species.

- **California red-legged frog.** The Action Area lacks suitable breeding habitat but may provide suitable upland dispersal habitat (during the wet season). During the summer, California red-legged frogs remain near aquatic habitats that lack aquatic predators. As a result, California red-legged frogs are not expected to be present within the Project site during the construction period (May 1 through October 30). Burrows and vegetation within the site provide suitable temporary refugia for California red-legged frogs during the wet season; however, due to the distance to the Occurrence Record and to potentially suitable breeding habitats, it is unlikely that the Project site is utilized by this species at any time during the year. Implementation of the conservation measures described in Section 3 will also reduce and minimize potential effects.
- **California red-legged frog Critical Habitat.** The Action Area is located within and at the eastern edge of California red-legged frog Critical Habitat Unit CAL-1, Critical Habitat). However, Critical Habitat Primary Constituent Elements are not present within the Critical Habitat within the Project site. As a result, temporary or permanent impacts to Critical Habitat within the Action Area will not remove any Primary Constituent Elements for California red-legged frogs within this Critical Habitat Unit.
- **California tiger salamander.** The Action Area lacks suitable breeding habitat but the grasslands and small mammal burrows may provide suitable upland aestivation habitat. However, due to the substantial distance between the Project site and potentially suitable breeding habitats (greater than 0.5 mi), it is unlikely that the site is used for aestivation by California tiger salamanders. Implementation of the conservation measures described in Section 3 will also reduce and minimize potential effects.

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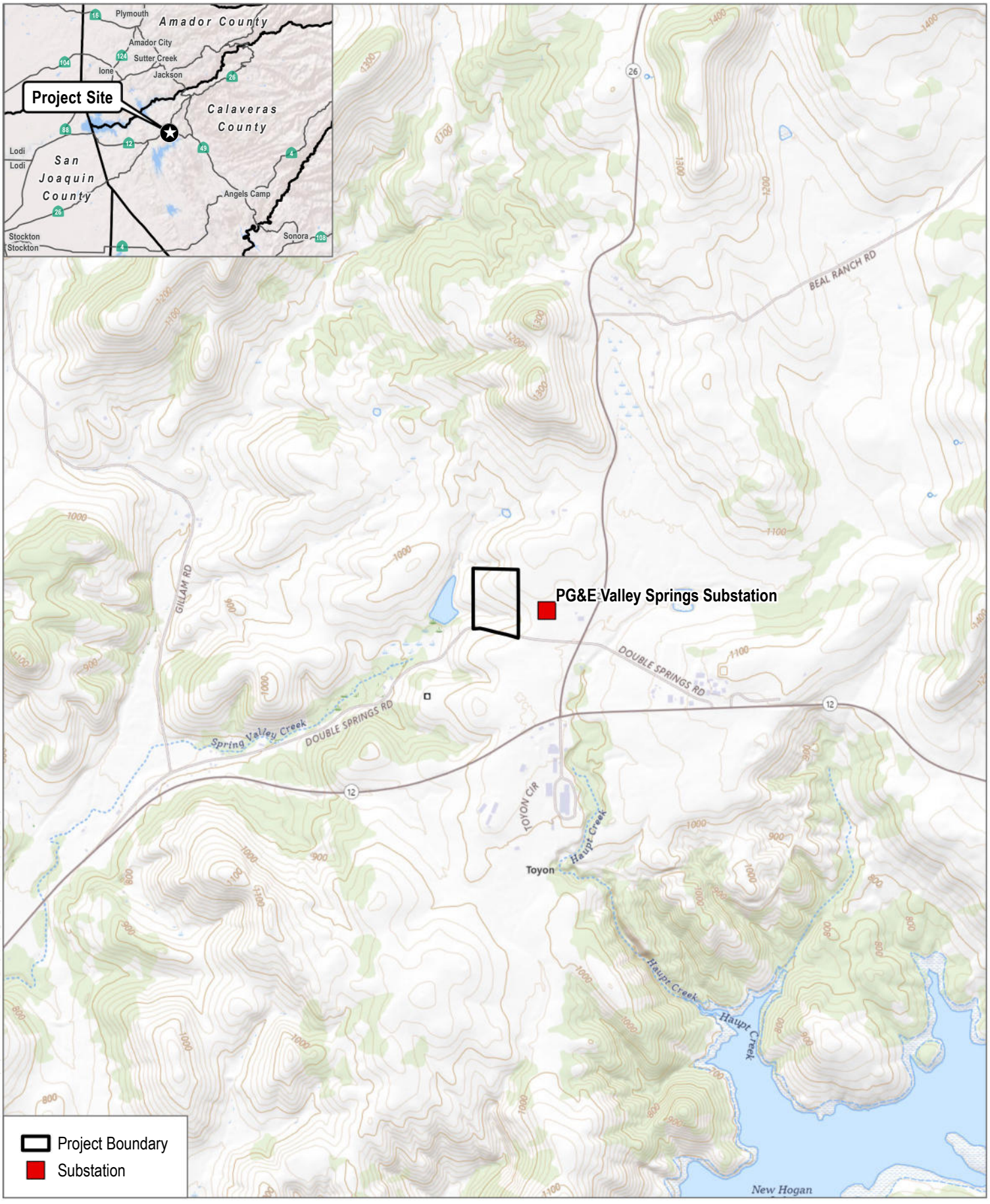
Appendix A
Figures



SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

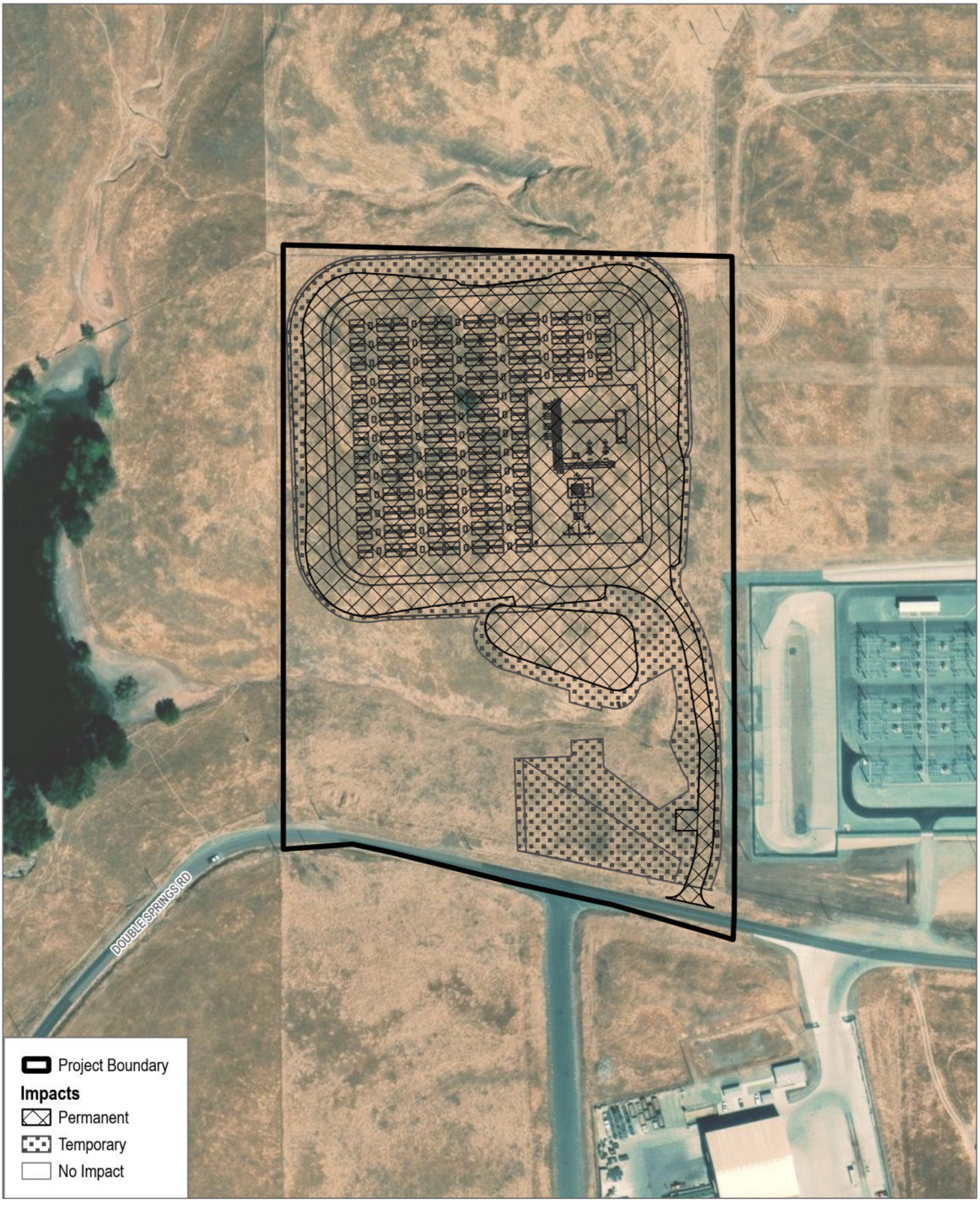
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Vicinity

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

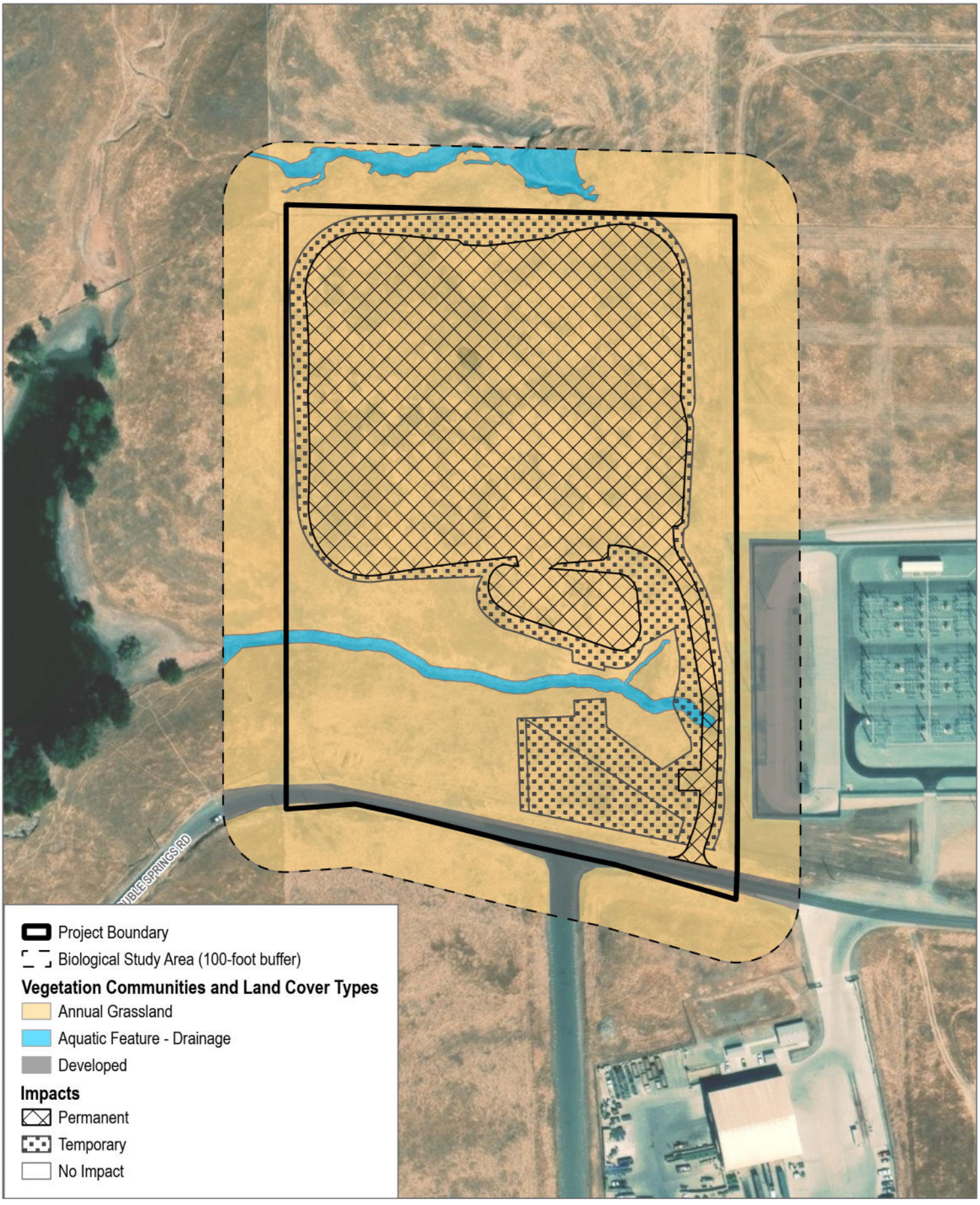
DUDEK

0 100 200 Feet

FIGURE 2

Project Site

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

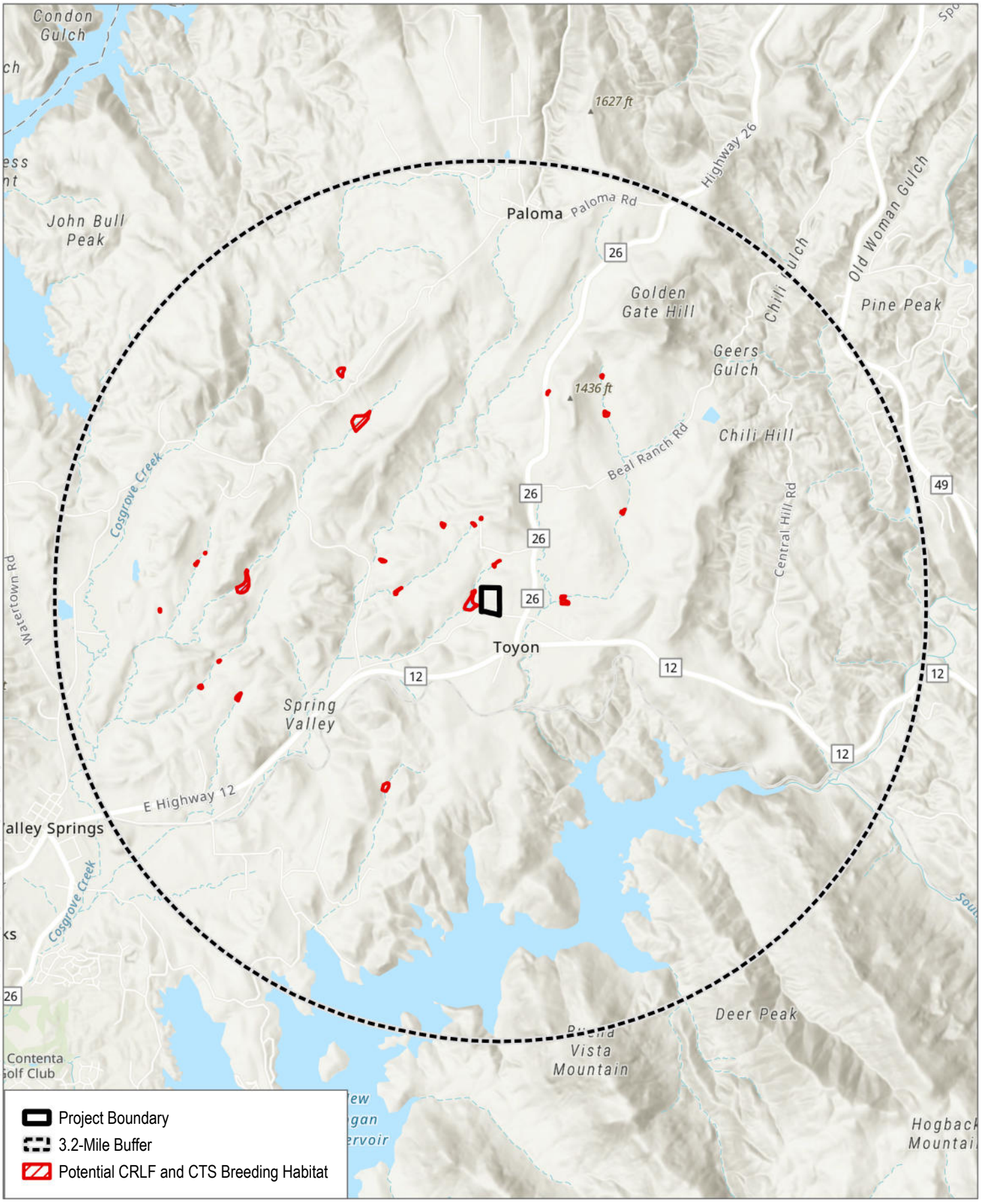
DUDEK

0 100 200 Feet

FIGURE 3

Vegetation Communities and Land Cover Types

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

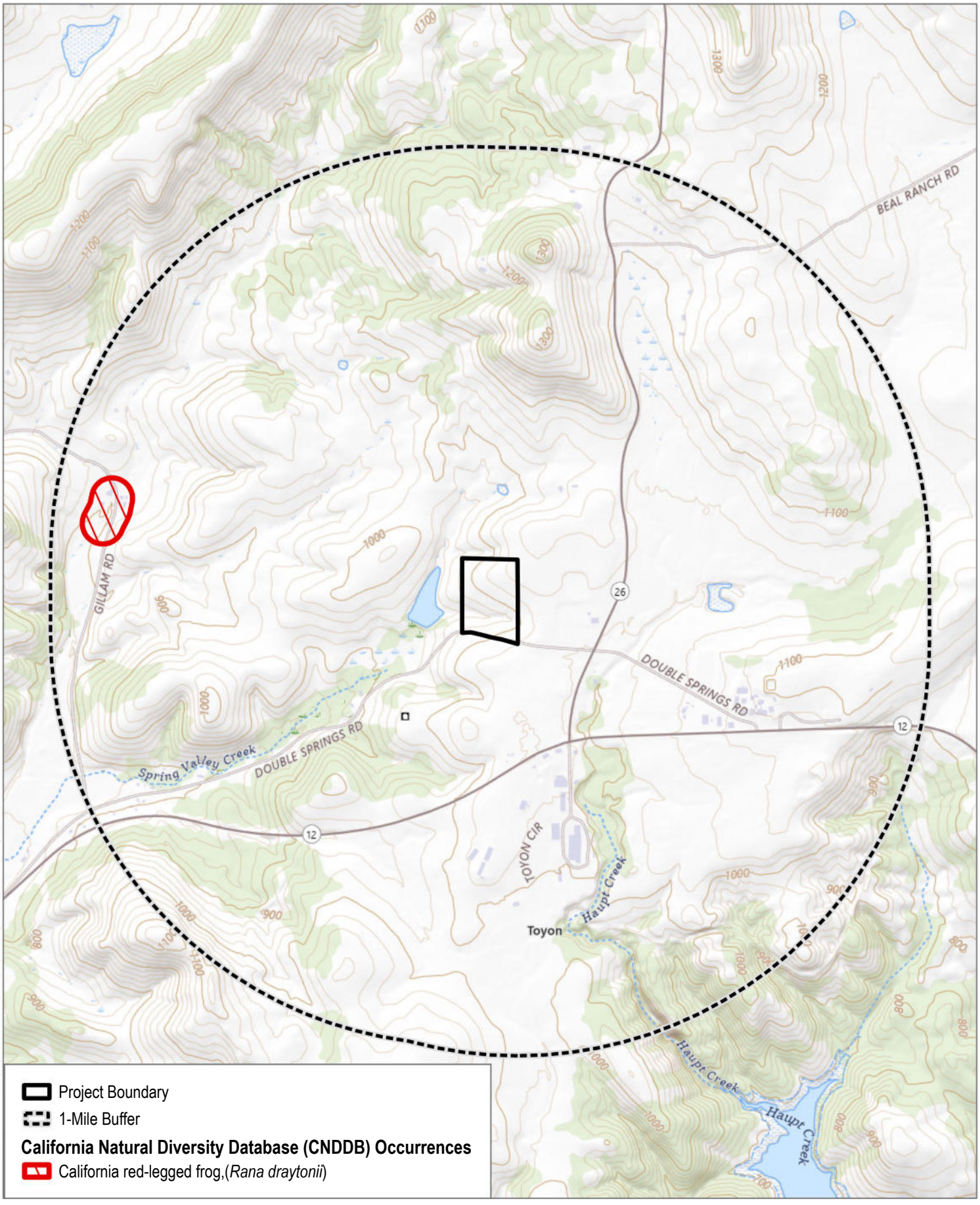
FIGURE 4

California red-legged frog and California tiger salamander Potential Breeding Habitats

Double Springs BESS Project

DUDEK

0 0.5 1 Miles



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

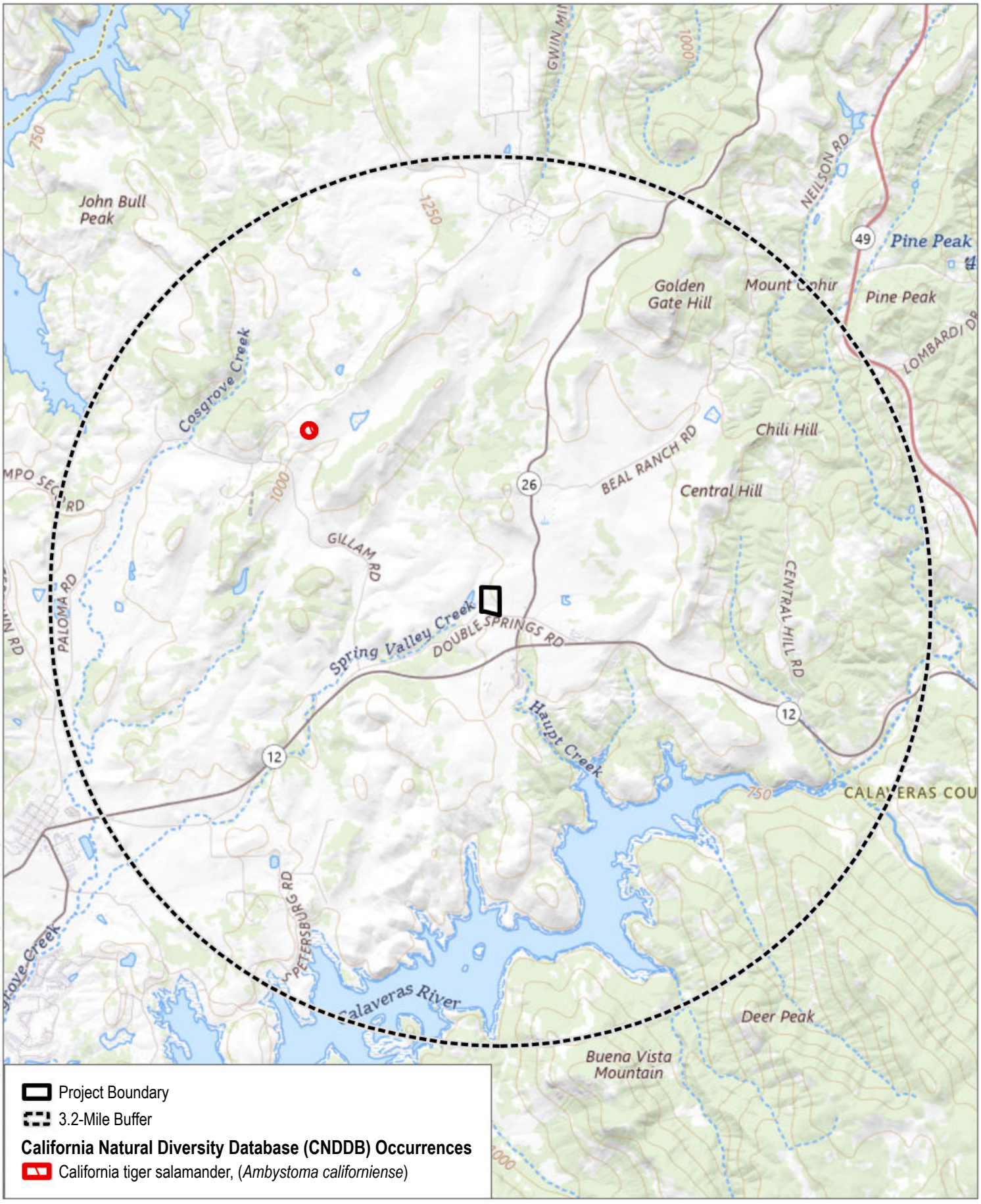
DUDEK

0 0.2 0.4 Miles

FIGURE 5

California red-legged frog CNDDB Occurrences

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

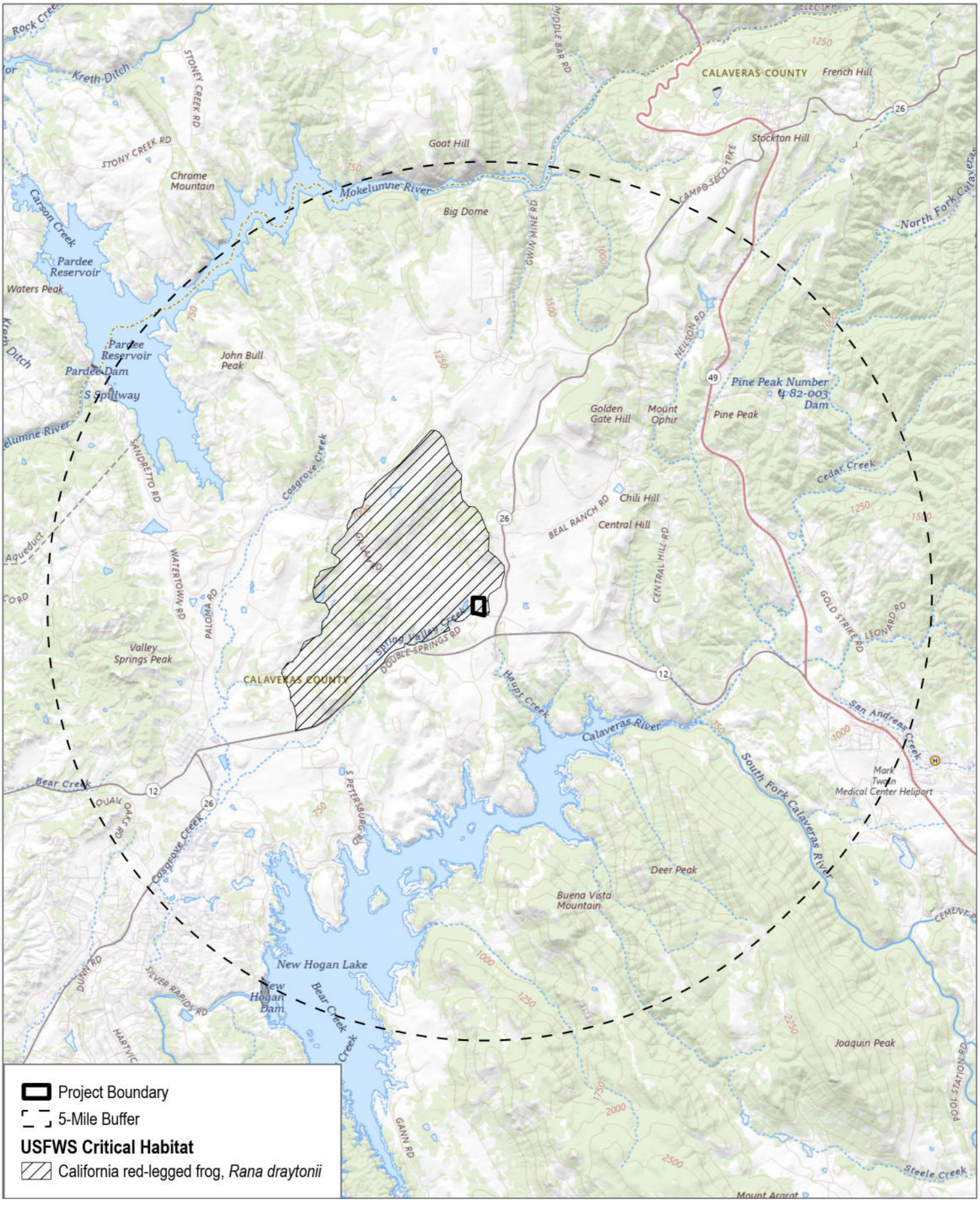
DUDEK

0 0.5 1 Miles

FIGURE 6

California tiger salamander CNDDB Occurrences

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

FIGURE 7

USFWS Critical Habitat

Double Springs BESS Project

DUDEK

0 0.75 1.5 Miles

Appendix B
Environmental Database Searches

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: 05/21/2025 18:03:46 UTC
Project Code: 2025-0099900
Project Name: Double Springs Battery Energy Storage 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: 2025-0099900
Project Name: Double Springs Battery Energy Storage Project
Project Type: Operations and Maintenance - Electric Power Transmission and Distribution Facilities
Project Description: Development of a utility-scale energy storage facility in Calaveras County, California. Consists of a battery energy storage system on privately owned lands directly adjacent to the west of PG&E Valley Springs Substation.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.21703395,-120.768034231618,14z



Counties: Calaveras County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 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.

---

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.

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog *Rana boylii* Population: South Sierra Distinct Population Segment (South Sierra DPS) There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5133	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

FLOWERING PLANTS

NAME	STATUS
Ione Manzanita *Arctostaphylos myrtifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1806	Threatened

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* https://ecos.fws.gov/ecp/species/2891#crithab	Final

IPAC USER CONTACT INFORMATION

Agency: Dudek
Name: Laura Burris
Address: 853 Lincoln Way, Suite 105
City: Auburn
State: CA
Zip: 95603
Email lburris@dudek.com
Phone: 9168359671

LEAD AGENCY CONTACT INFORMATION

Lead Agency: County of Calaveras

Appendix C
Site Photographs



Photo 1. Overview of NWW-01 taken from its eastern end, facing west. June 3, 2024.



Photo 2. View facing east of culvert entering NWW-01 at eastern end. June 3, 2024



Photo 3. View facing east from northern bank in the central portion of NWW-01. June 3, 2024



Photo 4. Photo displays vegetation cover change within bed of channel. Taken within central portion of channel. June 3, 2024.



Photo 5. Photo displays standing water in channel, within western portion. June 3, 2024.



Photo 6. Photo displays property line, where NWW-01 exits the review area.



Photo 7. Overview of US-01, seasonal swale. Photo faces southwest in the direction of flow. June 3, 2024.



Photo 8. View facing across US-01, facing southeast.

Appendix D3

Aquatic Resources Delineation Report

Aquatic Resources Delineation Report

Double Springs BESS Project

DECEMBER 2024

Prepared for:

NOVIS RENEWABLES LLC
1 Bridge Street, Suite 11
Irvington, New York, 10533
Contact: Paul Gascoigne

Prepared by:

DUDEK

605 Third Street
Encinitas, California 92024
Contact: Laura Burris

Printed on 30% post-consumer recycled material.

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

1 Executive Summary 1

2 Introduction 3
- 2.1 Disclaimer Statement 3
- 2.2 Contact Information 3

3 Review Area Description and Landscape Setting 5
- 3.1 Location 5
- 3.2 Site Access 5
- 3.3 Geology and Topography 5
- 3.4 Soils 5
- 3.5 Vegetation 6
- 3.6 Hydrology 6
- 3.7 Current and Past Land Use or Alterations 6

4 Precipitation Data and Analysis 7
- 4.1 Regional 7
- 4.2 Local 7

5 Investigation Methods 9
- 5.1 U.S. Army Corps of Engineers 9
- 5.2 Regional Water Quality Control Board 9
- 5.3 California Department of Fish and Wildlife 10

6 Aquatic Resources 11
- 6.1 Aquatic Resources Data Summary 11
- 6.2 Waters of the United States (U.S. Army Corps of Engineers) 11
  - 6.2.1 Non-Wetland Water 01 12
- 6.3 Waters of the State (Regional Water Quality Control Board) 13
- 6.4 California Department of Fish and Wildlife Jurisdiction 13

7 Summary/Conclusions 15

8 References 17

TABLES

1 USACE Aquatic Resource Summary for the Review Area 1

2 Contact Information 3

3 Soils within the Review Area 6
4 Antecedent Precipitation Tool Data for the Review Area 7
5 Schedule of the Aquatic Resources Delineation 9
6 Data Point and Transect Summary 11
7 USACE Aquatic Resource Summary for the Review Area 12

FIGURES

1 Project Vicinity 19
2 Review Area 21
3 Soils 23
4 Hydrologic Resources 25
5 Preliminary Aquatic Resources Jurisdictional Delineation – USACE 27
6 Preliminary Aquatic Resources Jurisdictional Delineation – RWQCB 29
7 Preliminary Aquatic Resources Jurisdictional Delineation – CDFW 31

APPENDICES

A Waters of the State, Lake/Streambed, and Riparian Resources (RWQCB/CDFW)
B Request for USACE Jurisdictional Determination
C Plant List
D Antecedent Precipitation Tool Output
E Data Forms
F Review Area Photos
G ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet and Associated Shapefiles (Electronic Submittal Only)

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
ARDR	aquatic resources delineation report
CDFW	California Department of Fish and Wildlife
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
project	Double Springs BESS Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers

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1 Executive Summary

This aquatic resources delineation report (ARDR) was prepared in accordance with the U.S. Army Corps of Engineers (USACE) Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016). The field delineation was conducted using the Wetlands Delineation Manual (USACE 1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b)

Dudek biologists conducted a field delineation on September 26, 2024, to identify aquatic resources in the approximately 23-acre review area potentially subject to regulations in Sections 401 and 404 of the Clean Water Act, the Porter–Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code for the proposed Double Springs BESS Project (project). Table 1 summarizes the delineation findings with regards to USACE jurisdiction. Potential jurisdiction of each aquatic resource is preliminary until verified by the USACE Sacramento District.

Table 1. USACE Aquatic Resource Summary for the Review Area

Feature Name	Cowardin[1]	Location (Latitude/ Longitude; Decimal Degrees)	Acres	Linear Feet[2]
Non-Wetland Waters				
NWW-01	R4 (Riverine Intermittent)	38.21623417, -120.76793879	0.037	717
		Grand Total	**0.037**	**717**

Notes: USACE =- U.S. Army Corps of Engineers; NWW = non-wetland water.

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2024a).

2

A discussion of waters of the state, lake/streambed, and riparian resources potentially subject to jurisdiction by the California Department of Fish and Wildlife (CDFW) (North Central Region 2) and/or Regional Water Quality Control Board (RWQCB) (Central Valley Region) is provided as Appendix A to this ARDR.

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2 Introduction

This ARDR was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016). This ARDR presents the results of the jurisdictional aquatic resource delineation conducted by Dudek biologists for the proposed project in Valley Springs, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of USACE pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the RWQCB pursuant to Section 401 of the Clean Water Act and the Porter–Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of CDFW pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

2.1 Disclaimer Statement

This ARDR presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review areas using the current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this ARDR are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for USACE jurisdictional determination is provided as Appendix B.

2.2 Contact Information

Contact information for the project applicant and agent are provided in Table 2. Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area. Novis Renewables is the project applicant and landowner.

Table 2. Contact Information

Project Applicant	Novis Renewables LLC	**Agent**	Dudek
Contact Name	Paul Gascoigne	**Contact Name**	Laura Burris, Senior Biologist
Address	One Bridge Street, Suite 11, Irvington, New York 10533	**Address**	853 Lincoln Way Suite 105, Auburn California 95603
Phone	508.505.0890	**Phone**	530.863.4656
Email	noviswestdev@novisrenew.com	**Email**	lburris@dudek.com

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3 Review Area Description and Landscape Setting

3.1 Location

The approximately 23-acre review area is located adjacent to and bordering the western side of the PG&E Valley Springs Substation at 3524 Double Springs Road in Valley Springs, Calaveras County, California. The review area consists of three parcels: Assessor's Parcel Numbers 040002017, 040002018, and 040002019 (Figure 1, Project Vicinity). The review area is in Township 4 North, Range 11 East, Section 9 of the 7.5-minute U.S. Geological Survey Valley Springs quadrangle (Figure 2, Review Area). The approximate center of the review area corresponds to 38.216980 latitude and -120.767963 longitude (decimal degrees).

3.2 Site Access

Regional access from Sacramento to the review area is provided by taking California State Route 99 South for approximately 26 miles, taking exit 273 for Liberty Road, turning left onto Liberty Road and following for approximately 12.5 miles, taking the first exit at the traffic circle onto California State Route 88 West and following for 3 miles, turning left onto California State Route 12 East and following for approximately 18 miles, turning left onto California State Route 26 East and following for 0.2 miles, then turning left onto Double Springs Road and following for 0.2 miles.

3.3 Geology and Topography

The review area is in the Northern Sierra Nevada Foothills region of the Sierra Nevada. Geology at the site is classified as colluvium and/or residuum derived from agglomerate, tuff breccia, or latite. Site geology is associated with lahars and sideslopes of lava plateaus, undulating to hilly tabular volcanic ridges and their side slopes associated with the Mehrten Formation and on rounded hills and steep slopes associated with Tuscan Formation sediments (USGS 2024). Elevations within the review area range from approximately 942 to 1,068 feet above mean sea level. The review area is generally sloped east to west and comes to crest in the northern portion of the review area. In the northeastern portion of the review area, the topography begins to slope from west to east down towards State Route 26 North.

3.4 Soils

According to the Natural Resources Conservation Service, there are three soil types mapped in the review area: Angelscreek-Pentz complex, 15% to 30% slopes, Inks-Angelscreek complex, 3% to 15% slope, and Urban land-Amador complex, 2% to 15% slopes. The Angelscreek series consists of very deep, well-drained soils formed in colluvium and/or residuum derived from agglomerate, tuff breccia, or latite. The Inks series consists of shallow, well drained soils that formed in material weathered from consolidated or cemented sediments from volcanic rocks. The Amador series consists of shallow, well-drained soils formed in material weathered from weekly consolidated acidic tuff. None of the three soil types mapped in the review area are considered hydric (USDA 2024a, 2024b). Soil types within the review area are summarized in Table 3 and visually depicted in Figure 3, Soils.

Table 3. Soils within the Review Area

Soil Type	Hydric Rating	Acreage
Angelscreek-Pentz complex, 15% to 30% slopes	Not hydric	14.31
Inks-Angelscreek complex, 3% to 15% slope	Not hydric	8.48
Urban land- Amador complex, 2% to 15% slopes	Not hydric	0.33

Sources: USDA 2024a, 2024b.

3.5 Vegetation

A total of 17 species of native or naturalized plants, 4 native (24%) and 13 non-native (76%), was recorded on the site. A list of plant species identified during the field delineation, including the assigned wetland indicator status for each species, is provided as Appendix C.

Land cover in the review area consists of non-native grassland and disturbed/developed land covers in the form of asphalt and dirt roads.

3.6 Hydrology

The review area occurs within the Calaveras River watershed (Hydrologic Unit Code 1804001103). In the majority of the review area, the site slopes from east to west and water drains into NWW-1 or the ephemeral drainage immediately north of the review area, or surface flows down the slope. All of these flows eventually drain into the pond immediately west of the review area. This pond has a dike on its southern end, which impounds waters from the site and Spring Valley Creek. During extreme rain events, the pond releases water downstream into Spring Creek. Spring Valley Creek flows for approximately 3.75 miles southwest before joining with Cosgrove Creek, flowing south for approximately 2.5 miles to join the Calaveras River, flowing 30–35 miles before joining the San Joaquin River delta, which connects to the Pacific Ocean. The northeastern portion of the review area is within the New Hogan Reservoir – Calaveras River – Subwatershed, and runoff flows from west to east into an unnamed creek shortly before it joins Haupt Creek, which flows for approximately 2.25 miles before entering New Hogan Reservoir, an impoundment of the Calaveras River.

There are no U.S. Fish and Wildlife Service's National Wetlands Inventory identified features in the review area (USFWS 2024). None of the review area is within the 100-year flood zone according to the Federal Emergency Management Agency (FEMA 2024) (Figure 4, Hydrologic Resources).

3.7 Current and Past Land Use or Alterations

Within the review area, the only past land use that has occurred is livestock grazing in the northern portion. Two power transmission structures are present within the northern part of the review area.

Land use within the review area is currently zoned for business park(s) and agricultural preserve uses (County 2020).

4 Precipitation Data and Analysis

4.1 Regional

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation date occurred in a drier, average, or wetter than normal period (USACE 2024b). To determine what constitutes a "typical year," USACE developed the APT. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit, and to assist with completing the Wetland Determination Data Form.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis, with PDSI value outputs ranging from -4 (extreme drought) to +4 (very wet) (NOAA 2024) to assess drought conditions (i.e., PDSI Class). The APT determines wet vs. dry season based on related procedures provided in the applicable regional supplement for the review area (in this case, the Arid West Supplement). If the antecedent runoff condition (ARC) score is less than 10, conditions are classified as drier than normal; if the ARC score is 10 to 14 then conditions are normal; if the ARC score is greater than 14 then conditions are wetter than normal (USACE 2024b).

Table 4 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and the antecedent precipitation condition. Based on the APT output provided in Appendix D and summarized in Table 4, the precipitation and climatic conditions for the review area were wetter than normal during the time of the delineation. The APT is less likely to consider extreme precipitation events that are highly localized when incorporating data from weather stations outside of the drainage area (refer to Section 4.2, Local, for local precipitation data). Although conditions were considered weter than normal for the region, conditions during the site survey were consistent with the time of year. Wetter than normal conditions will not alter the results of the survey presented herein.

Table 4. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
9/26/2024	Mild Drought	Dry Season	15	Wetter than Normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

4.2 Local

The review area is in a semi-arid region that experiences a similar climate to that of the adjacent San Joaquin Valley. According to the Camp Pardee Station (041428), annual temperatures range from 38.1°F to 95.8°F (WRCC 2024). The review area receives an average of 21.48 inches of precipitation annually, with the highest average rainfall recorded in January and February.

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5 Investigation Methods

The jurisdictional delineation was conducted by Dudek biologist Laura Burris on September 26, 2024 (Table 5). Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service's National Wetlands Inventory data (USFWS 2024) was reviewed to determine if the review area contained any features mapped by the U.S. Fish and Wildlife Service. Site-specific topographical data was reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Current vegetation mapping was reviewed to assess whether the review area supported hydrophytic vegetation and potential wetlands; one area supporting hydrophytic vegetation was also assessed for the presence of wetland hydrology and hydric soils to determine whether they were three-parameter wetlands. Jurisdictional boundaries were mapped in the field using Esri Collector on a mobile device and an Eos Arrow 100 Global Navigation Satellite System Receiver with submeter accuracy. Remote sensing was not used for the delineation.

Table 5. Schedule of the Aquatic Resources Delineation

Date	Hours	Personnel	Conditions (temperature, skies, wind)
9/26/24	06:36 a.m.–1:01 p.m.	Laura Burris	54°F–85°F, 0% cloud cover, 0–1 mph wind

5.1 U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with Esri Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM manual.

Wetland Determination Forms were completed at certain points within drainages or vegetation communities where a predominance of hydrophytic vegetation was present; hydrology, vegetation, and soils were assessed to determine whether USACE three-parameter wetlands were present. USACE OHWM forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. All data forms can be found in Appendix E.

5.2 Regional Water Quality Control Board

Waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2021). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

5.3 California Department of Fish and Wildlife

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

6 Aquatic Resources

6.1 Aquatic Resources Data Summary

Results from one data point and two transects documented potentially USACE jurisdictional wetlands and non-wetland waters within the review area based on observable field indicators (Table 6). The data collected at each data point and transect are provided in Appendix E. Photos of the review area are provided in Appendix F.

Table 6. Data Point and Transect Summary

Non-Wetland Waters Transect Summary			
Transect	**OHWM Field Indicators**	**Location (Latitude/Longitude)**	**Determination**
T-01	Break in slope, changes in character of soil, destruction of terrestrial vegetation, bed and banks, change in plant community and or/cover	38.21642465, -120.7686836	Non-wetland water – intermittent drainage
T-02	Bed and banks, change in plant community and/or cover	38.21636108, -120.7671789	Upland swale
Wetland Data Point Summary			
Data Point	**Wetland Determination Field Indicators**	**Location (Latitude/Longitude)**	**Determination**
SP-1	Hydric vegetation	38.21922694, -120.762895	Upland

Note: OHWM = ordinary high-water mark.

6.2 Waters of the United States (U.S. Army Corps of Engineers)

Approximately 0.037 acres of non-wetland waters potentially regulated by USACE are present in the review area (Figure 5, Preliminary Aquatic Resources Jurisdictional Delineation – USACE). No wetlands potentially regulated by USACE are present. Table 7 provides a summary of aquatic resources delineated in the review area, including Cowardin type (Cowardin et al. 1979; USACE 2024a), location, and acreage/linear feet within the review area. A copy of the ORM bulk upload aquatic resources or consolidated excel spreadsheet and associated shapefiles are provided electronically (Appendix G).

Table 7. USACE Aquatic Resource Summary for the Review Area

Feature Name	Strahler Stream Order	Cowardin Code[1]	OHWM Indicators	Location (Latitude/ Longitude; Decimal Degrees)	Acres/Linear Feet
Non-Wetland Waters					
NWW-01	1 and 2	R4 – River Intermittent	Break in slope, changes in character of soil, destruction of terrestrial vegetation, bed and banks, change in plant community and or/cover	38.21623417, -120.76793879	0.037/717
				Total	**0.037/717**

Notes: USACE = U.S. Army Corps of Engineers; OHWM = ordinary high-water mark; NWW = non-wetland water; N/A = not applicable.

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2024a).

2

Photos of the potential aquatic features delineated within the review area and additional areas reviewed for the presence of these resources are provided in Appendix F. The locations of these photos are shown in Figure 5.

6.2.1 Non-Wetland Water 01

NWW-01 is a vegetated intermittent channel within the southern portion of the review area. Vegetation species observed on the banks included Italian ryegrass (*Festuca perennis*), slender wild oat (*Avena barbata*), and Medusa head (*Elymus caput-medusae*). It is a first order stream for the first approximately 150 feet, after which a seasonal swale (US-01, see Appendix A) joins and it becomes a second order stream. The feature originates near the eastern boundary of the review area, where a culvert discharges runoff likely originating as overflow from the detention basin associated with the substation adjacent to the review area. However, the origin of the culvert could not be confirmed due to the substation being fenced off from access. This feature flows west approximately 717 feet before exiting the review area. After exiting the review area, it continues approximately 100 feet more and discharges into the pond adjacent to the review area. This pond is diked and impounds water from NWW-1 and Spring Valley Creek. In extreme weather events, this pond likely overflows downstream into Spring Valley Creek, eventually meeting with Cosgrove Creek, the Calaveras River and the San Joaquin Delta, and thus has a continuous surface connection to a Traditional Navigable Water.

No water was present within the feature during the site visit; however, some ponded water was observed in the far western end of the feature during a separate site visit in June 2024.

An OHWM is evident and characterized by a break in bank slope, changes in character of soil, destruction of terrestrial vegetation, bed and banks, and a change in plant community and or/cover (Transect T-01). Average widths for the OHWM ranged from approximately 1 foot to 5 feet at the far eastern end of the channel.

6.3 Waters of the State (Regional Water Quality Control Board)

Figure 6, Preliminary Aquatic Resources Jurisdictional Delineation – RWQCB, visually depicts the boundaries of waters of the state under the jurisdiction of the RWQCB within the review area. See Appendix A for a discussion of waters of the state.

6.4 California Department of Fish and Wildlife Jurisdiction

Figure 7, Preliminary Aquatic Resources Jurisdictional Delineation – CDFW, visually depicts the boundaries of lake/streambed and riparian under the jurisdiction of CDFW within the review area. See Appendix A for a discussion of lake/streambed and riparian areas.

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7 Summary/Conclusions

A total of 0.037 acres (717 linear feet) of intermittent drainage were mapped during the field delineation by Dudek biologists on September 26, 2024, This intermittent drainage is potentially subject to regulations in Sections 401 and 404 of the Clean Water Act, and Section 1602 of the California Fish and Game Code based on the presence of an OHWM, bed and bank, and continuous surface connectivity to downstream waters of the U.S.

All mapping and conclusions presented herein are preliminary and subject to review by the Sacramento District USACE.

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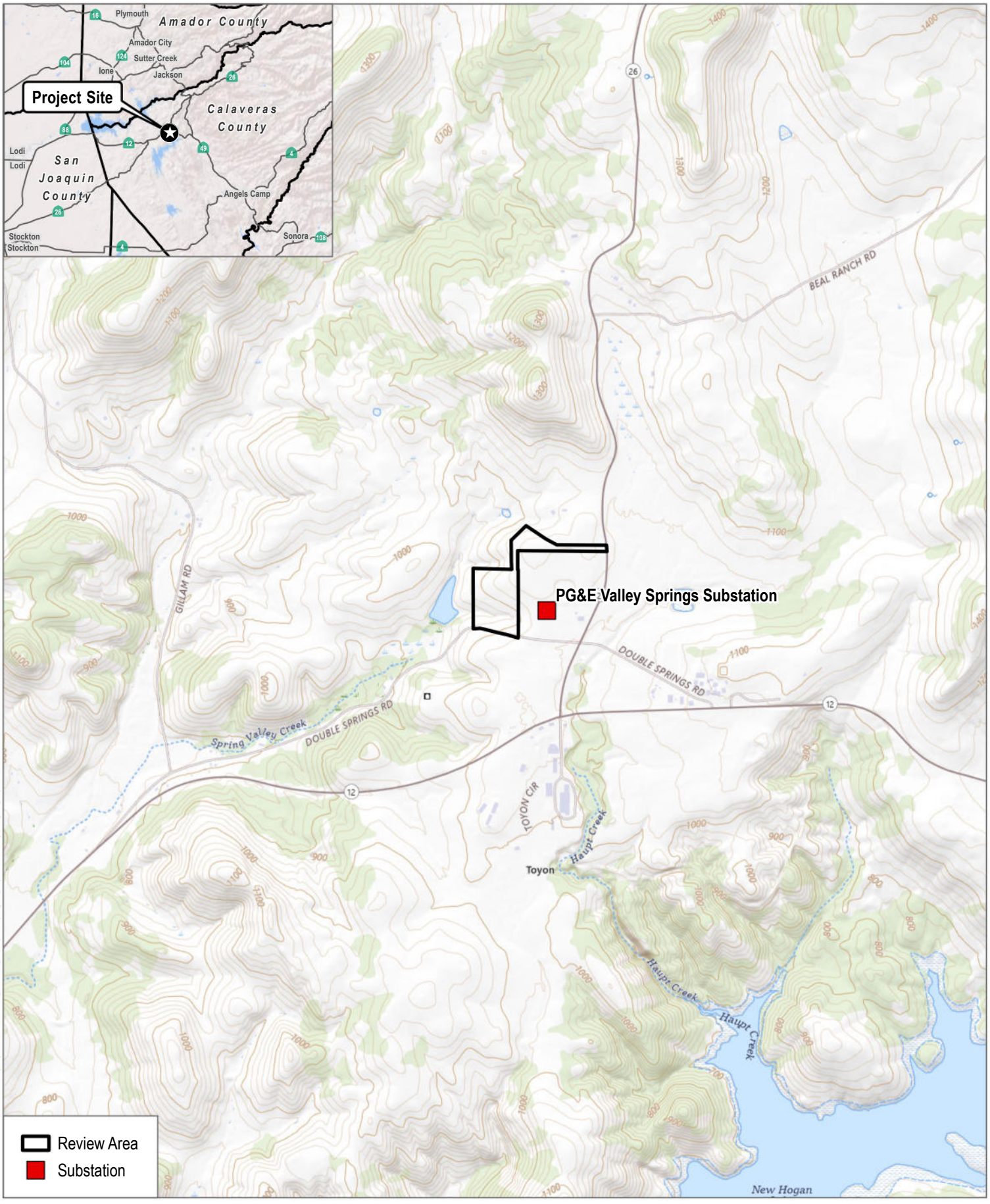

SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Vicinity

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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SOURCE:

FIGURE 2

Review Area

Double Springs BESS Project Draft Aquatic Resources Delineation Report

DUDEK

0 150 300 Feet

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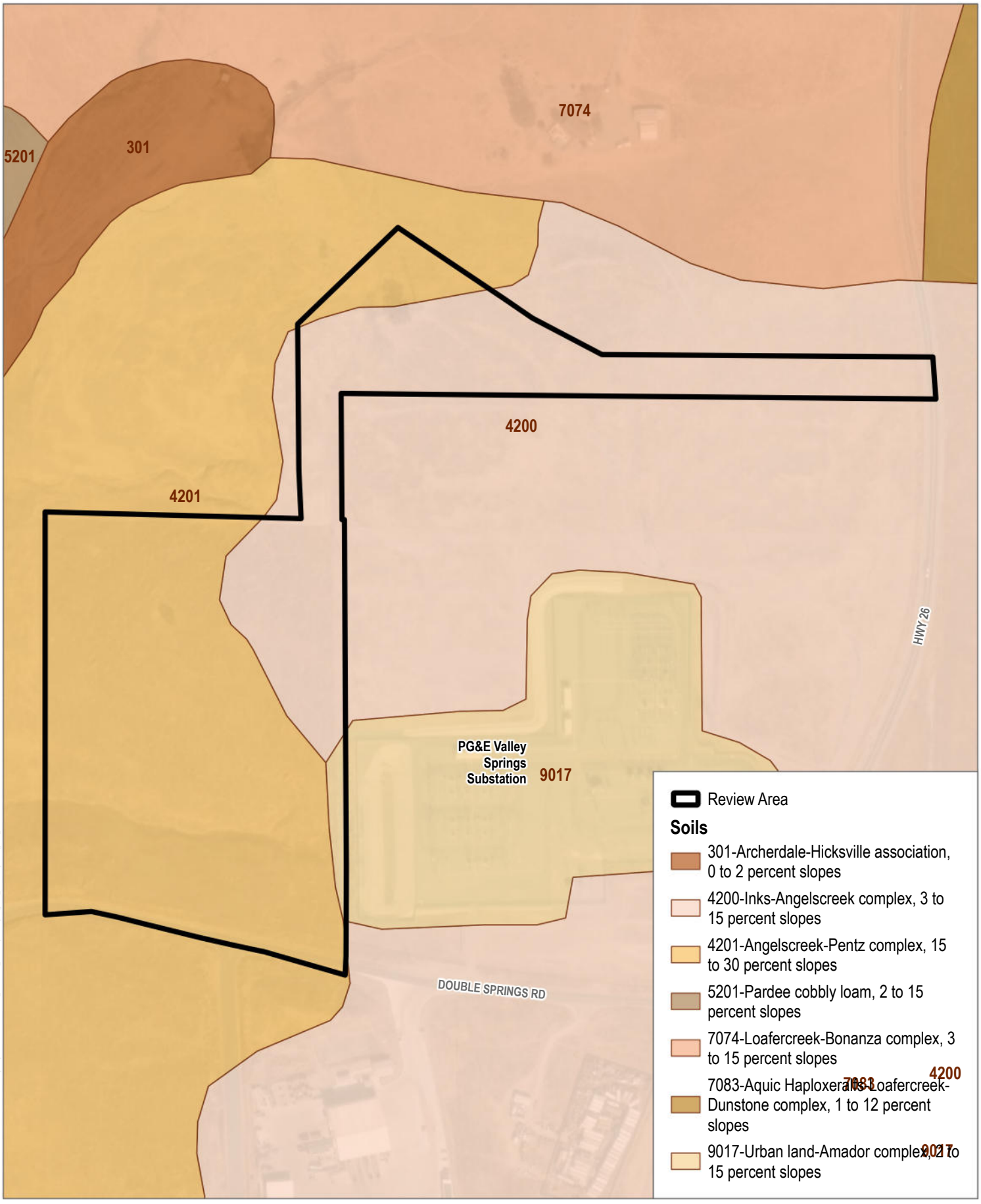

SOURCE: Esri World Imagery (accessed 2024); USDA 2024

DUDEK

0 150 300 Feet

FIGURE 3

Soils

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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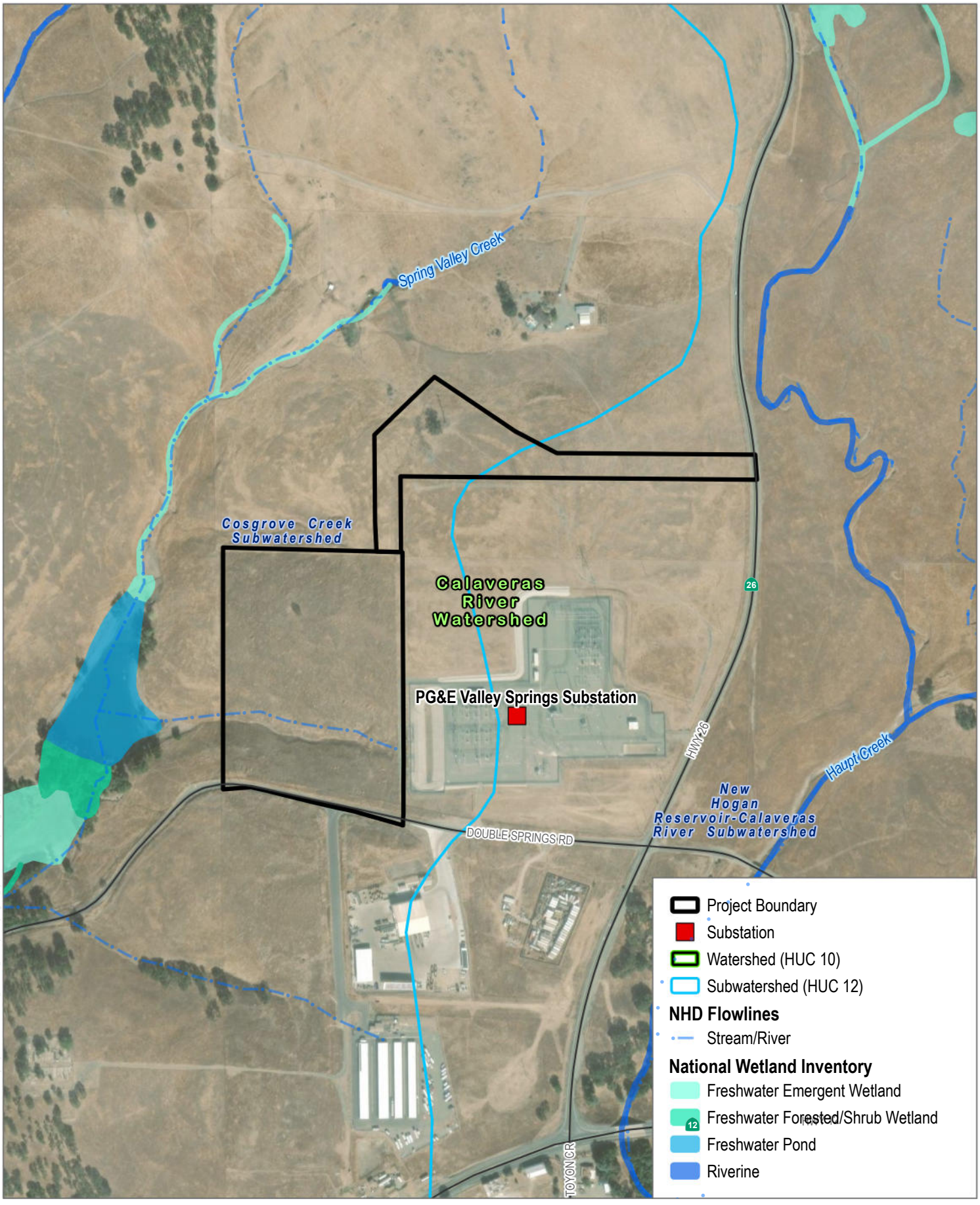

SOURCE: Esri World Imagery (accessed 2024); USGS 2024; NWI 2024

DUDEK

0 250 500 Feet

FIGURE 4

Hydrologic Resources

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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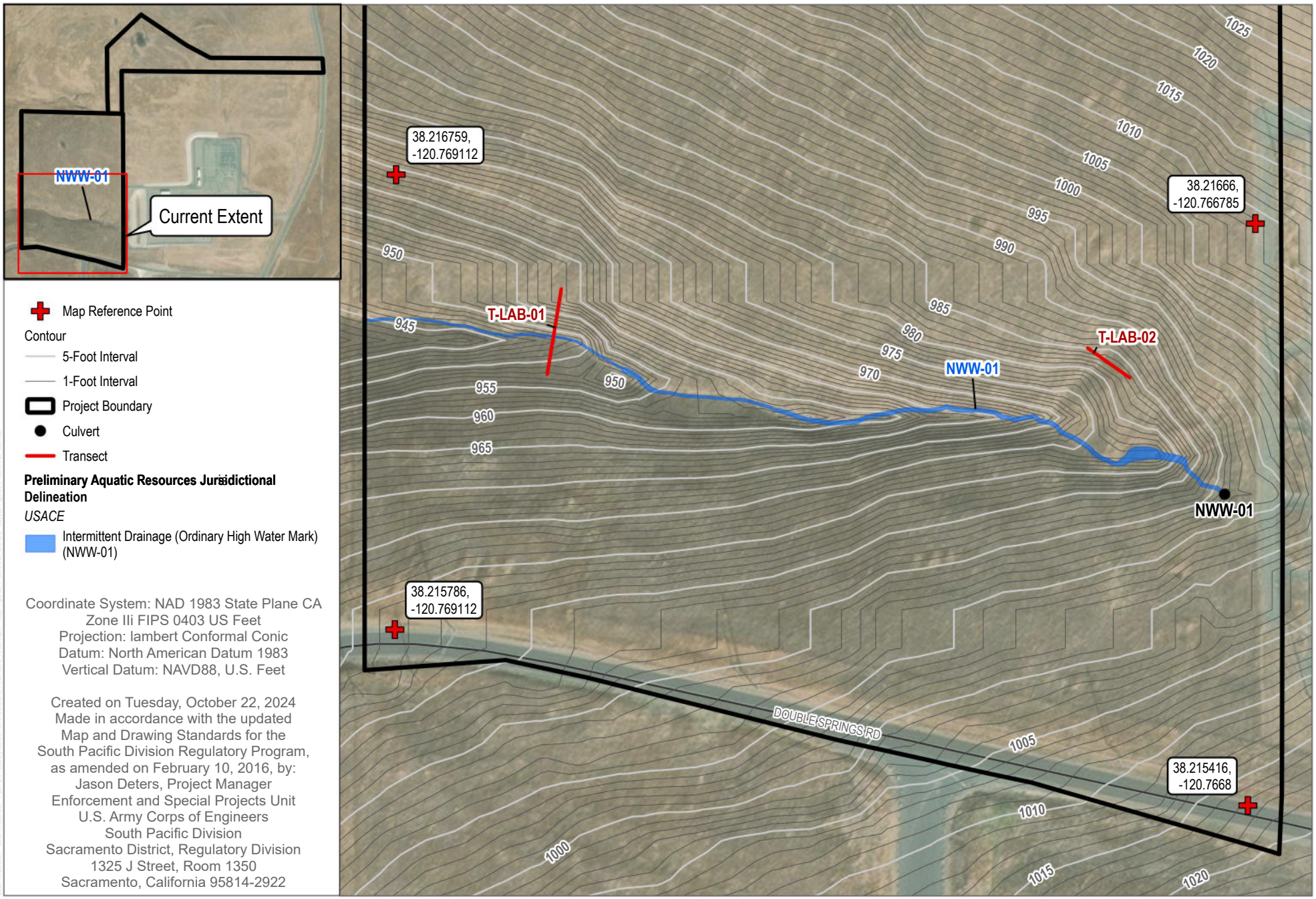

Coordinate System: NAD 1983 State Plane CA Zone IIi FIPS 0403 US Feet
Projection: lambert Conformal Conic
Datum: North American Datum 1983
Vertical Datum: NAVD88, U.S. Feet

Created on Tuesday, October 22, 2024
Made in accordance with the updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

1 inch: 100 feet

0 50 100 Feet

FIGURE 5

Preliminary Aquatic Resources Jurisdictional Delineation - USACE

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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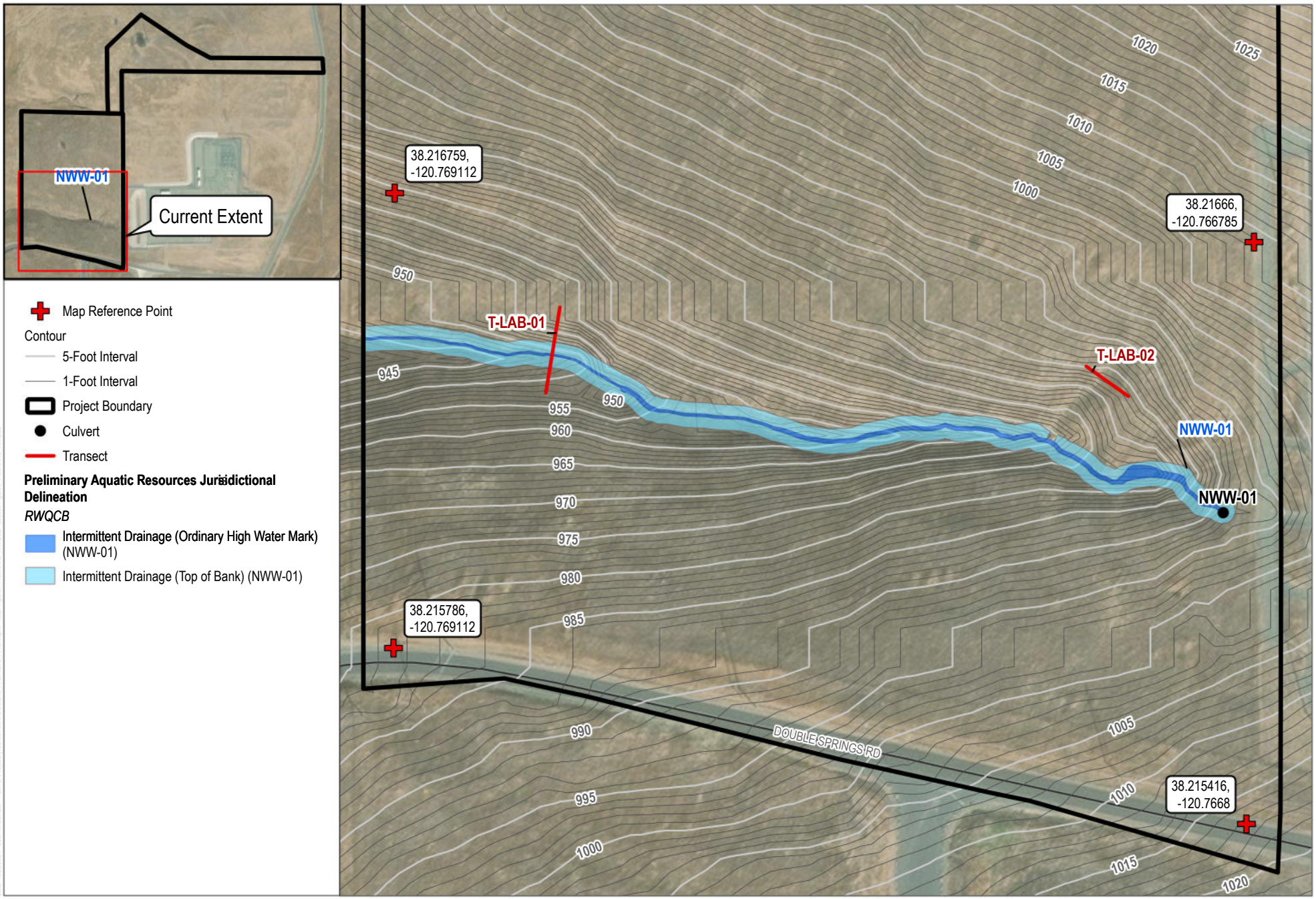

SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

1 inch: 100 feet

0 50 100 Feet

FIGURE 6

Preliminary Aquatic Resources Jurisdictional Delineation - RWQCB

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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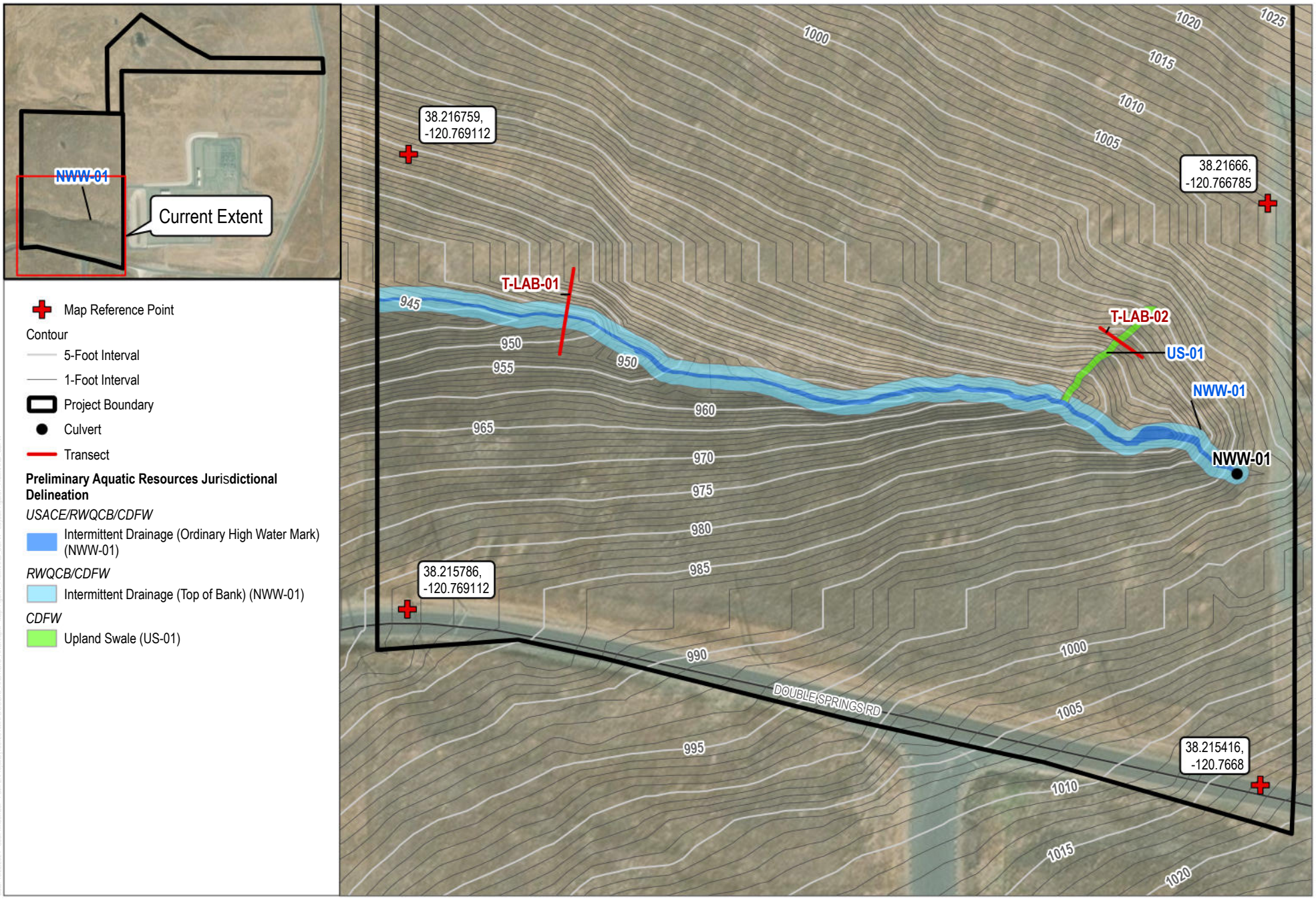

SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

1 inch: 100 feet

0 50 100 Feet

FIGURE 7

Preliminary Aquatic Resources Jurisdictional Delineation - CDFW

Double Springs BESS Project Draft Aquatic Resources Delineation Report

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Appendix A

Waters of the State, Lake/Streambed, and Riparian Resources (RWQCB/CDFW)

Waters of the State, Lake/Streambed, and Riparian Resources (RWQCB/CDFW)

1 Methods

1.1 Desktop Analysis

Prior to conducting fieldwork for the Double Springs BESS Project (project), Dudek staff performed a desktop analysis to review the following available resources to determine the potential presence of aquatic resources in the review area:

- Antecedent Precipitation Tool (APT) (USACE 2024a)
- Google Earth current and historical aerial imagery (Google Earth Pro 2024)
- Natural Resources Conservation Services' Web Soil Survey (USDA 2024a)
- U.S. Fish and Wildlife Service's National Wetlands Inventory (USFWS 2024)
- U.S. Geological Survey's California Geologic Map Data (USGS 2024a)
- U.S. Geological Survey's National Hydrography Dataset (USGS 2024b)
- Federal Emergency Management Agency's National Flood Hazard Layer (FEMA 2024)

1.2 Field Delineation

Dudek biologist Laura Burris conducted an aquatic resources field delineation of the approximately 23-acre review area on September 26, 2024. Potential aquatic resources were recorded using ESRI Field Maps on a mobile device and an Eos Arrow 100 Global Navigation Satellite System Receiver with submeter accuracy. Following the field work, aquatic resources were digitized using ArcGIS. Remote sensing was not used for the delineation.

All plant species encountered were identified to the lowest taxonomic level needed to determine wetland plant indicator status. Those species that could not be immediately identified were brought into the laboratory for further investigation. Latin names follow conventions within the PLANTS Database (USDA 2024b). These resources were further referenced to identify plant taxonomic level appropriate to determine species and regulatory status, if needed. Wetland plant indicator status for each plant was determined using the National Wetland Plant List (USACE 2024b). Appendix C, Plant List, of the main Aquatic Resources Delineation Report contains a complete list of plant species and their indicator status.

The specific methods used to delineate California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) jurisdiction are described below.

1.2.1 CDFW Aquatic Resources

In Title 14 of the California Code of Regulations, Section 1.56, CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or other aquatic wildlife requires authorization from CDFW by entering into an agreement pursuant to Section 1602 of the California Fish and Game Code. In Title 14 of the California Code of Regulations, Section 1.72, CDFW defines a "stream" as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

The delineation defined areas under the jurisdiction of CDFW pursuant to California Fish and Game Code Sections 1600–1603. CDFW asserts jurisdiction over rivers, streams, and lakes to the extent of the top of bank. The term "bank" is interpreted to encompass the physical bank of the stream that rises vertically above and horizontally away from it (Vyverberg 2010). The top of bank was mapped as the physical break in slope between the channel or lake and surrounding upland. Streambeds or lakes under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

Riparian status was determined by the U.S. Army Corps of Engineers National Wetland Plant List indicator of the dominant species in a community being classified as obligate, facultative wetland, or facultative (USACE 2024b). In general, the change in species cover and/or composition from the surrounding upland to predominantly hydrophytic vegetation was used to determine CDFW regulated riparian areas associated with a stream channel or lake.

1.2.2 RWQCB Aquatic Resources

The State Water Resources Control Board defines a water of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]). The State Water Resources Control Board's definition of a water of the state includes the following (SWRCB 2021):

1. Natural wetlands.
2. Wetlands created by modification of a surface water of the state.
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historical human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to 1 acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or

distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation" (SWRCB 2021).

Wetlands subject to RWQCB jurisdiction were delineated based on the methodology described in the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement for the Western Mountains, Valleys, and Coast Region (USACE 2010). Non-wetland waters subject to RWQCB jurisdiction were delineated based on the presence of an ordinary high-water mark (OHWM), as determined using the methodology in the Guide to OHWM Delineation for the Western Mountains, Valleys, and Coast Region (USACE 2014).

2 Results

2.1 Data Summary

Results from one representative data points and two transects document CDFW and/or RWQCB jurisdictional waters within the review area based on observable field indicators (Table 1). The data collected at each data point and transect are included in Appendix D, and photos of the review area are presented in Appendix E of the main Aquatic Resources Delineation Report.

Table 1. Data Point and Transect Summary

Non-Wetland Waters Transect Summary			
Transect	**Ordinary High-Water Mark Field Indicators**	**Location (Latitude/Longitude)**	**Determination**
T-01	Break in slope, changes in character of soil, destruction of terrestrial vegetation, bed and banks, change in plant community and or/cover	38.21642465, -120.7686836	Non-wetland water – intermittent drainage
T-02	Bed and banks, change in plant community and/or cover	38.21636108, -120.7671789	Upland swale
Wetland Data Point Summary			
Data Point	**Wetland Determination Field Indicators**	**Location (Latitude/Longitude)**	**Determination**
SP-1	Hydric vegetation	38.21922694, -120.762895	Upland

2.2 Waters of the State (RWQCB)

Within the review area, Dudek biologists delineated approximately 0.33 acres (717 linear feet) of non-wetland waters potentially subject to RWQCB jurisdiction (Table 2). No wetlands potentially subject to RWQCB jurisdiction

were found. Findings with regard to RWQCB jurisdiction are preliminary until verified by the Central Valley RWQCB. Photos of the review area are presented in Appendix E and visually depicted in Figure 6 of the main Aquatic Resources Delineation Report.

Table 2. RWQCB Aquatic Resources in the Review Area

Feature Name	Location (Latitude, Longitude)	Acres[1]	Linear Feet
Non-Wetland Waters			
NWW-01	38.21623417, -120.76793879	0.33	717
	Total	**0.33**	**717**

Notes:
RWQCB = Regional Water Quality Control Board; N/A = not applicable
[1] Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

RWQCB Aquatic Resources

NWW-01

NWW-01 is a vegetated intermittent channel within the southern portion of the review area. It is a 1st order stream for the first approximately 158 feet, after which US-01 joins and it becomes a 2nd order stream. This feature originates near the eastern boundary of the review area, where a culvert discharges runoff likely originating as overflow from the detention basin associated with the substation adjacent to the review area. However, the origin of the culvert could not be confirmed due to the substation being fenced off from access. Additionally, the channel receives runoff from a large portion of the site which slopes southward into the channel. This feature flows west approximately 725 feet before exiting the review area. After exiting the review area, it continues approximately 100 feet more and discharges into the pond adjacent to the review area. This pond is diked and impounds water from NWW-01 and Spring Valley Creek. In extreme weather events, this pond likely overflows downstream into Spring Valley Creek, eventually meeting with Cosgrove Creek, the Calaveras River and the San Joaquin Delta.

No water was present within the feature during the site visit, however, some ponded water was observed in the far western end of the feature during a separate site visit in June 2024.

An OHWM is evident and characterized by a break in bank slope, changes in character of soil, destruction of terrestrial vegetation, bed and banks, and a change in plant community and or/cover (Transect T-01). Average widths for the OHWM ranged from approximately 1 foot at the western end to 5 feet at the far eastern end of the channel. Vegetation species observed on the banks included Italian ryegrass (*Festuca perennis*), slender wild oat (*Avena barbata*), and Medusa head (*Elymus caput-medusae*).

2.3 Lake/Streambed and Riparian (CDFW)

Within the review area, Dudek biologists delineated approximately 0.34 acres of lake/streambed potentially subject to CDFW jurisdiction (Table 3). Photos of the review area are provided in Appendix E and locations depicted in Figure 7 of the main Aquatic Resources Delineation Report.

Table 3. CDFW Aquatic Resources in the Review Area

Feature Name	Location (Latitude, Longitude)	Acres[1]	Linear Feet
Lake/Streambed			
NWW-01	38.21623417, -120.76793879	0.33	717
US-01	38.21634165, -120.7672144	0.01	104
	Subtotal	*0.34*	*821*
	Total	**0.34**	**821**

Notes:
CDFW = California Department of Fish and Wildlife; N/A = not applicable
1 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

CDFW-Only Aquatic Resources

US-01

US-01 is an upland swale in the southern portion of the review area which runs southwest for approximately 110 feet before draining into NWW-01. This feature originates in the southern portion of the review area, approximately 115 feet from the eastern boundary of the review area. This feature receives runoff from the southward trending slope of the site and channels it into NWW-01.

No water was present within the feature during the site visit.

An OHWM is faint but present and is characterized by the presence of bed and banks and a change in vegetation cover (Transect T-02). Average widths for the OHWM range from 7 to 10 feet, and TOB width ranges from 25 to 30 feet. Vegetation species present included Italian ryegrass and slender wild oat.

3 References

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Appendix B

Request for USACE Jurisdictional Determination

REQUEST FOR AQUATIC RESOURCES DELINEATION VERIFICATION

OR JURISDICTIONAL DETERMINATION

A separate jurisdictional determination (JD) is not necessary to process a permit. An Approved Jurisdictional Determination (AJD) is required to definitively determine the extent of waters of the U.S. and is generally used to disclaim jurisdiction over aquatic resources that are not waters of the U.S., in cases where the review area contains no aquatic resources, and in cases when the recipient wishes to challenge the water of the U.S. determination on appeal. Either an Aquatic Resources Delineation Verification or a Preliminary Jurisdictional Determination (PJD) may be used when the recipient wishes to assume that aquatic resources are waters of the U.S. for the purposes of permitting. In some circumstances an AJD may require more information, a greater level of effort, and more time to produce. If you are unsure which product to request, please speak with your project manager or call the Sacramento District's general information line at (916) 557-5250.

I am requesting the product indicated below from the U.S. Army Corps of Engineers, Sacramento District, for the review area located at:

Street Address: 3524 Double Springs Road City: Valley Springs County: Calaveras
State: CA Zip: 95252 Section: 9 Township: 4 Range: 11 East
Latitude (decimal degrees): 38.216980 Longitude (decimal degrees): -120.767963
The approximate size of the review area for the JD is 23.12 acres. **(Please attach location map)**

Choose one:
- ○ I own the review area
- ○ I hold an easement or development rights over the review area
- ○ I lease the review area
- ○ I plan to purchase the review area
- ◉ I am an agent/consultant acting on behalf of the requestor
- ○ Other: _____

Choose one product:
- ○ I am requesting an Aquatic Resources Delineation Verification
- ○ I am requesting an Approved JD
- ◉ I am requesting a Preliminary JD
- ○ I am requesting additional information to inform my decision about which product to request

Reason for request: (check all that apply)
- ☐ I need information concerning aquatic resources within the review area for planning purposes.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid those aquatic resources determined to be waters of the U.S.
- ☐ I intend to construct/develop a project or perform activities in this review area which may require authorization from the Corps; this request is accompanied by my permit application.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- ☐ My lender, insurer, investors, local unit of government, etc. has indicated that an aquatic resources delineation verification is inadequate and is requiring a jurisdictional determination.
- ☐ I intend to contest jurisdiction over particular aquatic resources and request the Corps confirm that these aquatic resources are or are not waters of the U.S.
- ☐ I believe that the review area may be comprised entirely of dry land.
- ☐ Other: _____

Attached Information:
- ☑ Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- ☑ Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the review area. Your signature shall be an affirmation that you possess the requisite property rights for this request on the subject property.

*Signature: _____ Date: _____
Name: _____ Company name: _____
Address: _____
_____
Telephone: _____ Email: _____

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
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 a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix C
Plant List

Vascular Species

Eudicots

ASTERACEAE – SUNFLOWER FAMILY

* *Carduus pycnocephalus* – Italian plumeless thistle
  Holocarpha virgata – yellowflower tarweed

FABACEAE – LEGUME FAMILY

* *Trifolium hirtum* – rose clover
* *Vicia villosa* – winter vetch

FAGACEAE – OAK FAMILY

Quercus lobata – valley oak

LYTHRACEAE – LOOSESTRIFE FAMILY

* *Lythrum hyssopifolia* – hyssop loosestrife

PLANTAGINACEAE – PLANTAIN FAMILY

Plantago erecta – dwarf plantain

Monocots

JUNCACEAE – RUSH FAMILY

Juncus bufonius – toad rush

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat
* *Avena fatua* – wild oat
* *Bromus diandrus* – ripgut brome
* *Bromus hordeaceus* – soft brome
* *Elymus caput-medusae* – medusahead
* *Festuca myuros* – rat-tail fescue
* *Festuca perennis* – perennial rye grass
* *Hordeum marinum* – seaside barley
* *Hordeum murinum* – mouse barley

* signifies introduced (non-native) species

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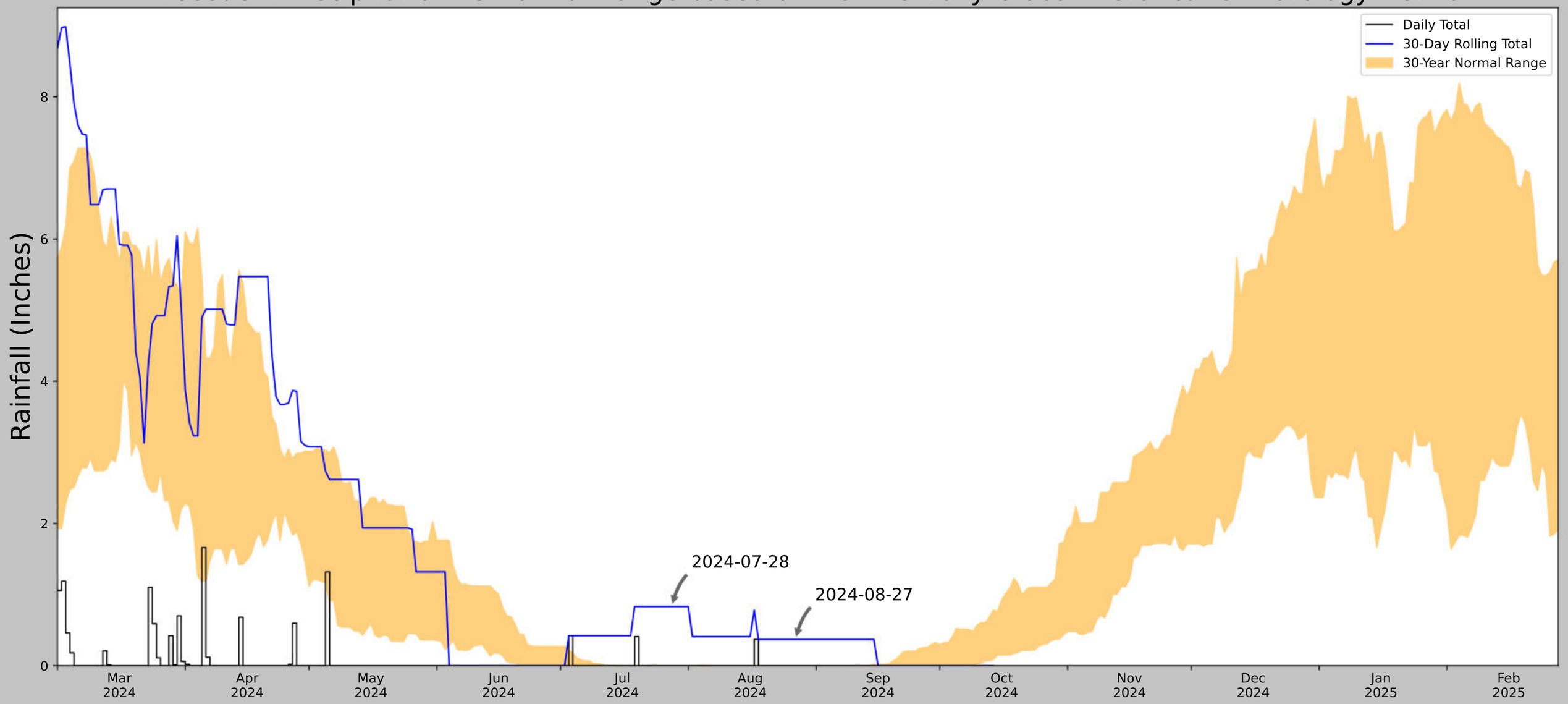
Appendix D

Antecedent Precipitation Tool Output



Coordinates	38.217114, -120.768028
Observation Date	2024-09-26
Elevation (ft)	1003.091
Drought Index (PDSI)	Mild drought (2024-08)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-09-26	0.0	0.240157	0.0	Normal	2	3	6
2024-08-27	0.0	0.0	0.370079	Wet	3	2	6
2024-07-28	0.0	0.0	0.830709	Wet	3	1	3
Result							Wetter than Normal - 15

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
NEW MELONES DAM HQ	38.0047, -120.4864	959.974	21.209	43.117	10.458	11286	89
SONORA	37.9672, -120.3872	1674.869	5.991	714.895	6.979	66	1

Appendix E
Data Forms

OHWM DATA SHEET

Project: Double Springs BESS Date: 09/26/24 Transect: T-LAB-02

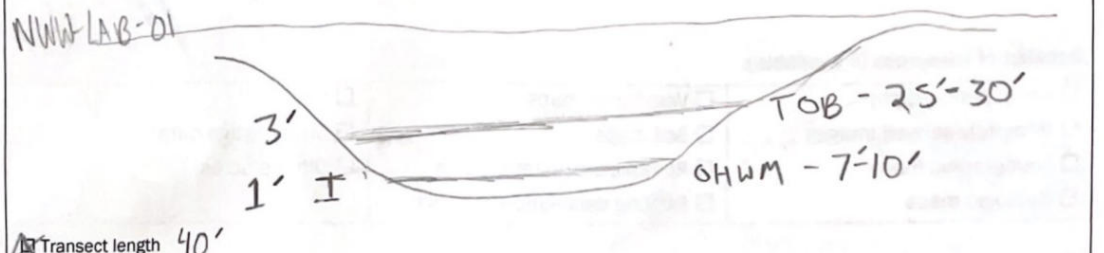
Investigator(s): Laura Burris, Elliot Maldonado Feature Name: SWS-LAB-01

Site Location:
Low area between two hills drains south to nonwetland water - NWW-LAB-01

Feature Type: ☒ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: ____



☒ Transect length 40'
☒ OHWM width
☒ Channel depth
☒ Photo

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

☐ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ 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

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100	—	—	—	—
Below OHWM	100	—	—	—	—

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	100	0
Below OHWM	0	0	100	0

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

Upland Species:	*Bank Species:*	*Emergent Species:*
Avena barbata	Festuca perennis	N/A

Version 2; updated 11/16/2020

OHWM DATA SHEET

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

Hydrology:

- ☐ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: Min. depth:

Temp: Max. depth:

Checklist of resources (if available):

☐ Aerial photography	☐ Vegetation maps	☐ GPS unit
☐ Remotely-sensed images	☐ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

Other forms related to this feature: ☐ Yes ☐ No

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

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

Version 2; updated 11/16/2020

OHWM DATA SHEET

Project: Double Springs Date: 09/26/24 Transect: T-LAB-01

Investigator(s): BESS Feature Name: NWW-LAB-01

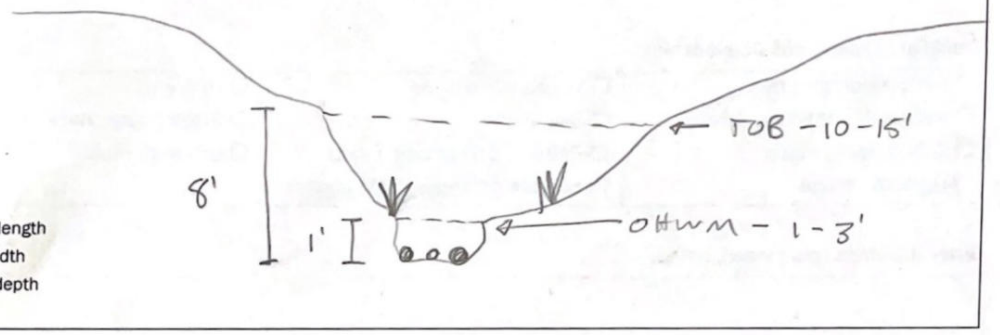
Site Location:

Ephemeral drainage E→W, drains towards offsite pond

Feature Type: ☒ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: W



☒ Transect length
☒ OHWM width
☒ Channel depth
☐ Photo

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

☐ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☒ Changes in the character of soil	☐ 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

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	95	—	—	5	—
Below OHWM	20	—	—	75	5

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	100	
Below OHWM	0	0	5	95

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

Upland Species:	*Bank Species:*	*Emergent Species:*
	Festuca perennis Avena barbata Elymus medusa	

Version 2; updated 11/16/2020

OHWM DATA SHEET

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

culvert @ east end.
chunks of cement & some pipe @ eastern end.

Hydrology:

- ☐ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☑ Dry

Avg. depth: Min. depth:

Temp: Max. depth:

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☐ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☑ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

Other forms related to this feature: ☐ Yes ☒ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

Version 2; updated 11/16/2020

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Double Springs BESS Project City/County: Calaveras Sampling Date: 9/26/2024

Applicant/Owner: Novis Renewables State: CA Sampling Point: SP-01

Investigator(s): L. Burris Section, Township, Range:

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

Subregion (LRR): C Lat: 38.21922694 Long: -120.762895 Datum: UTM zone 1

Soil Map Unit Name: Inks-Anglescreek complex, 3 to 15 percent slopes NWI classification: None

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

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

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

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

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

Remarks:

Low-lying spot in grassland - vegetation sparse/different from surrounding area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1m)			
1. Lythrum hyssopifolium	10	Y	OBL
2. Aira caryophyllea	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 88 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 10	x 1 = 10
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species 2	x 4 = 8
UPL species _____	x 5 = _____
Column Totals: 12 (A)	18 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: SP-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	95	5YR 4/6	5	C	M	silty clay	hard pan

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 4

Hydric Soil Present? Yes _____ No ✔

Remarks:

Clay soils create hardpan layer near surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

slightly concave area in field with clay soils. no surface cracks.

Appendix F
Review Area Photos



Photo 1. Overview of NWW-01 taken from its eastern end, facing west. June 3, 2024.



Photo 2. View facing east of culvert entering NWW-01 at eastern end. June 3, 2024



Photo 3. View facing east from northern bank in the central portion of NWW-01. June 3, 2024



Photo 4. Photo displays vegetation cover change within bed of channel. Taken within central portion of channel. June 3, 2024.



Photo 5. Photo displays standing water in channel, within western portion. June 3, 2024.



Photo 6. Photo displays property line, where NWW-01 exits the review area.



Photo 7. Overview of US-01, seasonal swale. Photo faces southwest in the direction of flow. June 3, 2024.



Photo 8. View facing across US-01, facing southeast.



Photo 9. Wetland sampling point 1 (SP-01).

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Appendix G

ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet and Associated Shapefiles (Electronic Submittal Only)

Appendix E

Archaeological Resources Inventory Report

ARCHAEOLOGICAL RESOURCES INVENTORY REPORT for the DOUBLE SPRINGS ENERGY STORAGE PROJECT, CALAVERAS COUNTY, CALIFORNIA

Prepared for:

Double Springs Energy Storage, LLC
1 Bridge Street, Suite 11
Irvington, New York 10533

Prepared by:

DUDEK
1810 13th Street, Suite 110
Sacramento, California 95811
Nicholas Hanten, MA; Adam Giacinto, MA, RPA; and Elizabeth Sivell

DECEMBER 2024

National Archaeological Database (NADB) Information

Authors:	Nicholas Hanten, MA; Adam Giacinto, MA, RPA; and Elizabeth Sivell
Firm:	Dudek
Project Proponent:	Double Springs Energy Storage, LLC
Report Date:	December 2024
Report Title:	Archaeological Resources Inventory Report for Double Springs BESS Project, Calaveras County California
Type of Study:	Archaeological Inventory
Resources:	DS-ES-S-001
USGS Quads:	Valley Springs, California 1:24,000; T 4N, R 11E, Section 9
Acreage:	15.2 (approximate)
Permit Numbers:	Pending
Keywords:	Valley Springs USGS 7.5-Minute Quadrangle, Intensive Pedestrian Survey, Calaveras County, Historic Mining

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Table of Contents

SECTION			PAGE NO.
NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION			I
ACRONYMS AND ABBREVIATIONS			V
MANAGEMENT SUMMARY			VII
1	INTRODUCTION		1
	1.1	Project Location and Description	1
	1.2	Report Structure and Key Personnel	2
	1.3	Regulatory Context	2
		1.3.1 National Historic Preservation Act	2
		1.3.2 California Register of Historic Resources and CEQA	8
2	PROJECT CONTEXT		13
	2.1	Environmental Context	13
	2.2	Cultural Context	13
		2.2.4 Ethnohistoric Period (post-AD 1750)	15
		2.2.5 The Historic Period	16
3	RESEARCH METHODS		19
4	RESULTS		21
	4.1	Records Search Results	21
	4.2	Review of Geomorphological Context	23
	4.3	Survey Results	24
		4.3.1 Newly Recorded Resources	24
	4.4	Tribal Coordination	25
5	REVIEW OF EFFECTS		26
	5.1	Thresholds of Significance	26
	5.2	Effects/Impacts Analysis	26
6	SUMMARY AND MANAGEMENT CONSIDERATIONS		29
	6.1	Recommendations	29
7	REFERENCES		31

FIGURES

Figure 1 Project Location 3
Figure 2 Area of Potential Effect 5

TABLES

Table 1. Previous Cultural Resource Studies 21
Table 2. Previously Recorded Cultural Resources 22

APPENDICES

A Records Search Maps and Information
B NAHC Sacred Lands File Search
C Confidential APE Maps and Site Records
D Resumes for Key Cultural Personnel

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APE	Area of Potential Effect
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Register of Historical Resources
DPR	California Department of Parks and Recreation
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PG&E	Pacific Gas and Electric Company
PRC	California Public Resources Code
Project	Double Springs BESS Project
USACE	U.S. Army Corps of Engineers

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Management Summary

Double Spring Energy Storage, LLC (the "Applicant") is currently proposing a utility-scale energy storage facility in the County of Calaveras. The project will consist of a Battery Energy Storage System ("BESS") on privately owned lands directly adjacent to and west of the PG&E Valley Springs Substation in Calaveras County. The Applicant contracted Dudek to perform a Phase I cultural resource inventory for the project. This archaeological resources inventory report was conducted in compliance with the California Environmental Quality Act (CEQA). Due to potential future permitting related to adjacent jurisdictional waters, the U.S. Army Corps of Engineers, as the lead federal agency, will also likely review the report for compliance with Section 106 of the National Historic Preservation Act.

The project site is located in Calaveras County directly adjacent to and north of Double Springs Road and northwest of the intersection of Highway 26 and Highway 12. The project site is approximately 0.2 miles west of Highway 26 and approximately 0.3 miles north of Highway 12. The project site is located directly adjacent to and west of the Pacific Gas and Electric Company (PG&E) Valley Springs Substation. The project will be composed of lithium iron phosphate batteries (installed in racks), inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation. The proposed facility will provide a critical service to the regional electric grid by receiving energy (charging) from the PG&E Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the system when it is needed.

The Area of Potential Effect analyzed herein consists of all areas of potential ground disturbance within the approximately 15.2-acre project site. For the purposes of providing management recommendations, the vertical APE, as represented by the maximum depth of disturbance, is assumed to be 15 feet below the existing ground surface.

This study consisted of a records search of the APE and land within a 0.5-mile radius, a Native American Heritage Commission (NAHC) Sacred Lands File search, and an intensive pedestrian survey of the APE. A North Central Information Center records search identified no resources within the APE and 8 previously recorded cultural resources within a 0.5-mile radius. The results of the NAHC's Sacred Lands File search did not identify the presence of documented Native American resources within the APE. An intensive-level pedestrian survey was conducted of the entire APE; this survey did result in the identification of one newly recorded historic-era mining site. This site was documented and evaluated by Dudek personnel as part of the present study and is recommended not eligible for California Register of Historical Resources or National Register of Historic Places listing. Based on these results, no known significant cultural resources will be impacted by the project as currently designed. Management recommendations for addressing potential impacts related to the inadvertent discovery of cultural resources are provided. With these recommendations appropriately implemented, the project will result in a less-than-significant impact to cultural resources (No Historic Properties Affected).

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1 Introduction

1.1 Project Location and Description

The Applicant is currently proposing the Double Springs BESS Project ("Project"), a utility-scale battery energy storage facility in the County of Calaveras (County). The project will consist of a BESS on privately owned lands directly adjacent to and west of the Pacific Gas and Electric Company (PG&E) Valley Springs Substation in Calaveras County.

The project will be composed of lithium iron phosphate batteries (installed in racks), inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation (i.e., point of interconnection). The Project will connect immediately to the substation. The batteries will be installed in purpose-built enclosures. The enclosures will have battery storage racks with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries and monitor and control the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current electricity that must be converted to alternating current for compatibility with the existing electric grid. Power inverters to convert between alternating current and direct current, along with transformers to step up the voltage, will be included.

The proposed facility will provide a critical service to the regional electric grid by receiving energy (charging) from the PG&E Valley Springs Substation and connected electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water except to maintain water-efficient and low-impact landscaping design around the project.

The project site consists of approximately 15.2 acres of private land directly adjacent to and west of the Pacific Gas and Electric Company (PG&E) Valley Springs Substation in Calaveras County, California. The project site is directly adjacent to and north of Double Springs Road and northwest of the intersection of Highway 26 and Highway 12 (see Figure 1, Project Vicinity). The project parcels are designated as Assessor's Parcel Numbers 40002017, 40002018, and 40002019. The project site is approximately 0.2 miles west of Highway 26 and approximately 0.3 miles north of Highway 12. Adjacent land uses include scattered industrial buildings to the south and west, a middle school approximately 0.5 miles to the east, and resource production lands to the north and west.

The Area of Potential Effect (APE) analyzed herein consists of all areas of potential ground disturbance within the project site (Figure 2, Project Site). For the purposes of providing management recommendations, the vertical APE, as represented by the maximum depth of disturbance, is assumed to be 15 feet below the existing ground surface.

In preparation for the project, Dudek was contracted to perform a Phase I cultural resource inventory. This inventory was conducted in compliance with the California Environmental Quality Act (CEQA). Due to jurisdictional waters considerations and anticipated review by the U.S. Army Corps of Engineers (USACE), this inventory has been completed to standards and requirements meeting compliance with Section 106 of the National Historic Preservation Act (NHPA).

1.2 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 provides a cultural resources effects analysis and evaluation of the newly identified sites. Chapter 6 summarizes the cultural resources work completed for this project to date, and provides recommendations for further management of cultural resources, consistent with CEQA and Section 106 of the NHPA. Chapter 7 provides a list of references cited throughout this report. Several appendices are attached to this report. Appendix A includes confidential records search results, Appendix B contains confidential Native American Heritage Commission (NAHC) correspondence documents, Appendix C contains confidential maps, site records and documentation of newly recorded cultural resources, and Appendix D contains the resumes of key personnel.

Elizabeth Sivell conducted the intensive pedestrian survey. Nicholas Hanten drafted the technical report and acted as principal investigator. Adam Giacinto provided quality assurance, reviewed management recommendations, and finalized the technical report. All archaeologists meet the Secretary of the Interior's standards for archaeology, and have extensive experience working within local, state, and federal regulatory contexts.

1.3 Regulatory Context

The current cultural resources investigation was completed to satisfy CEQA and Section 106 of the NHPA.

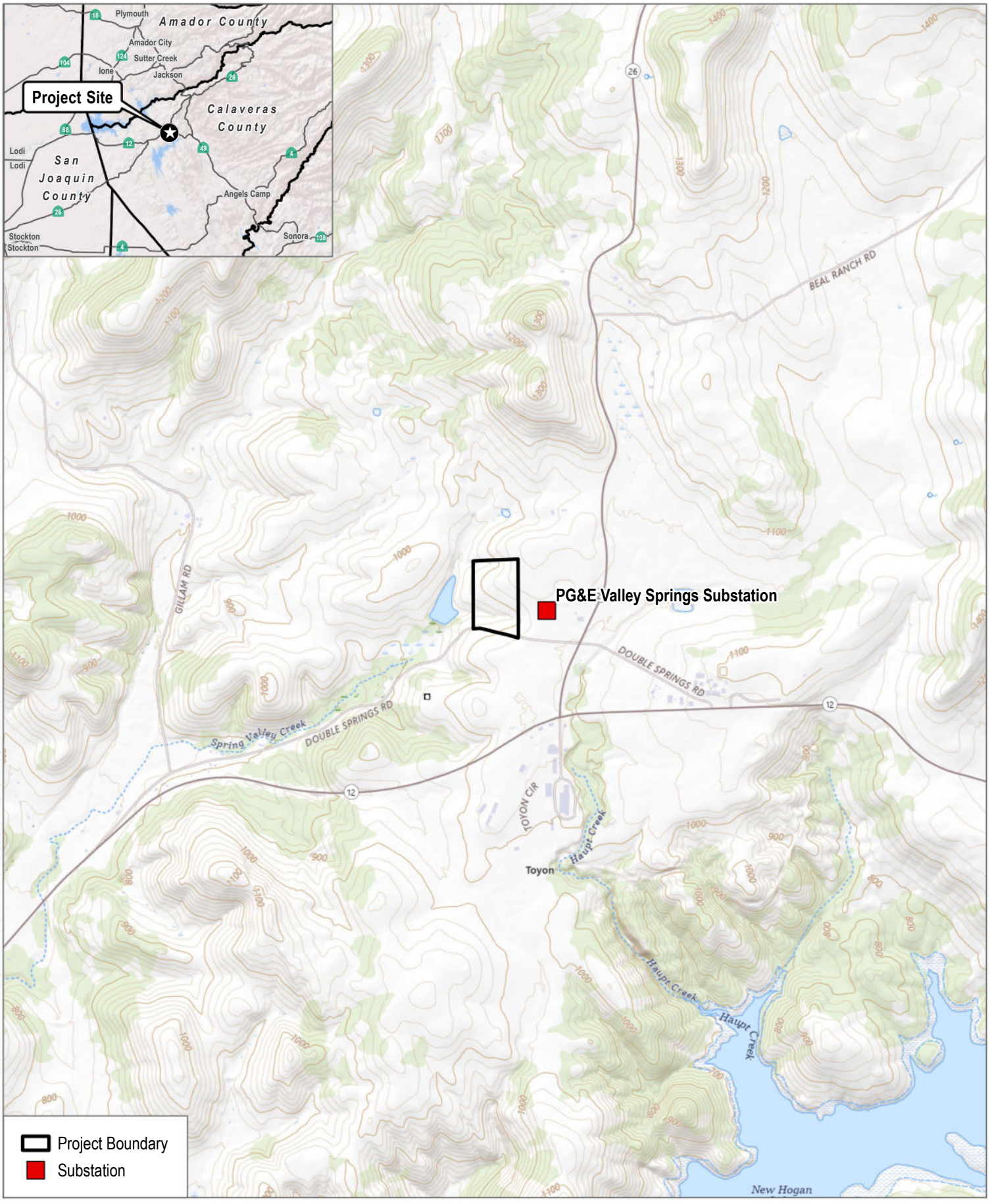
1.3.1 National Historic Preservation Act

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 under the U.S. Department of the Interior, the NRHP was authorized under the NHPA, as amended. Its listings encompass all National Historic Landmarks and historic areas administered by the National Park Service.

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



SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Double Springs Battery Energy Storage System Project

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SOURCE: Bing Maps (accessed 2024); Calaveras County 2019

DUDEK

0 200 400 Feet

FIGURE 2

Project Site

Double Springs Battery Energy Storage System Project

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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 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 2009). 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 Code of Federal Regulations (CFR) Sections 800.16[i][1]).

Effects on historic properties under Section 106 of the NHPA are defined in the assessment of adverse effects in 36 CFR Sections 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include the following (36 CFR 800.5 [2]):

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

To comply with Section 106, the criteria of adverse effects are applied to historic properties, if any exist in the project's APE, pursuant to 36 CFR Sections 800.5(a)(1). If no historic properties are identified in the APE, a finding of "no historic properties affected" is made. If there are historic properties in the APE, application of the criteria of adverse effect will result in project-related findings of either "no adverse effect" or "adverse effect." A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds in criteria of adverse effect found in 36 CFR Sections 800.5(a)(1), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (codified in 36 CFR Part 68).

If adverse effects findings are expected to result from a project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR Part 800.6(a).

1.3.2 California Register of Historic Resources and CEQA

In California, the term "historical resource" includes "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" (PRC Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. According to California Public Resources Code (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:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. 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.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

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 50 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 California Code of Regulations, Title 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 State Landmarks and

Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

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 cemetery.

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.

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]; PRC Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following (CEQA Guidelines Section 15064.5[b][2]):

- 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.

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 a 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.

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 can 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 California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The most likely descendant shall provide recommendations on next

steps within 48 hours of being granted access to the site. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

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2 Project Context

2.1 Environmental Context

The APE is located in a rural community, surrounded by scattered industrial buildings to the south and west, and agricultural and resource production lands to the north and west. The surrounding area is characterized by rolling hills, grasslands, ponds, and reservoirs. The APE is undeveloped, consisting of annual grasslands and a drainage fed by a culvert which intersects the southern-central part of the project site. Another drainage is located to the north, outside of the proposed project site.

The project site is located within Sierra foothills near the transition to the Central Valley. Elevation of the project site is approximately 1,060 feet above mean sea level, and the topography of the APE is flat. The project site is located in a semi-arid climate where annual temperatures range from 38.1°F to 95.8°F, and the average annual precipitation is 21.48 inches, with the highest rainfall are January and February and the least precipitation in July (WRCC 2024).

2.2 Cultural Context

Various attempts to parse out information provided through recorded archaeological assemblages throughout California for the past 12,000 years have led to the development of numerous cultural chronologies. Some of these are based on geologic time, most are interpreted through temporal trends derived from archaeological assemblages, and others are interpretive reconstructions. The spatial extent and detail of these chronologies is also highly variable, with detail chronologies developed in some areas based on substantial numbers of radiocarbon dates, while other areas rely on cross-dating of stylistically distinct artifact styles or cultural patterns. However, each of these chronologies describes essentially similar trends in assemblage composition and cultural succession, with varying degrees of detail. The most recent attempt to develop a cultural chronology for the Central Sierras was undertaken by Rosenthal and colleagues (Rosenthal, 2011), who analyzed single component archaeological assemblages from Alpine, Amador, Calaveras, and Tuolumne Counties to develop an internally consistent chronology for the region based on radiocarbon dates, obsidian hydration analyses, a projectile point typology based on metrical attributes, and diagnostic shell beads. The resulting chronology consists of five periods: the Early Archaic (11,500-7,000 calibrated years before present [cal BP]), the Middle Archaic (7,000-3,000 cal BP), the Late Archaic (3,000-1,100 cal BP), the Recent Prehistoric I (1,100-610 cal BP), and Recent Prehistoric II (610-100 cal BP). Brief descriptions and the distinctions between the cultural phases follow:

2.2.1.1 The Early Archaic Period (11,500-7,000 cal BP)

Very little is known about occupation of the central Sierra Nevada prior to 7000 cal BP. In fact, assemblages from this early period are rare in the California as a whole. Most known sites are small lithic assemblages containing stemmed or fluted projectile points (Hull 2007), consistent with an emphasis on large game hunting. The best known Early Archaic sites in the region are Clark's Flat – CA-CAL-342 (Peak and Crew, 1990), and SkyRocket—a CA-CAL-629/630 (Bieling et al., 1996; La Jeunesse and Pryor, 1996), both of which have returned Early Holocene radiocarbon dates and have projectile point assemblages resembling those of contemporary sites in the Great Basin. Both sites also contain an abundance of plant processing tools consistent with gray pine nut processing, which would have been among the highest ranking plant resources available in the region (Whelan, et al. 2013;

Whelan 2016). Based on this limited evidence, the initial occupation of the region likely consisted of limited use by small, mobile groups focused on high ranking resources such as large game and pine nuts.

2.2.1.2 The Middle Archaic Period (7,000-3,000 cal BP)

An increase in the number of sites dating to Middle Archaic period suggests that the Sierras first became permanently occupied during this time, with many sites recorded in the foothills (Rosenthal, 2011) and Yosemite National Park (Montague, 2010). Middle Archaic period assemblages in the foothills resemble the Early Archaic components from SkyRocket and Clark's Flat with abundant hand stones, millingstones, and other plant processing foods. The distribution of sites and assemblage compositions of the period suggest a continued focus on the processing of fall-ripening nuts in the foothills and large game hunting at higher elevations (Whelan 2016) and the occupation of winter sites below the snow line, suggesting that the pattern of seasonal transhumance across high and low elevations was already well established at this time.

2.2.1.3 The Late Archaic Period (3,000-1,100 cal BP)

The division between the Middle and Late Archaic periods is more-or-less arbitrary from a subsistence and settlement standpoint, as site assemblages from the Late Archaic largely resemble those from the Middle Archaic (Rosenthal, 2011; Whelan, 2016). Many of the sites from this period appear to be large residential base camps that were occupied or reoccupied for a substantial amount of time (Hull, 2007), with a continued focus on large game hunting supplemented by plant processing that did not require specialized investment. Archaeobotanical assemblages show a slight expansion in diet relative to earlier periods with the inclusion of acorn and small seed taxa into the diet, although gray pine still dominates (Rosenthal, 2011). The distinction between the Middle and Late Archaic periods is largely defined by the dominance of obsidian in flaked stone assemblages, which reaches a maximum during this period (Rosenthal, 2011). Additionally, there are large numbers of high altitude sites during this period that coincide with several extreme droughts may have made high elevations more productive and habitable for longer periods (Montague, 2010). Generally speaking, the Late Archaic habitation of the region represents a continuation of previous subsistence and settlement practices at a slightly higher intensity, possibly due to an increase in population size.

2.2.1.4 The Recent Prehistoric I Period (1,100-610 cal BP)

Recent Prehistoric I marks the first major shift in subsistence and settlement pattern after the region became permanently occupied in the Middle Archaic period. Although sites dating to the Recent Prehistoric I are under-represented in the archaeological record (Moratto, 2002, 1984; Rosenthal, 2011; Whelan, 2016), several changes to lifeways are evident. To begin, the large residential bases from the Late Archaic were replaced with a greater number of smaller, more ephemeral residential bases (Hull 2007). Important technological changes were also occurring, including the introduction of the bow and arrow and probably the first appearance of bedrock mortars (Hull, 2007; Hull and Moratto, 1999; Jackson et al., 1994; Rosenthal, 2011, 2002; Stevens, 2002; Whelan, 2016). Projectile points are found distributed in small clusters across all elevations not just high elevations, suggesting a switch from logistical forays accessing prime game habitat to hunts staged from residential camps (Whelan, 2016). The apparent introduction of bedrock mortars, which are commonly associated with intensive acorn processing, and the ubiquity of the acorn economy in the period following the Recent Prehistoric I, suggests the initial adoption of intensive acorn economies.

The small number of sites dating to the period could be explained by population decline as a result of prolonged droughts associated with the Medieval Climatic Anomaly (Hull, 2007; Hull and Moratto, 1999), or a reorganization of settlement and subsistence patterns resulting in low archaeological visibility. No matter the cause, it is apparent that Recent Prehistoric I is a time of transition in the central Sierra foothills during which Archaic period lifeways were replaced by a different set of settlement and subsistence practices.

2.2.1.5 The Recent Prehistoric II Period (610-100 cal BP)

Recent Prehistoric II is well-represented in the archaeological record of the central Sierra foothills and higher elevations (Hull, 2007; Rosenthal, 2011; Whelan, 2016). Residential sites in the foothills continue to be smaller and more dispersed than Late Archaic residential sites, but also have better developed middens and are generally associated with bedrock mortars, indicating greater investment in and repeated reoccupation of winter residences (Hull, 2007; Stevens et al., 2017; Whelan, 2016). Archaeobotanical assemblages show an increase in acorn relative to other taxa, and the presence a more diverse small seed assemblage, including summer ripening seeds and berries (Rosenthal, 2011). These trends indicate not only a reliance on intensive acorn and small seed processing as a major contributor to subsistence, but also the continued occupation of winter residences during the summer months or a greater investment in storage with the logistical transport of high elevation resources back to winter residential sites (Rosenthal, 2011). Recent Prehistoric II projectile point distributions also suggest that summer hunting was conducted by small family groups rather than logistical hunting parties (Whelan, 2016).

Recent Prehistoric II sites in the foothills suggest prolonged and repeated occupation from fall through late spring and a reliance on intensive acorn and small seed exploitation supplemented by hunting forays from residential bases, indicating that the region's ethnographic settlement and subsistence patterns (Barrett and Gifford, 1933; Levy, 1978) were largely established by the beginning of the Recent Prehistoric II period.

2.2.4 Ethnohistoric Period (post-AD 1750)

During the ethnographic period in California, the foothills of central and southern Sierra Nevada were occupied by various Miwok, Western Mono (or Monache), and Foothill Yokut speaking groups (Barrett and Gifford, 1933; Gayton, 1948; Gifford, 1932; Kroeber, 1925; Levy, 1978; Spier, 1978).The region surrounding the Project APE would have been in Sierra Miwok tribal territory during the ethnohistoric period (Barret 1908; Barret and Gifford 1933; Kroeber 1925). This group inhabited the western foothills of the Sierra Nevada Mountains, roughly bounded by the eastern plains of the Central Valley to the west, the Cosumnes River to the north, the Sierra crest to the east, and the Chowchilla River to the south. Ethnographic work writes of a relatively high population of indigenous inhabitants in this region, with the early work of Stephen Powers in the 1870s noting that, when accounting for all of the discrete groups, the Miwok were "by much the largest nation in California, both in population and in extent of territory" (Powers 1877).

The language spoken by the Sierra Miwok is one of the five classified languages of the Miwok family, with several distinct regional dialects, all of which derived their linguistic roots from a common Penutian stock. The language falls into two distinct branches: Western Miwok, which is subdivided into Coast and Lake Miwok, and Eastern Miwok, which includes Bay, Plains, and Sierra Miwok. Lexostatistical calculations suggest that the two branches of the Miwok language began to diverge at approximately 500 BC (Golla 2011). Sierra Miwok is further subdivided into three distinct dialects: Northern Sierra Miwok, Central Sierra Miwok, and Southern Sierra Miwok—with Central Sierra Miwok would have been spoken in the vicinity of the APE. The extent to which these Sierra Miwok dialects reflect

regional differences in socio-political factors is unknown as the dialects were not named and lacked sociopolitical correlates (Golla 2011).

Subsistence and settlement practices among the Sierra Miwok included a reliance on acorns as a staple food and a seasonal transhumance with occupation of permanent or semi-permanent lower elevation residential bases during the winter months and more dispersed high elevation temporary camps during the summer. Each permanent winter residence was occupied by a *nena,* a group of patrilineally related families, that served as the primary social and political unit of the societies (Gifford, 1926). Decisions on where to locate settlements were largely predicated on the timing of acorn procurement but were also influenced by seasonal temperature and weather patterns. In the late spring and summer months, small groups and families generally dispersed into higher elevations to hunt game and pursue roots, greens, and pine nuts, among others. Beginning in late summer and fall, groups began aggregating into moderately sized villages (e.g. 10-15 people) at or below the snow line, at which point acorns were collected and stored for consumption through the winter.

The intensive exploitation of acorn is a unique aspect of the California culture area and requires specialized technologies and extensive processing in order to be incorporated as a major component of the diet. Abundant and seasonally reliable, they store well and require very little search and procurement time, however, they entail an enormous amount of processing time. Because of their high tannic acid content—which can be poisonous in large doses— acorns must be ground into meal and leached to be consumed in bulk. As in the rest of the state, mortars and pestles were the primary means of processing acorns, in the Sierra Nevada in particular, the abundant bedrock outcrops present throughout the region were utilized as bedrock mortars for acorn processing (Heizer 1978). Acorn crops were generally collected in fall, after falling from the tree, and stored for use over the winter and early spring. While the preferred species of oak varied regionally and across the state, black oak (*Q. kelloggii*), blue oak (*Q douglasii*), and interior live oak (*Q. wislizeni*) tended to be staples of subsistence across the Sierras.

2.2.5 The Historic Period

The post-contact period in California is generally divided into the Spanish period (1769–1822), Mexican period (1822–1848), and American period (1848–present). Although European explorers visited parts of California for brief periods, the beginning of the historic period is generally marked by the establishment of a Spanish settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of the 21 California missions, in 1769. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, begins the American period.

Spanish Period (1769–1822)

Gaspar de Portolá entered what is now the San Francisco Bay in 1769. Additional explorations of the San Francisco Bay and the plains to the east were conducted by Father Pedro Fages in 1772 and Juan Bautista De Anza in 1776 (Grunsky 1989). In 1808, Lieutenant Gabriel Moraga led the first Spanish expedition into present-day Sacramento Valley. This group explored areas along the American, Calaveras, Cosumnes, Feather, Merced, Mokelumne, Sacramento, and Stanislaus River watersheds. The most recent Spanish expedition into this region was conducted by Luis Arguello in 1817. This group traveled up what is now the Sacramento River to the mouth of what is now the Feather River (Grunsky 1989).

Spanish missionization of Alta California was initiated in San Diego 1769. A total of 21 missions were constructed by the Dominican and Franciscan orders from 1769 through 1823. Missions in the region included San Francisco

de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County) (Grunsky 1989).

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger land grants to affluent Mexican citizens and rancheros. Captain John Sutter was granted the two largest areas of land in the Sacramento Valley area. Sutter founded New Helvetia, a trading and agricultural empire, in 1839 (Grunsky 1989). The headquarters was located within Valley Nisenan territory at the confluence of the Sacramento and American Rivers. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to native populations, and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony.

American fur trappers and traders conducted a number of exploratory intrusions into west Sierra Nevada Mexican territory. Notably, in 1826, Jebediah Smith led a small party of trappers in an expedition along the Sierra Nevada range, eventually entering what is now the Sacramento Valley in 1827. This group covered the area along the American and Cosumnes Rivers. From these travels, maps of this terrain were created and disseminated, providing for the waves of European prospectors, ranchers, and settlers who would come in the following decades (Grunsky 1989).

American Period (Post-1848)

Portions of the following section were derived from Cultural Resources Survey for the Closure of Eight Abandoned Mines in the Oregon Hill Area of Auburn State Recreation Area, Placer County, California (Bureau of Reclamation 2010).

California has been shaped by the mining of precious metals and other minerals. The discovery of gold in January 1848 at Sutter's Mill in Coloma, on the South Fork of the American River, led to extensive and enduring changes to California's physical and cultural landscapes (Bureau of Reclamation 2010). The following historic context is restricted to the origins and effects of mining in the American River Basin, with a particular focus on the Auburn area, where the Project APE is located.

The California Gold Rush, prompted by news of the find at Sutter's Mill, led to what has been characterized as "the greatest mass migration in American history" (Costello and Marvin 2002:16). Within months of the initial discovery, gold was being collected in the gravel bars of the north, middle, and south forks of the American River, and extensive placer mining was occurring in nearly every adjacent gulch and ravine. The effects of these activities are still evident in the form of tailings, ditches, and other mining features scattered throughout these areas. Mining can also be credited for the location and names of most of the towns and communities in the region; the placement of early transportation and communication corridors among the western Sierra Nevada, Sacramento, and San Francisco areas; and the subsequent development of agriculture and ranching throughout the foothills (Costello and Marvin 2002; Homer 1988).

As the allure of gold mining declined, agriculture and ranching in the foothills, and the timber industry at higher elevations, became more prominent and productive economic pursuits in the region (Davis 1975). During the Great Depression, however, small-scale placer mining, using Gold Rush–era techniques and technologies, made a brief

reappearance. Depression-era miners either reworked old diggings in formerly mined area or moved into previously unmined locations, often on public lands. The second all-time high of gold production in California, totaling some $50.9 million, occurred during this period.

3 Research 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 (NPS and ACHP 1998, pp. 18–20). Information about properties regarding their prehistory, history, architecture, and other aspects of culture must be collected and organized to define these relationships (NPS 2009), which is the intent of the current inventory.

This investigation consisted of a records search at the North Central Information Center (NCIC), at California State University Sacramento of the project site and a 0.5-mile radius around the project site. Following Bureau of Land Management precedents, which are appropriate for federal projects, survey techniques are loosely grouped into two categories: reconnaissance and intensive (BLM 2004; NPS 2009). The choice of survey category depends on the level of effort required for a particular project, which can vary depending on the nature of the properties or property types, the possible adverse effects on such properties, and agency requirements (NPS and ACHP 1998). The selection of field survey techniques and level of effort must be responsive to the management needs and preservation goals that direct the survey effort. For any survey, it is important to consider the full range of historic properties that may be affected, either directly or indirectly, and consider strategies that will minimize any adverse effects and maximize beneficial effects on those properties (BLM 2004; NPS 2009; NPS and ACHP 1998).

The current survey methods can be classified as intensive because short-interval transect spacing and full documentation of cultural resources were completed. Survey staff exceed the applicable Secretary of Interior's Professional Qualifications Standards for archaeological survey. Dudek archaeologists surveyed the entire project APE with transects spaced no more than 15 meters apart oriented east-west. A GPS receiver with sub-meter accuracy and loaded with a shapefile of the project boundary was used to verify the accuracy of the survey coverage. Evidence for buried cultural deposits was opportunistically sought through inspection of natural or artificial erosion/excavation exposures and the spoils from rodent burrows. Field recording and photo documentation of resources were completed as appropriate.

Historic research was also performed to better understand the history of land use of the project area. This research consisted of reviewing historic topographic maps and aerials (NETR 2024). Documentation of cultural resources complied with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716–44740), and the California Office of Historic Preservation Planning Bulletin Number 4(a), December 1989, Archaeological Resource Management Reports: Recommended Contents and Format for the Preparation and Review of Archaeological Reports. All cultural resources identified during this inventory were recorded on California Department of Parks and Recreation (DPR) Form DPR 523 (Series 1/95), using the Instructions for Recording Historical Resources (Office of Historic Preservation 1995), including updates to previously recorded resources.

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4 Results

This section presents the results of the records search and the field survey of the current study.

4.1 Records Search Results

A records search was completed for the project APE and a 0.5-mile buffer by staff at the NCIC at California State University Sacramento on June 4, 2024. This search included their collection of mapped prehistoric, historical, and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the National Register of Historic Places (NRHP), California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information.

No archaeological or built environment resources were identified within the Project site, however only a small portion (approximately 2%) of the Project site has been subject to previous archaeological investigations. The records search identified 12 previous studies performed within the records search area, of which, one intersects the APE (Table 1 and Confidential Appendix A).

Table 1. Previous Cultural Resource Studies

Report ID	Year	Author	Title
Reports Intersecting the APE			
CA-08977	2018	Younie, Angela M., Hildebrandt, Tod, Maniery, Mary L., Heffner, Sarah, and Baker, Cindy	Cultural Resources Inventory, Survey, and Extended Phase I and Phase II Investigations for the Electra - Valley Springs Capacity/Reconductor Project, Amador and Calaveras Counties, California, PG&E PM 74001436, Caltrans SR 26, PM 12.8-16.4
Reports Within 0.5 Mile of the APE			
CA-00142	1981	Derr, E. H.	Archaeological Survey Report for Pacific Telephone Company Underground Cable Project, Highway 12, Clements (Junction Highway 88) to San Andreas, Calaveras and San Joaquin Counties, California.
CA-00308	1990	Page, S. E., W. J. Costa, and M. J. Marquez	Department of Transportation Negative Archaeological Survey Report. 10-Cal-12-13.9.
CA-02548	1994	Werner, Roger H.	A Cultural Resources Study of The Proposed Calaveras Springs Special Plan Near Valley Springs, Calaveras County, California.
CA-02549	1994	Werner, Roger H.	A Cultural Resources Study of A 223-Acre Parcel Near Valley Springs, Calaveras County, California.
CA-03003	1997	Davis-King, Shelly, J. Marvin, and W. P. Fuller	Cultural Resources Survey of the Proposed Hacienda Business Park, Haupt Creek, Calaveras County, California.
CA-04602	1999	Stewart, S.	Archaeological Survey Report for Proposed Road Rehabilitation on California State Highway 12, Calaveras County, California.

Table 1. Previous Cultural Resource Studies

Report ID	Year	Author	Title
CA-04710	2002	Francis, C. M.	Cultural Resource Assessment: Tentative Parcel Map 02-15 TPM, Calaveras County, California.
CA-05501	2004	Rosenthal, J. S. and J. Meyer	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume III: Geoarchaeological Study.
CA-05506	2004	Leach-Palm, L., J. King, J. Hatch, and B. Larson	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume II C: Calaveras County.
CA-09027	2018	Natural Investigations Company	Cultural Resources Inventory and Effects Assessment for the Calaveras Unified School District Toyon Middle School Project, Calaveras County, California
CA-09846	2024	Wood, J. and M. P. Patrick	Archaeological Survey and Extended Phase I Report for the Middle-Mile Broadband Initiative Project, State Route 4, Calaveras County, California; 10-CAL-4 PM 25.572-41.1; Project ID 1022000241, EA 10-1Q120

The records search did not identify any previously recorded cultural resources within the APE. Eight historic-era resources are recorded within the 0.5-mile record search radius (Table 2 and Confidential Appendix A). These resources include mining related sites, historic structures, and most notably the historic-era Double Springs Courthouse, which has since been relocated from its original location to a nearby museum facility

Table 2. Previously Recorded Cultural Resources

Primary Number	Trinomial	Name	Type	Age	Attributes
	Previously Recorded Sites Intersecting the APE				
None					
	Previously Recorded Sites Within 0.5 Mile of the APE				
P-05-000239		Hacienda 1; ASI-2	Site	Historic-era	Foundations/structure pads; AH09
P-05-000240	CA-CAL-001612H	Calaveras Springs ASI-3	Site	Historic-era	Foundations/structure pads; Privies/ dumps/trash scatters; AH09
P-05-000241	CA-CAL-001613H	Calaveras Springs ASI-4	Site	Historic-era	Water conveyance system; AH08
P-05-000242	CA-CAL-001614H	Calaveras Springs ASI-5	Site	Historic-era	Privies/ dumps/trash scatters; Other
P-05-000243		ASI-F1; Calaveras Spring	Site	Historic-era	Water conveyance system
P-05-002318		Double Springs Court House	Building	Historic-era	Other; Government building

Table 2. Previously Recorded Cultural Resources

Primary Number	Trinomial	Name	Type	Age	Attributes
P-05-002783		Haupt Concrete Piers	Structure, Site	Historic-era	Foundations/structure pads
P-05-003844		WPVS-21; West Point to Valley Springs 60KV Transmission Line	Structure	Historic-era	Engineering structure

Historic-Period Map Review

Historical maps and aerial imagery as part of the cultural resources assessment, to understand development of the Project site and surrounding properties. Aerial imagery of the Project site was available from 1940, 1944, 1946, 1959, 1984, 1998, 2002, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, and 2022, while topographic maps are available from 1944, 1960, 1963, 1964, 1969, 1970, 2012, 2015, 2018, and 2021 (NETR 2024). Both the topographic maps and aerial imagery indicate that the project site has not been subject to any previous development. Double Springs Road, immediately south of the Project site, appears in its current alignment on the earliest topographic map and aerial image, initially appearing as a dirt road but having been paved some time between1959 and 1984. The small waterbody located to the west of the Project site first appears on the 1959 aerial image and the 1963 topographic map. This pond appears to have been formed by constructing an earthen dam across Spring Valley Creek in the late 1950s. The most significant development in the immediate vicinity of the Project site was the construction of an electrical substation to the east of the Project site. The facility first appears in the 1984 aerial image in the eastern portion of its current footprint but was expanded further west, immediately adjacent to the Project site, between 2010 and 2012. Additional development on the south side of Double Springs Road is first evident on the 2009 aerial image. No buildings or other development are evident within the Project site itself on any of the available maps or images.

4.2 Review of Geomorphological Context

Review of archaeological sensitivity of the Project site indicates moderate potential for intact archaeological deposits to be present in surface or subsurface contexts. Soils mapped within and immediately adjacent to the Project site include Angelscreek-Pentz complex (well-drained with 15-30% slopes, formed in colluvium and/or residuum derived from agglomerate, tuff breccia, or latite on deep volcanic plateaus and hills), and Inks-Angelscreek complex (well-drained with 3-15% slopes, formed in material weathered from consolidated or cemented sediments from volcanic rocks on shallow undulating volcanic hills / ridges / summit) (USDA 2024). These soils, which have the potential for intact subsurface deposits, combined with the proximity of the Project site to Spring Valley Creek, which would have been an attractive resource for people in the area during both the precontact and historic period, suggests moderate potential for intact archaeological deposits.

4.3 Survey Results

Dudek archaeologists Elizabeth Sivell conducted an intensive-level pedestrian survey of the APE on October 24, 2024. The survey used standard archaeological procedures and techniques, as outlined in Chapter 3, Research Methods. One previously unrecorded historic-era resource (DS-ES-S-001) was discovered and recorded during the pedestrian survey (See Appendix C, Figure A).

During the survey, ground surface visibility was low due to dense annual grasses and other vegetation ranging from 10 to 40 centimeters in height. Soils outside of the area with historical mining activity appeared to be relatively undisturbed, although some portions of the APE have been previously disturbed runoff from a drainage ditch which crosses the southern end of the project boundary in an east west orientation. Additional minor disturbance was evident from past agricultural activity.

4.3.1 Newly Recorded Resources

DS-ES-S-001

DS-ES-S-001 is a historic-era mining site consisting of a series of rectangular prospect pits and associated tailings piles distributed across the APE. The pits are generally oriented north-south and clustered in groups of three. The pits vary in size from approximately 3–9 ft. wide, 6–12 ft. long, and 1–4 ft. deep. Tailings piles associated the prospect pits generally consist of soils with less than 20% small, sub-rounded cobbles. Similarity in the orientation and dimensions of the pits suggests that similar excavation techniques were used for all of the pits and that they are contemporaneous. In total, nine distinct clusters of prospect pits were documented within the site boundary, consisting of 27 individual pits usually with associated tailings. Maps and additional information as well as interpretation of DS-ES-001 can be found in Appendix C. No artifacts or other features were identified within the APE.

The USGS Mineral Resource Data System shows several known mining occurrences in the vicinity of DS-ES-001, the closest of which is the Hangill J R Gillam occurrence located immediately across Double Springs Road from the project APE (MRDS 2024). Records indicate that, while there has been ore mineralization discovered at this occurrence, there has been minimal production activity which has been primarily limited to routine claim maintenance. The specific grade, tonnage, and extent of the deposit at the mining occurrence are unknown (Diggings 2024). More broadly, DS-ES-S-001 falls within the Campo Seco-Valley Springs-Pardee Mining District, from which substantial amounts of gold have been produced from a variety of deposits (Division of Mines and Clark 1998). Within the district, older quarzitic gravels were initially mined by hydraulicking and ground sluicing and later by draft mining, whereas the recent gravels were worked by dragline dredges (Division of Mines and Clark 1998). The district is comprised of 17 claims and 93 mines, including 39 mining occurrences and 54 producers (Diggins 2024).

Sufficient documentation was gathered through archaeological inventory efforts to evaluate this resource for NRHP and CRHR listing, for which the site was assessed to be not eligible. To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or [have] the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The site is not substantially associated with any specific significant events locally, regionally, or nationally (Criterion A/1); is not directly associated with the lives of any important people locally, regionally, or nationally (Criterion B/2); does not contain architecture (Criterion

C/3); and, beyond the attributes captured through recordation, does not have the potential to yield information locally, regionally, or nationally (Criterion D/4). Mining sites such as DS-ES-S-001 are ubiquitous in the Sierra Nevada foothills, and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site intersecting the API has been exhausted through recordation. As such, this resource is not eligible for listing in the NRHP/CRHR, and impacts/effects that would occur through planned project disturbances would be less than significant.

4.4 Tribal Coordination

The NAHC was contacted by Dudek staff on October 23, 2024 to request a search of its Sacred Lands File. The NAHC responded on November 4, 2024 indicating that no Native American resources on file with the NAHC fall within the project APE (Confidential Appendix B). The NAHC provided a list of Native American tribal contacts who may have additional knowledge relating to cultural resources in the area. Because this report will be subject to USACE review for Section 106 compliance and Assembly Bill 52, consultation with the NAHC-listed tribal representatives will be conducted by the lead agencies responsible for CEQA and Section 106 Compliance. Similarly, coordination and consultation with the State Historic Preservation Officer will be required to comply with Section 106. It is expected that tribal consultation effort will be documented within the final version of, or an addendum to, the present report.

5 Review of Effects

According to CEQA and the National Environmental Policy Act, a project with an effect that may cause a substantial adverse change in the significance of a historical resource (historic property) is a project that may have a significant effect (adverse effect) on the environment and the cultural resource itself. A substantial adverse change in the significance of a historical resource/historic property would be constituted by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Significance, under these conditions, is to be interpreted in terms of the resource's eligibility for listing in the CRHR and/or NRHP. To best mitigate the effects of a project on cultural resources, a reasonable, good faith effort must be applied to determining those resources' archaeological character and eligibility for CRHR/NRHP listing.

5.1 Thresholds of Significance

The significance criteria used to evaluate a project's impacts to cultural resources under CEQA are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to cultural resources would occur if the project would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.
c. Disturb any human remains, including those interred outside of dedicated cemeteries.

5.2 Effects/Impacts Analysis

Threshold a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No historic built-environment resources are present within or in the immediate vicinity of the APE.

Threshold b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

A records search was completed for the current APE and a 0.5-mile buffer by staff at the NCIC at California State University Sacramento on June 4, 2024. The NCIC records search did not identify any archaeological resources within the APE.

The NAHC was contacted by Dudek staff on October 23, 2024 to request a search of its Sacred Lands File. The NAHC responded on November 4, 2024 indicating that no Native American resources on file with the NAHC fall within the project APE. Tribal coordination pursuant to Assembly Bill 52 will be completed by the CEQA lead agency. Consultation pursuant to Section 106 of the NHPA, should this be required, will be completed by the federal lead agency.

As previously discussed, one newly identified historic-era site (DS-ES-001) was identified within the project APE during Dudek's pedestrian survey. This site consists of a series of prospect pits with associated tailings distributed

across the APE. The sites have no known specific associations with significant individuals, important regional applications, or historical trends of note that are apparent or otherwise documented.

To be eligible for listing in the CRHR/NRHP, a site must have "yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation" (PRC Section 5024.1; 14 CCR 4852). The sites appear to be opportunistic dumping locations, and not substantially associated with any specific significant events locally, regionally, or nationally (Criterion 1/A); are not directly associated with the lives of any important people locally, regionally, or nationally (Criterion 2/B); do not contain architecture (Criterion 3/C); and, beyond the attributes captured through recordation, do not have the potential to yield information locally, regionally, or nationally (Criterion 4/D). Historic-era mining sites of this type are found throughout the region and the site does not represent a "unique" resource as defined under CEQA. Any data potential associated with site has been exhausted through recordation. As such, this resource is not recommended to be eligible for listing in the CRHR/NRHP, and impacts/effects that would occur through planned project disturbances would be less than significant (no adverse effect to historic properties).

The NCIC records search did identify a number of previously recorded sites within 0.5-mile of the project site. However, all these resources consist of structures, foundations, ditches, and similar historic-era resources. No prehistoric resources are documented within the record search area. Furthermore, the surface of the APE has been partially disturbed by the mining activities documented above. Given these findings, although portions of the APE remain relatively undisturbed, the potential of encountering and impacting unknown and/or significant (as defined under regulatory conditions) archaeological resources during project implementation is considered low.

If such unanticipated discoveries were encountered, impacts to encountered resources could be potentially significant. However, recommended management strategies intended to address potential impacts to unanticipated cultural resources are provided in detail below and should be added as mitigation measures for the Project. 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 or Section 106. Avoidance and/or other methods of preservation in place should be considered the preferred management strategy. Should avoidance be infeasible, 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.

Through implementation of recommended management strategies, potentially significant impacts to archaeological resources would be reduced to a less than significant level. Therefore, impacts would be less than significant with the management strategies recommended below incorporated.

Threshold c. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

No prehistoric or historic-era burials were identified within the APE as a result of the records search or survey. The project is not part of a dedicated cemetery. The NCIC records search did not indicate that burials of prehistoric Native American origin have been identified within 0.5 miles of the APE. The recommended management strategies outlined below pertaining to unanticipated discovery of human remains would ensure that any human remains would be appropriately respected and treated in compliance with regulatory

requirements. Recommended management strategies below also include appropriate implementation of California Health and Safety Code Section 7050.5, PRC Section 5097.98, and other pertinent regulatory requirements. Compliance with applicable state regulations related to the potential disturbance of human remains and remains of potential Native American origin would be adequate to address any potential impacts.

6 Summary and Management Considerations

The current archaeological resources inventory was completed to satisfy the requirements of CEQA and Section 106 of the NHPA. Dudek's cultural resources inventory of the APE suggests that there is low potential for the inadvertent impact to unanticipated cultural resources located on the surface and/or related subsurface deposits. The NCIC records search identified no previously recorded resources within the APE. One newly recorded historic-era cultural resource was documented as a result of pedestrian survey. This archaeological site was recorded to practice standards within the present report and its confidential appendix which includes a DPR form. This site was evaluated and found to not meet the significance criteria under CRHR (criteria 1, 2, 3, or 4) or NRHP (criteria A, B, C, or D). All data potential has been exhausted through the process of recordation. As such, impacts to these sites would not represent a significant impact under CEQA or adverse effect under the NHPA.

Some soils within the APE appear relatively undisturbed and represent suitable conditions to support the presence of cultural deposits in the area. Waterways and riverine communities were attractive resources for prehistoric people and generally have a higher potential for buried deposits. However, archaeological survey and records search information do not indicate that there are likely to be unanticipated, complex archaeological sites in the APE. Based on these considerations, the following management recommendations have been provided to ensure that the project will not impact unanticipated significant cultural resources.

6.1 Recommendations

No potentially sensitive archaeological resources were identified during field efforts in support of the project. However, there is low to moderate potential for encountering unanticipated significant cultural resources and human remains during project implementation. With implementation of the below recommendations, impacts to archaeological resources and human remains would be less than significant.

Unanticipated Discovery of Archaeological Resources

In the event that previously unrecorded 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 or Section 106, 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 and USACE, if applicable, 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 descendants (MLD) 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.

7 References

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36 CFR 800.1–800.16 and Appendix A. Protection of Historic Properties.

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Appendix A (Confidential)

Records Search Maps and Information

Appendix B (Confidential)

NAHC Sacred Lands File Search

Appendix C (Confidential)

APE Maps and Site Records

Appendix D

Resumes for Key Cultural Personnel

Nicholas Hanten

ARCHAEOLOGIST

Nicholas Hanten (*NIK-o-luss HAN-ten; he/him*) is an archaeologist with 15 years' experience conducting and leading archaeological projects throughout California, including archaeological survey, evaluation, and data recovery investigations; construction monitoring; and laboratory procedures, including artifact cataloging, analysis, and curation preparation. Mr. Hanten also has experience with technical report writing for compliance with local, state, and federal regulations.

Mr. Hanten's research interests include prehistoric hunter-gatherer subsistence and settlement systems, prehistoric land use, and human behavioral ecology. His PhD dissertation research focuses on modeling changing subsistence and settlement patterns in the Central Sierra Nevada, combining ecological models with spatial data analysis of resource availability and other factors.

Education

University of California, Davis
PhD, Anthropology, in progress (advanced to candidacy, 2018)
MA, Anthropology, 2016
BS, Anthropology, 2011

Professional Affiliations

Society for California Archaeology

Society for American Archaeology

Project Experience

Development

Hunter Subdivision Project, City of St. Helena, California. As archaeologist, assisted with field excavations and coauthored the technical report for a housing development project. (2020)

Yokohl Ranch Housing Development Project, The Yokohl Ranch Company, LLC, Tulare County, California. As field director, managed and conducted surface mapping, surface collection, and excavation of 95 prehistoric and historical period sites throughout the Yokohl Valley. As lab director, managed and conducted the cataloging and analysis of all material recovered during excavation and authored laboratory portions of the technical report for a large housing development project. (2012–2014)

Winchester 1800–Saba Property, French Valley Acres LLC, Riverside, California. As field director, conducted a pedestrian survey of 40 acres for a proposed housing development and prepared a letter report of findings for a housing development project. (2014)

Poseidon Wetland Mitigation Area, Poseidon Water LLC, San Diego, California. As lab director, managed the cataloging and analysis of artifacts recovered from excavations and assisted in authoring the final report of findings. (2013)

Alessandro Business Park, Western RealCo, Riverside, California. As archaeological monitor and crew chief, monitored the excavation of potholes and trenches in collaboration with Native American monitors. Also, recorded and excavated five prehistoric archaeological sites. (2014)

St. John Garabed Church Environmental Services, St. John Garabed Apostolic Church Trust, San Diego, California. As crew chief and lab director, assisted in conducting test excavations for one prehistoric site, managed the cataloging and analysis of recovered artifacts, and assisted in preparing a report of findings. (2013)

Education

Emerson Hall Replacement Project, University of California, Davis, California. As field archaeologist, conducted pedestrian survey and built environment documentation for the university development project. (2017)

Cultural Resources Study for Kings Beach Elementary School Modernization, Kings Beach Elementary School, Placer County, California. As field archaeologist, conducted pedestrian survey and resource documentation for archaeological and built environment studies for the campus improvement project. (2016)

Track and Field Improvements Project, Truckee High School, Nevada County, California. As archaeologist, conducted pedestrian survey and resource documentation and coauthored the technical report for the campus improvement project. (2015)

Lady of Peace Academy Parking Structure Cultural Monitoring, T.B. Penick & Sons Inc., San Diego, California. As crew chief and lab director, assisted in conducting test excavations for one historic site during project monitoring. Also, managed the cataloging and analysis of recovered artifacts. (2014)

Cultural Resource Study for the Kearny High School Athletic Field Redevelopment, BRG Consulting, San Diego, California. As crew chief, conducted pedestrian survey and wrote report. (2012)

Significance Evaluation of SDI-20363 for the San Marcos High School Expansion Project, San Marcos Unified School District, San Diego County, California. As crew chief, assisted in test excavations and GPS data collection for a buried prehistoric site for the campus construction project. (2012)

Energy

Strategic Reliability Reserve, Self-Certification Environmental Support, California Department of Water Resources, Santa Barbara, Merced, and San Joaquin Counties, California. As archaeologist, authored technical reports for four proposed energy generation facilities. Coordinated archaeological monitoring and authored cultural resource monitoring plan for location in San Joaquin County. (2022–2023)

Energy Storage Project, Sonoma County, California. As archaeologist, assisted with record search request and testing for energy storage project. (2022)

Solar Energy Project, Washoe County, Nevada. As archaeologist, assisted with site recordation and cultural resource monitoring for large solar project. (2021–2022)

Solar Energy Project, Sacramento, California. As field director, conducted record search, led intensive pedestrian survey, recorded and evaluated sites, and coauthored technical report for 2,555-acre proposed solar energy project. (2021–2023)

Vegetation Management Program, Pacific Gas and Electric, Multiple Counties, California. As archaeologist, performed archaeological survey and monitoring, and authored technical reports and memos in support of Pacific Gas and Electric's vegetation management program on lands administered by multiple agencies, including the Bureau of Land Management and U.S. Forest Service. Individual projects are in Amador, Calaveras, Fresno, Mariposa, Madera, Stanislaus, San Joaquin, and Santa Clara Counties. (2021–Ongoing)

Ceres Energy Storage Project, Viridity Energy Solutions Inc., San Joaquin County, California. As archaeologist, conducted record search, performed pedestrian survey, and authored the technical letter report for the renewable energy storage project. (2021)

Solar Energy Project, Sacramento, California. As field director, conducted record search, led pedestrian survey, and coauthored technical report for proposed 740-acre solar project. (2020–2023)

Energy Storage Project, San Joaquin County, California. As archaeologist, conducted intensive pedestrian survey for an energy storage project. (2020)

Avenal Energy Storage Project, Jupiter Power LLC, Kern County, California. As archaeologist, conducted record search, performed pedestrian survey, and authored the technical letter report for the energy storage project. (2020)

Solar Energy Project, Sacramento County, California. As archaeological monitor, monitored the installation of a solar energy facility in collaboration with Native American monitors for the solar farm project. (2019)

Wind Energy Project, Santa Barbara County, California. As archaeologist, assisted with testing and data recovery excavations, served as lab director and primary lithic analyst for testing phase, and coauthored the technical report for the large wind farm project. (2019)

Wind Energy Project, Bureau of Land Management, Imperial County, California. As third-party monitor, monitored construction activities and archaeological monitors to ensure that all activities were in compliance with Bureau of Land Management regulations. (2012)

Oil Field Project, Bakersfield, California. As field director, conducted a pedestrian survey of 32 acres for a proposed oil field expansion and prepared a letter report of findings. (2013)

Solar Energy Project, San Diego, California. As field director, conducted pedestrian survey of 12 acres for a proposed solar generation facility. (2013)

Archaeological Evaluation for the Rugged Solar Project, County of San Diego, California. As crew member, assisted in test excavation, pedestrian survey, and GPS data collection with a Trimble GPS unit. (2012)

Gold Basin Project Meteorological Mast Construction, LH Renewables, San Diego County, California. As monitor, conducted pedestrian survey of the project area and monitored construction activities. (2012)

Significance Evaluation of Four Prehistoric Archaeological Sites for the GCL/Rosendin Sol Focus Project, RBF Consulting, Borrego Springs, California. As crew chief, assisted in test excavations at prehistoric temporary camps. (2012)

Sol Orchard Solar Project, RBF Consulting, San Diego County, California. As crew chief, conducted intensive pedestrian survey of multiple parcels for the solar development. (2010)

Sunrise Powerlink Project, San Diego Gas & Electric, San Diego County, California. As crew chief, conducted small pedestrian surveys and monitoring for utility pole replacement. (2009)

Military

Utility Corridor Survey at Edwards Air Force Base, U.S. Air Force, JT3, Riverside, California. As field director, conducted pedestrian survey and site recordation throughout the base. Also, coauthored the technical report. (2014)

Phase I Cultural Resources Inventory of 7,650 Acres on Edwards Air Force Base, CH2M HILL/JT3, Kern County, California. As crew chief, assisted in pedestrian survey and GPS data collection with a Trimble GPS unit and authored portions of the technical report. (2011–2012)

Cultural Resource Monitoring for the Red Beach Mobile Mount Project, Marine Corps Base Camp Pendleton, San Diego County, California. As monitor, conducted a small pedestrian survey and monitored construction activities. (2010)

Archaeological Investigations at SDI-9824, Marine Corps Base Camp Pendleton, San Diego County, California. As crew chief, assisted in archaeological excavation, ground-penetrating radar, and x-ray fluorescence study of a late prehistoric archaeological site. (2010)

Phase II Evaluation of 85 Archaeological Sites on Edwards Air Force Base, CH2M HILL/JT3, Kern and Los Angeles Counties, California. As crew chief, assisted in test excavations, pedestrian survey, and GPS data collection. Also, assisted with laboratory analysis and curation preparation. (2009–2010)

Section 106 Evaluations of Two Prehistoric Sites for Firebreak Maintenance, Vandenberg Air Force Base, Santa Barbara County, California. As student assistant, assisted in test excavations at complex prehistoric habitation sites for the University of California (UC), Davis, Archaeological Field School. (2008)

Municipal

2040 General Plan Master Environmental Impact Report, City of Sacramento, California. Assisted with preparation of cultural resources section and coauthored technical background report for environmental impact report. (2021, 2023)

Fiber Optic Project, County of El Dorado, California. As archaeologist, assisted with technical report and tribal outreach for proposed fiber optic install project. (2021)

Neal Road Recycling Facility Project, County of Butte, California. As archaeologist, conducted record search, performed pedestrian survey, and authored report for the waste management facility construction project. (2020)

Sacramento International Airport Cargo Facility Project, Landrum & Brown, Sacramento County, California. As field lead, coordinated and performed pedestrian survey and coauthored the technical report for the airport improvements project. (2020)

North 16th Street Streetscape, City of Sacramento, California. As field technician, assisted with resource documentation for the street revitalization project. (2018)

North Natomas Aquatic Center Project, City of Sacramento, California. As archaeologist, conducted pedestrian survey and assisted with report production for the development project. (2017)

Maidu Bike Park Project, Auburn Area Recreation and Park District, California. As archaeologist, conducted record search and pedestrian survey for the construction project. (2014)

Cultural Resources Testing for the Silver Strand State Beach Project, California State Parks, San Diego County, California. As crew chief, conducted pedestrian survey and test excavations and assisted in report production. (2012)

Archaeological Survey and Evaluations for the Star Ranch Project, County of San Diego Department of Planning and Land Use, California. As lab technician, cataloged and analyzed the assemblage recovered from a previous testing of the project area. (2011)

Resource Management

Martis Wildlife Area Restoration Project, Truckee River Watershed Council, Placer County, California. As archaeologist, conducted construction monitoring and assisted with field excavations and laboratory analysis. Coauthored the technical report/site impacts assessment for the habitat restoration project. (2019–2020)

Camp 5 Notice of Emergency Timber Operations Project, El Dorado Irrigation District, El Dorado County, California. As archaeologist, conducted pedestrian survey of the project area and coauthored the technical report for the resource management project. (2015)

Water/Wastewater

Sisk Dam Safety of Dams Modification Project, California Department of Water Resources, Merced County, California. As archaeologist, coordinated cultural resource monitoring and compliance for safety modifications for B.F. Sisk Dam. (2022–2023)

Zone 4 Tank and Pump Station, Tuolumne Utility District, Tuolumne County, California. As archaeologist, authored technical report for water tank and pump replacement project. (2022)

Delta Dams Safety of Dams California Environmental Quality Act and Permitting, California Department of Water Resources, Stanislaus and Santa Clara Counties, California. As archaeologist, performed pedestrian survey and coauthored the technical report. (2021)

Upper Feather River Spillway Underdrains Project, California Department of Water Resources, Plumas County, California. As archaeologist, conducted record search and performed pedestrian survey. Also, coauthored the technical report. (2020–2021)

Castaic Office Environmental Technical Services, California Department of Water Resources, Kern County, California. As archaeologist, conducted record search and performed pedestrian survey for a portion of the California Aqueduct. (2020–2021)

Bear River Debris Removal Project, Calaveras County Water District, Calaveras County, California. As archaeologist, assisted with record search and tribal consultation. (2020)

El Dorado Hills Wastewater Collection Facility Relocation Project, El Dorado Irrigation District, El Dorado County, California. As archaeologist, conducted pedestrian survey and resource documentation for the project. (2017)

Cultural Resources Inventory for Woodland Recycled Water Project, City of Woodland, California. As archaeologist, conducted pedestrian survey and resource documentation for the project and coauthored the technical letter report. (2014)

Carlsbad Desalination Plant Cultural and Biological Monitoring, Poseidon Resources, California. As archaeological monitor, monitored the trenching, grading, and installation of water lines. (2013)

Relevant Previous Experience

Teaching Assistant, UC Davis, California. Taught discussion sections, labs, and lectures for human evolution, archaeology, and social anthropology courses. (2014–2020)

Instructor/Principal Investigator, UC Davis Archaeological Field School, California. Led excavations in Calaveras County. (2018)

Instructor/Principal Investigator, UC Davis Archaeological Field School, California. Led excavations and surveys in Mariposa and Mono Counties. (2017)

Co-Instructor/Co-Field Director, UC Davis Archaeological Field School, California. Led excavations in Santa Clara and Solano Counties. (2016)

Publications

Hanten, N., and N. Stevens. 2010. "The Reliability of Microscopic Use-Wear Analysis on Monterey Chert Tools." *Proceedings of the Society of California Archaeology* 24.

Presentations

Hanten, N. 2019. "When and Where: Modeling the Spread of the Ethnographic Subsistence Pattern in the Prehistoric Central Sierra Nevada." Presented at the SCA Annual Meeting, Sacramento, California, 2019.

Hanten, N.J., A. Booth, K. Burkett, A. Fuchs, I. Araujo, and B. Witzel. 2019. "Preliminary Results from the 2018 UC Davis Field School, Excavations at CA-CAL-242 near Murphys, CA." Presented at the SCA Annual Meeting, Sacramento, California, 2019.

Chen, J., S. Crocker, K. Vorsheim, N.J. Hanten, and B. Hull. 2018. "Survey Results from the 2017 University of California, Davis Archaeological Field School: Site Composition in the Sagebrush and Pinyon Juniper Zones, Southern Mono County, California." Presented at the SCA Annual Meeting, San Diego, California, 2018.

Diaz, L., C.E. Beckham, W. England, Z. Thomas, N.J. Hanten, and B. Hull. 2018. "Preliminary Results from the 2017 University of California, Davis Field School, Excavations at the Lower Merced River, Mariposa County, CA." Presented at the SCA Annual Meeting, San Diego, California, 2018.

Hanten, N. 2017. "Settlement Patterns and the Ideal Free Distribution in the Archaeology and Ethnography of the Sierra Nevada of California." Presented at the SAA Annual Meeting, Vancouver, British Columbia, 2017.

Hanten, N. 2017. "Settlement Patterns and the Ideal Free Distribution in the Archaeology and Ethnography of the Sierra Nevada of California." Presented at the SCA Annual Meeting, Fish Camp, California, 2017.

Hanten, N., J.W. Eerkens, and S.D. Talcott. 2016. "Stable Isotope Analysis of Canis Remains from Central California." Presented at SCA Annual Meeting, Ontario, California, 2016.

Hanten, N. 2010. "The Reliability of Microscopic Use-Wear Analysis on Monterey Chert Tools." Presented at "Other sides of the Trowel: Perspectives on Student Research and Fieldwork," a symposium at the SCA Annual Meeting, Riverside, California, 2010.

Awards

Evolutionary Anthropology Summer Fellowship. Awarded by the UC Davis Department of Anthropology for the research project "Resource Distribution and Settlement Patterns in the Central Sierra Nevada." (2017)

Evolutionary Anthropology Summer Fellowship. Awarded by the UC Davis Department of Anthropology for the research project "Stable Isotope Analysis of Prehistoric Dogs in Central California." (2015)

UC Los Angeles Undergraduate Student Research Award. Won 1st Place at the SCA Annual Meeting for the presentation "The Reliability of Microscopic Use-Wear Analysis on Monterey Chert Tools." (2010)

UC Davis Regents Scholarship. Received a 4-year scholarship awarded to the top 0.5% of applicant class. (2006–2010)

Adam Giacinto

ARCHAEOLOGIST

Adam Giacinto is an archaeologist with 13 years' experience preparing cultural resource reports, site records, and managing archaeological survey, evaluation, and data recovery-level investigations. His research interests include prehistoric hunter-gatherer cultures and contemporary conceptions of heritage. His current research focuses on the social, historical, archaeological, and political mechanisms surrounding heritage values. He has gained practical experience in archaeological and ethnographic field methods while conducting research in the Southwest, Mexico, and Eastern Europe.

Mr. Giacinto brings specialized experience in cultural resources information processing gained while working at the South Coastal Information Center. He has worked as part of a nonprofit collaboration in designing and managing a large-scale, preservation-oriented, standardized database and conducting site and impact predictive Geographic Information Systems (GIS) analysis of the cultural resources landscape surrounding ancient Lake Cahuilla. He provides experience in ethnographic and applied anthropological methods gained in urban and rural settings, both in the United States and internationally.



Education

San Diego State University
MA, Anthropology, 2011

Santa Rosa Junior College
AA, Anthropology, 2004

Sonoma State University
BA, Anthropology/ Linguistics, 2006

Professional Affiliations

Register of Professional Archaeologists

Society for California Archaeology American Anthropological Association Institute of Archaeomythology

American Anthropological Association

Project Experience

Development

Canergy–Rutherford Road Development Project, Ericsson–Grant Inc., El Centro, California. As co-principal investigator, coordinated records searches, Native American contact, map preparation and fieldwork.

Park Boulevard Environmental Impact Report (EIR), City of Palo Alto, California. As principal archaeological investigator, coordinated a Northwest Indian College (NWIC) records search, Native American Heritage Commission (NAHC) and Native American consultation, archaeological survey, and preparation of a technical report and EIR section. An appropriate mitigation strategy was developed and provided to the City of Palo Alto for this negative cultural inventory.

Oro Verde Development Fire Protection Planning, Wohlford Land Company LLC, Valley Center, California. As principal investigator, coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical letter report for this small residential development. The mitigation strategy did not require additional archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted to the County of San Diego.

Fifth Avenue Development Cultural Inventory, E2 ManageTech Inc., Chula Vista, California. As principal investigator, coordinated the preparation of a paleontological, archaeological, and historic resource inventory for a proposed residential project. Responsibilities included a SCIC records search, San Diego Natural History Museum

(SDNHM) records search, archival research, agency and client communication, GIS, and compiling the technical report and appendices. Results were submitted as a technical report s to the City of Chula Vista.

Normal Street Evaluations, Darco Engineering Inc., San Diego, California. As principal investigator, managed the preparation of a historic resource evaluation for a number of buildings located in the community of University Heights. Responsibilities included an SCIC records search, agency and client communication, archival research, GIS, and compiling the technical report and appendices. Results were submitted as a technical report and associated appendices to the City of San Diego.

Mapleton Park Centre Site Analysis, Kaiser Foundation Health Plan Inc., Murrieta, California. As principal archaeological consultant, prepared project constraints study, within the County of Riverside.

New Kaiser Permanente Medical Center EIR, Kaiser Foundation Health Plan Inc., San Diego, California. As field director, conducted survey of proposed medical center and reported negative findings to the City of San Diego.

St. John Garabed Church Environmental Services, St. John Garabed Armenian Apostolic Church Trust, San Diego, California. As field director and co-principal investigator, conducted a survey of the proposed church facilities and reported findings to the City of San Diego. Additional responsibilities included preparation of the cultural and paleontological sections for the project EIR.

PMC Quarry Creek Project Phase II Cultural Evaluation, McMillin Land Development, Carlsbad, California. As field director, managed and conducted archaeological testing, data analysis, report writing and mapping of existing cultural resources within the 60-acre Quarry Creek Project study area.

University Office and Medical Park Project Cultural Resource Study Survey, U.S. Army Corps of Engineers (ACOE), San Marcos, California. As field director, managed a team of archaeologists in conducting survey of the 49.5-acre study area in a general inventory of potentially impacted cultural resources and prepared maps and a report for the presentation of this information.

Education

Vacaville Center Campus Project, Solano Community College District, City of Vacaville, California. As principal archaeological investigator, coordinated a NWIC records search, NAHC and Native American communication, archaeological survey, and preparation of a technical report. Recommendations were framed in compliance with California Environmental Quality Act (CEQA) regulations and submitted to the lead agency.

Mission Beach Elementary School EIR, McKellar McGowan, San Diego, California. As principal archaeological investigator, coordinated Southern California Indian Center (SCIC) records search, NAHC, and Native American consultation, archaeological survey, and preparation of a technical report. The mitigation strategy did not require archaeological monitoring or other work based on the lack of archaeological sites, as well as the low potential for encountering unrecorded subsurface cultural resources. Submitted recommendations to the City of San Diego.

San Diego State University (SDSU) West Campus Housing EIR/Tech Studies, Gatzke, Dillon and Ballance, San Diego, California. As principal archaeological investigator, coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report and EIR section. An appropriate mitigation strategy was developed and provided to SDSU for this negative cultural inventory.

Orange Coast College Initial Study (IS), Coast Community College District, Orange, California. As principal archaeological investigator, coordinated records search, NAHC and Native American consultation, archaeological survey, preparation of a technical report, and provided management and compliance recommendations relating to cultural resources on three Orange County College campuses.

Energy

McCoy Solar Energy Project, McCoy Solar LLC, Blythe, California. As principal investigator, supervised, implemented, and reported upon data recovery efforts under Section 106 of the National Historic Preservation Act (NHPA), Bureau of Land Management (BLM) Guidelines, CEQA, and County of Riverside Guidelines. General responsibilities included day to day scheduling oversight of Native American monitors and archaeologists, tribal interface, management of cultural monitoring implementation, and agency reporting. Worked with the Dudek Compliance team to provide cultural summaries for 14 variance requests. Reporting included preperation and submittal of daily cultural resource summaries to interested tribal parties and the BLM, monthly summaries of cultural compliance status and treatment of unanticipated finds, bi-weekly BLM-McCoy Solar meetings and a montitoring summary report. Mr. Giacinto was the lead in two formal trainings with monitors and counsel members from the Colorado River Indian Tribes regarding federal and state regulations relating to human remains, County and BLM guiding documents, identification of cultural material, and the multiple understandings of "cultural resources."

BayWa Granger Solar Site Survey, RBF Consulting, Valley Center, California. As principal investigator, managed the inventory and prepared management recommendations for a proposed solar farm in Valley Center, California. A relationship of open dialogue between Mr. Giacinto and the client allowed for the project design to avoid significant direct and indirect impacts to cultural resources the proper the development of compliant mitigation and informed project design. Results were submitted to the County of San Diego Department of Planning and Land Use.

Valley Center Solar Site Survey, RBF Consulting, Valley Center, California. As Principal Investigator, managed inventory and prepared management recommendations for a proposed solar farm. A relationship of open dialogue between Mr. Giacinto and the client allowed for the project design to avoid significant direct and indirect impacts to cultural resources the proper the development of compliant mitigation and informed project design. Results were submitted to the County of San Diego Department of Planning and Landuse.

Wind Energy Project, Confidential Client, Riverside, California. As principal cultural investigator, prepared the cultural scope and schedule, coordinated the records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report for the County of Riverside that provided management and compliance recommendations relating to identified cultural resources. Additional responsibilities included coordination of paleontological and Native American monitor subconsultants.

Gas Line for Poway Pump Station, City of Poway, San Diego County California. As principal investigator, conducted an inventory, coordinated survey, and provided amangement recommendations in technical report.

Sol Orchard Solar Farm, RBF Consulting, Ramona, California. As Principal Investigator, coordinated archaeological and Native American monitoring and prepared management recommendations for a proposed solar farm in Ramona, California. All impacts to significant cultural resources in the vicinity were avoided. Results were submitted to the County of San Diego.

Solar Farm Cultural Resources Services, Confidential Client, San Diego, California. As project director, managed a crew of 8 archaeologists in conducting the survey, surface mapping, surface collection, and excavation of 13 prehistoric and historical period sites throughout the McCain Valley.

Makani Power Wind Turbine Pilot Program, Google Inc., Alameda, California. As principal investigator, coordinated a NWIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical memo a for this potential wind farm. The mitigation strategy did not require additional

archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted as a categorical exemption to the reviewing agency.

As-Needed Environmental Analysis for Solar Project Road Access, Confidential Client, San Diego, California. As field director, managed a crew of 12 archaeologists in conducting the survey, surface mapping, surface collection and excavation of 42 prehistoric and historical period sites throughout the McCain Valley.

East County Substation EIR/Environmental Impact Statement (EIS), California Public Utilities Commission (CPUC), San Diego County, California. As field archaeologist, worked as part of a team to survey the possible impacts to exiting and newly recorded cultural resources.

Class III Cultural Resources Inventory for Meteorological Masts 1 and 4 and Access Roads, Iberdrola Renewables, Kern County, California. As field director, managed a team of archaeologists in conducting surveys of the study area in a general inventory of potentially impacted cultural resources.

Wood to Steel Pole Conversion Survey, San Diego Gas and Electric (SDG&E), San Diego County, California. As crew chief, managed a team of archaeologists in conducting a survey of Circuit 75 in a general inventory of potentially impacted cultural resources.

Sunrise Powerlink Project Monitoring, SDG&E, Imperial and San Diego Counties, California. As a field director, assisted in managing an archaeological field crew, aided in data collection, and conducted monitoring by facilitating planned mitigation strategies of construction and pre-construction activities associated with a 500-kilovolt (kV) transmission line, access roads, and work areas.

Cal Valley Solar Ranch-Switchyard Site No. 3 Archaeological Testing, Ecology & Environment Inc., San Luis Obispo County, California. With team of archaeologists, conducted excavations and performed general testing of a middle prehistoric site.

Wood to Steel Pole Conversion, SDG&E, Cleveland National Forest (CNF), San Diego County, California. As crew chief, managed a team of archaeologists in conducting a survey of Circuit 440 in a general inventory of potentially impacted cultural resources.

Devers to Palo Verde 2 (DPV2) Colorado River Substation Project Monitoring, Southern California Edison (SCE), Blythe, California. As project archaeologist, monitored the geotechnical testing of soils along access road leading into Colorado River Substation from the west.

Sunrise Powerlink Pole Fielding and Environmental Monitoring, SDG&E, Imperial and San Diego Counties, California. As the archaeological representative, worked with SDG&E-contracted engineers, surveyors, and biologists to assess proposed work areas, access roads, and structure locations for possible impacts upon existing cultural resources.

Wood to Steel Pole Conversion Pole Fielding, SDG&E and CNF, San Diego County, California. As the archaeological representative, worked with SDGE-contracted engineers, surveyors, and biologists to assess proposed pole transmission pole locations for possible impacts upon existing cultural resources.

Wood to Steel Pole Conversion, SDG&E and CNF, San Diego County, California. As field archaeologist, worked as part of a team to survey segments of Circuit 449, Circuit 78, TL 625, and TL 629 for possible impacts to existing cultural resources.

Guy Pole and Stub Pole Removal Monitoring, SDG&E, Carlsbad, California. As archaeological representative, monitored activities associated with the removal of existing unused energy transmission infrastructure in an area near recorded cultural resources of noted significance.

DPV2 500 kV Transmission Line Survey, SCE, Riverside County, California. As field archaeologist, worked as part of a team to survey more than 45 miles of linear proposed project area. Conducted an intensive inventory of prehistoric and historical period cultural resources from Desert Center to Thousand Palms.

DPV2 Colorado Switchyard Survey, SCE, Riverside County, California. As project archaeologist, prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior field survey for a fiber-optic ground wire project for DPV2 Colorado switchyard in Blythe.

Pole Replacement Projects Surveying, SCE, Orange and Riverside Counties, California. As project archaeologist, prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior to fieldwork for the deteriorated pole project within the CNF, and deteriorated pole and pole replacement on private property.

Sunrise Powerlink Environmentally Superior Southern Alternative Survey, SDG&E, San Diego and Imperial Counties, California. As project archaeologist, assisted in preparing the site records gathered through a pre-field records search and digitized the boundaries if archaeological sites in GIS illustrating the location and type of preexisting cultural resources, and a records search of existing site data for alternative route.

Military

Cultural Resources Inventory, March Joint Powers Authority, Riverside County, California. As principal investigator, managed the field efforts, reporting, and facilitated tribal consultation for cultural inventory. The report included preparation of a cultural context for WW-I and WW-II era history of the air fields and camp in the vicinity. Resource considerations were compliant with CEQA and Section 106 of the NHPA.

Utility Corridor Survey at Edwards Air Force Base (EAFB), U.S. Air Force (USAF), Riverside, California. As archaeologist, guided the design and preparation of digital field forms to assist in the recordation of archaeological resources at archaeological sites throughout the EAFB, including the Pancho Barnes site.

Infill Survey Project at EAFB, USAF, Riverside, California. As crew chief, managed a team of five archaeologists in conducting a general pedestrian inventory of cultural resources within a 7,650-acre study area.

Desert Warfare Training Facility Cultural Resources Inventory Project, U.S. Navy Southwest, Imperial County, California. As field archaeologist, worked as part of a team to conduct an intensive inventory of prehistoric and historical period cultural resources in selected areas within the Chocolate Mountains Gunnery Range in Niland.

Morgan/Bircham 55 to 12 kV Project Survey, U.S. Navy-Naval Air Weapons Station (NAWS)-China Lake, Inyo County, California. As project archaeologist, prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior to field survey at NAWS China Lake.

Resource Management

Yokohl Ranch Cultural Resources, The Yokohl Ranch Company LLC, Tulare, California. As co-principal investigator and field director, managed 15 archaeologists in conducting 1,900 acres of survey throughout the Yokohl Valley.

Hamilton Hospital Project, City of Novato, California. As principal investigator, managed tribal and archaeological fieldwork and methodological reporting relating to the extended Phase I inventory geoprobe drilling and shovel test pit excavation. Considerations included compliance under CEQA and local regulations.

Maidu Bike Path and Park Projects, City of Auburn, California. As principal investigator, managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Steephollow Creek and Bear River Restoration, Nevada County, California. As principal investigator, assisted with management of field efforts and preperation of a technical report for a cultural inventory. Resources were evaluated for significance under CEQA, and Section 106 of the NHPA.

Hanson El Monte Pond Restoration, Lakeside's River Park Conservancy, San Diego, California. As principal investigator, managed the field efforts, reporting, and agency interface for a cultural inventory. Resources were evaluated for significance under county guidelines, CEQA, and Section 106 of the NHPA. Worked with the ACOE for submittal of documents to State Historic Preservation Office (SHPO).

Peter's Canyon Regional Park CEQA Study, Orange County Fire Authority, Orange, California. As principal investigator, conducted a cultural resources inventory of all cultural resources within Peters Canyon planned fuel reduction areas. Mr. Giacinto coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report. Recommendations were provided to agency personnel to assist in mitigating any possible adverse effects to cultural resources in the project vicinity.

Yokohl Ranch Development Project, The Yokohl Ranch Company LLC, Tulare County, California. As co-principal investigator and field director, managed 15 archaeologists in conducting significance evaluation of 118 historical and prehistoric cultural resources throughout the Yokohl Valley.

Lake Cahuilla Management Plan, ASM PARC, Riverside County, California. As project archaeologist and lead analyst, led in the formation of a standardized database associated with ancient Lake Cahuilla. Performed GIS data integration and predictive analysis, data entry of site record information, and completed multi-day, multi-person record search for Riverside County.

Third-Party Review and Monitoring

Ocotillo Wind Energy Facility Third-party Compliance Monitoring, BLM, Imperial County, California. As third-party observer, collaborated with the BLM in maintaining cultural compliance with federal environmental policies. In addition, processed archaeological and Native American comments for BLM attention.

Rio Mesa Solar Electric Generating Facility CEQA Studies, BrightSource Energy Inc., Riverside, California. As third-party reviewer, collaborated with the BLM, the California Energy Commission, and Brightsource to review URS Corporation's cultural report content, quality, and environmental compliance.

Tribal

South Palm Canyon West Fork Flood Emergency Work, Agua Caliente Band of Cahuilla Indians, Palm Springs, California. As principal investigator, worked with the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office to conduct archaeological monitoring on tribal lands of emergency repairs within Andreas Canyon National Register of Historic Places listed district. A monitoring report with a summary of findings and implemented mitigation activities, daily monitoring logs and photos, and confidential figures was provided to the tribe.

South Palm Canyon Improvements, Agua Caliente Band of Cahuilla Indians, Palm Springs, California. As principal investigator, worked with the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office to conduct archaeological monitoring on tribal lands of facility improvements within Andreas Canyon National Register of Historic Places listed district. A monitoring report with a summary of findings and implemented mitigation activities, daily monitoring logs and photos, and confidential figures was provided to the tribe.

Shu'luuk Wind Project Cultural Resource Study Survey, Campo Environmental Protection Agency and Invenergy LLC, Campo Indian Reservation, California. As field director, managed two teams of archaeologists, consisting of seven total practitioners, in conducting a survey of the 2,400-acre study area in a general inventory of potentially impacted cultural resources. Worked with Campo Environmental Protection Agency, of the Campo Kumeyaay Nation, in forming management objectives and integrating six Native American Monitors into daily survey activities.

Water/Wastewater

As Needed Planning and Environmental Contract, Recycled Wastewater Treatment Plant Secondary Process Upgrade Improvement Project, City of Auburn, California. As principal investigator, managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Recycled Water Pipeline Project, City of Woodland, California. As principal investigator, managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Carlsbad Desalination Third Addendum to EIR Biological Survey and Monitoring, Poseidon Water LLC, Carlsbad, California. As archaeological consultant, conducted archaeological monitoring and consultation on an as-needed basis.

Old Mission Dam, City of San Diego, California. As principal investigator, conducted an inventory, coordinated survey, and prepared recommendations for the maintenance of the National Register of Historic Places listed resource, Old Mission Dam.

Otay River Wetland Mitigation, Poseidon Water LLC, San Diego, California. As field director, conducted a cultural resources survey of a mitigation property, managed by the U.S. Fish and Wildlife Service (USFWS), to be used for estuary restoration.

Vallecitos Water District Rock Springs Sewer, Infrastructure Engineering Corporation, San Diego, California. As principal investigator, coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical letter report for this small residential development. The mitigation strategy did require additional archaeological monitoring based on the potential to encounter subsurface cultural resources. Recommendations were submitted to the Vallecitos Water District.

Relevant Previous Experience

Guest Lecturer in Cultural Resources for Upper Division CEQA Course, University of San Diego (USD), California. As cultural resources lecturer, was invited to present on cultural resources history and management under CEQA for an upper devision USD course in April, 2015. A presentation was created with the intention of poviding a contextual and technical understanding of how cultural resources are interpreted and evaluatued under CEQA. The implications relating to the Friends of Mamoth (1972) decision and other cases were outlined in detail. AB-52 considerations and timing were summarized, and implications of Tribal Cultural Resources as a class of resources was discussed.

Investigation of Emergent Trends of San Diego Cultural Resource Management, San Diego County, California. As ethnographic researcher, conducted verbal, semi-structured interviews with 17 archaeologists, policy makers, and Native American monitors and curators regarding the history and current practice of Cultural Resource Management. Information was contextualized through extensive background research using legal, academic, specialized, and archival sources. Analysis employed a synthesis of cultural anthropological and archaeological theory and practice. Results were published as MA, thesis in Anthropology at SDSU (2012).

Needs Assessment/Diagnostic for the Community of La Sierra de San Francisco, Baja California Sur, Mexico. As ethnographic researcher, worked for SDSU through a grant provided by the International Community Foundation to conduct a general needs assessment in a UNESCO protected community within a UNESCO defined region of World Heritage, la Sierra de San Francisco. Resolved to help with improving the infrastructure of potable water, assisting in the construction of a system of telecommunications for education, and conducting workshops aimed at the preservation of local prehistoric and historical cultural and archaeological resources (2010).

Ethnographic Field School, Zimatlan, Oaxaca, Mexico. As ethnographic student/researcher for SDSU, lived with local family and conducted interviews with local population regarding microcredit, sustainable/traditional agriculture and husbandry. Additionally, compiled audio/visual digital stories with local youth and conducted training in research and appropriate documentation. Emphasis was placed on dietary and generational cultural changes (2009).

Research Assistant, SDSU Collections Management, San Diego, California. As graduate student at SDSU, worked in Collections Management under the instruction of Dr. Lynn Gamble (2007). Responsibilities included laboratory analyses, data entry, record processing, and collections curation management.

Research Assistant, South Coastal Information Center (SCIC), SDSU, San Diego California. As graduate student at SDSU, worked at SCIC under the instruction of Dr. Seth Mallios (2008). Responsibilities included site record and report processing and resource mapping.

Archaeological Field School, SDSU, San Diego California. As graduate student at SDSU, attended an archaeological fieldschool at Cuyamaca Complex Type Site under the instruction of Dr. Lynn Gamble (2007).

Archaeological Researcher, Institute of Archaeomythology, Sebastopol, California. As as researcher and photographer, attended lectures and assisted with symposiums in Bulgaria, Serbia and Romania (2004 and 2008)

Archaeological Field School, Sonoma State University (SSU), Rohnert Park, California. As undergraduate student at SSU, attended an archaeological fieldschool under the instruction of Dr. Adrian Praetzellis (2005).

Publications

Conway, F., R. Espinoza, and A. Giacinto. 2010 “Results of Needs Assessment Conducted with Communities of La Sierra de San Francisco, 2009-2010.” Submitted to the International Community Foundation.

Giacinto, Adam. 2010. “A Qualitative History of "Cultural Resource" Management.” *ethnographix.org.* May 2010.

Giacinto, Adam. 2010. “A Qualitative Investigation of "Cultural Resource" Management In San Diego.” *The Society for the Anthropology of North America.* April 2010.

Giacinto, Adam. 2011. “A Qualitative History of "Cultural Resource" Management.” *anthropologiesproject.org.* May 2011.

Giacinto, Adam. 2012. "Emergent Trends of Cultural Resource Management: Alternative Conceptions of Past, Present and Place." MA, thesis in Anthropology, San Diego State University, 2012.

Technical Reports

Castells, J. and A. Giacinto 2013. "Archaeological, Historical, and Paleontological Resources Inventory for the 5th Avenue Chula Vista Development Project, City of Chula Vista, California." Prepared for E2 ManageTech Inc. Submitted to City of Chula Vista.

Castells, J. and A. Giacinto 2014. "Historic Resources Inventory for the Normal Street Project, City of San Diego, California." Submitted to City of San Diego.

Cook, J.R., A. Garcia-Herbst, A. Giacinto, and M. Dalope 2010. "Addendum to HDR|e²M Final Report: Prehistoric Artifact Scatters, Bedrock Milling Stations and Tin Can Dumps: Results of a Cultural Resources Study for the SDG&E East County Substation Project. San Diego County, California."

Daniels, J.T., A. Giacinto, I. Scharlotta, N. Hanten, M.J. Hale 2012. "Archaeological Evaluation for the Rugged Solar Project. San Diego County, California."

DeCarlo, M.M., A. Giacinto, and W.T. Eckhardt 2010. "Cultural Resources Inventory for the Proposed Colorado River Substation Expansion Project. Riverside County, California."

Ghabhláin, S., A. Giacinto, and T. Quach 2011. "Cultural Resources Evaluation for the Quarry Creek Project. City of Carlsbad,California."

Giacinto, A. 2012. "Negative Cultural Resources Survey Report for the Kaiser Permanente San Diego Central Medical Center, San Diego County, California."

Giacinto, A. 2013. "Archaeological Monitoring Summary Memo for the South Palm Canyon Improvements Project, Agua Caliente Band of Mission Indians Reservation, California."

Giacinto, A. 2013. "Archaeological Reconnaissance for Categorical CEQA Exemption for the Makani/Google Airborne Wind Turbine Pilot Project, Alameda County, California."

Giacinto, A. 2013. "Cultural Resources Phase I Addendum Report for the Old Mission Dam Maintenance Project, San Diego County, California." Prepared for the City of San Diego.

Giacinto, A. 2013. "Cultural Resources Phase I Survey Report for the NorthLight Power Valley Center Solar Power Project, San Diego County, California." Prepared for RBF Environmental. Submitted to County of San Diego Department of Planning and Landuse.

Giacinto, A. 2013. "Negative Findings Letter Report for a Phase I Cultural Resources Study Conducted for the VWD Rock Springs Project, San Diego County, California." Submitted on behalf of IEC Corporation to the Vallecitos Water District.

Giacinto, A. 2013. "Phase I Cultural Resources Assessment Report for the Smoke Tree Wind Project, Riverside County, California." Prepared for Ogin Inc. Submitted to County of Riverside Planning Department.

Giacinto, A. 2014. "Cultural Resources Technical Report for the West Campus Student Housing Complex Project, San Diego County, California." Submitted to County of San Diego Department of Planning and Landuse.

Giacinto, A. 2014. “Negative Cultural Resources Phase I Survey Report for the Oro Verde Project, San Diego County, California.” Submitted to County of San Diego Department of Planning and Landuse.

Giacinto, A. 2014. “Phase I Archaeological Inventory Report for the Mission Beach Residences Project, San Diego County, California.” Prepared for McKellar-Ashbrook LLC. Submitted to the City of San Diego Development Services Department.

Giacinto, A. 2014. “Phase I Archaeological Inventory Report for the Santa Barbara Place Residences Project, San Diego County, California.” Prepared for McKellar-Ashbrook LLC. Submitted to the City of San Diego Development Services Department.

Giacinto, A. and M. Hale 2013. “Phase I Cultural Resources Assessment Report for the WCSS0011R1 and WCS00012R1 Project, Riverside County, California.” Prepared for FloDesign Wind Turbine Corporation. Submitted to County of Riverside Planning Department.

Giacinto, A., and J. Cook 2011. “Cultural Resource Study for the UOMP Project.” Letter Report.San Diego County, California.

Giacinto, A., and M. Becker 2012. “Padre Dam Eastern Service Area Secondary Connection-Alternative Site Location.” Letter Report. San Diego County, California.

Giacinto, A., and M. Hale 2012. “Cultural Resources Survey Report for the St. John Garabed Church Project, San Diego County, California.”

Giacinto, A., and M. Hale. 2013. “Cultural Resources and Paleontological Survey Report for the St. John Garabed Church Project, San Diego County, California.” Submitted to the City of San Diego, California.

Giacinto, A., J.T. Daniels, M.J. Hale, 2012. “Archaeological Evaluation for the Tierra Del Sol Project. San Diego County, California.”

Hale, M. and A. Giacinto 2014. “Negative Cultural Resources Phase I Inventory for the Canergy Project, Brawley, Imperial County, California.” Prepared for Ericsson-Grant Inc. Submitted to Imperial County Planning and Development.

Hale, M., A. Giacinto, and J. Schaefer 2012. “Class III Cultural Resources Inventory for the Campo Invenergy Project, Campo Indian Reservation, San Diego California.”

Hale, M., A. Giacinto, and N. Hanten, edt. 2013. “Cultural Resources Inventory and Evaluation for the Yokohl Ranch Project, Tulare County, California.” Contributions by S. Hector, A. Garcia-Herbst, L.. Akyüz, M. Becker, S. Ní Ghabhláin, and S. Stringer-Bowsher

Hale, M., and A. Giacinto 2012. “Cultural Resources Inventory for the U.S. Fish and Wildlife Service Otay River Estuary Restoration Project, Otay Mesa, San Diego County, California.”

Hale, M., and A. Giacinto 2012. “Cultural Resources Inventory for the Orange County Fire Authority Project, Peters Canyon, Orange County, California.”

Hale, M., and A. Giacinto 2012. “North Embarcadero Port Master Plan Amendment (NE-PMPA) EIR, Chapter 4.9, Port of San Diego, San Diego, California.”

Hale, M., and A. Giacinto 2012. "Rio Mesa Solar EIS, Chapter 4.6, Brightsource, Riverside County, California."

Hale, M., and A. Giacinto 2013. "Yokohl Ranch Project EIR, Chapter 4.6, Yokohl Valley, Tulare County, California."

Hale, M., S. Andrews, M. Dalope, A. Giacinto, and N. Hanten 2012. "Phase I Cultural Resources Inventory of 7,650 acres in Management Areas 1B, 3D, and 3E Edwards Air Force Base, Kern County, California." Prepared for Richard Bark, JT3 LLC, Subcontract Number 1A10000101.

Presentations

"Managing California's Cultural Resources on Public Lands: A Third-party Consultant Perspective," 2015. Presented at Society for California Archaeology, San Diego, California.

"A GIS Analysis of Ancient Lake Cahuilla Archaeological Sites, Riverside County, California, United States," 2012. Presented at Society for California Archaeology, San Diego, California.

"Emergent Trends of San Diego Cultural Resource Management," 2012. Presented at Society for California Archaeology, San Diego, California.

"A GIS Analysis of Ancient Lake Cahuilla Archaeological Sites, Riverside County, California, United States," 2011. Presented at Balancias y Perspectivas, National Institute of Archaeology and History (NIAH), Mexicali, Mexico.

Elizabeth Sivell

ARCHAEOLOGIST

Elizabeth Sivell is an archaeologist with 3-years of professional experience in cultural resource management. Her field work experience includes survey, monitoring, and excavation in the Western and Eastern Sierra Nevada, the Shasta Cascade, the Central and Northern Coasts, the California Central Valley, and the Great Basin as well as laboratory experience with artifact curation and obsidian hydration dating. In addition to her experience in archaeology, she has a strong passion for working closely with indigenous communities who have ties to archaeological sites so that their concerns and needs can be properly heard, addressed, and met.

Education

University of California, Davis
B.A. Anthropology, 2021

Sacramento City College
A.A. Anthropology, 2019

Certifications

Pacific Gas and Electric Gold Shovel Standard

American Red Cross First Aid/CPR/AED

Dudek Project Experience

Elkhorn Boulevard Extension Project, Sacramento County, California. Conducted pedestrian survey for a proposed road expansion project near Sacramento Airport. (October 2021).

PG&E Vegetation Management Project, Multiple Counties, California. Performed archaeological survey and monitoring in support of Pacific Gas and Electric's vegetation management program on lands administered by multiple agencies, including BLM and USFS. Duties include survey and monitoring, completion of site records, daily monitoring logs, and assistance with survey and monitoring reports. Over 100 individual projects completed to date in Amador, Calaveras, Fresno, El Dorado, Mariposa, Madera, Mendocino, Monterey, Stanislaus, San Joaquin, Santa Clara, Shasta, and Sonoma counties. (October 2021-ongoing)

[CONFIDENTIAL] Coyote Creek Agri-voltaic Ranch, Sacramento County, California. Assisted with survey and site recording for a large solar project in Sacramento County. Duties included recordation of sites related to a large historic mining district. (March 2022)

Diamond Spring Community Park Project, Diamond Springs, El Dorado County, California Conducted pedestrian survey and site recordation for a proposed community park project on approximately 40 acres in El Dorado County (May 2022).

Tank and Pump Station Project, Tuolumne County, California. Conducted pedestrian survey for proposed TUD Zone 4 Tank and Pump Station project (May 2022).

Tank 9 Monitoring, Sonoma County, Rohnert Park, California. Conducted monitoring for initial ground disturbance activity for a proposed water tank in Rohnert Park, CA (August 2022).

Chandler Grove Annexation Project, Tulare County, Tulare, California. Lead and preformed pedestrian survey for a proposed residential and parks building project in Tulare, CA. (August 2022)

Sisk Dam Project, Merced County, Santa Nella, California. Conducted spot checks and monitoring of ground disturbing activities for dam expansion project. (August 2022 – May 2023)

Butte Landfill Survey, Butte County, California. Conducted pedestrian survey, site recording, and prepared report for proposed landfill expansion project in Butte County, CA. (January 2023)

St. Helena Defensible Space, Napa County, California. Performed pedestrian survey and site recording for vegetation management project for City Fire in Napa County. (February 2023)

[CONFIDENTIAL] Deergrass Battery Energy Storage, Sacramento County, California. Conducted pedestrian survey, documented historic earthen mound and ditch features, and assisted in preparation of report for proposed battery energy storage facility. (March 2023)

Lindhurst High School Track & Stadium Improvements, CEQA Services, Yuba County, California. Conducted pedestrian survey for project improving the track and fields of Lindhurst high school. Assisted with the preparation of report for the improvement project. (April 2023)

Marysville High School Track & Stadium Improvements, CEQA Services, Yuba County, California Conducted pedestrian survey for project improving the track and fields of Marysville high school. Assisted with the preparation of report for the improvement project. (April 2023)

[CONFIDENTIAL] Dodge Flat II Solar Energy Center, Washoe County, Nevada. Crew member for pedestrian survey on BLM and private lands for a proposed power generation facility. (May 2023)

DWR SSR Energy Site 2 - Lodi, San Joaquin County, California. Crew member for subsurface testing component of subsurface cultural resources inventory. Monitored initial ground disturbing activities. (2023)

[CONFIDENTIAL] Blacksmith Battery Energy Storage System, Sacramento County, California. Conducted pedestrian survey and assisted in preparation of report for a proposed battery energy storage facility. (May 2023)

Oxidation Ponds Transfer Structure Rehab, Sonoma County California. Performed pedestrian survey and site revisit for proposed rehabilitation of oxidation ponds at the Ellis Creek Water Recycling Facility. (May 2023)

[CONFIDENTIAL] Buttonbush Solar Energy Project, Kern County, California. Crew supervisor and member for pedestrian survey of approximately 15,000 acres on private lands for a proposed power generation facility. (June 2023 – January 2024)

Fairfield Osborn Preserve, Sonoma County, Penngrove, California. Monitored ground disturbing activities associated with the renovation of the Marjorie Osborn Education & Research Center building used by CSU Sonoma. Identified and recorded artifacts within the project area and implemented protection measures for known resources within the project area. (July 2023)

Mason Valley NextEra Energy Resource Development, Lyon County, Nevada. Crew member for pedestrian survey covering over 4000 acres of BLM land. Identified and recorded prehistoric and historic resources and assisted in preparation of IMACS forms. (Sept 2023 – ongoing)

Pine Nut NextEra Energy Resource Development, Lyon County, Nevada Crew member for pedestrian survey covering approximately 2000 acres of BLM land. Identified and recorded prehistoric and historic resources and assisted in preparation of IMACS forms. (September 2023 – ongoing)

Buttercup Solar Energy, California Crew chief for pedestrian survey for proposed solar energy project on private lands. Identified and recorded archaeological resources. (December 2023)

Relevant Previous Experience

Paleowest – As-Needed Archaeological Field Technician (Oct - Dec 2021)

Stockton CarMax Construction Project, Stockton, California. Conducted archaeological monitoring for a construction project with Paleowest.

Berry Brush Creek, Plumas National Forest. Conducted pedestrian survey project with Paleowest.

Claremont Resiliency: Rotation 1 and 2. Conducted pedestrian survey with Paleowest.

UC Davis Department of Anthropology Museum: Davis CA (Jan 2020 – Oct 2021)

Volunteer/Intern. Duties included photographing and handling of the Clinton Hart Merriam Ethnographic Basketry Collection. Assisting in various stages of moving the museum collection into its new off campus location. Organization of the museum's ethnographic collection. Training in basic artifact analyses, proper curation methods for artifacts, assemblages, and collections for museum preparation.

Specialized Training

UC Davis Field School: Eastern Sierra Nevadas, CA and Great Basin, NV. Conducted pedestrian survey in both desert and forest environments, including surface mapping and drone mapping of site features including drift fences, hunting corrals, and rock rings. Excavation skills developed and put into practice as setting up trench units, dry screening, and drawing of stratigraphic profiles. Artifact collection during both survey and excavation. GNSS artifact recording though use of apps such as GPS Status and Reach View. On site data collection and analysis. (August 2021)

Maya Exploration Center – Study Abroad Short Course. Study abroad course relating to both archaeology and anthropology in the highlands of Guatemala and Honduras. "BEYOND THE 13TH BAK'TUN: ANCIENT AND MODERN MAYA CULTURE IN THE HIGHLANDS OF GUATEMALA AND COPAN, HONDURAS" (Dec 2012 – Jan 2013)

Appendix F
Geotechnical Feasibility Summary

Project No. E9443-04-01
December 10, 2024

Dudek
605 NE 21st Avenue #200
Portland, Oregon 97232

Attention: Mr. Bradley Cole

Subject: PROPOSED BATTERY ENERGY STORAGE SYSTEM PROJECT
DOUBLE SPRINGS ROAD
TOYON, CALIFORNIA
GEOTECHNICAL FEASIBILITY SUMMARY

Dear Mr. Cole:

In accordance with our Proposal No. EB-24-1730-P-GT dated September 10, 2024, we have prepared this correspondence to present a geotechnical feasibility summary for the subject energy infrastructure project in Toyon, California. The purpose of our services was to conduct a "desktop study" to research subsurface conditions at the site, identify major geotechnical constraints that may impact development, and provide a statement regarding the project's feasibility from a geotechnical engineering standpoint. The findings and opinions expressed herein should be confirmed during a design-level geotechnical investigation.

SITE DESCRIPTION

The approximately 15-acre site comprises three parcels (Calaveras County APN 0400-020-17-000 through 040-002-019-000) on the north side of Double Springs Road, at its intersection with Freedom Way. A general site Vicinity Map is presented as Figure 1. Site coordinates are N 38.2169°and W 120.7678°. The site is currently undeveloped, and an existing power substation is adjacent to the east. A Cal-Waste Recovery Systems facility is south of the site, and a man-made reservoir is present just west of the site.

The site topography consists of gently rolling hills, with ground surface elevations ranging from approximately 955 to 1,020 feet above mean sea level (MSL) based on web-based mapping. An existing natural drainage flows from east to west across the southern third of the property, leading to the reservoir just west of the site. Another natural east-west trending drainage is present just north of the site. The northern two thirds of the site have the highest elevation, sloping southward to the onsite drainage course at an inclination of about 8:1 (horizontal to vertical).

During our site reconnaissance, we noted several test pits that were previously excavated by others and have become overgrown (see attached Site Photos). Powerlines are present along the southern and eastern site boundaries, and a storm drain outfall from the adjacent substation is present in the fill slope that ascends from the eastern site boundary.

PROJECT DESCRIPTION

We understand the project will include various at-grade battery storage units weighing 80 to 100 kips each, and a high-voltage transformer weighing 160 to 200 kips. Primary site access will be via a new driveway(s) off Double Springs Road, which will lead to a new culvert crossing over the existing drainage channel.

The grading concept depicted on the site development plan provided by Dudek indicates a large, relatively level pad will be constructed to the north of the above-referenced east-west trending drainage. Grading will result in 2:1 (horizontal:vertical) fill slopes on the northwest, west and southern sides of the pad, and a 2:1 cut slope along the eastern margin. Maximum cut and fill slope heights of approximately 25 feet and 40 feet, respectively, are proposed. A new road will be constructed to provide access from Double Springs Road and fills of approximately 20 feet in thickness are planned where the road crosses the east-west drainage. Ancillary site improvements such as new underground utilities and a stormwater treatment basin are also anticipated.

GENERAL SOIL AND GEOLOGIC CONDITIONS

California Geological Survey (CGS) geologic mapping of the Valley Springs 7.5-minute quadrangle indicates the project area is underlain by Mehrten Formation – a Pliocene to Miocene-age bedrock consisting of interbedded volcanic mudflow breccia and cobble-conglomerate. The deposits are described as lahar beds laden with andesite cobbles that are particularly resistant. This is consistent with the findings of our site reconnaissance performed on October 24, 2024.

Specifically, we identified a small outcrop of mudflow breccia in the southwestern portion of the site, near the natural drainage. We also observed scattered rounded cobble to boulder sized rocks that had been exposed at the ground surface or by erosion in the drainage channel. The test pits left by others generally encountered the same mudflow breccia and cobble conglomerate materials, where visible. We observed no signs of excessive erosion or inherent slope instability.

GEOLOGIC HAZARDS

The site is not within a currently established Alquist-Priolo Earthquake Fault Zone or similar zone for surface fault rupture hazards. No active or potentially active faults are known to pass directly beneath the site. Mapping by CGS indicates the Haupt Creek Fault is present just west of the site. However, the fault is Quaternary in age and not designated as Holocene-active. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

The site is not currently mapped by CGS for liquefaction hazards as CGS has not performed such mapping in the project area. Additionally, seismic hazard zones for liquefaction have not been established in Calaveras County. However, based on the presence of shallow bedrock, the potential for liquefaction occurring at the site is considered very low. Although there are slopes at the site, large scale slope failures are not anticipated based on the bedrock type.

GEOTECHNICAL CONSIDERATIONS

In our opinion, no significant geologic hazards or adverse geologic or geotechnical conditions that would preclude development of a battery energy storage system facility are expected to be present, provided the project is designed and constructed in accordance with local building codes and ordinances. The primary geotechnical consideration is the potential for excavation difficulty, given the relatively hard, well-cemented nature of the Mehrten Formation bedrock. The competency of surficial soils and the rippability of Mehrten Formation materials should be evaluated as part of a design-level geotechnical investigation. For planning purposes, it should be assumed that heavy duty excavation equipment will be required for cuts deeper than 2 to 4 feet. Depending on the depth of planned cuts and excavations, specialized equipment and/or blasting may also be required. Oversized material (i.e. cobbles and fragments of cemented bedrock) may be generated during grading, which may not be suitable as engineered fill in certain areas. Permanent groundwater is anticipated to be relatively deep. However shallow, perched water and seepage from within bedrock should be anticipated.

Based on anticipated structural loads and expected site soils conditions, we expect conventionally-reinforced mat foundations will be used for the planned battery storage containers. A design-level geotechnical investigation will be necessary and should include additional site-specific subsurface exploration, laboratory testing, and engineering analysis to provide geotechnical recommendations for design and construction. The investigation should be performed after site grading plans and site configuration and layout have been finalized.

CLOSURE

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

We appreciate the opportunity to provide professional services on this important energy storage project. Please contact us if you have any questions regarding this correspondence or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.





Tom C. DeSimone, PG, CEG
Senior Geologist

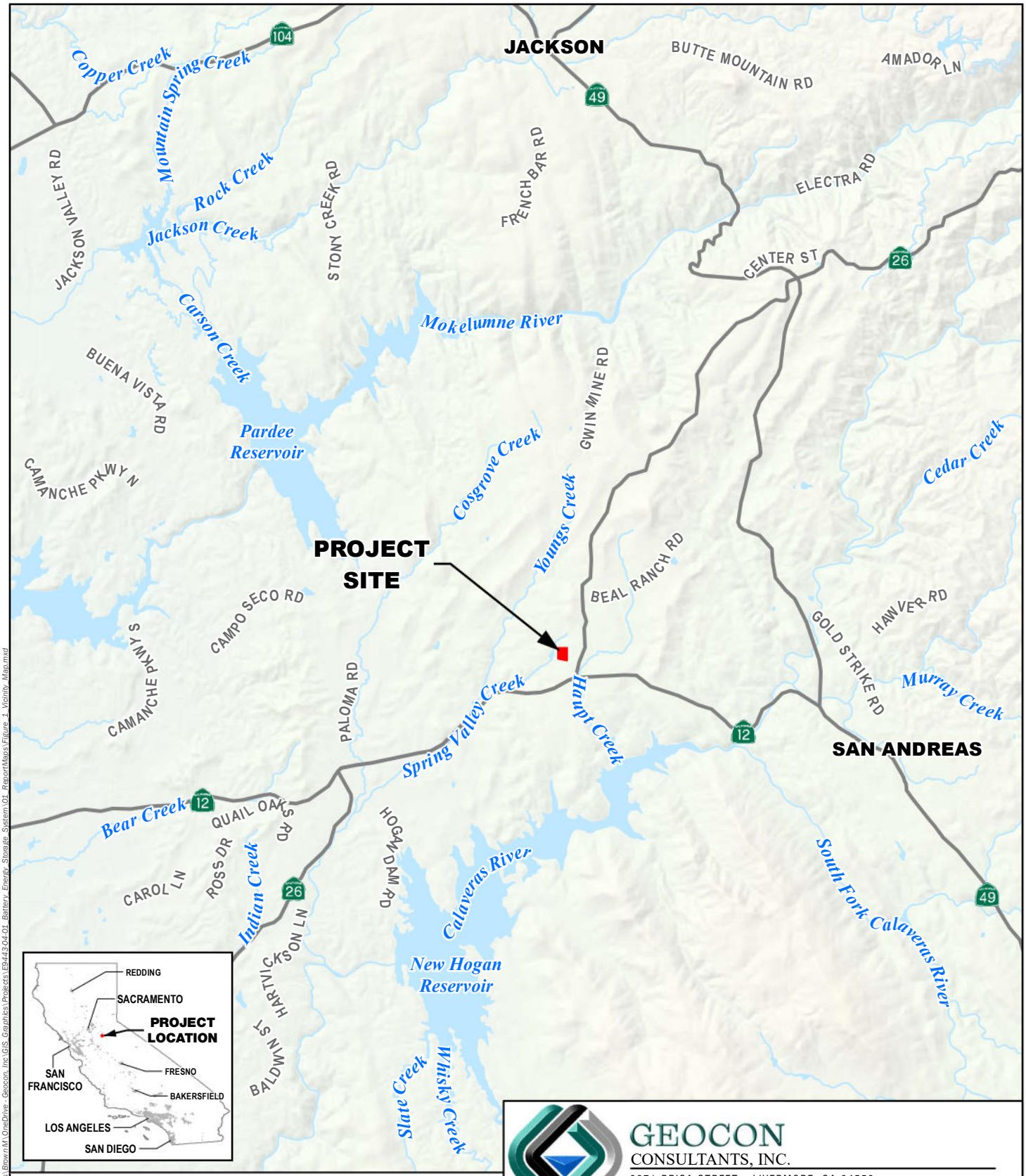


Shane Rodacker, GE
Senior Engineer



(1/e-mail) Addressee

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan
Figure 3, Aerial Site Map
Figure 4, Digital Surface Map
Photos 1 through 9



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CONSULTANTS, INC.
6671 BRISA STREET - LIVERMORE, CA 94550
PHONE 925.371.5900 - FAX 925.270.8488

Battery Energy Storage System Project

Double Springs Road
Toyon, California

VICINITY MAP

E9443-04-01	December 2024	Figure 1

GEOCON 12/9/2024 USER Brown M PATH C:\Users\Brown M\OneDrive - Geocon, Inc\GIS Graphics\Projects\E9443-04-01 Battery Energy Storage System\01_ReportMaps\Figure_1_Vicinity_Map.mxd

040-002-021-000

040-002-029-000

040-002-017-000

040-002-018-000

040-002-019-000

040-002-004-000

040-002-008-000

040-004-048-000

040-004-021-000

Spring Valley Creek

DOUBLE SPRINGS RD

FREEDOM WY

Legend

- 1-Foot Elevation Contours
- Rivers and Streams
- 040-002-004-000 Assessor's Parcel Number
- Approximate Parcel Boundary Line
- Approximate Site Boundary

Proposed Development Plan by Novis

N

0 150

Scale in Feet

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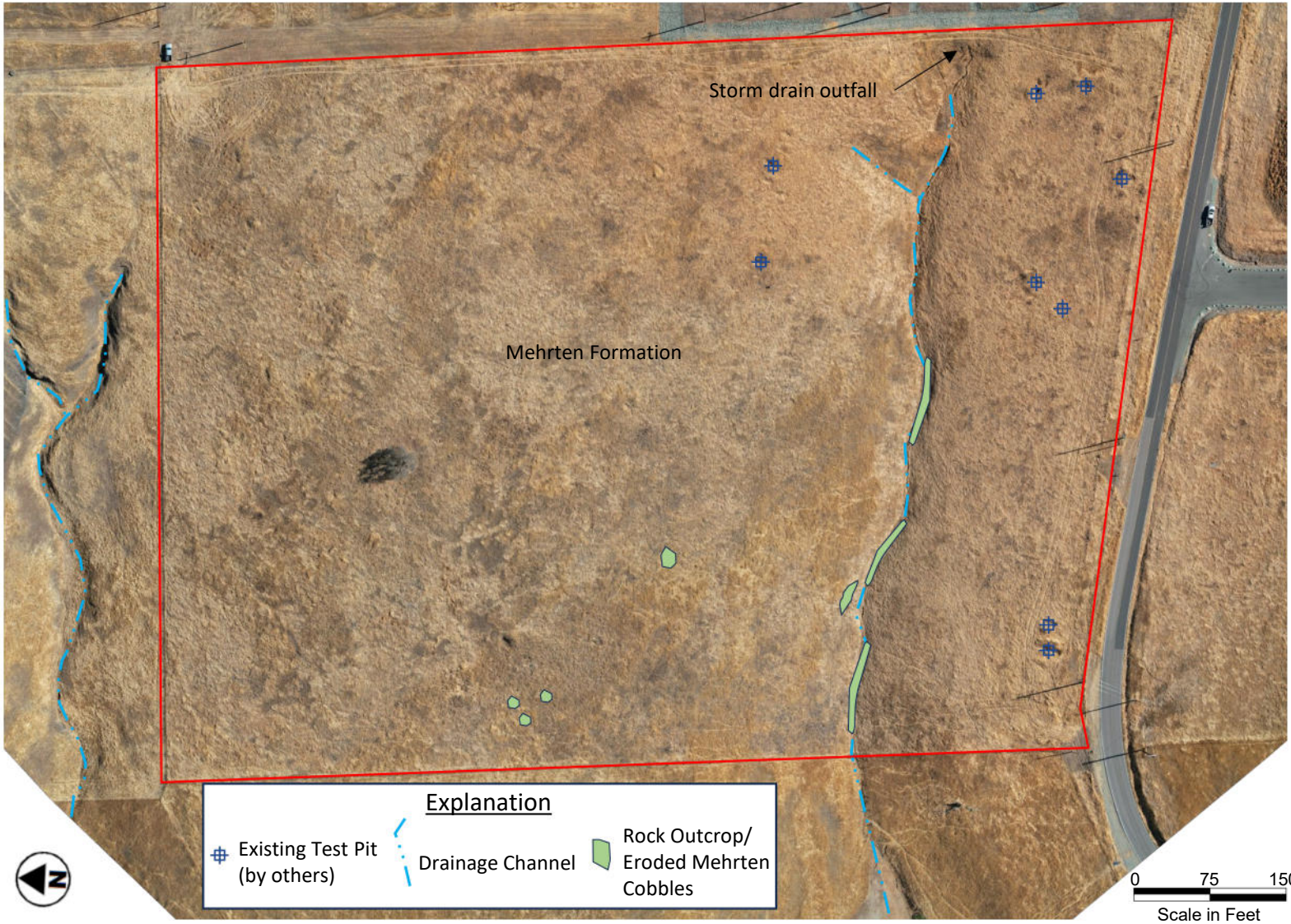
Battery Energy Storage System Project

Double Springs Road
Toyon, California

SITE PLAN

E9443-04-01	December 2024	Figure 2

GEOCON 12/9/2024 USER Brown M PATH C:\Users\Brown M\OneDrive - Geocon, Inc\GIS_Graphics\Projects\E9443-04-01_Battery_Energy_Storage_System\01_ReportMaps\Figure_2_Site_Plan.mxd



Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle. Orthomosaic Map Created Using WebODM

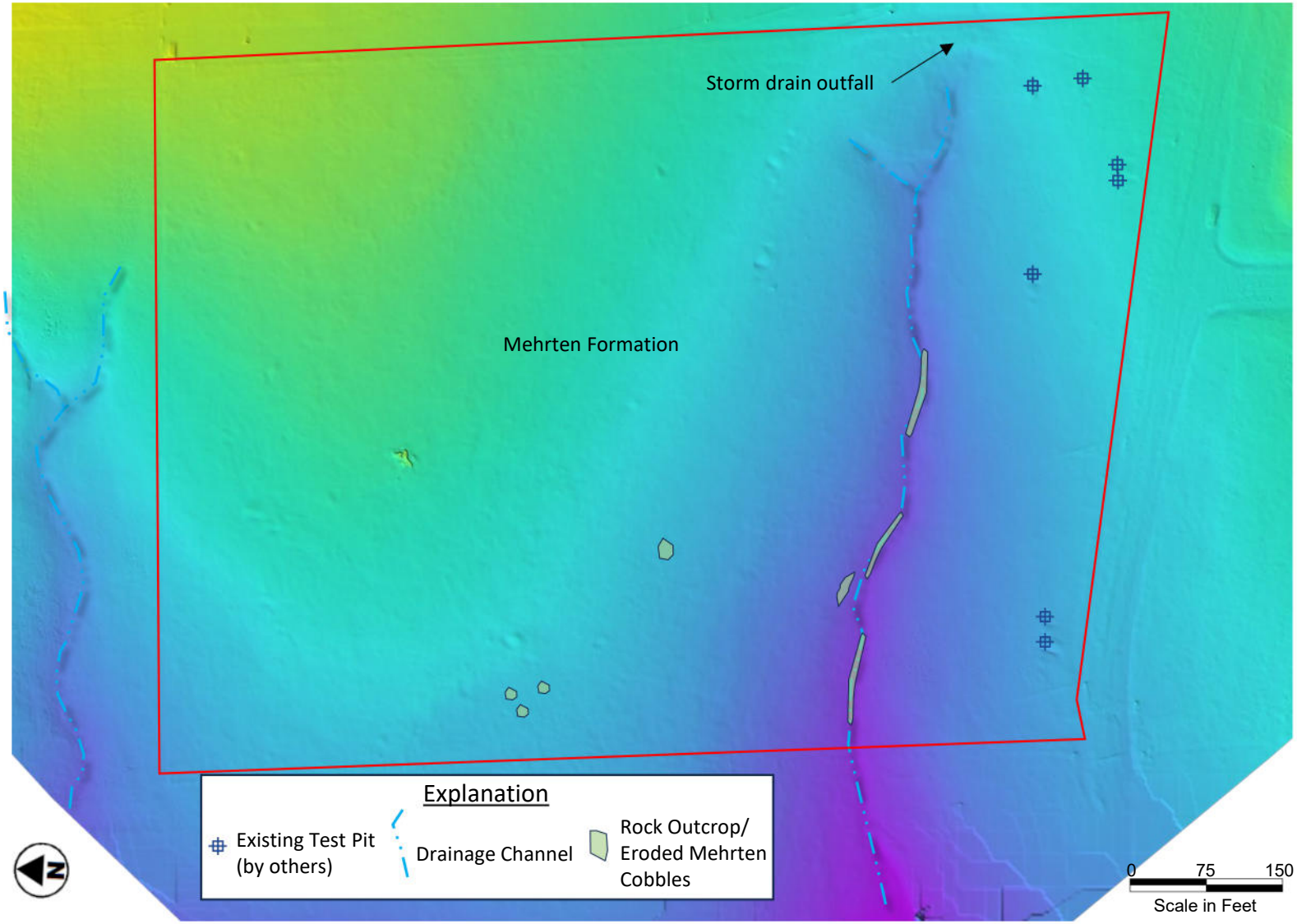
GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

AERIAL SITE MAP

FIGURE 3

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle. Digital Surface Map Created Using WebODM

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DIGITAL SURFACE MAP

FIGURE 4

Battery Energy Storage System Project
Double Springs Road, Toyon, California

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View of site looking south.

Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle.

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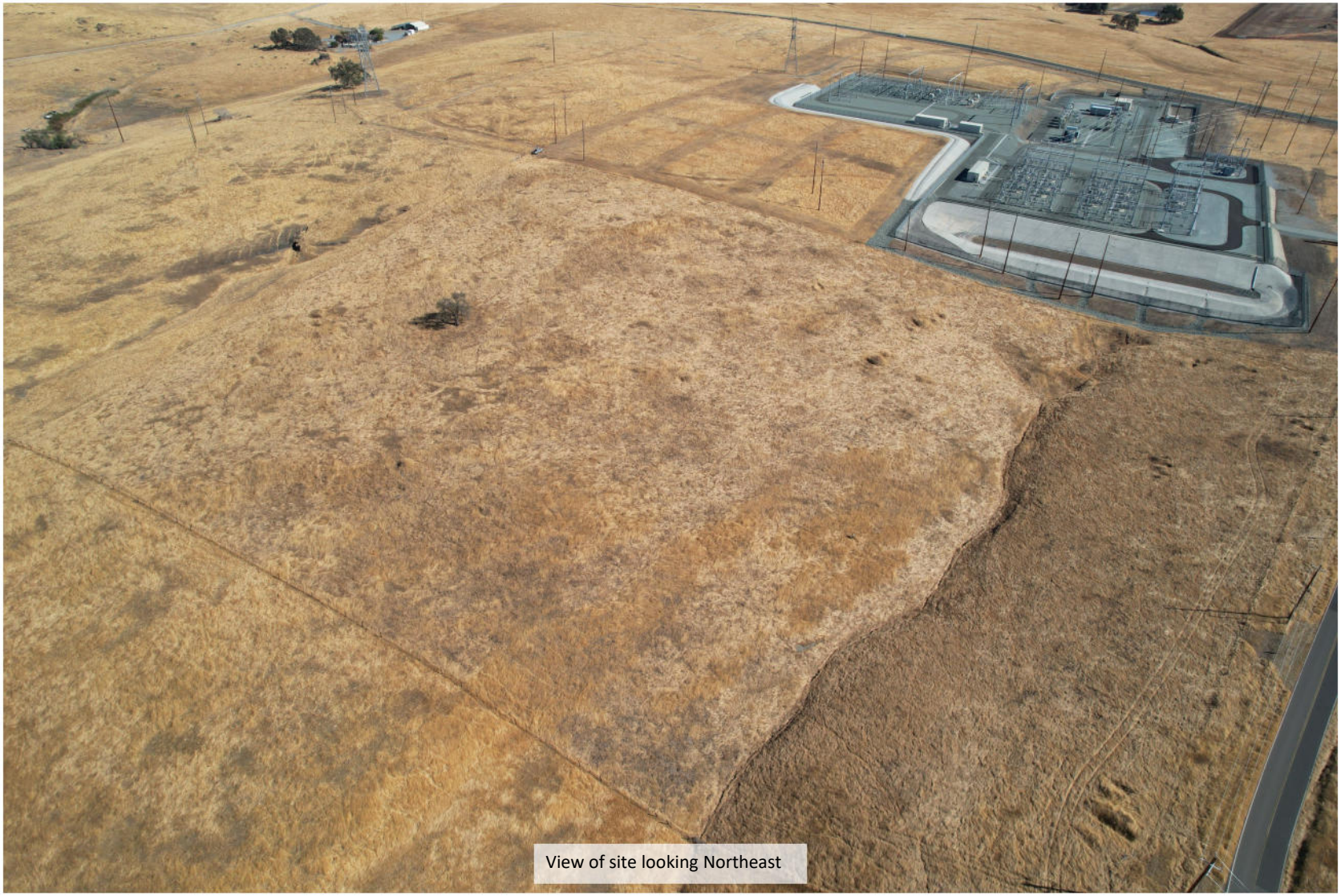
AERIAL PHOTOS

PHOTO 1

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle.

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AERIAL PHOTOS

PHOTO 2

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle.

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PHONE 916.852.9118 – FAX 916.852.9132

AERIAL PHOTOS

PHOTO 3

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Aerial imagery captured by Geocon on October 24, 2024, using DJI Air 2S Unmanned Aerial Vehicle.

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AERIAL PHOTOS

PHOTO 4

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Imagery captured by Geocon on October 24, 2024.

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SITE PHOTOS

PHOTO 5

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Outcrop exposing Mehrten Formation Cobble Conglomerate/Mud Flow Breccia.

Imagery captured by Geocon on October 24, 2024.

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PHONE 916.852.9118 – FAX 916.852.9132

SITE PHOTOS

PHOTO 6

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Typical drainage channel exposing Mehrten Formation Cobble Conglomerate.

Imagery captured by Geocon on October 24, 2024.

GEOCON
CONSULTANTS, INC.
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PHONE 916.852.9118 – FAX 916.852.9132

SITE PHOTOS

PHOTO 7

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Typical existing test pit exposing Mehrten Formation Cobble Conglomerate.

Imagery captured by Geocon on October 24, 2024.

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PHONE 916.852.9118 – FAX 916.852.9132

SITE PHOTOS

PHOTO 8

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024



Erosion Control Measures at neighboring facility to east.

Imagery captured by Geocon on October 24, 2024.

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SITE PHOTOS

PHOTO 9

Battery Energy Storage System Project
Double Springs Road, Toyon, California

GEOCON Project No. E9443-04-01 | November 2024

Appendix G
Paleontological Resources Memo

MEMORANDUM

To:	Double Springs Energy Storage, LLC
From:	Shawna Johnson, MSc, Paleontologist, Dudek
Subject:	Double Springs BESS Project– Paleontological Resources Constraints Assessment
Date:	September 20, 2024
cc:	Michael Williams, PhD and Adam Giacinto, MA, RPA, Dudek
Attachments:	A – Figures B – Confidential NHMLA Paleontological Records Search Results

Dudek has conducted an evaluation pursuant to the requirements of the California Environmental Quality Act (CEQA) and guidelines of the Society of Vertebrate Paleontology ([SVP] 2010) guidelines to determine the presence of and potential impacts related to paleontological resources associated with construction and operation of the proposed Double Springs Battery Energy Storage System Project (Project or Proposed Project), located approximately 3.6 miles northeast of the town of Valley Springs, 0.28 miles northwest of the Highway 12 and 26 intersection in Calaveras County, California (Figure 1 – Project Vicinity). This technical memorandum provides the results of the paleontological resources investigation and was prepared by Shawna Johnson, MSc with editorial comments by Sarah Siren, MSc and Michael Williams, PhD. Dr. Williams and Ms. Siren are qualified paleontological principal investigators.

To determine the paleontological sensitivity of the Project site, Dudek performed a paleontological resources inventory in compliance with the CEQA and SVP (2010) guidelines. The inventory consisted of a paleontological records search through the Natural History Museum of Los Angeles County (NHMLA), an unofficial records search through the University of California Museum of Paleontology (UCMP) online fossil locality database and the Paleobiology Database, and a review of geological mapping and geological and paleontological literature. The results of the paleontological records search were negative for paleontological resources within the Project site and within a one-mile radius buffer of the Project boundary. They do, however, have 4 localities, from further away, from the same sediments that underlie the Project site on the surface and/or at depth.

1 Project Description and Location

The proposed Project aims to support California's Renewable Portfolio Standard and energy storage objectives while making efficient use of vacant land. The Project proposes to install lithium iron phosphate batteries (installed in racks), inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to interconnect into the PG&E Valley Springs Substation.

The proposed Project site encompasses approximately 15.2 acres of privately owned, undeveloped land directly adjacent to and west of the Pacific Gas and Electric Company Valley Springs Substation in Calaveras County, California. The Project site is located approximately 0.2 miles west of Highway 26 and approximately 0.3 miles north of Highway 12.

2 Analysis Methodology

The analysis presented here considers the potential environmental impacts of the proposed Project relative to existing conditions. Establishment of the Project site's existing paleontological conditions have been informed by a site-specific paleontological records search and review of published geological maps, published and unpublished reports, and online specimen databases to identify geological units located on the Project site and determine their paleontological sensitivity.

A paleontological records search request was sent to the NHMLA on June 26, 2024. The records search area included the Project site and a one-mile radius buffer. The purpose of the records search was to determine whether there are any known fossil localities in or near the Project site to aide in determining whether a paleontological mitigation program is warranted to avoid or minimize potential adverse effects of construction on paleontological resources.

3 Paleontological Resources

Paleontological resources are the remains or traces of plants and animals that are preserved in the Earth's crust, and per SVP (2010) guidelines, are older than written history or older than approximately 5,000 years, which approximates the middle Holocene of Cohen et al. (2023). They are limited, nonrenewable resources of scientific and educational value and are afforded protection under state laws and regulations. This analysis complies with guidelines and significance criteria specified by CEQA and SVP (2010). Table 1, Paleontological Resource Sensitivity Criteria, provides definitions for high, undetermined, low, and no paleontological resource potential, or sensitivity, as set forth in and by the SVP (2010) Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
High	Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
	and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
Undetermined	Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist (see "definitions" section in this document) to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.
Low	Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
No Sensitivity	Some rock units have no potential to contain significant paleontological resources, for instance high grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

Source: SVP (2010).

3.1 Regulatory Framework

The California Environmental Quality Act

This paleontological resources evaluation was completed to satisfy the requirements of the California Environmental Quality Act (CEQA). The CEQA Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental impacts, including effects to paleontological resources. Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under these state guidelines. This study satisfies project requirements in accordance with CEQA (13 PRC [Public Resources Code], 15000 et seq.).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the "Environmental Checklist Form," which addresses the potential for adverse impacts to "unique paleontological resource[s] or site[s] or … unique geological feature[s]." This provision covers fossils of significant importance, which include the remains of species or genera new to science, for example, or fossils exhibiting features not previously recognized for a given animal group – as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth.

California Public Resources Code Section 5097.5

In addition to CEQA's requirements, Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792) regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.

Calaveras County General Plan Conservation and Open Space Element (2019)

The Conservation and Open Space Element of the Calaveras County General Plan discusses goals and policies regarding paleontological resources (Calaveras County 2019). In particular, it mentions previous fossil finds within the county in that will likely continue especially in association with caves, limestone formations, and the Mehrten Formation. Below are the goals and policies that pertain to paleontological resources:

Goal COS-7: Preserve prehistoric, archeological, cultural, historical, and paleontological resources.

Policy COS 7.1: New development shall be designed to avoid significant cultural and paleontological resources to the extent feasible. (IM COS-8A, COS-8B, COS-8C, COS-8D, COS-8F, COS-8G and COS-8H).

3.2 Environmental Setting

Geological Literature and Map Review

The Project site lies along the western edge of the Sierra Nevada Geomorphic Province, which is characterized by a high, rugged fault scarp along its eastern face and a gentle slope along its western side. The province is a giant tilted fault block that is nearly 400 miles long (California Geological Survey [CGS] 2002).

According to geological mapping by Holland et al. (2015) at a 1:24,000 scale, the proposed Project site is underlain by the early Pliocene to Miocene (3.6 to 23.03 million years ago; Cohen et al. 2023) Mehrten Formation (mapped as MPm). This formation is composed of volcanic mudflow deposits interbedded with sandstone and conglomerate. The Mehrten Formation has high paleontological sensitivity.

Paleontological Literature Review

As expressed in the Calaveras County General Plan, fossil localities have been reported in association with caves, limestone formations, and the Mehrten Formation (Calaveras County 2019). Two nearby localities are recorded in the Paleobiology Database (PBDB), and two nearby localities reported from the UCMP online database from the same or similar sediments as those that underlie the proposed Project site:

- UCMP Locality 619 at Double Springs yielded plant fossils (UCMP 2024).
- Approximately 26 miles southeast of the proposed Project site, at Goodwin Dam, UCMP V3919 produced a fossil horse specimen from the Mehrten Formation in a tuffaceous claystone (UCMP 2024).
- Approximately 17 miles southeast of the proposed Project site, near Vallecito, UCMP Locality 8097 yielded a partial shell of a tortoise from Miocene age sediments (PBDB 2024).
- Approximately 12 miles east of the proposed Project site, near Cave City, a poorly preserved turtle specimen was reported from Miocene sediments but did not survive collection efforts (PBDB 2024).

Paleontological Records Search

The NHMLA paleontological records search results were received on July 7, 2024 (Confidential Attachment B). The NHMLA did not report any fossil localities from within the Project site or from within a one-mile radius buffer of the Project site (Confidential Attachment B). They did, however, report four localities from the same or similar sediments as those found underlying the Project site. Locality LACM VP (Los Angeles County Museum Vertebrate Paleontology) 3904-3941, 5376, 4670, and 3950 yielded mastodon, horse, bear-dog, antelope, antelope-like mammal, reptiles and other uncatalogued vertebrates from the Mehrten Formation (NHMLA 2024). LACM VP 4953 produced a ground sloth and LACM VP 5375 produced uncatalogued mammal specimens; both from the Mehrten Formation (NHMLA 2024). Lastly, locality LACM VP 3942-3947 produced bear-dog, rhinoceros, horse, antelope, camel, and a specimen from the raccoon family from the Mehrten Formation (NHMLA 2024).

4 Impact Analysis and Conclusions

4.1 Thresholds of Significance

The thresholds of significance used to evaluate the impacts of the proposed project related to paleontological resources are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. A significant impact under CEQA would occur if the proposed project would:

a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.2 Impact Analysis

a) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No paleontological resources were identified from within the Project site or a 1-mile radius buffer, but dozens of fossil localities were reported from the same or similar sediments that underlie the Project site as a result of the institutional records searches and desktop geological and paleontological review. The Project site is not anticipated to be underlain by a unique geological feature. The Mehrten Formation underlying the Project site has high paleontological resource sensitivity. Based on the records search results and map and literature review, the Project site has high potential to produce paleontological resources during planned construction activities that occur below the level of fill or disturbed sediments if present. In the event that intact paleontological resources are discovered on the Project site, ground-disturbing activities associated with construction of the Project, such as grading and large diameter drilling during site preparation and trenching for utilities, have the potential to destroy a unique paleontological

resource or site. The potential for project activities to damage paleontological resources during construction would result in a potentially significant impact. It is recommended that a paleontological survey be conducted prior to Project construction and a Paleontological Resources Mitigation and Monitoring Program which would detail pre-construction worker awareness training as well as paleontological monitoring and discovery protocol, treatment, reporting, and collection management be prepared. Adherence to these recommendations would reduce potentially significant impacts to paleontological resources to a **less-than-significant** level.

5 References

Calaveras County. 2019. "Calaveras County General Plan Conservation and Open Space Element". July 31, 2019.

CGS (California Geological Survey). 2002. "California Geomorphic Provinces." CGS Note 36. Accessed June 26, 2024. https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-36.pdf.

Cohen, K.M., S.C. Finney, P.L. Gibbard, and J.X. Fan. 2023. "The ICS International Chronostratigraphic Chart". *Episodes* 36: 199-204. Last Updated 2023. Accessed June 2024. https://stratigraphy.org/ICSchart/ChronostratChart2023-09.pdf.

Holland, P.J., C.I. Gutierrez, and M.D. O'Neal. 2015. "Preliminary geologic map of the Valley Springs 7.5' quadrangle, Amador and Calaveras Counties, California" [map]. 1:24,000. California Geological Survey, Preliminary Geologic Maps PGM-15-02.

Paleobiology Database (PBDB). 2024. Paleobiology Database search parameters, Country = "United States", State = "California", County = "Calaveras". Accessed on June 26, 2024. https://paleobiodb.org/classic

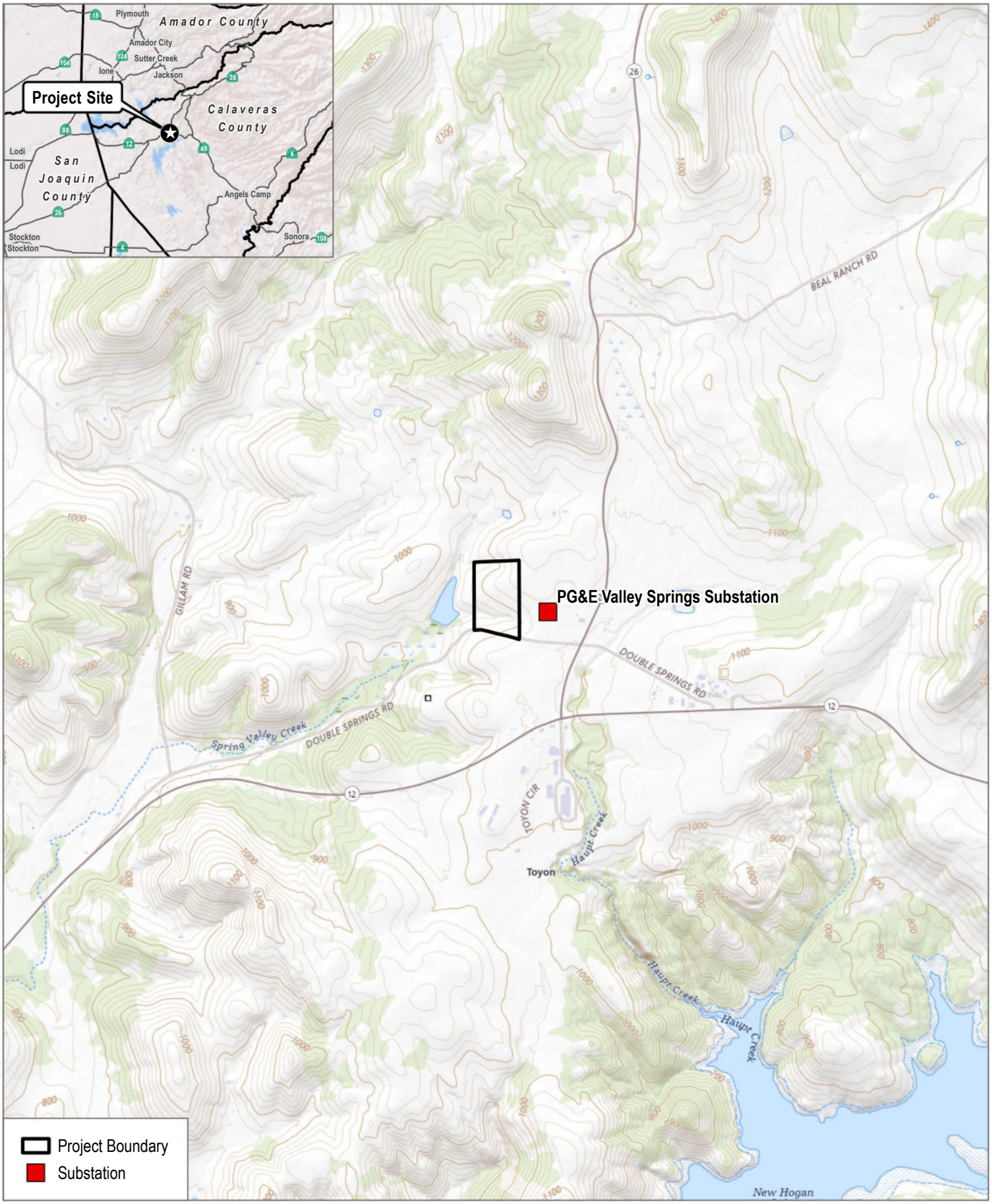
NHMLA (Natural History Museum of Los Angeles County). 2024. *Paleontological Records Search Results for the Double Springs Project (Confidential).* Unpublished Records Search Results Letter from A. Bell, PhD, dated July 7, 2024.

SVP (Society of Vertebrate Paleontology). 2010. "Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources." Accessed June 2024. https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf.

University of California Museum of Paleontology (UCMP). University of California Museum of Paleontology's Online Database. Search parameters, Country = "United States", State = "California", County = "Calaveras". Accessed on June 26, 2024. https://ucmpdb.berkeley.edu/cgi/ucmp_query2

Attachment A

Figures



SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Vicinity

Double Springs Battery Energy Storage System Project



SOURCE: Bing Maps (accessed 2024); Calaveras County 2019

DUDEK

0 200 400 Feet

FIGURE 2

Project Site

Double Springs Battery Energy Storage System Project

Confidential Attachment B

NHMLA Paleontological Records Search Results

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

July 7, 2024

Dudek
Attn: Shawna Johnson

re: Paleontological resources for the Double Springs Project (Confidential) (PN: 13672.01)

Dear Shawna:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Double Springs project area as outlined on the portion of the Valley Springs USGS topographic quadrangle map that you sent to me via e-mail on June 26, 2024. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that may occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA). Many of these localities have not been georeferenced, and so for these the 7.5-minute quads they are recorded in are provided for location.

Locality Number	Location	Formation	Taxa	Depth
LACM VP 3904 – 3941, 5376, 4670, 3950*	Turlock Lake	Mehrten Formation	Mastodon (*Mammut*), horse (*Pliohippus*),bear dog (*Borophagus*), antelope (Antelocapridae), antelope-like mammal (*Pediomeryx*); reptilia; other uncatalogued vertebrates	Unknown
LACM VP 4953	Knights Ferry	Mehrten Formation	Ground sloth (Megalonychidae)	Unknown
LACM VP 5375**	Oakdale	Mehrten Formation	Mammalia (uncatalogued)	Unknown
LACM VP 3942 - 3947	Modesto Reservoir	Mehrten Formation	Bear dog *(Borophagus, Osteoborus*), rhinoceros (*Teleoceras),* horse (*Dinohippus*), antelope (Antelocapridae), camelid (Hemiauchenia), racoon family (Procyonidae)	Surface

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface
**Some of these sites correspond to UCMP localities*
***As published in Stirton & Goeriz 1942. Bull. Univ. Calif. Dept. Geol. Sci. 26:447-472. Equals UCMP V38013*

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Federal (43 Code of Federal Regulations Part 49.110) or Society of Vertebrate Paleontology standards.

Sincerely,



Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

Appendix H

Hazardous Consequences Analysis

DUDEK
3760 STATE STREET, SUITE 101
SANTA BARBARA, CALIFORNIA 93105
T 805.963.0651

MEMORANDUM

To:	Double Springs Energy Storage, LLC
From:	Adam Poll, Dudek
Subject:	Hazardous Consequence Analysis for the Double Springs Energy Storage Project
Date:	October 16, 2025
Attachments:	A, Emission Calculations
	B, Prior Studies on Emissions from Battery Malfunctions
	C, Dispersion Modeling Outputs

Dudek has prepared a hazardous consequence analysis technical memorandum (study) for the Double Springs Energy Storage Project (Project) located in Calaveras County, California. The contents and organization of this memorandum are as follows: Executive Summary, Project Description, Codes and Standards, Sensitive Receptors, General Analysis and Methodology, Significance Criteria, Conclusions, and References Cited.

1 Executive Summary

The Project would involve constructing and operating a battery energy storage system (BESS) within Calaveras County, California. This study evaluated the Project's potential to cause adverse health effects on nearby receptors in the highly unlikely scenario of a thermal runaway event.[1]

This study provides a list of the chemical constituents that could be emitted from lithium-iron phosphate batteries during a thermal runaway event, based on the UL 9540A testing for the Hithium OO Block 5.015 megawatt-hour (MWh) lithium-iron phosphate BESS. Because the results from this testing did not show a significant combustion event, this study conservatively extrapolates the data.

Two separate evaluations were conducted to evaluate potential impacts of toxic air contaminants (TACs) from a thermal runaway event. Each method used dispersion modeling to calculate offsite concentrations of TACs. The concentrations were then compared to the Office of Environmental Health Hazard Assessment (OEHHA) acute reference exposure levels (RELs), level 1 U.S. Environmental Protection Agency (EPA) Acute Exposure Guideline Levels (AEGLs) if no REL exists, and the OEHHA threshold of 1 for the acute hazard quotient. As further discussed herein, emissions calculations indicated that for all of the modeled scenarios, the public health impacts from toxic

[1] Thermal runaway is a situation where the current flowing through the battery cell during either operation or a short circuit causes the cell temperature to rise to the point where a feedback loop can cause a thermal chain reaction.

pollutants associated with the conservative battery cell malfunction scenario were negligible, below background levels and would be less than significant from a public health perspective.

2 Project Description

The Project will be located on three parcels with Property Identification Numbers 40002017, 40002018, and 40002019, comprising a total of approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California. The Project site is adjacent to various industrial and commercial properties; the PG&E Valley Springs Substation is located to the east, open space located to the north and west, Double Springs Road, vacant land and a Cal-Waste Recovery Station is located to the south. The Project would be accessed from Double Springs Road.

The Project will include the development of energy storage facilities and associated infrastructure. The batteries will be housed within modular outdoor enclosures. Power stored or discharged by the Project will be transferred to and from the PG&E Valley Springs Substation via a short 60kV generation transmission (gen-tie) line.

The Project will consist of lithium-ion batteries, which will be installed in racks located in prefabricated outdoor enclosures; inverters; medium-voltage transformers and a main power transformer; switchgear; a collector substation; and other associated equipment. The Project will include the following components, which are described in more detail following the bulleted list:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances will be constructed that will provide dedicated energy storage capacity and dispatch to the electric grid.
- **Power Inverters and Transformers:** Power inverters to convert between AC and DC will be included, along with transformers that will step the voltage up and down.
- **Telecommunication Facilities:** Essential telecommunication equipment, including underground and overhead fiber optics and supervisory control and data acquisition systems (SCADA), will be installed to facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and motion-activated lighting for safety and security will be provided for the Project, which will meet all applicable code requirements.
- **Gen-Tie Line:** A 60-kilovolt gen-tie line, less than a quarter mile in length, will be constructed to transfer power between the PG&E Valley Springs Substation and the Project.

The facilities will be designed and intended to operate year-round and will be available to receive or deliver energy 24 hours a day, 365 days a year (there may be scheduled outages for maintenance/service).

PG&E Facility Upgrades

Specific transmission network upgrades were determined via the California Independent System Operator's (CAISO) Large Generator Interconnection Study Process.

Battery Energy Storage System Facility

The Project consists of the installation and operation of a utility scale energy storage facility consisting of approximately 240 prefabricated battery enclosures, along with approximately 60 Power Conversion System (PCS) skids, containing the following:

- internal racks and system control modules
- fire suppression systems
- thermal management/heating, ventilation, and air conditioning systems
- communication systems
- medium voltage transformers
- inverters

The battery modules will be delivered from the manufacturer preassembled and moved into place by forklifts or cranes. These modules are connected in parallel to aggregate the required energy capacity.

The BESS facility stores and releases energy based on market and utility demands. In general, the system will be dispatched to both place energy onto the grid (discharge) during times of high load (demand) and to take energy off of the grid (charge) in times of low load (demand) relative to generation. PG&E, or other contracted off-takers, will have sole authority to determine when to dispatch the system as dictated by the needs of their system customers.

The Project will be remotely monitored on a continuous basis. Remote access to battery status, meters, schedules, and other telemetry data will be available to off-site personnel. In the event an operational anomaly should occur (e.g., unexpected temperature variation), the monitoring system will immediately alert local contracted operations and maintenance personnel who will then expeditiously act on the issue. In addition, multiple fail-safes are embedded in the facility's hardware and software to ensure safe and efficient operations, and, if necessary, to automatically trigger a temporary shutdown of the facility until the issue is diagnosed and resolved.

Fire Protection System

The Applicant will install battery energy storage systems compliant with National Fire Protection Association (NFPA) 855 standards 9540 and 9540A certification, ensuring robust safety and fire prevention measures. Each system includes advanced failsafe features, cooling systems, and thermal runaway prevention mechanisms, designed to prevent and control potential fire incidents. The San Andreas Fire Protection District (SAFPD) Fire Chief will have review and approval rights for the facility fire access, protection, and suppression requirements. The review/approval by SAFPD will cover all applicable design, construction, and testing requirements of the NFPA 855 Code.

Generation Transmission Line

A 60-kilovolt overhead gen-tie line approximately 0.2 miles in length will be constructed that will transfer power to and from the Project and the PG&E Valley Springs Substation.

Outdoor Electrical Equipment

Medium-voltage transformers, inverters, switchgear, electronic switchboards and additional electrical equipment will be installed outside the BESS enclosures. Underground wires and cabling will run from the battery enclosures to housings for the inverters and medium voltage transformers on concrete pads. All electrical equipment will be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view to the extent practical. All outside electrical cabling will be run underground. Underground wires and cabling will run from the medium-voltage transformers to the onsite collector substation. The onsite collector substation will consist of a main power transformer, control house, and switchgear.

Inverters

The Applicant will use only industry-standard, nationally (and internationally) recognized equipment. The inverters will be unattended, stand-alone units that operate in all weather conditions. They will operate in both a charge mode and a discharge mode. They will be UL listed for bi-directional use and will be monitored and controlled remotely via the SCADA system. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. They will be robust in their design and are designed to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.

Telecommunication Facilities

The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote Project operations monitoring. To provide communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The SCADA system is critical to the PG&E utility interconnection and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing labor and site diagnostic information. The SCADA system will also control the onsite collector substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.

Site Access and Security

The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet Calaveras County standards, including fire safety requirements as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario will be incorporated into the Project site based on the County's final determination. A perimeter fence will be installed around the perimeter of the Project site for safety and security purposes and will remain for the life of the Project. The perimeter fence will be at 10 foot high chain-link with razor wire on top.

In accordance with Calaveras County Zoning Code Section 17.50.050 lighting regulations, permanent security lighting will be installed to illuminate key areas, such as the plant substation and ingress/egress points. The lighting will be designed to minimize off-site glare, using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. Security lighting shall not exceed a maximum color temperature of 5,000 Kelvin to maintain visual comfort and safety standards. These measures align with the County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. The Project site will be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

Stormwater Collection and Treatment

The Project will implement a comprehensive stormwater management plan designed in accordance with Calaveras County Code Chapter 15.30 – Stormwater Quality and other applicable County and State regulations. This plan will control stormwater runoff to minimize impacts on adjacent properties and natural waterways while ensuring compliance with County drainage standards. A stormwater detention basin will be constructed on the Project site to collect and temporarily hold stormwater generated onsite. This basin is engineered to detain stormwater, allowing sediment and potential pollutants to settle out before the water is gradually discharged, ensuring compliance with County drainage standards.

Additionally, the stormwater system will include measures to control both the rate and volume of discharge to minimize any impact on downstream properties and natural water bodies, as required by Calaveras County Code. Drainage facilities are designed to prevent an increase in stormwater discharge rates, aligning with best practices in stormwater control.

At the end of the Project's operational life the Applicant will decommission the Project. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, state, and Calaveras County regulations. Following the expiration of the Project's useful life, the facility will be decommissioned, which will include Project components being removed from the Project site. Above-ground equipment to be removed includes batteries and battery enclosures, inverters, transformers, substation steel bus work and structures, and electrical wiring. The Applicant will implement measures to ensure the collection and recycling of batteries and to avoid the potential for batteries to be disposed of as municipal waste.

Equipment will be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site to be recycled or disposed of at an appropriately licensed disposal facility. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the decommissioning equipment being used. The area will be thoroughly cleaned, all debris removed, and the Project site will be readied for a new use. A collection and recycling program will be implemented by the Applicant to promote recycling of Project components and minimize disposal in landfills.

2.1 Battery Technology Overview

Lithium iron phosphate (LFP) batteries are a type of rechargeable lithium-ion battery that uses iron phosphate as the cathode material and a graphitic carbon electrode with a metallic backing as the anode. They offer several advantages, including a longer lifespan, higher safety, and better discharge capacity compared to traditional

lithium-ion batteries such as nickel-manganese-cobalt (NMC) (which was the chemistry used at Moss Landing). LFP batteries also have a lower environmental impact due to the use of more abundant and less toxic materials like iron and phosphorus.

Lithium-ion batteries were introduced commercially by Sony in 1991 for use primarily in consumer products. Since then, they have become the most widely used battery technology for grid-scale energy storage. Lithium-ion batteries have the versatility to handle smaller-scale applications, such as powering electric vehicles, as well as grid-scale applications requiring megawatts of power for hours at a time.

The name lithium-ion batteries is derived from the transfer of lithium ions between the electrodes within a battery cell during operation. Instead of metallic lithium (a reactive substance), lithium-ion batteries use safer lithiated metal oxides as the cathode and carbon as the anode. When a lithium-ion battery cell is charging, lithium ions migrate from the cathode to the anode through a lithium-salt organic solvent catalyst that facilitates ionic movement (the electrolyte). The ions travel back to the cathode when discharging. Cathodes have a more positive electrode potential than anodes (versus the standard lithium reference), thus, they are considered to be the positive terminal of the battery. Similarly, anodes have a more negative electrode potential than cathodes (versus the standard lithium reference), thus, they are considered to be the negative terminal of a battery. The anode and cathode are divided by a separator, often microperforated plastic which is soaked in the electrolyte. The separator allows ions to pass through while maintaining electrical isolation between the electrodes. The entire battery cell is protected by a sealed metallic casing.

The United States' (US) installations of advanced energy storage — almost entirely lithium-ion battery systems — went beyond 3 gigawatt (GW) / 10.5 gigawatt-hours (GWh) in the second quarter of 2024 according to research firm Wood Mackenzie Power & Renewables' which forecasts, then records and analyzes energy storage deployments. The Wood Mackenzie team reported that the US added 12.3GW/37.1GWh for full year 2024 and 13.3GW in 2025 (American Clean Power 2025). California had approximately 13,000 GW of utility scale battery storage installed as of 2024 and is projected to reach 54,000 GW by 2045.

3 Codes and Standards

3.1 Battery Testing Requirements and Regulations

BESS facilities and batteries are subject to several strict safety codes and standards. Some of the relevant codes and standards are discussed below.

Underwriters Laboratories (UL), a globally recognized safety certification company.

> UL9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems – this test methodology evaluates the fire characteristics of battery cells, modules, and installations that are purposefully induced into thermal runaway. The data generated can be used to determine the fire and explosion protection required for an installation of a BESS.
>
> UL1973: Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications - This standard evaluates the battery system's ability to safely withstand simulated abuse conditions. This standard evaluates the system based upon the manufacturer's specified charge and

discharge parameters. Requires that a BESS is not allowed to be an explosion hazard when exposed to an external fire source and that a single cell failure will not result in a cascading thermal runaway of cells.

UL1741: Inverters, Controllers, Converters, and Interconnection Equipment Standards - These requirements cover inverters, converters, charge controllers, and interconnection system equipment (ISE) intended for use in stand-alone (not grid-connected) or interactive (grid-connected) power systems. Interactive inverters, converters, and ISE are intended to be operated in parallel with an electric power system (EPS) to supply power to common loads.

UL9540: Energy Storage Systems and Equipment – This standard requires compliance with key UL sub-standards as well as standards from other recognized parties to certify safety of an integrated energy storage system.

Institute of Electrical and Electronics Engineers (IEEE): the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

IEEE C2: This Code covers basic provisions for safeguarding of persons from hazards arising from the installation, operation, or maintenance of (1) conductors and equipment in electric supply stations, and (2) overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance, and operation of electric supply and communication lines and equipment. The Code is applicable to the systems and equipment operated by utilities, or similar systems and equipment, of an industrial establishment or complex under the control of qualified persons.

International Fire Code (IFC): is the model up-to-date fire code addressing conditions hazardous to life and property from fire, explosion, handling or use of hazardous materials and the use and occupancy of buildings and premises.

IFC: Specifies minimum size requiring permits (Lithium, all types, 20 kilowatt-hours (kWh)), specifies maximum limits on sizing for battery systems (Lithium all type, 50 kwh each array), seismic and structural design, spacing (minimum 3 feet separation of arrays), vehicle impact protection, testing, maintenance and repairs, maximum quantities within a building (Lithium of 600 kwh), battery management system (BMS) monitoring, shutdown and notification requirements, automatic smoke detector requirements, automatic fire sprinkler systems, ventilation specifications.

National Fire Protection Association (NFPA): is an international nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.

NFPA 70: National Electrical Code, addresses electrical design, installation, and inspection.

NFPA 550: Guide to Fire Safety Concepts Tree for Protecting Energy Systems - addresses issues such as utilizing BMS and compatible equipment, ventilation as needed, fire resistive separation, array spacing, signage.

NFPA 855: Standard for the Installation of Stationary Energy Storage Systems - offers comprehensive criteria for the fire protection of BESS installations based on the technology used in BESS, the setting where the technology is being installed, the size and separation of BESS installations, and the fire suppression and

control systems in place. Additional considerations include ventilation, detection, signage, listings, and emergency operations responding to BESS emergencies.

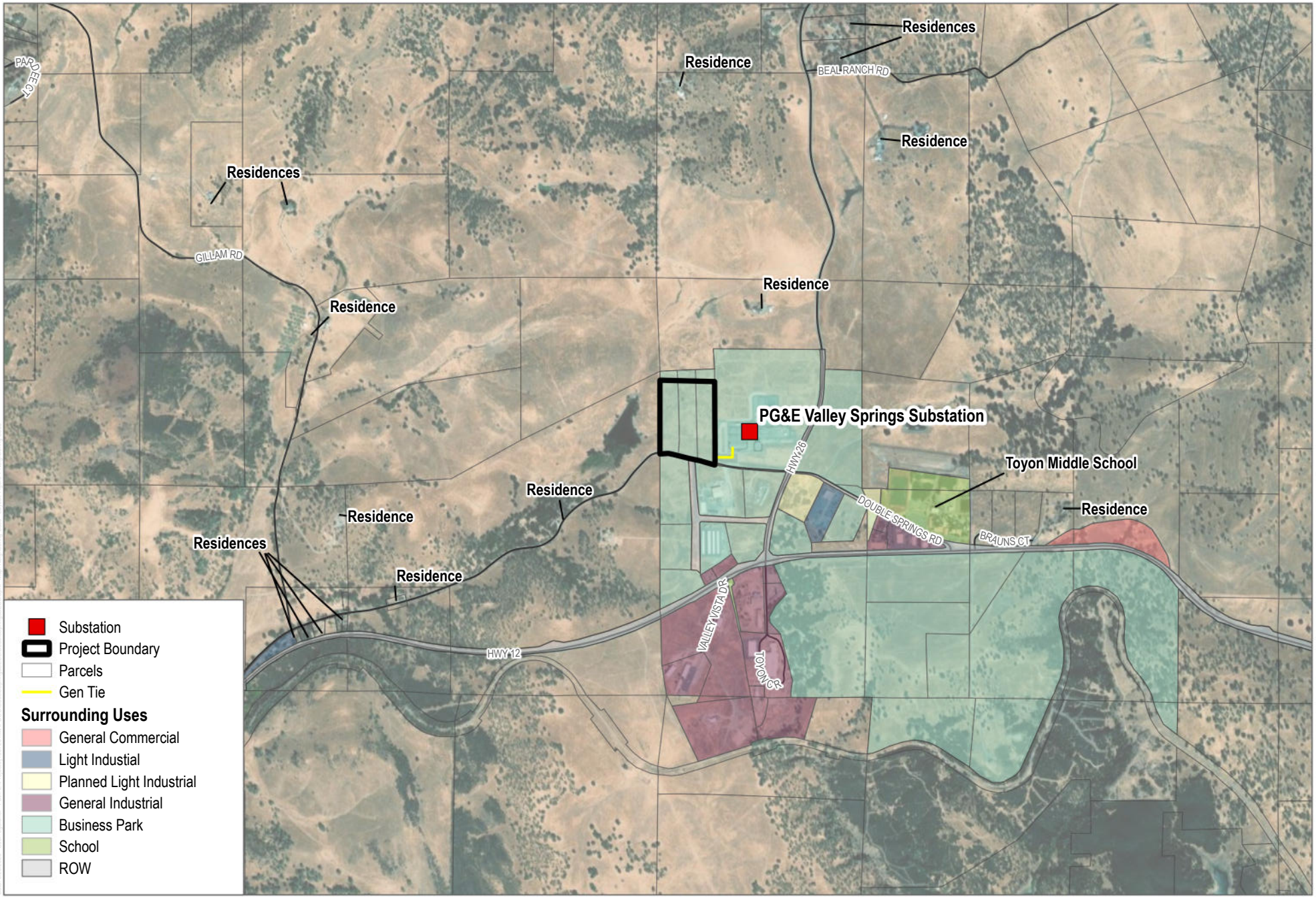
California Public Utilities Commission (CPUC): is a regulatory agency responsible for overseeing utility services and infrastructure in California, including electricity, natural gas, telecommunications, water, and transportation. Its mission is to ensure that Californians receive safe, reliable, and affordable utility services. The CPUC sets standards, conducts inspections, and enforces regulations to maintain service quality and public safety. It also addresses consumer complaints, offers financial assistance programs, and promotes clean energy initiatives.

CPUC General Order 167-C: Operational standards and maintenance protocols for electric generation facilities in California. It emphasizes the importance of reliability and safety, detailing requirements for regular inspections, performance monitoring, and reporting. The order mandates that facilities adhere to specific guidelines to ensure consistent operation and prevent outages, with a focus on maintaining equipment and infrastructure. Compliance is enforced through periodic audits and penalties for non-compliance, aiming to uphold high standards in the state's energy sector.

Senate Bill 38: requires every battery energy storage facility in California to have an emergency response and emergency action plan that cover the premises of the facility, consistent with Labor Code Sections 142.3 and 6401 and related regulations, including the regulatory requirements applicable to emergency action plans in Title 8 of the California Code of Regulations. Under SB 38, the owner or operator of the facility must coordinate with local emergency management agencies, unified program agencies, and local first responders to develop the plan and must submit the plan to the county and, if applicable, the city where the facility is located. Emergency response and action plans must: Establish response procedures for an equipment malfunction or failure; Include procedures, established in consultation with local emergency management agencies, that provide for the safety of surrounding residents, neighboring properties, emergency responders; and Establish notification and communication procedures between the battery storage facility and local emergency management agencies.

4 Neighboring Uses

There are neighboring uses located near the Project. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, older adults, and people with cardiovascular and chronic respiratory diseases. According to the CARB, sensitive receptors include residences, schools, playgrounds, childcare centers, and medical facilities (CARB 2005). These uses are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. The closest sensitive receptor to the project is a residence located approximately 1,130 feet from the Project's northern boundary. This analysis also assesses impacts to non-sensitive receptors that may be closer to the Project, including workers at nearby industrial and commercial uses. The closest non-sensitive receptor would be commercial buildings to the south of the project, approximately 360 feet from the project boundary. Toyon Middle School is located 3,200 feet east of the project. The location of the neighboring uses by type are shown in Figure 1.



SOURCE: Esri Basemap

DUDEK

0 500 1,000 Feet

FIGURE 1

Neighboring Uses

Double Springs Battery Energy System Storage Project

5 General Analysis and Methodology

During normal operations, there will be no toxic air emissions from the Project. The BESS would also be equipped with i) monitoring and control systems, ii) fire detection and protection systems, and iii) gas ventilation systems, among others, to prevent, monitor, and/or control any battery cell malfunctions. However, to determine the potential public health impacts for this analysis, this report assumes the highly unlikely event of multiple safety and ventilation system failures which do not control the battery cell malfunction. It is also assumed that the battery cell malfunction continues until the reaction ceases once stored energy has been expended.

In the event of a battery cell malfunction, it's possible that a thermal runaway event and/or a fire could occur. While modern-day systems are designed to contain such fires within a single battery module, if a fire does occur, some limited pollutants could be emitted to the atmosphere. Unlike other structural fires, the primary emissions from a thermal runaway event of a battery energy systems are flammable gases, which burn or dissipate quickly within the vicinity of the battery unit. The majority of the battery structure is non-combustible.

To capture a conservative scenario, it is assumed that the release of specific pollutants to the atmosphere would occur within a relatively short and concentrated period of time (i.e., one hour) as the acute emissions analysis and thresholds are based on a 1-hour exposure duration. Emission rates for each identified pollutant are based on the cell and module level testing data for the proposed BESS equipment. The actual rate of release would be dependent on energy stored within the individual battery system.

In the unlikely event of a battery cell malfunction, the primary emissions released would be carbon dioxide (CO_2) and carbon monoxide (CO), along with lesser amounts of other compounds. Table 1 provides a list of chemical constituents that could be emitted from lithium-iron phosphate batteries during a thermal runaway event, based on the UL 9540A testing. Two separate evaluations were conducted with respect to evaluating potential impacts of toxic air contaminants (TACs) from a thermal runaway event. Each method used dispersion modeling to calculate offsite concentrations of TACs. The concentrations were then compared to the Office of Environmental Health Hazard Assessment (OEHHA) acute RELs, level 1 U.S. Environmental Protection Agency (EPA) Acute Exposure Guideline Levels (AEGLs) if no REL exists, and the OEHHA threshold of 1 for the acute hazard quotient. The methodology of each is discussed further in this section.

5.1 UL9540A Testing

The applicant proposes to utilize the Hithium 00 Block 5.015 megawatt-hour (MWh) lithium-iron phosphate BESS. The UL 9540 tests showed that in the event of a single battery cell undergoing thermal runaway, there was propagation to one additional cell within the tray, for a total of 2 cells. No external flaming or flame venting occurred during the UL 9540A testing at the unit level. Because the module (tray) level test showed propagation to 2 cells within the tray, this analysis assumes 20 cells would be affected (10 times the UL9540A module results) and therefore presents a conservative analysis (i.e., a multi-battery cell malfunction). An evaluation of an entire Hithium 00 Block (4,992 cells) undergoing a thermal runaway event was also considered, but as noted nationally recognized testing has demonstrated that propagation is expected to be limited to 2 cells. The pollutant speciation in the cell level is different than that at the unit level due to the differences in the UL9540A test environment and sampling methods. The cell level test utilizes gas chromatography to analyze specific gas composition whereas the unit level test utilizes a Fourier-Transform Infrared Spectrometer and flame ionization.

5.2 Emissions

Battery cell malfunctions, such as thermal runway events, can result in the release of toxic emissions and/or flammable gas mixtures to the atmosphere. Several studies have examined the emissions of pollutants from battery off-gassing situations during thermal runaway events, with some studies examining only the concentration of toxic pollutants and others also examining emission rates. The relevant studies are listed in Attachment B. For lithium-iron phosphate batteries, the UL9540A testing indicated that the primary toxic pollutants could be any of the pollutants listed in Table 1. Based upon recent testing data for representative Project components, six of these constituents are toxic air contaminants (that have an acute REL or AEGL) that could be potentially released during an accidental event within a BESS. The toxic air contaminants (TACs) include propane, butane, hexane, benzene, carbon monoxide, and toluene. A higher concentration of TACs were observed at the cell level 9540 testing compared to the module and unit level. Therefore, the cell level concentrations were used to scale up for the multi-cell level analysis. The unit level 9540 testing results were used for the Hithium 00 Block analysis. Detailed emission calculations are included in Attachment A.

Table 1. Potential Chemical Constituents Emitted from LFP Batteries

Chemical Formula	Chemical Name
CH_4	Methane[1]
C_2H_2	Acetylene[3]
C_2H_4	Ethylene[1]
C_2H_6	Ethane[1]
C_3H_4	Propadiene (Allene)[3]
C_3H_6	Propene[3]
C_3H_8	Propane[1]
C4 (Total)	N/A[3]
C5 (Total)	N/A[3]
C6 (Total)	N/A[3]
CO	Carbon Monoxide[1]
CO_2	Carbon Dioxide[1]
H_2	Hydrogen[1]
C_7H_{14}	1-Heptene[3]
C_6H_6	Benzene[3]
C_7H_8	Toluene[3]
$C_5H_{10}O_3$	Diethyl Carbonate[2]
$C_3H_6O_3$	Dimethyl Carbonate[1]
$C_4H_8O_3$	Ethyl Methyl Carbonate[1]

Source: UL Solutions 2024.
Notes: N/A = not available
[1] Pollutant found in both cell- and unit-level 9540A test results for Hithium 00 Block.
[2] Pollutant found in unit-level 9540A test results for Hithium 00 Block.
[3] Pollutant found in cell-level 9540A test results for Hithium 00 Block.

Generally, the battery cell will start to off gas through pressure relief vents (or pouch seams) if the temperature exceeds 120°C (DNV GL 2017); however, the battery will not enter thermal runaway until it exceeds the thermal runaway onset temperature, which is usually between 170°C and 220°C, depending on the cathode chemistry.

5.3 Dispersion Modeling

Air dispersion models calculate the atmospheric transport and fate of pollutants from the emission source. The models calculate the concentration of selected pollutants at specific downwind ground-level points, such as residential or school receptors. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal due to dry and wet deposition are influenced by the pollutant's physical and chemical properties, and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration of an air pollutant. Air dispersion models have the capability to take all of these factors into consideration when calculating downwind ground-level pollutant concentrations.

A dispersion modeling analysis was conducted for TACs emitted from a thermal runaway event on proximate off-site sensitive receptors. The dispersion modeling was performed using AERMOD Version 24142, which is the model the U.S. Environmental Protection Agency (EPA) approved and the Calaveras County Air Pollution Control District (CCAPCD) recommends for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain. Principal parameters of AERMOD for the thermal runaway event included the following and are included in Attachment C:

- **Dispersion Model:** The air dispersion model used was AERMOD, Version 24142, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 13.0.0. A unit emission rate (1 gram per second [g/s]) was normalized over each unique source of emissions for the AERMOD run to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength, and is used as a way to simplify the representation of emissions from many sources. The maximum concentrations were determined for the 1-hour averaging period. Table 2 provides detailed source parameters for modeling emissions with AERMOD. Source parameters were based on information found within the UL 9540A testing results (UL Solutions 2024).

Table 2. Emission Source Parameters

Source ID	Source Name	Source Type	Source Parameters
20 Cell Scenario			
STCK1	BESS Container	Point	Base Elevation: 986.3 ft Release Height: 7.34 ft Release Type: Horizontal Emission Rate: 1 g/s Gas Exit Temperature: 295.7 °C Stack Inside Diameter: 2.66 ft Gas Exit Velocity: 0.001 m/s Gas Exit Flow Rate: 1.4 ft^3/min

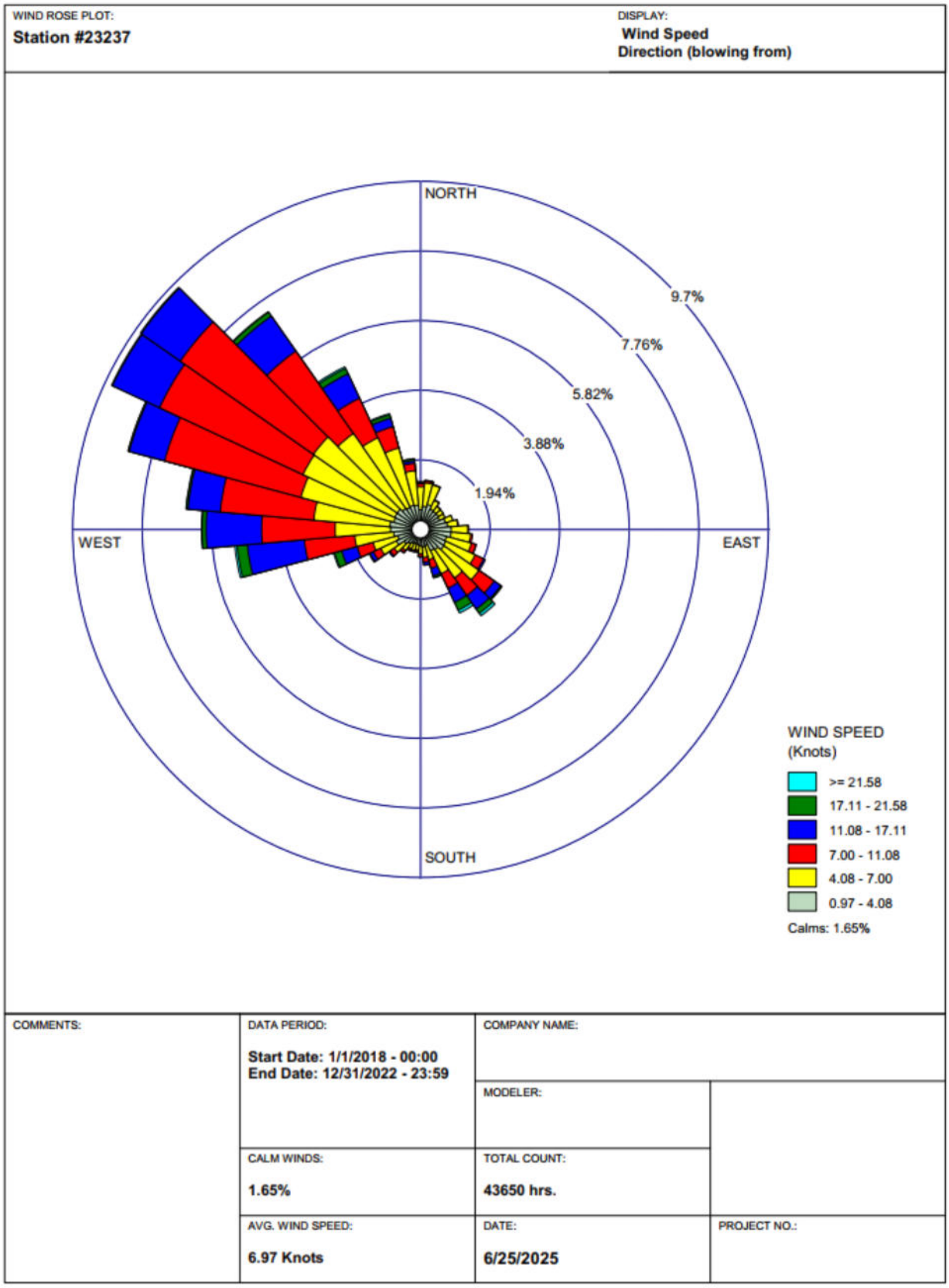
Table 2. Emission Source Parameters

Source ID	Source Name	Source Type	Source Parameters
			Variable Emissions Scenario: None
Hithium OO Block Scenario			
STCK1	BESS Container	Point	Base Elevation: 986.3 ft Release Height: 7.34 ft Release Type: Horizontal Emission Rate: 1 g/s Gas Exit Temperature: 295.7 °C Stack Inside Diameter: 2.66 ft Gas Exit Velocity: 0.544 m/s Gas Exit Flow Rate: 595.13 ft^3/min Variable Emissions Scenario: None

Sources: UL Solutions 2024.
Notes: ft = feet; ft^3/min = cubic feet per minute; ft/s = feet per second; g/s = grams per second; ID = Identification; K = degrees Celsius and; m = meters.

- **Meteorological Data:** The latest three-year meteorological data (2018-2022) for the Stockton station were obtained from San Joaquin Valley Air Pollution Control District and input to AERMOD. The Stockton station is the closest meteorological station to the site and is considered representative. A wind rose is provided for this station in Figure 2.
- **Urban and Rural Options:** Typically, urban areas have more surface roughness and structures and low-albedo surfaces that absorb more sunlight, and thus, more heat, relative to rural areas. The rural dispersion option was selected based on the predominant development within 2 kilometers of the project site.
- **Terrain Characteristics:** Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate for the site. This accounts for complex terrain within 2 kilometers of the site. The AERMAP terrain preprocessor, which can process U.S. Geological Survey (USGS) Digital Elevation Model (DEM) data and data from the NED, is also used to generate the terrain elevations for the receptor locations. The AERMAP program generates an output file that contains the receptor pathway data for AERMOD. The DEM dataset with resolution of 7.5-minutes was used.
- **Receptors:** A fenceline grid with 25 meter spacing out to 100 meters; 50 meter spacing out to 200 meters; 100 meter spacing out to 400 meters; and 200 meter spacing out to 1,000 meters was used to evaluate proximate receptors. Discrete receptors were placed over residences and other sensitive receptors (schools) proximate to the Project site.

Figure 2. Wind Rose of Meteorological Data



5.4 Exposure Assessment

Under the conservative scenario, the burning and/or venting of the battery cells due to a battery cell malfunction would result in combustion-related emissions. Inhalation is the main pathway by which these emissions could potentially cause public health impacts.

In March 2015, the OEHHA approved the 2015 Risk Assessment Guidelines Manual (OEHHA 2015). The assessment was prepared following the 2015 Risk Assessment Guidelines Manual. Noncancer acute health risk calculations were performed for the project using ground-level unity emission concentration (X/Q) input from AERMOD. The concentration result from AERMOD was then multiplied by the emission rate of each pollutant to determine the project concentration at the maximally impacted residential receptor (MEIR). The project concentration at the MEIR for each pollutant was then compared to the REL (if available) or the Level 1 AEGL.

The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of µg/m^3 divided by the REL, also in units of µg/m^3. The REL is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects on a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients of individual TACs are then summed for each target organ system to obtain a hazard index. As this is an acute health risk exposure assessment, the maximum 1-hour emission rates from thermal runaway of 20 cells and an entire BESS container were assumed. The analysis evaluated impacts at nearby receptors.

6 Significance Criteria

The applicable REL or AEGL (level 1) for each pollutant evaluated in this assessment is shown below in Table 3. For the acute hazard index assessment, a significant impact would be defined as having an acute hazard index of over 1 (OEHHA 2015).

Table 3. Significance Criteria

Chemical Name	REL (µg/m^3)	AEGL (µg/m^3)
Propane[1]	NA	9,920
Butane[2]	NA	13,074
Carbon monoxide[1]	23,000	NA
Hexane[2]	NA	10,222
Benzene[2]	27	NA
Toluene[2]	5,000	NA

Source: OEHHA 2020; EPA 2024.
Notes: N/A = not applicable; REL = reference exposure level; AEGL = acute exposure guideline levels; µg/m^3 = microgram per cubic meter.
[1] Pollutant found in the cell- and unit-level 9540A test for the Hithium OO Block with a REL or AEGL.
[2] Pollutant found in the cell-level 9540A test for the Hithium OO Block with a REL or AEGL.

7 Results

Table 4 presents the results of the acute exposure results of the thermal runaway scenario of 20 cells and full enclosure at the point of maximum impact (highest offsite concentration) as discussed in the methodology above.

Table 4. Acute Risk Results – Point of Maximum Impact

Pollutant	Project Concentration (µg/m³)	REL (µg/m³)	AEGL (µg/m³)	Acute Hazard Quotient
20 Cell Scenario				
Propane	374.58	NA	9,920	NA
Butane	726.83	NA	13,074	NA
Carbon Monoxide	2,504.07	23,000	NA	0.11
Hexane	11.16	NA	10,222	NA
Benzene	8.77	27	NA	0.32
Toluene	0.80	5,000	NA	0.0002
			Hazard Index	**0.32**
Hithium OO Block Scenario				
Propane	686.38	NA	9,920	NA
Carbon Monoxide	4,582.92	23,000	NA	0.20

Notes: Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive. N/A = not applicable; REL = reference exposure level; AEGL = acute exposure guideline levels; µg/m³ = microgram per cubic meter.
Source: See Attachment A.

As shown in Table 4, the results of the acute risk analysis at the point of maximum impact showed that the emissions from a thermal runaway event (assuming 20 cells and full enclosure) would not exceed the REL or AEGL for any pollutant at the point of maximum impact. Similarly, the acute hazard index would not exceed the threshold of 1. As such, no adverse health effects are anticipated from exposure to a thermal runaway event.

Table 5 presents the results of the acute exposure results of the thermal runaway scenario of 20 cells and full enclosure as discussed in the methodology above at the maximally exposed individual resident (highest offsite residential receptor).

Table 5. Acute Risk Results – Maximally Exposed Individual Resident

Pollutant	Project Concentration (µg/m³)	REL (µg/m³)	AEGL (µg/m³)	Acute Hazard Quotient
20 Cell Scenario				
Propane	32.23	NA	9,920	NA
Butane	62.55	NA	13,074	NA
Carbon Monoxide	215.48	23,000	NA	0.01
Hexane	0.96	NA	10,222	NA
Benzene	0.75	27	NA	0.03

Table 5. Acute Risk Results – Maximally Exposed Individual Resident

Pollutant	Project Concentration (µg/m³)	REL (µg/m³)	AEGL (µg/m³)	Acute Hazard Quotient
Toluene	0.07	5,000	NA	0.00001
			Hazard Index	**0.03**
Hithium OO Block Scenario				
Propane	154.52	NA	9,920	NA
Carbon Monoxide	1,031.69	23,000	NA	0.04

Notes: Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.
N/A = not applicable; REL = reference exposure level; AEGL = acute exposure guideline levels; µg/m³ = microgram per cubic meter.
Source: See Attachment A.

As shown in Table 5, the results of the acute risk analysis at the maximally exposed individual resident impact showed that the emissions from a thermal runaway event (assuming 20 cells and full enclosure) would not exceed the REL or AEGL for any pollutant. Similarly, the acute hazard index would not exceed the threshold of 1. As such, no adverse health effects are anticipated at the maximally exposed individual resident from exposure to a thermal runaway event.

Table 6 presents the results of the acute exposure results of the thermal runaway scenario of 20 cells and full enclosure as discussed in the methodology above at Toyon Middle School.

Table 6. Acute Risk Results – School

Pollutant	Project Concentration (µg/m³)	REL (µg/m³)	AEGL (µg/m³)	Acute Hazard Quotient
20 Cell Scenario				
Propane	21.54	NA	9,920	NA
Butane	41.79	NA	13,074	NA
Carbon Monoxide	143.97	23,000	NA	0.01
Hexane	0.64	NA	10,222	NA
Benzene	0.50	27	NA	0.02
Toluene	0.05	5,000	NA	0.00001
			Hazard Index	**0.02**
Hithium OO Block Scenario				
Propane	109.12	NA	9,920	NA
Carbon Monoxide	728.57	23,000	NA	0.03

Notes: Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.
N/A = not applicable; REL = reference exposure level; AEGL = acute exposure guideline levels; µg/m³ = microgram per cubic meter.
Source: See Attachment A.

As shown in Table 6, the results of the acute risk analysis at the Toyon Middle School showed that the emissions from a thermal runaway event (assuming 20 cells and full enclosure) would not exceed the REL or AEGL for any pollutant. Similarly, the acute hazard index would not exceed the threshold of 1. As such, no adverse health effects are anticipated at Toyon Middle School from exposure to a thermal runaway event.

8 Conclusions

As shown in Section 7, the results of the thermal runaway analysis show that emissions from the BESS would not exceed the acute REL, Level 1 AEGL, or hazard index threshold of 1 at the point of maximum impact assuming 20 cells or a full enclosure underwent thermal runaway. In other words, at the property line, emissions resulting from a thermal runaway event would be well below exposure levels set by OEHHA, which are designed to be protective of public health. This analysis is considered conservative as it assumes a much greater number of cells would undergo a thermal runaway compared to what was observed in the UL9540A testing with no safety measures in place. The risk calculations are contained in Attachment A and the dispersion modeling outputs are in Attachment C.

The results determined in this analysis reflect conservative estimates of source emissions and exhaust characteristics, available meteorological data near the project site, and the use of currently approved air quality models. Given the limits of available tools for such an analysis, the actual impacts may vary from the estimates in this assessment. However, the combined use of the AERMOD dispersion model and the health impact calculations required by OEHHA tend to over-predict impacts such that they produce conservative (i.e., health-protective) results. Accordingly, the health impacts are not expected to be higher than those estimated in this assessment. Furthermore, the assumption of 20 cells or a full enclosure undergoing a thermal runaway is highly unlikely based on the UL9540A testing and safety systems in place.

As such, the proposed project would not result in any significant air quality and TAC impacts to proximate receptors.

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Attachment A

Emission Calculations

Thermal Runaway Emissions - Hithium Cell Level

TAC Emission Calculations

				Volume of gas (L)				Mass for 20 Cells			REL		AEGL
Pollutant	**Chemical Formula**	**CAS**	**Measured %**	**Cell**	**Molar Mass (g/mol)**	**Density (g/L)**	**Density (kg/L)**	**kg**	**lb**	**lb/hr**	**(µg/m3)**	**AEGL (ppm)**	**(µg/m3)**
Methane	CH4	74-82-8	4.868%	8.33	16.04	2.37	0.002	0.394	0.868	0.030	NA	NA	NA
Acetylene	C2H2	74-86-2	0.148%	0.25	26.04	3.84	0.004	0.019	0.043	0.001	NA	NA	NA
Ethylene	C2H4	74-85-1	1.804%	3.09	28.05	4.14	0.004	0.256	0.562	0.019	NA	NA	NA
Ethane	C2H6	74-84-0	0.805%	1.38	30.07	4.44	0.004	0.122	0.269	0.009	NA	NA	NA
Propadiene (Allene)	C3H4	74-99-7	0.006%	0.01	40.06	5.91	0.006	0.001	0.003	0.000	NA	NA	NA
Propylene	C3H6	115-07-1	2.256%	3.86	42.08	6.21	0.006	0.480	1.055	0.036	NA	NA	NA
Propane	C3H8	74-98-6	1.379%	2.36	44.10	6.51	0.007	0.307	0.676	0.023	NA	5500	9920
Butane	C4 (Total)	106-97-8	2.029%	3.47	58.12	8.57	0.009	0.596	1.310	0.045	NA	5500	13074
Pentane	C5 (Total)	109-66-0	0.447%	0.77	72.15	10.64	0.011	0.163	0.358	0.012	NA	NA	NA
Hexane	C6 (Total)	110-54-3	0.021%	0.04	86.18	12.71	0.013	0.009	0.020	0.001	NA	2900	10222
Carbon Monoxide	CO	630-08-0	14.507%	24.84	28.01	4.13	0.004	2.052	4.515	0.156	23000	NA	NA
Carbon Dioxide	CO2	124-38-9	23.000%	39.38	44.01	6.49	0.006	5.113	11.248	0.388	NA	NA	NA
Hydrogen	H2	1333-74-0	45.167%	77.33	2.02	0.30	0.000	0.460	1.012	0.035	NA	NA	NA
1-Heptene	C7H14	592-76-7	0.004%	0.01	98.19	14.49	0.014	0.002	0.004	0.000	NA	NA	NA
Benzene	C6H6	71-43-2	0.018%	0.031	78.110	11.52	0.012	0.007	0.016	0.001	27	NA	NA
Toluene	C7H8	108-88-3	0.001%	0.002	92.140	13.59	0.014	0.000	0.001	0.000	5000	NA	NA
Dimethyl Carbonate	C3H6O3	616-38-6	3.340%	5.72	90.08	13.29	0.013	1.520	3.343	0.115	NA	NA	NA
Ethyl Methyl Carbonate	C4H8O3	623-53-0	0.198%	0.34	104.10	15.36	0.015	0.104	0.229	0.008	NA	NA	NA
Check sum			*100.00%*	*171.20*									
			Total Volume of Gas	171.20									

Source: Cell Level Test Report UL 9540A for Xiamen Hithium Energy Storage Technology Co., Ltd.

Number of Cells/Module	104	cells/tray (from UL9450 test data)
Test Duration:	29.00	hours (from UL9450 test data)
	2	cells exhibited thermal runaway of module
	4992	cells/container

Density Calculation

p=PM/RT

P	6.886250974	atm	101.2 psig	UL9540A
M	Molar Mass	g/mol		
R	0.08206	L.atm/K-mol		constant
T	568.85	K		UL9540A

Thermal Runaway Emissions - Hithium Unit Level

TAC Emission Calculations

				Volume of gas (L)				Mass for Container			REL		AEGL
Pollutant	**Chemical Formula**	**CAS**	**Measured %**	**Unit**	**Molar Mass (g/mol)**	**Density (g/L)**	**Density (kg/L)**	**kg**	**lb**	**lb/hr**	**(µg/m3)**	**AEGL (ppm)**	**(µg/m3)**
Methane	CH4	74-82-8	4.120%	24.20	16.04	2.37	0.002	285.86	628.88	21.69	NA	NA	NA
Ethylene	C2H4	74-85-1	3.115%	18.30	28.05	4.14	0.004	378.02	831.64	28.68	NA	NA	NA
Ethane	C2H6	74-84-0	0.426%	2.50	30.07	4.44	0.004	55.36	121.79	4.20	NA	NA	NA
Propane	C3H8	74-98-6	19.237%	113.00	44.10	6.51	0.007	1,834.79	4,036.53	139.19	NA	5500	9920
Carbon Monoxide	CO	630-08-0	8.580%	50.40	28.01	4.13	0.004	519.81	1,143.57	39.43	23000	NA	NA
Carbon Dioxide	CO2	124-38-9	16.599%	97.50	44.01	6.49	0.006	3,159.91	6,951.79	239.72	NA	NA	NA
Hydrogen	H2	1333-74-0	40.347%	237.00	2.02	0.30	0.000	351.86	774.09	26.69	NA	NA	NA
Diethyl Carbonate	C5H10O3	105-58-8	0.579%	3.400	118.130	17.43	0.017	295.78	650.71	22.44	NA	NA	NA
Dimethyl Carbonate	C3H6O3	616-38-6	5.209%	30.60	90.08	13.29	0.013	2,029.92	4,465.81	153.99	NA	NA	NA
Ethyl Methyl Carbonate	C4H8O3	623-53-0	1.788%	10.50	104.10	15.36	0.015	804.95	1,770.89	61.07	NA	NA	NA
Check sum			*100.00%*	*587.40*									
			Total Volume of Gas										

Source: Cell Level Test Report UL 9540A for Xiamen Hithium Energy Storage Technology Co., Ltd.

Number of Cells/Module	104	cells/tray (from UL9450 test data)
Test Duration:	29.00	hours (from UL9450 test data)
	2	cells exhibited thermal runaway of module
	4992	cells/container

Density Calculation

p=PM/RT

P	6.886250974	atm	101.2 psig	UL9540A
M	Molar Mass	g/mol		
R	0.08206	L.atm/K-mol		constant
T	568.85	K		UL9540A

Attachment B

Prior Studies on Emissions from Battery Malfunctions

Several studies have examined the emissions of pollutants from battery off-gassing situations during thermal runaway events, with some studies examining only the concentration of toxic pollutants and others also examining emission rates. The relevant studies are listed in Table B-1 below.

Study	Description
ESRG 2023.	Hazard Mitigation Analysis for Tesla Megapack 2/XL
U9540A Unit Test Report for CATL	9540A Testing for Lithium Iron Phosphate Battery Chemistry
Fisher Engineering 2023.	Fire Protection Engineering Analysis
Fisher Engineering 2022.	UL 9540A unit Level Fire Test Analysis.
DNVGL 2017	Measured characteristics of a wide range of battery types and failures

Attachment C

Dispersion Modeling Outputs

Table of Contents

Double Springs Risk of Upset Acute Analysis-Cell Level 10.13.25 2

Double Springs AERMODADO-Cell 5

Double Springs AERMODsum-Cell 165

Double Springs Risk of Upset Acute Analysis-Unit Level 10.13.25 171

Double Springs AERMODADO-Unit 174

Double Springs AERMODsum-Unit 334

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Point of Maximum Impact

Table 1. Max Emission Rates (lbs/day) for Project - 20 Cells						
Max Rates	**Propane**	**Butane**	**Carbon Monoxide**	**Hexane**	**Benzene**	**Toluene**
Hourl Max, g/s	0.059	0.115	0.396	0.002	0.001386	0.000126
Hourly Max lbs/hr	0.47	0.91	3.14	0.01	0.0110	0.00100

Table 2. AERMOD Maximum Impact X/Q, ($\mu g/m^3$)/(g/s)
Max 1-Hour
6,325.25

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)** (from Table 1)	**X/Q (µg/m3)/(g/s)** (from Table 2)	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
Propane	74986	0.059	6,325.25	374.58	NA	9,920	No	NA
Butane	106978	0.115	6,325.25	726.83	NA	13,074	No	NA
Carbon Monoxide	630080	0.40	6,325.25	2,504.07	23,000	NA	No	0.11
Hexane	110543	0.00	6,325.25	11.16	NA	10,222	No	NA
Benzene	71432	0.001386	6,325.25	8.77	27	NA	No	0.32
Toluene	108883	0.000126	6,325.25	0.80	5,000	NA	No	0.0002
							Hazard Index	**0.32**

Notes: A threshold of 1 was assumed for the acute hazard index.
Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Maximally Exposed Individual Resident

Table 1. Max Emission Rates (lbs/day) for Project - 20 Cells						
Max Rates	**Propane**	**Butane**	**Carbon Monoxide**	**Hexane**	**Benzene**	**Toluene**
Hourl Max, g/s	0.059	0.115	0.396	0.002	0.001386	0.000126
Hourly Max lbs/hr	0.47	0.91	3.14	0.01	0.0110	0.00100

Table 2. AERMOD Maximum Impact X/Q, (µg/m^3)/(g/s)
Max 1-Hour
544.30

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)** (from Table 1)	**X/Q (µg/m3)/(g/s)** (from Table 2)	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
Propane	74986	0.059	544.30	32.23	NA	9,920	No	NA
Butane	106978	0.115	544.30	62.55	NA	13,074	No	NA
Carbon Monoxide	630080	0.40	544.30	215.48	23,000	NA	No	0.01
Hexane	110543	0.00	544.30	0.96	NA	10,222	No	NA
Benzene	71432	0.001386	544.30	0.75	27	NA	No	0.03
Toluene	108883	0.000126	544.30	0.07	5,000	NA	No	0.00001
							Hazard Index	**0.03**

Notes: A threshold of 1 was assumed for the acute hazard index.
Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Toyon Middle School

Table 1. Max Emission Rates (lbs/day) for Project - 20 Cells						
Max Rates	**Propane**	**Butane**	**Carbon Monoxide**	**Hexane**	**Benzene**	**Toluene**
Hourl Max, g/s	0.059	0.115	0.396	0.002	0.001386	0.000126
Hourly Max lbs/hr	0.47	0.91	3.14	0.01	0.0110	0.00100

Table 2. AERMOD Maximum Impact X/Q, ($\mu g/m^3$)/(g/s)
Max 1-Hour
363.67

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)** (from Table 1)	**X/Q (µg/m3)/(g/s)** (from Table 2)	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
Propane	74986	0.059	363.67	21.54	NA	9,920	No	NA
Butane	106978	0.115	363.67	41.79	NA	13,074	No	NA
Carbon Monoxide	630080	0.40	363.67	143.97	23,000	NA	No	0.01
Hexane	110543	0.00	363.67	0.64	NA	10,222	No	NA
Benzene	71432	0.001386	363.67	0.50	27	NA	No	0.02
Toluene	108883	0.000126	363.67	0.05	5,000	NA	No	0.00001
							Hazard Index	**0.02**

Notes: A threshold of 1 was assumed for the acute hazard index.
Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.

```
** Lakes Environmental AERMOD MPI
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 13.0.0
** Lakes Environmental Software Inc.
** Date: 10/13/2025
** File: C:\Users\apoll\OneDrive - Dudek\Desktop\HARP2\HARP\Double Springs
BESS\Double Springs AERMOD\Double Springs AERMOD.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Users\apoll\OneDrive - Dudek\Desktop\HARP2\HARP\Double Springs BE
   MODELOPT DFAULT CONC
   AVERTIME 1
   POLLUTID VARIOUS
   RUNORNOT RUN
   ERRORFIL "Double Springs AERMOD.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STCK1        POINTHOR   695426.130  4232238.610      300.620
** Source Parameters **
   SRCPARAM STCK1              1.0     2.237   568.850 0.0012797884432401  0.810768
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Double Springs AERMOD.rou"
RE FINISHED
```

```
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE ..\stockton-metropolit-23237\Stockton_18-22.SFC
   PROFFILE ..\stockton-metropolit-23237\Stockton_18-22.PFL
   SURFDATA 23237 2018
   UAIRDATA 23230 2018 OAKLAND/WSO_AP
   PROFBASE 10.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "Double Springs AERMOD.AD\01H1GALL.PLT" 31
   SUMMFILE "Double Springs AERMOD.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W187      61       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 **********************************
 *** SETUP Finishes Successfully ***
 **********************************

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
```

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          ***   MODEL SETUP OPTIONS SUMMARY
 ***
 - - -

```
 **The AERMET Input Meteorological Data Version Date:  21112

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    10.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   Double Springs AERMOD.err

 **File for Summary of Results:   Double Springs AERMOD.sum

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*


                                                    *** POINT SOURCE DATA ***

               NUMBER EMISSION RATE                      BASE     STACK   STACK
STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.    HEIGHT  TEMP.   EXIT
VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (DEG.K)
(M/SEC)  (METERS)                    VARY BY
```

- - - -

```
4232101.4,     300.2,     302.0,       0.0);
     ( 695385.0, 4232139.4,     293.0,     313.0,       0.0);         ( 695382.9,
4232177.5,     286.9,     402.0,       0.0);
     ( 695337.1, 4232098.7,     297.8,     297.8,       0.0);         ( 695335.0,
4232136.7,     291.7,     313.0,       0.0);
     ( 695333.0, 4232174.8,     285.0,     402.0,       0.0);         ( 695287.2,
4232096.0,     294.8,     300.0,       0.0);
     ( 695285.1, 4232134.0,     291.0,     311.0,       0.0);         ( 695283.0,
4232172.1,     285.4,     402.0,       0.0);
     ( 695237.2, 4232093.3,     290.1,     305.0,       0.0);         ( 695235.2,
4232131.3,     287.9,     305.0,       0.0);
     ( 695233.1, 4232169.3,     284.9,     402.0,       0.0);         ( 695187.3,
4232090.5,     283.5,     312.0,       0.0);
     ( 695185.2, 4232128.6,     284.4,     305.0,       0.0);         ( 695183.2,
4232166.6,     284.5,     284.5,       0.0);
     ( 695087.5, 4232085.1,     275.2,     311.0,       0.0);         ( 695085.4,
4232123.2,     279.7,     310.0,       0.0);
     ( 695083.3, 4232161.2,     282.8,     310.0,       0.0);         ( 694987.6,
4232079.7,     276.5,     310.0,       0.0);
     ( 694985.5, 4232117.8,     280.8,     310.0,       0.0);         ( 694983.5,
4232155.8,     286.4,     310.0,       0.0);
     ( 694887.8, 4232074.3,     279.3,     310.0,       0.0);         ( 694885.7,
4232112.3,     284.5,     308.0,       0.0);
     ( 694883.6, 4232150.4,     289.9,     302.0,       0.0);         ( 694787.9,
4232068.9,     281.8,     301.0,       0.0);
     ( 694785.8, 4232106.9,     286.1,     301.0,       0.0);         ( 694783.8,
4232145.0,     291.0,     301.0,       0.0);
     ( 694588.2, 4232058.0,     281.9,     281.9,       0.0);         ( 694586.1,
4232096.1,     282.4,     282.4,       0.0);
     ( 694584.1, 4232134.1,     284.3,     284.3,       0.0);         ( 694388.5,
4232047.2,     275.5,     303.0,       0.0);
     ( 694386.4, 4232085.2,     273.0,     303.0,       0.0);         ( 694384.4,
4232123.3,     272.6,     303.0,       0.0);
     ( 694188.8, 4232036.3,     274.1,     305.0,       0.0);         ( 694186.7,
4232074.4,     273.7,     303.0,       0.0);
     ( 694184.7, 4232112.4,     272.1,     303.0,       0.0);         ( 693989.1,
4232025.5,     250.8,     329.0,       0.0);
     ( 693987.0, 4232063.6,     254.9,     329.0,       0.0);         ( 693984.9,
4232101.6,     257.6,     329.0,       0.0);
     ( 693789.4, 4232014.7,     238.4,     336.0,       0.0);         ( 693787.3,
4232052.7,     238.5,     336.0,       0.0);
     ( 693785.2, 4232090.8,     238.7,     336.0,       0.0);         ( 695505.0,
4232111.3,     303.8,     311.0,       0.0);
     ( 695512.4, 4232087.4,     306.6,     310.0,       0.0);         ( 695468.8,
4232073.8,     304.6,     313.0,       0.0);
     ( 695527.2, 4232039.6,     311.0,     311.0,       0.0);         ( 695505.4,
4232032.9,     311.1,     311.1,       0.0);
     ( 695483.6, 4232026.1,     310.8,     311.0,       0.0);         ( 695542.1,
4231991.9,     312.0,     312.0,       0.0);
     ( 695520.2, 4231985.1,     312.0,     312.0,       0.0);         ( 695498.4,
```

4231978.3,   312.2,   312.2,   0.0);
     (695556.9, 4231944.1,   311.6,   311.6,   0.0);   (695535.1,
4231937.4,   312.0,   312.0,   0.0);
     (695513.3, 4231930.6,   312.0,   312.0,   0.0);   (695571.7,
4231896.4,   312.0,   312.0,   0.0);
     (695549.9, 4231889.6,   312.0,   312.0,   0.0);   (695528.1,
4231882.8,   312.0,   312.0,   0.0);
     (695601.4, 4231800.9,   311.1,   311.1,   0.0);   (695579.6,
4231794.1,   311.8,   311.8,   0.0);
     (695557.8, 4231787.3,   312.5,   312.5,   0.0);   (695631.1,
4231705.4,   311.1,   311.1,   0.0);
     (695609.2, 4231698.6,   311.8,   311.8,   0.0);   (695587.4,
4231691.8,   312.0,   312.0,   0.0);
     (695660.7, 4231609.9,   310.9,   310.9,   0.0);   (695638.9,
4231603.1,   311.8,   311.8,   0.0);
     (695617.1, 4231596.3,   311.9,   311.9,   0.0);   (695690.4,
4231514.4,   306.2,   306.2,   0.0);
     (695668.6, 4231507.6,   307.7,   307.7,   0.0);   (695646.8,
4231500.8,   308.9,   308.9,   0.0);
     (695749.7, 4231323.4,   306.1,   306.1,   0.0);   (695727.9,
4231316.6,   306.3,   306.3,   0.0);
     (695706.1, 4231309.9,   306.7,   306.7,   0.0);   (695809.1,
4231132.4,   299.4,   299.4,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695787.2, 4231125.6,   299.9,   299.9,   0.0);   (695765.4,
4231118.9,   300.4,   300.4,   0.0);
     (695868.4, 4230941.4,   290.2,   307.0,   0.0);   (695846.6,
4230934.6,   288.6,   307.0,   0.0);
     (695824.8, 4230927.9,   287.3,   307.0,   0.0);   (695927.7,
4230750.4,   285.2,   314.0,   0.0);
     (695905.9, 4230743.6,   290.3,   311.0,   0.0);   (695884.1,
4230736.9,   294.9,   308.0,   0.0);
     (695987.1, 4230559.4,   301.2,   314.0,   0.0);   (695965.2,
4230552.6,   307.0,   312.0,   0.0);
     (695943.4, 4230545.9,   309.8,   309.8,   0.0);   (695356.4,
4232118.1,   297.5,   299.0,   0.0);
     (695427.7, 4232074.3,   303.2,   313.0,   0.0);   (695368.0,
4232087.8,   300.2,   311.0,   0.0);
     (695309.2, 4232107.6,   295.7,   295.7,   0.0);   (695409.6,

4232027.0,   306.4,   312.0,   0.0);
     (695446.6, 4232026.5,   309.3,   309.3,   0.0);   (695371.6,
4232033.8,   303.7,   311.0,   0.0);
     (695332.4, 4232047.0,   301.5,   301.5,   0.0);   (695293.2,
4232060.2,   298.4,   300.0,   0.0);
     (695395.7, 4231979.6,   308.7,   308.7,   0.0);   (695436.8,
4231979.1,   311.4,   311.4,   0.0);
     (695355.6, 4231986.4,   305.9,   305.9,   0.0);   (695316.4,
4231999.6,   303.5,   303.5,   0.0);
     (695277.2, 4232012.9,   299.7,   303.0,   0.0);   (695378.4,
4231932.2,   306.8,   306.8,   0.0);
     (695417.0, 4231931.8,   309.4,   309.4,   0.0);   (695455.5,
4231931.3,   311.1,   311.1,   0.0);
     (695339.6, 4231939.1,   304.5,   304.5,   0.0);   (695300.4,
4231952.3,   302.3,   302.3,   0.0);
     (695261.3, 4231965.5,   298.8,   298.8,   0.0);   (695363.7,
4231884.8,   302.0,   310.0,   0.0);
     (695404.8, 4231884.3,   305.6,   311.0,   0.0);   (695445.9,
4231883.8,   310.1,   310.1,   0.0);
     (695487.0, 4231883.3,   312.0,   312.0,   0.0);   (695323.6,
4231891.7,   298.9,   313.0,   0.0);
     (695284.5, 4231904.9,   297.1,   313.0,   0.0);   (695245.3,
4231918.1,   294.5,   313.0,   0.0);
     (695331.8, 4231790.1,   309.0,   313.0,   0.0);   (695372.9,
4231789.6,   308.3,   313.0,   0.0);
     (695414.0, 4231789.1,   309.9,   311.0,   0.0);   (695455.0,
4231788.6,   311.9,   311.9,   0.0);
     (695496.1, 4231788.1,   312.9,   312.9,   0.0);   (695291.7,
4231796.9,   306.9,   313.0,   0.0);
     (695252.5, 4231810.1,   302.4,   313.0,   0.0);   (695213.3,
4231823.4,   297.0,   313.0,   0.0);
     (695299.8, 4231695.3,   310.8,   310.8,   0.0);   (695340.9,
4231694.8,   312.0,   312.0,   0.0);
     (695382.0, 4231694.3,   312.0,   312.0,   0.0);   (695423.1,
4231693.8,   312.0,   312.0,   0.0);
     (695464.2, 4231693.3,   312.9,   312.9,   0.0);   (695505.2,
4231692.8,   313.0,   313.0,   0.0);
     (695546.3, 4231692.3,   312.9,   312.9,   0.0);   (695259.7,
4231702.2,   307.9,   307.9,   0.0);
     (695220.5, 4231715.4,   304.9,   304.9,   0.0);   (695181.4,
4231728.6,   303.0,   303.0,   0.0);
     (695267.8, 4231600.6,   299.6,   312.0,   0.0);   (695308.9,
4231600.1,   301.4,   312.0,   0.0);
     (695350.0, 4231599.6,   302.1,   312.0,   0.0);   (695391.1,
4231599.1,   303.1,   313.0,   0.0);
     (695432.2, 4231598.6,   306.6,   313.0,   0.0);   (695473.3,
4231598.1,   311.8,   311.8,   0.0);
     (695514.4, 4231597.6,   312.0,   312.0,   0.0);   (695555.5,
4231597.1,   312.0,   312.0,   0.0);
     (695227.7, 4231607.4,   296.1,   313.0,   0.0);   (695188.6,

4231620.6,   293.1,   313.0,   0.0);
     (695149.4, 4231633.8,   291.7,   313.0,   0.0);   (695235.9,
4231505.8,   289.0,   313.0,   0.0);
     (695277.0, 4231505.3,   294.0,   313.0,   0.0);   (695318.1,
4231504.8,   299.9,   312.0,   0.0);
     (695359.1, 4231504.3,   305.3,   305.3,   0.0);   (695400.2,
4231503.8,   308.2,   308.2,   0.0);
     (695441.3, 4231503.3,   310.7,   310.7,   0.0);   (695482.4,
4231502.8,   311.4,   311.4,   0.0);
     (695523.5, 4231502.3,   311.3,   311.3,   0.0);   (695564.6,
4231501.8,   311.0,   311.0,   0.0);
     (695605.7, 4231501.3,   310.5,   310.5,   0.0);   (695195.8,
4231512.7,   288.6,   313.0,   0.0);
     (695156.6, 4231525.9,   288.3,   311.0,   0.0);   (695117.4,
4231539.1,   286.4,   311.0,   0.0);
     (695172.0, 4231316.3,   293.4,   293.4,   0.0);   (695213.0,
4231315.8,   296.3,   296.3,   0.0);
     (695254.1, 4231315.3,   299.4,   311.0,   0.0);   (695295.2,
4231314.8,   304.0,   308.0,   0.0);
     (695336.3, 4231314.3,   308.2,   308.2,   0.0);   (695377.4,
4231313.8,   311.1,   311.1,   0.0);
     (695418.5, 4231313.3,   312.6,   312.6,   0.0);   (695459.6,
4231312.8,   312.6,   312.6,   0.0);
     (695500.7, 4231312.3,   311.4,   311.4,   0.0);   (695541.7,
4231311.8,   310.8,   310.8,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (695582.8, 4231311.3,   310.5,   310.5,   0.0);   (695623.9,
4231310.8,   308.6,   308.6,   0.0);
     (695665.0, 4231310.3,   307.2,   307.2,   0.0);   (695131.8,
4231323.2,   293.2,   299.0,   0.0);
     (695092.7, 4231336.4,   293.1,   300.0,   0.0);   (695053.5,
4231349.6,   293.3,   293.3,   0.0);
     (695108.0, 4231126.8,   290.5,   290.5,   0.0);   (695149.1,
4231126.3,   293.8,   293.8,   0.0);
     (695190.2, 4231125.8,   297.4,   297.4,   0.0);   (695231.3,
4231125.3,   300.2,   300.2,   0.0);
     (695272.4, 4231124.8,   302.9,   302.9,   0.0);   (695313.5,
4231124.3,   305.3,   311.0,   0.0);
     (695354.5, 4231123.8,   310.0,   311.0,   0.0);   (695395.6,

4231123.3,   310.9,   310.9,   0.0);
     (695436.7, 4231122.8,   310.9,   310.9,   0.0);   (695477.8,
4231122.3,   310.0,   310.0,   0.0);
     (695518.9, 4231121.8,   308.5,   308.5,   0.0);   (695560.0,
4231121.3,   305.8,   305.8,   0.0);
     (695601.1, 4231120.8,   304.1,   304.1,   0.0);   (695642.2,
4231120.3,   303.0,   303.0,   0.0);
     (695683.2, 4231119.8,   302.2,   302.2,   0.0);   (695724.3,
4231119.4,   300.8,   300.8,   0.0);
     (695067.9, 4231133.7,   287.3,   319.0,   0.0);   (695028.7,
4231146.9,   287.5,   320.0,   0.0);
     (694989.6, 4231160.1,   288.7,   320.0,   0.0);   (695044.1,
4230937.3,   303.8,   318.0,   0.0);
     (695085.2, 4230936.8,   298.7,   321.0,   0.0);   (695126.3,
4230936.3,   294.2,   324.0,   0.0);
     (695167.4, 4230935.8,   295.8,   295.8,   0.0);   (695208.4,
4230935.3,   296.9,   296.9,   0.0);
     (695249.5, 4230934.8,   299.3,   305.0,   0.0);   (695290.6,
4230934.3,   303.4,   303.4,   0.0);
     (695331.7, 4230933.8,   305.6,   305.6,   0.0);   (695372.8,
4230933.3,   306.0,   306.0,   0.0);
     (695413.9, 4230932.8,   306.0,   306.0,   0.0);   (695455.0,
4230932.3,   305.0,   305.0,   0.0);
     (695496.1, 4230931.8,   304.8,   304.8,   0.0);   (695537.1,
4230931.3,   303.8,   303.8,   0.0);
     (695578.2, 4230930.8,   302.4,   302.4,   0.0);   (695619.3,
4230930.3,   300.7,   300.7,   0.0);
     (695660.4, 4230929.8,   299.6,   299.6,   0.0);   (695701.5,
4230929.3,   298.2,   298.2,   0.0);
     (695742.6, 4230928.9,   295.2,   304.0,   0.0);   (695783.7,
4230928.4,   292.6,   307.0,   0.0);
     (695004.0, 4230944.1,   307.0,   318.0,   0.0);   (694964.8,
4230957.4,   308.8,   318.0,   0.0);
     (694925.6, 4230970.6,   310.6,   318.0,   0.0);   (694980.2,
4230747.8,   313.9,   324.0,   0.0);
     (695021.2, 4230747.3,   310.8,   310.8,   0.0);   (695062.3,
4230746.8,   308.7,   308.7,   0.0);
     (695103.4, 4230746.3,   306.2,   311.0,   0.0);   (695144.5,
4230745.8,   306.4,   318.0,   0.0);
     (695185.6, 4230745.3,   308.0,   308.0,   0.0);   (695226.7,
4230744.8,   308.5,   308.5,   0.0);
     (695267.8, 4230744.3,   307.6,   307.6,   0.0);   (695308.9,
4230743.8,   305.6,   305.6,   0.0);
     (695350.0, 4230743.3,   304.5,   304.5,   0.0);   (695391.0,
4230742.8,   304.0,   304.0,   0.0);
     (695432.1, 4230742.3,   302.7,   302.7,   0.0);   (695473.2,
4230741.8,   301.4,   301.4,   0.0);
     (695514.3, 4230741.3,   300.0,   300.0,   0.0);   (695555.4,
4230740.8,   299.1,   299.1,   0.0);
     (695596.5, 4230740.3,   299.8,   299.8,   0.0);   (695637.6,

4230739.8,   301.1,   301.1,   0.0);
     (695678.7, 4230739.3,   302.5,   302.5,   0.0);   (695719.7,
4230738.8,   304.6,   304.6,   0.0);
     (695760.8, 4230738.4,   305.2,   305.2,   0.0);   (695801.9,
4230737.9,   305.4,   305.4,   0.0);
     (695843.0, 4230737.4,   303.1,   303.1,   0.0);   (694940.0,
4230754.6,   318.0,   324.0,   0.0);
     (694900.9, 4230767.9,   322.2,   324.0,   0.0);   (694861.7,
4230781.1,   323.5,   323.5,   0.0);
     (694916.2, 4230558.3,   320.7,   320.7,   0.0);   (694957.3,
4230557.8,   318.4,   322.0,   0.0);
     (694998.4, 4230557.3,   317.0,   317.0,   0.0);   (695039.5,
4230556.8,   318.2,   318.2,   0.0);
     (695080.6, 4230556.3,   321.0,   321.0,   0.0);   (695121.7,
4230555.8,   322.9,   322.9,   0.0);
     (695162.8, 4230555.3,   323.0,   323.0,   0.0);   (695203.8,
4230554.8,   322.3,   322.3,   0.0);
     (695244.9, 4230554.3,   322.0,   322.0,   0.0);   (695286.0,
4230553.8,   320.7,   320.7,   0.0);
     (695327.1, 4230553.3,   318.5,   318.5,   0.0);   (695368.2,
4230552.8,   315.8,   315.8,   0.0);
     (695409.3, 4230552.3,   312.5,   318.0,   0.0);   (695450.4,
4230551.8,   308.5,   318.0,   0.0);
     (695491.5, 4230551.3,   305.3,   310.0,   0.0);   (695532.6,
4230550.8,   301.2,   311.0,   0.0);
     (695573.6, 4230550.3,   298.2,   298.2,   0.0);   (695614.7,
4230549.8,   298.0,   298.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (695655.8, 4230549.3,   299.2,   305.0,   0.0);   (695696.9,
4230548.8,   303.5,   303.5,   0.0);
     (695738.0, 4230548.3,   304.8,   304.8,   0.0);   (695779.1,
4230547.9,   305.0,   305.0,   0.0);
     (695820.2, 4230547.4,   305.2,   305.2,   0.0);   (695861.2,
4230546.9,   308.8,   308.8,   0.0);
     (695902.3, 4230546.4,   311.2,   311.2,   0.0);   (694876.1,
4230565.1,   318.4,   318.4,   0.0);
     (694836.9, 4230578.3,   315.0,   318.0,   0.0);   (694797.8,
4230591.6,   309.6,   323.0,   0.0);
     (695316.2, 4232202.9,   287.3,   402.0,   0.0);   (695316.7,

4232226.1,   291.3,   402.0,   0.0);
     (695317.2, 4232249.2,   294.3,   402.0,   0.0);   (695317.7,
4232272.4,   296.6,   402.0,   0.0);
     (695318.2, 4232295.5,   298.5,   402.0,   0.0);   (695318.8,
4232318.7,   299.3,   402.0,   0.0);
     (695319.3, 4232341.8,   299.0,   402.0,   0.0);   (695319.8,
4232365.0,   297.4,   402.0,   0.0);
     (695320.3, 4232388.1,   294.7,   402.0,   0.0);   (695312.7,
4232164.3,   286.8,   402.0,   0.0);
     (695291.2, 4232203.5,   286.5,   402.0,   0.0);   (695291.7,
4232226.6,   289.7,   402.0,   0.0);
     (695292.2, 4232249.8,   292.5,   402.0,   0.0);   (695292.7,
4232272.9,   294.7,   402.0,   0.0);
     (695293.3, 4232296.1,   296.0,   402.0,   0.0);   (695293.8,
4232319.2,   296.6,   402.0,   0.0);
     (695294.3, 4232342.4,   296.2,   402.0,   0.0);   (695294.8,
4232365.5,   294.9,   402.0,   0.0);
     (695295.3, 4232388.7,   292.6,   402.0,   0.0);   (695266.2,
4232204.0,   286.0,   402.0,   0.0);
     (695266.7, 4232227.2,   287.9,   402.0,   0.0);   (695267.2,
4232250.3,   290.4,   402.0,   0.0);
     (695267.8, 4232273.5,   292.4,   402.0,   0.0);   (695268.3,
4232296.6,   293.1,   402.0,   0.0);
     (695268.8, 4232319.8,   293.2,   402.0,   0.0);   (695269.3,
4232343.0,   292.8,   402.0,   0.0);
     (695269.8, 4232366.1,   291.7,   402.0,   0.0);   (695270.3,
4232389.2,   289.9,   402.0,   0.0);
     (695241.2, 4232204.6,   285.9,   402.0,   0.0);   (695241.7,
4232227.8,   286.7,   402.0,   0.0);
     (695242.2, 4232250.9,   288.0,   402.0,   0.0);   (695242.8,
4232274.0,   288.9,   402.0,   0.0);
     (695243.3, 4232297.2,   289.0,   402.0,   0.0);   (695243.8,
4232320.4,   289.0,   402.0,   0.0);
     (695244.3, 4232343.5,   289.1,   402.0,   0.0);   (695244.8,
4232366.7,   288.4,   402.0,   0.0);
     (695245.3, 4232389.8,   286.9,   402.0,   0.0);   (695196.7,
4232187.8,   284.4,   402.0,   0.0);
     (695207.5, 4232152.0,   284.9,   303.0,   0.0);   (695263.3,
4232082.6,   293.2,   305.0,   0.0);
     (695191.7, 4232228.9,   285.8,   402.0,   0.0);   (695192.2,
4232252.0,   285.6,   402.0,   0.0);
     (695192.8, 4232275.2,   285.3,   402.0,   0.0);   (695193.3,
4232298.3,   285.3,   402.0,   0.0);
     (695193.8, 4232321.5,   285.3,   402.0,   0.0);   (695194.3,
4232344.6,   285.4,   402.0,   0.0);
     (695194.8, 4232367.8,   285.2,   402.0,   0.0);   (695195.4,
4232390.9,   285.0,   402.0,   0.0);
     (695147.3, 4232187.0,   283.9,   402.0,   0.0);   (695159.3,
4232147.2,   282.9,   300.0,   0.0);
     (695171.4, 4232107.4,   282.1,   311.0,   0.0);   (695210.7,

4232062.6,   288.1,   311.0,   0.0);
     (695244.0, 4232037.8,   294.2,   305.0,   0.0);   (695141.8,
4232230.0,   284.8,   402.0,   0.0);
     (695142.3, 4232253.1,   285.0,   402.0,   0.0);   (695142.8,
4232276.3,   285.1,   402.0,   0.0);
     (695143.3, 4232299.4,   285.5,   402.0,   0.0);   (695143.8,
4232322.6,   286.2,   402.0,   0.0);
     (695144.3, 4232345.7,   287.6,   402.0,   0.0);   (695144.8,
4232368.9,   288.9,   402.0,   0.0);
     (695145.4, 4232392.0,   290.3,   402.0,   0.0);   (695097.7,
4232186.6,   283.4,   310.0,   0.0);
     (695110.6, 4232144.0,   281.0,   310.0,   0.0);   (695123.6,
4232101.4,   279.1,   311.0,   0.0);
     (695154.3, 4232045.5,   280.4,   312.0,   0.0);   (695190.0,
4232018.8,   286.3,   311.0,   0.0);
     (695225.6, 4231992.2,   293.4,   305.0,   0.0);   (695091.8,
4232231.1,   286.7,   310.0,   0.0);
     (695092.3, 4232254.2,   286.5,   402.0,   0.0);   (695092.8,
4232277.4,   287.8,   402.0,   0.0);
     (695093.3, 4232300.5,   290.8,   402.0,   0.0);   (695093.8,
4232323.7,   293.8,   402.0,   0.0);
     (695094.3, 4232346.8,   294.7,   402.0,   0.0);   (695094.9,
4232370.0,   295.4,   402.0,   0.0);
     (695095.4, 4232393.1,   296.7,   402.0,   0.0);   (695047.3,
4232189.2,   286.5,   310.0,   0.0);
     (695059.4, 4232149.4,   283.3,   310.0,   0.0);   (695089.5,
4232050.0,   273.8,   313.0,   0.0);
     (695112.2, 4232017.7,   275.3,   313.0,   0.0);   (695145.5,
4231992.8,   280.9,   313.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     (695178.7, 4231967.9,   285.9,   313.0,   0.0);   (695212.0,
4231943.0,   291.7,   313.0,   0.0);
     (695041.8, 4232232.2,   290.7,   310.0,   0.0);   (695042.3,
4232255.4,   292.4,   310.0,   0.0);
     (695042.8, 4232278.5,   294.3,   310.0,   0.0);   (695043.3,
4232301.7,   296.5,   310.0,   0.0);
     (695043.8, 4232324.8,   299.0,   310.0,   0.0);   (695044.4,
4232348.0,   301.5,   310.0,   0.0);
     (695044.9, 4232371.1,   303.8,   310.0,   0.0);   (695045.4,

4232394.3,   305.6,   308.0,   0.0);
     (694947.9, 4232189.6,   292.3,   310.0,   0.0);   (694961.0,
4232146.2,   285.6,   310.0,   0.0);
     (694993.9, 4232037.8,   272.9,   310.0,   0.0);   (695000.5,
4232016.1,   272.0,   313.0,   0.0);
     (695031.8, 4231959.1,   275.3,   313.0,   0.0);   (695050.0,
4231945.5,   276.8,   313.0,   0.0);
     (695068.1, 4231932.0,   278.3,   313.0,   0.0);   (695086.3,
4231918.4,   279.7,   313.0,   0.0);
     (695104.4, 4231904.8,   280.7,   313.0,   0.0);   (695122.6,
4231891.2,   282.8,   313.0,   0.0);
     (695140.7, 4231877.7,   285.4,   313.0,   0.0);   (695158.9,
4231864.1,   287.7,   313.0,   0.0);
     (695177.0, 4231850.5,   289.9,   313.0,   0.0);   (695195.2,
4231836.9,   293.1,   313.0,   0.0);
     (694941.3, 4232211.3,   295.0,   310.0,   0.0);   (694941.8,
4232234.4,   298.0,   308.0,   0.0);
     (694942.3, 4232257.6,   300.3,   308.0,   0.0);   (694942.8,
4232280.7,   303.1,   308.0,   0.0);
     (694943.3, 4232303.9,   305.9,   308.0,   0.0);   (694943.9,
4232327.0,   308.1,   308.1,   0.0);
     (694944.4, 4232350.2,   308.9,   308.9,   0.0);   (694944.9,
4232373.3,   309.0,   309.0,   0.0);
     (694945.4, 4232396.5,   308.3,   308.3,   0.0);   (694847.8,
4232192.2,   297.4,   299.0,   0.0);
     (694860.7, 4232149.6,   290.6,   301.0,   0.0);   (694893.0,
4232043.1,   275.1,   310.0,   0.0);
     (694906.0, 4232000.5,   271.6,   310.0,   0.0);   (694918.9,
4231957.9,   270.0,   311.0,   0.0);
     (694949.6, 4231902.0,   273.1,   313.0,   0.0);   (694985.3,
4231875.3,   279.1,   311.0,   0.0);
     (695020.9, 4231848.6,   286.3,   301.0,   0.0);   (695056.6,
4231822.0,   292.0,   300.0,   0.0);
     (695092.2, 4231795.3,   296.2,   296.2,   0.0);   (695127.9,
4231768.6,   300.2,   300.2,   0.0);
     (694841.8, 4232236.7,   301.0,   301.0,   0.0);   (694842.3,
4232259.8,   301.0,   301.0,   0.0);
     (694842.9, 4232283.0,   301.2,   301.2,   0.0);   (694843.4,
4232306.1,   300.9,   300.9,   0.0);
     (694843.9, 4232329.3,   300.5,   300.5,   0.0);   (694844.4,
4232352.4,   301.3,   301.3,   0.0);
     (694844.9, 4232375.6,   301.6,   301.6,   0.0);   (694845.4,
4232398.7,   301.1,   301.1,   0.0);
     (694747.7, 4232194.7,   296.8,   299.0,   0.0);   (694760.5,
4232152.6,   291.9,   299.0,   0.0);
     (694798.8, 4232026.3,   277.9,   301.0,   0.0);   (694811.6,
4231984.2,   274.7,   301.0,   0.0);
     (694824.4, 4231942.1,   270.7,   301.0,   0.0);   (694837.2,
4231900.0,   265.7,   303.0,   0.0);
     (694867.6, 4231844.7,   265.8,   313.0,   0.0);   (694902.8,

4231818.3,   270.9,   313.0,   0.0);
     (694938.0, 4231792.0,   276.6,   311.0,   0.0);   (694973.2,
4231765.6,   283.6,   303.0,   0.0);
     (695008.5, 4231739.3,   289.8,   300.0,   0.0);   (695043.7,
4231712.9,   294.9,   298.0,   0.0);
     (695078.9, 4231686.6,   297.4,   300.0,   0.0);   (695114.2,
4231660.2,   295.8,   300.0,   0.0);
     (694741.9, 4232238.9,   299.1,   299.1,   0.0);   (694742.4,
4232262.0,   298.0,   298.0,   0.0);
     (694742.9, 4232285.2,   294.5,   301.0,   0.0);   (694743.4,
4232308.3,   291.6,   301.0,   0.0);
     (694743.9, 4232331.5,   290.6,   305.0,   0.0);   (694744.4,
4232354.6,   292.7,   299.0,   0.0);
     (694744.9, 4232377.8,   294.3,   294.3,   0.0);   (694745.5,
4232401.0,   294.8,   294.8,   0.0);
     (694648.0, 4232196.0,   292.3,   292.3,   0.0);   (694654.7,
4232174.0,   290.7,   290.7,   0.0);
     (694661.4, 4232152.0,   288.8,   296.0,   0.0);   (694668.0,
4232130.1,   286.1,   299.0,   0.0);
     (694674.7, 4232108.1,   283.4,   300.0,   0.0);   (694681.4,
4232086.1,   281.1,   300.0,   0.0);
     (694688.0, 4232064.1,   277.5,   301.0,   0.0);   (694694.7,
4232042.2,   274.7,   301.0,   0.0);
     (694701.4, 4232020.2,   272.8,   301.0,   0.0);   (694708.0,
4231998.2,   272.1,   301.0,   0.0);
     (694721.4, 4231954.3,   268.4,   301.0,   0.0);   (694728.1,
4231932.3,   267.9,   301.0,   0.0);
     (694734.7, 4231910.3,   266.5,   301.0,   0.0);   (694741.4,
4231888.4,   264.7,   301.0,   0.0);
     (694748.1, 4231866.4,   263.1,   302.0,   0.0);   (694754.7,
4231844.4,   261.0,   303.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694761.4, 4231822.4,   259.5,   305.0,   0.0);   (694786.4,
4231786.7,   261.4,   311.0,   0.0);
     (694804.8, 4231773.0,   262.5,   313.0,   0.0);   (694823.2,
4231759.2,   264.0,   313.0,   0.0);
     (694841.6, 4231745.4,   264.4,   313.0,   0.0);   (694860.0,
4231731.7,   265.5,   313.0,   0.0);
     (694878.4, 4231717.9,   267.9,   313.0,   0.0);   (694896.8,

4231704.2,   270.3,   313.0,   0.0);
     (694915.2, 4231690.4,   271.7,   313.0,   0.0);   (694933.6,
4231676.7,   273.6,   313.0,   0.0);
     (694951.9, 4231662.9,   275.3,   313.0,   0.0);   (694970.3,
4231649.1,   276.2,   313.0,   0.0);
     (694988.7, 4231635.4,   277.1,   313.0,   0.0);   (695007.1,
4231621.6,   277.8,   313.0,   0.0);
     (695025.5, 4231607.9,   276.9,   313.0,   0.0);   (695043.9,
4231594.1,   278.3,   313.0,   0.0);
     (695062.3, 4231580.4,   279.8,   313.0,   0.0);   (695080.7,
4231566.6,   281.4,   313.0,   0.0);
     (695099.0, 4231552.8,   283.7,   313.0,   0.0);   (694641.4,
4232218.0,   292.8,   292.8,   0.0);
     (694641.9, 4232241.1,   292.7,   292.7,   0.0);   (694642.4,
4232264.3,   291.9,   291.9,   0.0);
     (694642.9, 4232287.4,   289.0,   293.0,   0.0);   (694643.4,
4232310.6,   285.9,   300.0,   0.0);
     (694643.9, 4232333.7,   282.8,   301.0,   0.0);   (694644.5,
4232356.9,   280.4,   305.0,   0.0);
     (694645.0, 4232380.0,   283.5,   299.0,   0.0);   (694645.5,
4232403.2,   284.8,   294.0,   0.0);
     (694447.9, 4232201.0,   279.4,   279.4,   0.0);   (694461.0,
4232158.0,   279.7,   279.7,   0.0);
     (694474.0, 4232115.1,   277.1,   281.0,   0.0);   (694487.0,
4232072.1,   280.4,   280.4,   0.0);
     (694500.1, 4232029.2,   282.2,   282.2,   0.0);   (694513.1,
4231986.2,   284.9,   284.9,   0.0);
     (694526.1, 4231943.3,   286.7,   286.7,   0.0);   (694539.2,
4231900.3,   286.5,   286.5,   0.0);
     (694552.2, 4231857.4,   282.2,   287.0,   0.0);   (694565.2,
4231814.5,   276.3,   305.0,   0.0);
     (694578.2, 4231771.5,   267.4,   305.0,   0.0);   (694591.3,
4231728.6,   256.0,   305.0,   0.0);
     (694622.3, 4231672.2,   250.7,   341.0,   0.0);   (694640.2,
4231658.8,   253.2,   305.0,   0.0);
     (694676.2, 4231631.9,   262.9,   305.0,   0.0);   (694712.1,
4231605.0,   274.2,   302.0,   0.0);
     (694748.1, 4231578.1,   286.4,   302.0,   0.0);   (694784.0,
4231551.2,   296.2,   300.0,   0.0);
     (694819.9, 4231524.3,   299.4,   299.4,   0.0);   (694855.9,
4231497.5,   299.4,   299.4,   0.0);
     (694891.8, 4231470.6,   297.4,   297.4,   0.0);   (694927.7,
4231443.7,   293.5,   299.0,   0.0);
     (694963.7, 4231416.8,   291.6,   291.6,   0.0);   (694999.6,
4231389.9,   291.7,   291.7,   0.0);
     (695017.6, 4231376.5,   292.1,   299.0,   0.0);   (694441.9,
4232245.6,   278.2,   278.2,   0.0);
     (694442.4, 4232268.7,   277.4,   277.4,   0.0);   (694443.0,
4232291.9,   276.1,   276.1,   0.0);
     (694443.5, 4232315.0,   276.4,   276.4,   0.0);   (694444.0,

4232338.2,   275.8,   281.0,   0.0);
     (694444.5, 4232361.3,   274.4,   281.0,   0.0);   (694445.0,
4232384.5,   273.4,   273.4,   0.0);
     (694445.5, 4232407.6,   273.1,   273.1,   0.0);   (694248.1,
4232205.0,   265.0,   303.0,   0.0);
     (694254.7, 4232183.1,   267.2,   303.0,   0.0);   (694268.0,
4232139.4,   270.0,   303.0,   0.0);
     (694274.6, 4232117.5,   271.8,   303.0,   0.0);   (694281.3,
4232095.7,   273.3,   303.0,   0.0);
     (694287.9, 4232073.8,   275.1,   303.0,   0.0);   (694294.6,
4232051.9,   277.3,   303.0,   0.0);
     (694301.2, 4232030.1,   279.5,   303.0,   0.0);   (694307.8,
4232008.2,   282.2,   303.0,   0.0);
     (694321.1, 4231964.5,   287.6,   303.0,   0.0);   (694327.7,
4231942.6,   290.0,   303.0,   0.0);
     (694334.4, 4231920.7,   293.0,   303.0,   0.0);   (694347.6,
4231877.0,   298.2,   303.0,   0.0);
     (694354.3, 4231855.1,   299.1,   301.0,   0.0);   (694360.9,
4231833.2,   298.3,   301.0,   0.0);
     (694374.2, 4231789.5,   292.3,   305.0,   0.0);   (694380.8,
4231767.6,   292.8,   305.0,   0.0);
     (694394.1, 4231723.9,   290.5,   305.0,   0.0);   (694400.7,
4231702.0,   287.8,   305.0,   0.0);
     (694407.4, 4231680.1,   281.3,   305.0,   0.0);   (694420.7,
4231636.4,   265.5,   305.0,   0.0);
     (694427.3, 4231614.5,   254.8,   341.0,   0.0);   (694433.9,
4231592.7,   246.5,   341.0,   0.0);
     (694458.9, 4231557.1,   246.5,   341.0,   0.0);   (694477.2,
4231543.4,   249.1,   341.0,   0.0);
     (694495.5, 4231529.7,   252.3,   341.0,   0.0);   (694513.8,
4231516.0,   257.2,   341.0,   0.0);
     (694532.1, 4231502.3,   261.4,   341.0,   0.0);   (694550.4,
4231488.7,   265.2,   341.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (694568.7, 4231475.0,   269.2,   341.0,   0.0);   (694587.0,
4231461.3,   274.5,   302.0,   0.0);
     (694605.3, 4231447.6,   279.2,   302.0,   0.0);   (694623.6,
4231433.9,   283.9,   302.0,   0.0);
     (694641.9, 4231420.2,   288.6,   298.0,   0.0);   (694660.2,

4231406.5,   291.8,   297.0,   0.0);
     (694678.5, 4231392.8,   293.8,   293.8,   0.0);   (694696.8,
4231379.1,   292.7,   292.7,   0.0);
     (694715.1, 4231365.4,   292.4,   296.0,   0.0);   (694733.4,
4231351.8,   290.8,   301.0,   0.0);
     (694751.7, 4231338.1,   288.5,   302.0,   0.0);   (694770.0,
4231324.4,   286.7,   302.0,   0.0);
     (694788.3, 4231310.7,   286.1,   302.0,   0.0);   (694806.6,
4231297.0,   285.3,   302.0,   0.0);
     (694824.9, 4231283.3,   285.0,   301.0,   0.0);   (694843.2,
4231269.6,   285.2,   300.0,   0.0);
     (694861.5, 4231255.9,   285.6,   311.0,   0.0);   (694879.8,
4231242.2,   286.4,   311.0,   0.0);
     (694898.1, 4231228.5,   288.1,   311.0,   0.0);   (694916.4,
4231214.8,   288.9,   311.0,   0.0);
     (694934.7, 4231201.1,   289.4,   313.0,   0.0);   (694953.0,
4231187.5,   289.2,   318.0,   0.0);
     (694971.3, 4231173.8,   288.9,   318.0,   0.0);   (694241.5,
4232226.9,   263.7,   303.0,   0.0);
     (694242.0, 4232250.0,   263.2,   268.0,   0.0);   (694242.5,
4232273.2,   262.9,   287.0,   0.0);
     (694243.0, 4232296.3,   262.2,   288.0,   0.0);   (694243.5,
4232319.5,   265.3,   288.0,   0.0);
     (694244.0, 4232342.6,   268.6,   287.0,   0.0);   (694244.6,
4232365.8,   272.0,   287.0,   0.0);
     (694245.1, 4232389.0,   275.5,   285.0,   0.0);   (694245.6,
4232412.1,   278.6,   278.6,   0.0);
     (694048.2, 4232209.2,   259.6,   329.0,   0.0);   (694055.0,
4232187.0,   261.3,   296.0,   0.0);
     (694061.7, 4232164.9,   262.2,   303.0,   0.0);   (694068.4,
4232142.7,   262.5,   303.0,   0.0);
     (694075.1, 4232120.6,   263.2,   303.0,   0.0);   (694081.8,
4232098.4,   262.2,   305.0,   0.0);
     (694088.6, 4232076.3,   260.5,   305.0,   0.0);   (694095.3,
4232054.1,   259.0,   305.0,   0.0);
     (694102.0, 4232032.0,   263.0,   305.0,   0.0);   (694108.7,
4232009.8,   268.3,   305.0,   0.0);
     (694115.5, 4231987.7,   274.2,   305.0,   0.0);   (694122.2,
4231965.5,   280.1,   303.0,   0.0);
     (694128.9, 4231943.3,   284.9,   295.0,   0.0);   (694135.6,
4231921.2,   289.8,   295.0,   0.0);
     (694142.4, 4231899.0,   293.3,   293.3,   0.0);   (694149.1,
4231876.9,   293.9,   293.9,   0.0);
     (694155.8, 4231854.7,   290.7,   295.0,   0.0);   (694162.5,
4231832.6,   285.7,   305.0,   0.0);
     (694169.2, 4231810.4,   280.1,   305.0,   0.0);   (694176.0,
4231788.3,   273.9,   305.0,   0.0);
     (694182.7, 4231766.1,   268.9,   305.0,   0.0);   (694189.4,
4231744.0,   266.5,   305.0,   0.0);
     (694196.1, 4231721.8,   267.3,   305.0,   0.0);   (694202.9,

4231699.7,   271.2,   305.0,   0.0);
     (694209.6, 4231677.5,   272.9,   305.0,   0.0);   (694216.3,
4231655.3,   272.7,   305.0,   0.0);
     (694223.0, 4231633.2,   270.4,   305.0,   0.0);   (694229.8,
4231611.0,   264.1,   341.0,   0.0);
     (694236.5, 4231588.9,   256.9,   341.0,   0.0);   (694243.2,
4231566.7,   249.0,   341.0,   0.0);
     (694249.9, 4231544.6,   241.0,   341.0,   0.0);   (694256.6,
4231522.4,   241.0,   341.0,   0.0);
     (694263.4, 4231500.3,   241.2,   341.0,   0.0);   (694270.1,
4231478.1,   241.8,   341.0,   0.0);
     (694295.4, 4231442.1,   244.8,   341.0,   0.0);   (694313.9,
4231428.2,   247.7,   341.0,   0.0);
     (694332.4, 4231414.4,   251.7,   341.0,   0.0);   (694351.0,
4231400.5,   255.4,   341.0,   0.0);
     (694369.5, 4231386.6,   257.3,   341.0,   0.0);   (694388.0,
4231372.8,   257.7,   341.0,   0.0);
     (694406.6, 4231358.9,   258.2,   341.0,   0.0);   (694425.1,
4231345.0,   259.1,   341.0,   0.0);
     (694443.7, 4231331.1,   260.2,   341.0,   0.0);   (694462.2,
4231317.3,   261.2,   341.0,   0.0);
     (694480.7, 4231303.4,   262.6,   341.0,   0.0);   (694499.3,
4231289.5,   263.2,   341.0,   0.0);
     (694517.8, 4231275.7,   265.3,   341.0,   0.0);   (694536.3,
4231261.8,   266.7,   341.0,   0.0);
     (694554.9, 4231247.9,   266.9,   341.0,   0.0);   (694573.4,
4231234.1,   268.6,   341.0,   0.0);
     (694592.0, 4231220.2,   270.5,   341.0,   0.0);   (694610.5,
4231206.3,   273.9,   341.0,   0.0);
     (694629.0, 4231192.5,   277.9,   341.0,   0.0);   (694647.6,
4231178.6,   281.1,   341.0,   0.0);
     (694666.1, 4231164.7,   284.0,   338.0,   0.0);   (694684.6,
4231150.9,   285.8,   321.0,   0.0);
     (694703.2, 4231137.0,   287.8,   321.0,   0.0);   (694721.7,
4231123.1,   290.3,   321.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694740.2, 4231109.3,   292.0,   321.0,   0.0);   (694758.8,
4231095.4,   294.5,   321.0,   0.0);
     (694777.3, 4231081.5,   297.7,   321.0,   0.0);   (694795.9,

4231067.6,   300.9,   318.0,   0.0);
     (694814.4, 4231053.8,   304.1,   318.0,   0.0);   (694832.9,
4231039.9,   306.0,   316.0,   0.0);
     (694851.5, 4231026.0,   308.1,   311.0,   0.0);   (694870.0,
4231012.2,   309.8,   309.8,   0.0);
     (694888.6, 4230998.3,   310.5,   313.0,   0.0);   (694907.1,
4230984.4,   310.7,   310.7,   0.0);
     (694041.5, 4232231.3,   257.7,   329.0,   0.0);   (694042.0,
4232254.5,   257.0,   329.0,   0.0);
     (694042.5, 4232277.6,   254.2,   329.0,   0.0);   (694043.1,
4232300.8,   252.0,   329.0,   0.0);
     (694043.6, 4232324.0,   255.8,   329.0,   0.0);   (694044.1,
4232347.1,   259.0,   329.0,   0.0);
     (694044.6, 4232370.3,   262.6,   329.0,   0.0);   (694045.1,
4232393.4,   265.4,   327.0,   0.0);
     (694045.6, 4232416.6,   266.0,   327.0,   0.0);   (693848.2,
4232214.0,   241.5,   336.0,   0.0);
     (693854.8, 4232192.2,   241.6,   336.0,   0.0);   (693868.0,
4232148.5,   245.3,   336.0,   0.0);
     (693874.7, 4232126.7,   248.1,   336.0,   0.0);   (693887.9,
4232083.1,   255.0,   336.0,   0.0);
     (693894.5, 4232061.2,   257.6,   336.0,   0.0);   (693907.8,
4232017.6,   252.8,   336.0,   0.0);
     (693921.0, 4231974.0,   244.6,   336.0,   0.0);   (693927.6,
4231952.1,   246.9,   336.0,   0.0);
     (693940.9, 4231908.5,   259.0,   305.0,   0.0);   (693947.5,
4231886.7,   264.6,   305.0,   0.0);
     (693960.8, 4231843.0,   275.9,   296.0,   0.0);   (693967.4,
4231821.2,   280.4,   296.0,   0.0);
     (693980.6, 4231777.6,   285.4,   294.0,   0.0);   (693987.2,
4231755.7,   286.4,   293.0,   0.0);
     (694000.5, 4231712.1,   284.6,   287.0,   0.0);   (694013.7,
4231668.5,   276.8,   296.0,   0.0);
     (694020.4, 4231646.6,   271.2,   305.0,   0.0);   (694033.6,
4231603.0,   259.7,   341.0,   0.0);
     (694040.2, 4231581.2,   252.9,   341.0,   0.0);   (694053.5,
4231537.5,   241.1,   341.0,   0.0);
     (694060.1, 4231515.7,   237.7,   341.0,   0.0);   (694073.3,
4231472.1,   238.4,   341.0,   0.0);
     (694080.0, 4231450.2,   239.3,   341.0,   0.0);   (694093.2,
4231406.6,   242.6,   341.0,   0.0);
     (694106.4, 4231363.0,   247.3,   341.0,   0.0);   (694131.3,
4231327.5,   254.3,   341.0,   0.0);
     (694149.6, 4231313.8,   256.4,   341.0,   0.0);   (694167.8,
4231300.2,   258.2,   341.0,   0.0);
     (694186.1, 4231286.5,   258.1,   341.0,   0.0);   (694204.4,
4231272.8,   258.3,   341.0,   0.0);
     (694222.6, 4231259.2,   258.2,   341.0,   0.0);   (694240.9,
4231245.5,   258.2,   341.0,   0.0);
     (694259.1, 4231231.9,   259.1,   341.0,   0.0);   (694277.4,

4231218.2,   260.8,   341.0,   0.0);
     (694295.7, 4231204.5,   261.1,   341.0,   0.0);   (694313.9,
4231190.9,   260.6,   341.0,   0.0);
     (694332.2, 4231177.2,   260.4,   341.0,   0.0);   (694350.4,
4231163.6,   260.2,   341.0,   0.0);
     (694368.7, 4231149.9,   260.7,   341.0,   0.0);   (694387.0,
4231136.2,   261.2,   341.0,   0.0);
     (694405.2, 4231122.6,   261.2,   341.0,   0.0);   (694423.5,
4231108.9,   261.5,   341.0,   0.0);
     (694441.7, 4231095.2,   261.3,   341.0,   0.0);   (694460.0,
4231081.6,   262.5,   341.0,   0.0);
     (694478.2, 4231067.9,   264.5,   341.0,   0.0);   (694496.5,
4231054.3,   266.9,   341.0,   0.0);
     (694514.8, 4231040.6,   268.0,   341.0,   0.0);   (694533.0,
4231027.0,   271.4,   341.0,   0.0);
     (694551.3, 4231013.3,   275.9,   341.0,   0.0);   (694569.6,
4230999.6,   278.2,   341.0,   0.0);
     (694587.8, 4230986.0,   281.5,   341.0,   0.0);   (694606.1,
4230972.3,   285.7,   341.0,   0.0);
     (694624.3, 4230958.6,   289.1,   341.0,   0.0);   (694642.6,
4230945.0,   291.0,   339.0,   0.0);
     (694660.9, 4230931.3,   294.0,   339.0,   0.0);   (694679.1,
4230917.7,   296.4,   339.0,   0.0);
     (694697.4, 4230904.0,   300.5,   324.0,   0.0);   (694715.6,
4230890.3,   304.2,   324.0,   0.0);
     (694733.9, 4230876.7,   307.9,   324.0,   0.0);   (694752.1,
4230863.0,   311.8,   324.0,   0.0);
     (694770.4, 4230849.4,   315.2,   321.0,   0.0);   (694788.7,
4230835.7,   318.1,   318.1,   0.0);
     (694806.9, 4230822.0,   320.0,   320.0,   0.0);   (694825.2,
4230808.4,   321.6,   321.6,   0.0);
     (694843.4, 4230794.7,   322.7,   322.7,   0.0);   (693841.6,
4232235.8,   242.3,   336.0,   0.0);
     (693842.1, 4232259.0,   243.9,   376.0,   0.0);   (693842.6,
4232282.1,   245.0,   376.0,   0.0);
     (693843.1, 4232305.3,   246.0,   376.0,   0.0);   (693843.6,
4232328.4,   246.5,   376.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (693844.1, 4232351.6,   245.2,   376.0,   0.0);   (693844.7,

4232374.7,   244.9,   376.0,   0.0);
     (693845.2, 4232397.9,   244.3,   376.0,   0.0);   (693845.7,
4232421.0,   243.6,   376.0,   0.0);
     (693648.3, 4232218.2,   274.9,   336.0,   0.0);   (693655.0,
4232196.2,   272.9,   336.0,   0.0);
     (693661.7, 4232174.1,   266.8,   336.0,   0.0);   (693668.4,
4232152.1,   257.2,   336.0,   0.0);
     (693675.1, 4232130.1,   250.0,   336.0,   0.0);   (693681.7,
4232108.0,   245.9,   336.0,   0.0);
     (693688.4, 4232086.0,   248.5,   336.0,   0.0);   (693695.1,
4232063.9,   247.8,   336.0,   0.0);
     (693701.8, 4232041.9,   245.3,   336.0,   0.0);   (693708.5,
4232019.8,   242.0,   336.0,   0.0);
     (693715.2, 4231997.8,   238.3,   336.0,   0.0);   (693721.9,
4231975.8,   238.0,   336.0,   0.0);
     (693728.6, 4231953.7,   238.0,   336.0,   0.0);   (693735.2,
4231931.7,   238.0,   336.0,   0.0);
     (693741.9, 4231909.6,   238.0,   336.0,   0.0);   (693748.6,
4231887.6,   238.0,   336.0,   0.0);
     (693755.3, 4231865.5,   238.0,   341.0,   0.0);   (693762.0,
4231843.5,   238.0,   341.0,   0.0);
     (693768.7, 4231821.5,   238.0,   341.0,   0.0);   (693775.4,
4231799.4,   238.5,   341.0,   0.0);
     (693782.1, 4231777.4,   240.1,   341.0,   0.0);   (693788.8,
4231755.3,   241.1,   341.0,   0.0);
     (693795.5, 4231733.3,   241.3,   341.0,   0.0);   (693802.1,
4231711.2,   241.8,   341.0,   0.0);
     (693808.8, 4231689.2,   243.2,   341.0,   0.0);   (693815.5,
4231667.2,   244.1,   341.0,   0.0);
     (693822.2, 4231645.1,   245.3,   341.0,   0.0);   (693828.9,
4231623.1,   246.3,   341.0,   0.0);
     (693835.6, 4231601.0,   245.8,   341.0,   0.0);   (693842.3,
4231579.0,   243.7,   341.0,   0.0);
     (693849.0, 4231557.0,   241.0,   341.0,   0.0);   (693855.7,
4231534.9,   238.3,   341.0,   0.0);
     (693862.4, 4231512.9,   235.9,   341.0,   0.0);   (693869.0,
4231490.8,   234.5,   341.0,   0.0);
     (693875.7, 4231468.8,   235.3,   341.0,   0.0);   (693882.4,
4231446.7,   236.5,   341.0,   0.0);
     (693889.1, 4231424.7,   238.0,   341.0,   0.0);   (693895.8,
4231402.6,   238.8,   341.0,   0.0);
     (693902.5, 4231380.6,   241.5,   341.0,   0.0);   (693909.2,
4231358.6,   244.5,   341.0,   0.0);
     (693915.9, 4231336.5,   246.6,   341.0,   0.0);   (693922.6,
4231314.5,   248.3,   341.0,   0.0);
     (693929.2, 4231292.4,   251.1,   341.0,   0.0);   (693935.9,
4231270.4,   255.7,   341.0,   0.0);
     (693942.6, 4231248.3,   261.7,   341.0,   0.0);   (693967.8,
4231212.5,   272.1,   341.0,   0.0);
     (693986.2, 4231198.7,   279.2,   341.0,   0.0);   (694004.6,

4231184.9,   285.1,   341.0,   0.0);
     (694023.1, 4231171.1,   289.1,   341.0,   0.0);   (694041.5,
4231157.3,   292.4,   341.0,   0.0);
     (694060.0, 4231143.5,   295.5,   341.0,   0.0);   (694078.4,
4231129.7,   298.7,   341.0,   0.0);
     (694096.9, 4231115.9,   301.3,   341.0,   0.0);   (694115.3,
4231102.1,   302.8,   341.0,   0.0);
     (694133.8, 4231088.3,   303.5,   341.0,   0.0);   (694152.2,
4231074.5,   303.2,   341.0,   0.0);
     (694170.7, 4231060.7,   302.7,   341.0,   0.0);   (694189.1,
4231046.9,   302.2,   341.0,   0.0);
     (694207.5, 4231033.1,   301.3,   341.0,   0.0);   (694226.0,
4231019.3,   300.6,   341.0,   0.0);
     (694244.4, 4231005.5,   299.3,   341.0,   0.0);   (694262.9,
4230991.7,   298.7,   341.0,   0.0);
     (694281.3, 4230977.9,   297.1,   341.0,   0.0);   (694299.8,
4230964.1,   296.3,   341.0,   0.0);
     (694318.2, 4230950.3,   295.9,   341.0,   0.0);   (694336.7,
4230936.5,   298.0,   341.0,   0.0);
     (694355.1, 4230922.7,   299.4,   341.0,   0.0);   (694373.5,
4230908.9,   298.8,   341.0,   0.0);
     (694392.0, 4230895.1,   298.4,   341.0,   0.0);   (694410.4,
4230881.3,   298.3,   341.0,   0.0);
     (694428.9, 4230867.5,   298.9,   341.0,   0.0);   (694447.3,
4230853.7,   300.7,   341.0,   0.0);
     (694465.8, 4230839.9,   303.4,   341.0,   0.0);   (694484.2,
4230826.1,   305.1,   339.0,   0.0);
     (694502.7, 4230812.3,   305.8,   339.0,   0.0);   (694521.1,
4230798.5,   305.8,   339.0,   0.0);
     (694539.5, 4230784.7,   304.2,   339.0,   0.0);   (694558.0,
4230771.0,   302.6,   339.0,   0.0);
     (694576.4, 4230757.1,   300.0,   339.0,   0.0);   (694594.9,
4230743.3,   299.5,   339.0,   0.0);
     (694613.3, 4230729.5,   299.7,   339.0,   0.0);   (694631.8,
4230715.8,   300.2,   339.0,   0.0);
     (694650.2, 4230702.0,   300.1,   339.0,   0.0);   (694668.7,
4230688.1,   301.1,   339.0,   0.0);
     (694687.1, 4230674.3,   302.2,   339.0,   0.0);   (694705.6,
4230660.5,   302.9,   337.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                  *** DISCRETE CARTESIAN RECEPTORS ***
                                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                          (METERS)

```
     ( 694724.0, 4230646.8,     303.6,     324.0,       0.0);         ( 694742.4,
4230633.0,     304.2,     324.0,       0.0);
     ( 694760.9, 4230619.2,     305.0,     324.0,       0.0);         ( 694779.3,
4230605.4,     307.1,     324.0,       0.0);
     ( 693641.6, 4232240.3,     273.7,     336.0,       0.0);         ( 693642.1,
4232263.4,     268.0,     336.0,       0.0);
     ( 693642.6, 4232286.6,     264.7,     336.0,       0.0);         ( 693643.2,
4232309.7,     267.4,     336.0,       0.0);
     ( 693643.7, 4232332.9,     272.5,     329.0,       0.0);         ( 693644.2,
4232356.0,     275.4,     329.0,       0.0);
     ( 693644.7, 4232379.2,     273.8,     329.0,       0.0);         ( 693645.2,
4232402.3,     272.7,     329.0,       0.0);
     ( 693645.7, 4232425.5,     271.8,     329.0,       0.0);         ( 695345.7,
4232412.6,     292.8,     402.0,       0.0);
     ( 695390.0, 4232411.9,     297.9,     402.0,       0.0);         ( 695434.3,
4232411.2,     308.0,     402.0,       0.0);
     ( 695478.7, 4232410.5,     317.0,     318.0,       0.0);         ( 695328.4,
4232430.6,     291.7,     402.0,       0.0);
     ( 695368.2, 4232437.2,     296.0,     402.0,       0.0);         ( 695412.6,
4232436.6,     304.1,     402.0,       0.0);
     ( 695456.9, 4232435.9,     314.2,     402.0,       0.0);         ( 695501.2,
4232435.2,     318.4,     318.4,       0.0);
     ( 695328.7, 4232455.6,     293.0,     402.0,       0.0);         ( 695285.6,
4232424.1,     288.0,     402.0,       0.0);
     ( 695368.6, 4232462.2,     299.1,     402.0,       0.0);         ( 695412.9,
4232461.6,     306.7,     402.0,       0.0);
     ( 695457.3, 4232460.9,     314.5,     402.0,       0.0);         ( 695501.6,
4232460.2,     318.6,     402.0,       0.0);
     ( 695329.1, 4232480.6,     295.9,     402.0,       0.0);         ( 695293.7,
4232466.6,     291.0,     402.0,       0.0);
     ( 695268.3, 4232442.2,     287.3,     402.0,       0.0);         ( 695369.0,
4232487.2,     301.3,     402.0,       0.0);
     ( 695413.3, 4232486.6,     308.7,     402.0,       0.0);         ( 695457.6,
4232485.9,     314.4,     402.0,       0.0);
     ( 695502.0, 4232485.2,     318.1,     402.0,       0.0);         ( 695329.9,
4232530.6,     296.5,     402.0,       0.0);
     ( 695294.4, 4232516.6,     291.7,     402.0,       0.0);         ( 695259.0,
4232502.6,     287.1,     402.0,       0.0);
     ( 695233.6, 4232478.2,     285.6,     402.0,       0.0);         ( 695218.3,
4232443.3,     285.0,     402.0,       0.0);
     ( 695369.8, 4232537.2,     301.6,     402.0,       0.0);         ( 695414.1,
4232536.5,     306.8,     402.0,       0.0);
     ( 695458.4, 4232535.9,     312.2,     402.0,       0.0);         ( 695502.7,
4232535.2,     315.9,     402.0,       0.0);
     ( 695328.1, 4232579.6,     290.7,     402.0,       0.0);         ( 695287.6,
4232563.6,     286.5,     402.0,       0.0);
     ( 695247.1, 4232547.6,     285.1,     402.0,       0.0);         ( 695197.8,
4232511.7,     287.9,     402.0,       0.0);
     ( 695180.3, 4232471.8,     287.7,     402.0,       0.0);         ( 695162.9,
```

4232431.9,   290.1,   402.0,   0.0);
     (695370.5, 4232587.2,   295.7,   402.0,   0.0);   (695414.8,
4232586.5,   299.5,   402.0,   0.0);
     (695459.2, 4232585.9,   304.8,   402.0,   0.0);   (695503.5,
4232585.2,   308.5,   402.0,   0.0);
     (695329.4, 4232629.8,   288.3,   402.0,   0.0);   (695290.0,
4232614.2,   286.7,   402.0,   0.0);
     (695250.7, 4232598.7,   287.1,   402.0,   0.0);   (695211.3,
4232583.2,   290.1,   402.0,   0.0);
     (695163.4, 4232548.2,   294.2,   402.0,   0.0);   (695146.4,
4232509.5,   295.9,   402.0,   0.0);
     (695129.4, 4232470.7,   298.7,   402.0,   0.0);   (695112.4,
4232431.9,   298.8,   402.0,   0.0);
     (695371.3, 4232637.2,   290.4,   402.0,   0.0);   (695415.6,
4232636.5,   293.2,   402.0,   0.0);
     (695459.9, 4232635.9,   297.5,   402.0,   0.0);   (695504.2,
4232635.2,   299.7,   402.0,   0.0);
     (695330.5, 4232679.9,   290.0,   402.0,   0.0);   (695291.9,
4232664.7,   289.4,   402.0,   0.0);
     (695253.2, 4232649.4,   291.2,   402.0,   0.0);   (695214.5,
4232634.2,   293.5,   402.0,   0.0);
     (695175.9, 4232618.9,   295.3,   402.0,   0.0);   (695128.9,
4232584.6,   296.8,   402.0,   0.0);
     (695112.2, 4232546.5,   298.0,   402.0,   0.0);   (695095.5,
4232508.5,   299.8,   402.0,   0.0);
     (695078.8, 4232470.4,   303.1,   402.0,   0.0);   (695062.1,
4232432.3,   305.2,   305.2,   0.0);
     (695372.0, 4232687.2,   292.3,   402.0,   0.0);   (695416.4,
4232686.5,   293.1,   402.0,   0.0);
     (695460.7, 4232685.9,   295.0,   402.0,   0.0);   (695505.0,
4232685.2,   299.4,   402.0,   0.0);
     (695331.1, 4232779.5,   293.6,   402.0,   0.0);   (695290.6,
4232763.6,   294.2,   402.0,   0.0);
     (695250.1, 4232747.6,   295.5,   402.0,   0.0);   (695209.6,
4232731.6,   299.1,   402.0,   0.0);
     (695169.1, 4232715.6,   300.0,   402.0,   0.0);   (695128.6,
4232699.6,   297.8,   402.0,   0.0);
     (695088.1, 4232683.7,   294.4,   402.0,   0.0);   (695059.1,
4232655.7,   292.8,   402.0,   0.0);
     (695041.6, 4232615.8,   294.3,   402.0,   0.0);   (695024.1,
4232576.0,   294.6,   402.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***

(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(695006.6, 4232536.1, 297.0, 402.0, 0.0); (694989.1, 4232496.2, 300.8, 402.0, 0.0);
(694971.6, 4232456.3, 305.3, 307.0, 0.0); (695373.6, 4232787.2, 295.1, 402.0, 0.0);
(695417.9, 4232786.5, 299.7, 402.0, 0.0); (695462.2, 4232785.8, 303.7, 402.0, 0.0);
(695506.5, 4232785.2, 305.6, 402.0, 0.0); (695333.2, 4232879.8, 301.0, 402.0, 0.0);
(695293.8, 4232864.2, 299.6, 402.0, 0.0); (695254.5, 4232848.7, 300.8, 402.0, 0.0);
(695215.1, 4232833.1, 299.9, 402.0, 0.0); (695175.7, 4232817.6, 301.2, 402.0, 0.0);
(695136.3, 4232802.1, 299.4, 402.0, 0.0); (695096.9, 4232786.5, 294.9, 402.0, 0.0);
(695057.5, 4232771.0, 290.6, 402.0, 0.0); (695018.1, 4232755.5, 287.3, 402.0, 0.0);
(694990.0, 4232728.3, 285.5, 402.0, 0.0); (694973.0, 4232689.5, 285.8, 402.0, 0.0);
(694955.9, 4232650.8, 287.6, 402.0, 0.0); (694938.9, 4232612.0, 288.7, 402.0, 0.0);
(694921.9, 4232573.2, 288.8, 402.0, 0.0); (694904.9, 4232534.4, 291.2, 402.0, 0.0);
(694887.9, 4232495.7, 294.5, 402.0, 0.0); (694870.9, 4232456.9, 297.8, 309.0, 0.0);
(695375.1, 4232887.2, 303.8, 402.0, 0.0); (695419.4, 4232886.5, 308.8, 402.0, 0.0);
(695463.7, 4232885.8, 311.7, 402.0, 0.0); (695508.1, 4232885.2, 315.5, 402.0, 0.0);
(695334.2, 4232979.5, 309.5, 402.0, 0.0); (695293.7, 4232963.5, 304.7, 402.0, 0.0);
(695253.2, 4232947.6, 305.7, 402.0, 0.0); (695212.7, 4232931.6, 306.0, 402.0, 0.0);
(695172.1, 4232915.6, 303.2, 402.0, 0.0); (695131.6, 4232899.6, 298.6, 402.0, 0.0);
(695091.1, 4232883.6, 295.1, 402.0, 0.0); (695050.6, 4232867.7, 291.2, 402.0, 0.0);
(695010.1, 4232851.7, 288.4, 402.0, 0.0); (694969.6, 4232835.7, 285.9, 402.0, 0.0);
(694920.3, 4232799.8, 284.9, 402.0, 0.0); (694902.9, 4232759.9, 283.8, 402.0, 0.0);
(694885.4, 4232720.0, 283.1, 402.0, 0.0); (694867.9, 4232680.1, 281.8, 402.0, 0.0);
(694850.4, 4232640.2, 283.3, 402.0, 0.0); (694832.9, 4232600.4, 283.4, 402.0, 0.0);
(694815.4, 4232560.5, 283.8, 402.0, 0.0); (694797.9, 4232520.6, 284.2, 402.0, 0.0);
(694780.4, 4232480.7, 286.6, 402.0, 0.0); (694763.0,

4232440.8,   292.5,   301.0,   0.0);
     (695376.6, 4232987.2,   314.5,   402.0,   0.0);   (695420.9,
4232986.5,   318.0,   402.0,   0.0);
     (695465.2, 4232985.8,   322.7,   402.0,   0.0);   (695509.6,
4232985.1,   327.6,   402.0,   0.0);
     (695336.1, 4233079.7,   320.9,   402.0,   0.0);   (695296.4,
4233064.0,   315.2,   402.0,   0.0);
     (695256.7, 4233048.3,   310.8,   402.0,   0.0);   (695217.0,
4233032.7,   307.6,   402.0,   0.0);
     (695177.3, 4233017.0,   303.3,   402.0,   0.0);   (695137.6,
4233001.4,   300.1,   402.0,   0.0);
     (695097.9, 4232985.7,   297.3,   402.0,   0.0);   (695058.2,
4232970.0,   293.1,   402.0,   0.0);
     (695018.5, 4232954.4,   291.0,   402.0,   0.0);   (694978.8,
4232938.7,   290.0,   402.0,   0.0);
     (694939.1, 4232923.1,   288.8,   402.0,   0.0);   (694899.4,
4232907.4,   286.9,   402.0,   0.0);
     (694851.1, 4232872.2,   285.0,   402.0,   0.0);   (694834.0,
4232833.1,   285.0,   402.0,   0.0);
     (694816.9, 4232794.0,   284.8,   402.0,   0.0);   (694799.7,
4232755.0,   283.2,   402.0,   0.0);
     (694782.6, 4232715.9,   282.4,   402.0,   0.0);   (694765.5,
4232676.8,   280.7,   402.0,   0.0);
     (694748.3, 4232637.7,   280.2,   402.0,   0.0);   (694731.2,
4232598.6,   280.8,   402.0,   0.0);
     (694714.0, 4232559.5,   280.3,   402.0,   0.0);   (694696.9,
4232520.4,   279.8,   402.0,   0.0);
     (694679.8, 4232481.4,   281.7,   402.0,   0.0);   (694662.6,
4232442.3,   286.3,   294.0,   0.0);
     (695378.1, 4233087.2,   327.4,   402.0,   0.0);   (695422.4,
4233086.5,   333.8,   402.0,   0.0);
     (695466.8, 4233085.8,   340.5,   402.0,   0.0);   (695511.1,
4233085.1,   347.3,   402.0,   0.0);
     (695338.4, 4233279.4,   338.9,   402.0,   0.0);   (695297.2,
4233263.1,   329.2,   402.0,   0.0);
     (695256.1, 4233246.9,   322.9,   402.0,   0.0);   (695214.9,
4233230.6,   317.2,   402.0,   0.0);
     (695173.8, 4233214.4,   312.3,   402.0,   0.0);   (695132.6,
4233198.2,   308.0,   402.0,   0.0);
     (695091.4, 4233181.9,   303.9,   402.0,   0.0);   (695050.3,
4233165.7,   298.2,   402.0,   0.0);
     (695009.1, 4233149.5,   297.7,   402.0,   0.0);   (694967.9,
4233133.2,   297.3,   402.0,   0.0);

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694926.8, 4233117.0, 299.6, 402.0, 0.0); (694885.6, 4233100.8, 296.3, 402.0, 0.0);
(694844.5, 4233084.5, 290.2, 402.0, 0.0); (694803.3, 4233068.3, 284.7, 402.0, 0.0);
(694762.1, 4233052.0, 280.7, 402.0, 0.0); (694712.1, 4233015.5, 280.7, 402.0, 0.0);
(694694.3, 4232975.0, 286.4, 402.0, 0.0); (694676.5, 4232934.5, 290.4, 402.0, 0.0);
(694658.8, 4232894.0, 292.0, 402.0, 0.0); (694641.0, 4232853.4, 292.8, 402.0, 0.0);
(694623.2, 4232812.9, 293.5, 402.0, 0.0); (694605.5, 4232772.4, 294.5, 294.5, 0.0);
(694587.7, 4232731.8, 294.1, 294.1, 0.0); (694569.9, 4232691.3, 292.3, 292.3, 0.0);
(694552.2, 4232650.8, 288.7, 288.7, 0.0); (694534.4, 4232610.3, 285.7, 285.7, 0.0);
(694516.6, 4232569.8, 282.1, 282.1, 0.0); (694498.8, 4232529.2, 276.4, 287.0, 0.0);
(694481.1, 4232488.7, 273.2, 282.0, 0.0); (694463.3, 4232448.2, 273.0, 273.0, 0.0);
(695381.2, 4233287.1, 350.2, 402.0, 0.0); (695425.5, 4233286.5, 362.7, 402.0, 0.0);
(695469.8, 4233285.8, 375.9, 402.0, 0.0); (695514.1, 4233285.1, 390.1, 402.0, 0.0);
(695341.5, 4233479.4, 342.3, 402.0, 0.0); (695300.5, 4233463.2, 335.1, 402.0, 0.0);
(695259.4, 4233447.0, 326.8, 402.0, 0.0); (695218.4, 4233430.8, 321.0, 402.0, 0.0);
(695177.4, 4233414.6, 313.1, 402.0, 0.0); (695136.3, 4233398.4, 308.2, 402.0, 0.0);
(695095.3, 4233382.2, 308.4, 402.0, 0.0); (695054.2, 4233366.0, 308.2, 402.0, 0.0);
(695013.2, 4233349.8, 307.9, 402.0, 0.0); (694972.1, 4233333.6, 305.2, 402.0, 0.0);
(694931.1, 4233317.5, 301.5, 402.0, 0.0); (694890.0, 4233301.3, 300.2, 402.0, 0.0);
(694849.0, 4233285.1, 299.8, 402.0, 0.0); (694808.0, 4233268.9, 296.1, 402.0, 0.0);
(694766.9, 4233252.7, 292.1, 402.0, 0.0); (694725.9, 4233236.5, 289.1, 402.0, 0.0);
(694684.8, 4233220.3, 287.4, 402.0, 0.0); (694643.8, 4233204.1, 285.3, 402.0, 0.0);
(694602.7, 4233187.9, 282.3, 402.0, 0.0); (694573.4, 4233159.6, 279.4, 402.0, 0.0);
(694555.6, 4233119.2, 271.7, 402.0, 0.0); (694537.9,

```
4233078.8,     273.8,     402.0,       0.0);
     ( 694520.2, 4233038.4,     280.3,     402.0,       0.0);         ( 694502.5,
4232998.0,     286.9,     402.0,       0.0);
     ( 694484.8, 4232957.6,     291.4,     299.0,       0.0);         ( 694467.1,
4232917.2,     295.9,     299.0,       0.0);
     ( 694449.3, 4232876.8,     299.6,     299.6,       0.0);         ( 694431.6,
4232836.4,     297.0,     300.0,       0.0);
     ( 694413.9, 4232796.0,     290.2,     300.0,       0.0);         ( 694396.2,
4232755.6,     281.1,     300.0,       0.0);
     ( 694378.5, 4232715.2,     271.6,     300.0,       0.0);         ( 694360.8,
4232674.8,     275.4,     300.0,       0.0);
     ( 694343.0, 4232634.3,     280.7,     286.0,       0.0);         ( 694325.3,
4232593.9,     285.7,     285.7,       0.0);
     ( 694307.6, 4232553.5,     287.8,     287.8,       0.0);         ( 694289.9,
4232513.1,     287.1,     287.1,       0.0);
     ( 694272.2, 4232472.7,     284.4,     284.4,       0.0);         ( 695384.2,
4233487.1,     349.5,     402.0,       0.0);
     ( 695428.5, 4233486.4,     355.6,     402.0,       0.0);         ( 695472.9,
4233485.8,     363.4,     402.0,       0.0);
     ( 695517.2, 4233485.1,     372.5,     402.0,       0.0);         ( 695344.6,
4233679.3,     345.9,     402.0,       0.0);
     ( 695303.6, 4233663.2,     344.4,     402.0,       0.0);         ( 695262.7,
4233647.0,     340.8,     402.0,       0.0);
     ( 695221.7, 4233630.9,     337.7,     402.0,       0.0);         ( 695180.8,
4233614.7,     334.9,     402.0,       0.0);
     ( 695139.8, 4233598.6,     332.1,     402.0,       0.0);         ( 695098.8,
4233582.4,     327.9,     402.0,       0.0);
     ( 695057.9, 4233566.2,     320.3,     402.0,       0.0);         ( 695016.9,
4233550.1,     309.8,     402.0,       0.0);
     ( 694976.0, 4233533.9,     299.0,     625.0,       0.0);         ( 694935.0,
4233517.8,     290.5,     625.0,       0.0);
     ( 694894.0, 4233501.6,     289.0,     625.0,       0.0);         ( 694853.1,
4233485.5,     291.9,     402.0,       0.0);
     ( 694812.1, 4233469.3,     285.4,     402.0,       0.0);         ( 694771.2,
4233453.1,     278.6,     624.0,       0.0);
     ( 694730.2, 4233437.0,     279.9,     402.0,       0.0);         ( 694689.2,
4233420.8,     282.0,     402.0,       0.0);
     ( 694648.3, 4233404.7,     278.5,     402.0,       0.0);         ( 694607.3,
4233388.5,     272.7,     402.0,       0.0);
     ( 694566.4, 4233372.4,     275.9,     402.0,       0.0);         ( 694525.4,
4233356.2,     277.6,     402.0,       0.0);
     ( 694484.4, 4233340.0,     273.8,     402.0,       0.0);         ( 694434.6,
4233303.7,     271.4,     402.0,       0.0);
     ( 694417.0, 4233263.4,     270.9,     402.0,       0.0);         ( 694399.3,
4233223.1,     268.8,     402.0,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694381.6, 4233182.8, 265.2, 402.0, 0.0); (694363.9, 4233142.4, 261.4, 402.0, 0.0);
(694346.2, 4233102.1, 266.8, 402.0, 0.0); (694328.5, 4233061.8, 274.0, 402.0, 0.0);
(694310.9, 4233021.5, 278.7, 388.0, 0.0); (694293.2, 4232981.1, 282.6, 376.0, 0.0);
(694275.5, 4232940.8, 284.0, 376.0, 0.0); (694257.8, 4232900.5, 281.9, 376.0, 0.0);
(694240.1, 4232860.1, 276.7, 376.0, 0.0); (694222.5, 4232819.8, 270.3, 376.0, 0.0);
(694204.8, 4232779.5, 261.3, 385.0, 0.0); (694187.1, 4232739.2, 255.2, 386.0, 0.0);
(694169.4, 4232698.8, 258.0, 376.0, 0.0); (694151.7, 4232658.5, 258.7, 376.0, 0.0);
(694134.0, 4232618.2, 257.8, 376.0, 0.0); (694116.4, 4232577.9, 255.3, 376.0, 0.0);
(694098.7, 4232537.5, 255.3, 376.0, 0.0); (694081.0, 4232497.2, 258.0, 376.0, 0.0);
(694063.3, 4232456.9, 262.6, 329.0, 0.0); (695387.2, 4233687.1, 351.7, 402.0, 0.0);
(695431.6, 4233686.4, 359.5, 402.0, 0.0); (695475.9, 4233685.7, 368.9, 402.0, 0.0);
(695520.2, 4233685.1, 376.2, 402.0, 0.0); (695347.7, 4233879.3, 323.1, 625.0, 0.0);
(695306.8, 4233863.2, 323.9, 625.0, 0.0); (695265.9, 4233847.1, 334.0, 625.0, 0.0);
(695225.0, 4233830.9, 338.2, 624.0, 0.0); (695184.1, 4233814.8, 339.0, 402.0, 0.0);
(695143.2, 4233798.7, 337.8, 402.0, 0.0); (695102.3, 4233782.5, 336.7, 402.0, 0.0);
(695061.4, 4233766.4, 333.6, 402.0, 0.0); (695020.5, 4233750.3, 325.8, 402.0, 0.0);
(694979.6, 4233734.1, 319.0, 402.0, 0.0); (694938.7, 4233718.0, 311.4, 402.0, 0.0);
(694897.8, 4233701.9, 301.6, 625.0, 0.0); (694856.9, 4233685.7, 293.3, 625.0, 0.0);
(694816.0, 4233669.6, 286.4, 625.0, 0.0); (694775.1, 4233653.5, 279.1, 625.0, 0.0);
(694734.2, 4233637.3, 275.0, 625.0, 0.0); (694693.3, 4233621.2, 274.3, 625.0, 0.0);
(694652.4, 4233605.1, 270.2, 625.0, 0.0); (694611.5, 4233588.9, 268.0, 625.0, 0.0);
(694570.6, 4233572.8, 269.2, 625.0, 0.0); (694529.7,

```
4233556.7,     266.7,     624.0,       0.0);
     ( 694488.8, 4233540.5,     263.3,     624.0,       0.0);         ( 694447.9,
4233524.4,     263.0,     402.0,       0.0);
     ( 694407.0, 4233508.3,     261.2,     402.0,       0.0);         ( 694366.1,
4233492.1,     260.2,     402.0,       0.0);
     ( 694325.2, 4233476.0,     260.5,     402.0,       0.0);         ( 694295.9,
4233447.8,     260.5,     402.0,       0.0);
     ( 694278.2, 4233407.5,     257.5,     402.0,       0.0);         ( 694260.6,
4233367.3,     256.9,     402.0,       0.0);
     ( 694242.9, 4233327.0,     256.8,     402.0,       0.0);         ( 694225.3,
4233286.8,     256.1,     402.0,       0.0);
     ( 694207.6, 4233246.5,     255.3,     402.0,       0.0);         ( 694190.0,
4233206.2,     254.2,     402.0,       0.0);
     ( 694172.3, 4233166.0,     254.7,     402.0,       0.0);         ( 694154.7,
4233125.7,     253.3,     402.0,       0.0);
     ( 694137.0, 4233085.4,     251.6,     402.0,       0.0);         ( 694119.3,
4233045.1,     253.5,     402.0,       0.0);
     ( 694101.7, 4233004.9,     260.2,     388.0,       0.0);         ( 694084.0,
4232964.6,     262.4,     388.0,       0.0);
     ( 694066.4, 4232924.3,     261.0,     388.0,       0.0);         ( 694048.7,
4232884.1,     257.0,     388.0,       0.0);
     ( 694031.1, 4232843.8,     251.2,     388.0,       0.0);         ( 694013.4,
4232803.5,     243.9,     388.0,       0.0);
     ( 693995.8, 4232763.3,     243.2,     388.0,       0.0);         ( 693978.1,
4232723.0,     243.7,     388.0,       0.0);
     ( 693960.4, 4232682.8,     243.5,     388.0,       0.0);         ( 693942.8,
4232642.5,     242.6,     387.0,       0.0);
     ( 693925.1, 4232602.2,     242.0,     386.0,       0.0);         ( 693907.5,
4232562.0,     242.1,     384.0,       0.0);
     ( 693889.8, 4232521.7,     242.0,     382.0,       0.0);         ( 693872.2,
4232481.4,     242.2,     376.0,       0.0);
     ( 695390.3, 4233887.1,     330.6,     625.0,       0.0);         ( 695434.6,
4233886.4,     339.2,     625.0,       0.0);
     ( 695478.9, 4233885.7,     347.2,     625.0,       0.0);         ( 695523.3,
4233885.0,     348.7,     625.0,       0.0);
     ( 695350.7, 4234079.3,     324.0,     625.0,       0.0);         ( 695309.9,
4234063.2,     321.9,     625.0,       0.0);
     ( 695269.0, 4234047.1,     313.5,     625.0,       0.0);         ( 695228.2,
4234031.0,     309.2,     625.0,       0.0);
     ( 695187.3, 4234014.9,     313.0,     625.0,       0.0);         ( 695146.5,
4233998.8,     314.9,     625.0,       0.0);
     ( 695105.6, 4233982.6,     311.8,     625.0,       0.0);         ( 695064.8,
4233966.5,     313.4,     625.0,       0.0);
     ( 695023.9, 4233950.4,     315.3,     625.0,       0.0);         ( 694983.1,
4233934.3,     311.9,     625.0,       0.0);
     ( 694942.2, 4233918.2,     303.8,     625.0,       0.0);         ( 694901.4,
4233902.1,     296.9,     625.0,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694860.5, 4233886.0, 292.7, 625.0, 0.0); (694819.6, 4233869.8, 288.0, 625.0, 0.0);
(694778.8, 4233853.7, 284.2, 625.0, 0.0); (694737.9, 4233837.6, 284.0, 625.0, 0.0);
(694697.1, 4233821.5, 285.3, 625.0, 0.0); (694656.2, 4233805.4, 281.0, 625.0, 0.0);
(694615.4, 4233789.3, 275.7, 625.0, 0.0); (694574.5, 4233773.1, 270.7, 625.0, 0.0);
(694533.7, 4233757.0, 267.8, 625.0, 0.0); (694492.8, 4233740.9, 267.5, 625.0, 0.0);
(694452.0, 4233724.8, 271.4, 624.0, 0.0); (694411.1, 4233708.7, 275.5, 402.0, 0.0);
(694370.2, 4233692.6, 275.5, 402.0, 0.0); (694329.4, 4233676.5, 276.1, 402.0, 0.0);
(694288.5, 4233660.3, 282.2, 388.0, 0.0); (694247.7, 4233644.2, 287.7, 388.0, 0.0);
(694206.8, 4233628.1, 291.3, 388.0, 0.0); (694157.2, 4233591.9, 293.5, 388.0, 0.0);
(694139.5, 4233551.7, 287.9, 388.0, 0.0); (694121.9, 4233511.4, 281.9, 388.0, 0.0);
(694104.3, 4233471.2, 279.1, 388.0, 0.0); (694086.6, 4233431.0, 283.5, 388.0, 0.0);
(694069.0, 4233390.8, 288.1, 388.0, 0.0); (694051.4, 4233350.6, 292.1, 388.0, 0.0);
(694033.7, 4233310.3, 294.3, 388.0, 0.0); (694016.1, 4233270.1, 293.0, 388.0, 0.0);
(693998.4, 4233229.9, 288.5, 388.0, 0.0); (693980.8, 4233189.7, 280.7, 388.0, 0.0);
(693963.2, 4233149.5, 272.6, 388.0, 0.0); (693945.5, 4233109.2, 265.0, 388.0, 0.0);
(693927.9, 4233069.0, 259.8, 388.0, 0.0); (693910.3, 4233028.8, 256.4, 388.0, 0.0);
(693892.6, 4232988.6, 254.5, 388.0, 0.0); (693875.0, 4232948.3, 254.2, 388.0, 0.0);
(693857.4, 4232908.1, 255.3, 388.0, 0.0); (693839.7, 4232867.9, 258.4, 388.0, 0.0);
(693822.1, 4232827.7, 257.4, 388.0, 0.0); (693804.5, 4232787.5, 253.3, 388.0, 0.0);
(693786.8, 4232747.2, 249.2, 388.0, 0.0); (693769.2, 4232707.0, 250.6, 386.0, 0.0);
(693751.6, 4232666.8, 252.5, 382.0, 0.0); (693733.9,

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4232626.6,     253.7,     380.0,       0.0);
     ( 693716.3, 4232586.4,     254.4,     376.0,       0.0);         ( 693698.6,
4232546.1,     256.9,     376.0,       0.0);
     ( 693681.0, 4232505.9,     259.8,     376.0,       0.0);         ( 693663.4,
4232465.7,     265.8,     376.0,       0.0);
     ( 695393.3, 4234087.0,     326.7,     625.0,       0.0);         ( 695437.7,
4234086.4,     330.1,     625.0,       0.0);
     ( 695482.0, 4234085.7,     332.9,     625.0,       0.0);         ( 695526.3,
4234085.0,     331.1,     625.0,       0.0);
     ( 695525.4, 4232385.2,     318.0,     318.0,       0.0);         ( 695525.4,
4232361.3,     317.5,     317.5,       0.0);
     ( 695525.4, 4232337.5,     316.5,     316.5,       0.0);         ( 695525.4,
4232313.6,     315.0,     315.0,       0.0);
     ( 695525.4, 4232289.8,     313.3,     313.3,       0.0);         ( 695525.4,
4232265.9,     310.9,     317.0,       0.0);
     ( 695525.4, 4232242.0,     308.8,     317.0,       0.0);         ( 695525.4,
4232218.2,     306.5,     318.0,       0.0);
     ( 695525.4, 4232194.3,     304.3,     318.0,       0.0);         ( 695525.4,
4232170.4,     302.4,     318.0,       0.0);
     ( 695525.4, 4232146.6,     301.6,     316.0,       0.0);         ( 695525.4,
4232122.7,     303.9,     311.0,       0.0);
     ( 695543.2, 4232402.8,     318.6,     318.6,       0.0);         ( 695550.4,
4232361.3,     318.0,     318.0,       0.0);
     ( 695550.4, 4232337.5,     317.6,     317.6,       0.0);         ( 695550.4,
4232313.6,     316.6,     316.6,       0.0);
     ( 695550.4, 4232289.8,     315.0,     315.0,       0.0);         ( 695550.4,
4232265.9,     312.8,     317.0,       0.0);
     ( 695550.4, 4232242.0,     311.0,     317.0,       0.0);         ( 695550.4,
4232218.2,     309.0,     315.0,       0.0);
     ( 695550.4, 4232194.3,     307.3,     315.0,       0.0);         ( 695550.4,
4232170.4,     305.9,     311.0,       0.0);
     ( 695550.4, 4232146.6,     305.0,     311.0,       0.0);         ( 695550.4,
4232122.7,     306.2,     311.0,       0.0);
     ( 695550.4, 4232098.8,     308.6,     308.6,       0.0);         ( 695550.4,
4232075.0,     310.5,     310.5,       0.0);
     ( 695568.2, 4232402.8,     318.6,     318.6,       0.0);         ( 695536.4,
4232445.3,     319.0,     319.0,       0.0);
     ( 695575.4, 4232361.3,     317.9,     317.9,       0.0);         ( 695575.4,
4232337.5,     318.0,     318.0,       0.0);
     ( 695575.4, 4232313.6,     317.7,     317.7,       0.0);         ( 695575.4,
4232289.8,     316.7,     316.7,       0.0);
     ( 695575.4, 4232265.9,     315.1,     315.1,       0.0);         ( 695575.4,
4232242.0,     312.8,     312.8,       0.0);
     ( 695575.4, 4232218.2,     311.5,     311.5,       0.0);         ( 695575.4,
4232194.3,     310.7,     310.7,       0.0);
     ( 695575.4, 4232170.4,     309.8,     309.8,       0.0);         ( 695575.4,
4232146.6,     308.3,     308.3,       0.0);
     ( 695575.4, 4232122.7,     308.9,     308.9,       0.0);         ( 695575.4,
4232098.8,     310.2,     310.2,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
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*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(695575.4, 4232075.0, 311.0, 311.0, 0.0); (695593.2, 4232402.8, 318.2, 318.2, 0.0);
(695578.9, 4232437.8, 319.0, 319.0, 0.0); (695554.3, 4232462.8, 319.0, 402.0, 0.0);
(695600.4, 4232361.3, 317.3, 317.3, 0.0); (695600.4, 4232337.5, 317.6, 317.6, 0.0);
(695600.4, 4232313.6, 318.0, 318.0, 0.0); (695600.4, 4232289.8, 317.6, 317.6, 0.0);
(695600.4, 4232265.9, 316.0, 316.0, 0.0); (695600.4, 4232242.0, 314.3, 314.3, 0.0);
(695600.4, 4232218.2, 312.7, 312.7, 0.0); (695600.4, 4232194.3, 311.5, 311.5, 0.0);
(695600.4, 4232170.4, 310.9, 310.9, 0.0); (695600.4, 4232146.6, 310.7, 310.7, 0.0);
(695600.4, 4232122.7, 310.8, 310.8, 0.0); (695600.4, 4232098.8, 311.4, 311.4, 0.0);
(695600.4, 4232075.0, 311.6, 311.6, 0.0); (695641.8, 4232406.3, 316.7, 316.7, 0.0);
(695633.2, 4232427.3, 317.0, 317.0, 0.0); (695624.6, 4232448.4, 317.7, 402.0, 0.0);
(695615.9, 4232469.4, 318.5, 402.0, 0.0); (695586.4, 4232499.4, 319.0, 402.0, 0.0);
(695565.5, 4232508.4, 319.1, 402.0, 0.0); (695544.6, 4232517.3, 319.4, 402.0, 0.0);
(695523.6, 4232526.3, 318.1, 402.0, 0.0); (695650.4, 4232385.2, 316.4, 316.4, 0.0);
(695650.4, 4232361.3, 316.0, 316.0, 0.0); (695650.4, 4232337.5, 315.6, 315.6, 0.0);
(695650.4, 4232313.6, 314.9, 317.0, 0.0); (695650.4, 4232289.8, 314.2, 314.2, 0.0);
(695650.4, 4232265.9, 313.9, 313.9, 0.0); (695650.4, 4232242.0, 312.4, 312.4, 0.0);
(695650.4, 4232218.2, 311.6, 311.6, 0.0); (695650.4, 4232194.3, 311.3, 311.3, 0.0);
(695650.4, 4232170.4, 311.0, 311.0, 0.0); (695650.4, 4232146.6, 311.0, 311.0, 0.0);
(695650.4, 4232122.7, 311.0, 311.0, 0.0); (695650.4, 4232098.8, 310.7, 310.7, 0.0);
(695650.4, 4232075.0, 310.4, 310.4, 0.0); (695692.2,

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4232405.3,     315.7,     315.7,       0.0);
     ( 695675.8, 4232445.4,     316.6,     402.0,       0.0);         ( 695659.4,
4232485.5,     317.4,     402.0,       0.0);
     ( 695623.0, 4232534.1,     318.4,     402.0,       0.0);         ( 695583.2,
4232551.1,     318.2,     402.0,       0.0);
     ( 695543.3, 4232568.2,     315.2,     402.0,       0.0);         ( 695700.4,
4232361.3,     313.9,     313.9,       0.0);
     ( 695700.4, 4232337.5,     312.5,     312.5,       0.0);         ( 695700.4,
4232313.6,     311.5,     311.5,       0.0);
     ( 695700.4, 4232289.8,     311.0,     311.0,       0.0);         ( 695700.4,
4232265.9,     310.8,     310.8,       0.0);
     ( 695700.4, 4232242.0,     310.2,     310.2,       0.0);         ( 695700.4,
4232218.2,     310.0,     310.0,       0.0);
     ( 695700.4, 4232194.3,     310.0,     310.0,       0.0);         ( 695700.4,
4232170.4,     310.0,     310.0,       0.0);
     ( 695700.4, 4232146.6,     310.0,     310.0,       0.0);         ( 695700.4,
4232122.7,     309.8,     309.8,       0.0);
     ( 695700.4, 4232098.8,     309.8,     309.8,       0.0);         ( 695700.4,
4232075.0,     309.5,     309.5,       0.0);
     ( 695741.5, 4232407.1,     315.4,     315.4,       0.0);         ( 695732.5,
4232429.1,     315.8,     315.8,       0.0);
     ( 695723.5, 4232451.0,     316.2,     402.0,       0.0);         ( 695714.5,
4232472.9,     316.9,     402.0,       0.0);
     ( 695705.5, 4232494.9,     317.7,     402.0,       0.0);         ( 695696.5,
4232516.8,     318.0,     402.0,       0.0);
     ( 695687.5, 4232538.7,     317.9,     402.0,       0.0);         ( 695656.8,
4232570.0,     316.4,     402.0,       0.0);
     ( 695635.0, 4232579.3,     314.2,     402.0,       0.0);         ( 695613.2,
4232588.6,     312.4,     402.0,       0.0);
     ( 695591.4, 4232597.9,     310.1,     402.0,       0.0);         ( 695569.6,
4232607.2,     307.3,     402.0,       0.0);
     ( 695547.8, 4232616.6,     304.2,     402.0,       0.0);         ( 695526.0,
4232625.9,     301.3,     402.0,       0.0);
     ( 695750.4, 4232385.2,     315.0,     315.0,       0.0);         ( 695750.4,
4232361.3,     313.4,     313.4,       0.0);
     ( 695750.4, 4232337.5,     312.3,     312.3,       0.0);         ( 695750.4,
4232313.6,     311.6,     311.6,       0.0);
     ( 695750.4, 4232289.8,     310.8,     310.8,       0.0);         ( 695750.4,
4232265.9,     310.0,     310.0,       0.0);
     ( 695750.4, 4232242.0,     310.0,     310.0,       0.0);         ( 695750.4,
4232218.2,     310.0,     310.0,       0.0);
     ( 695750.4, 4232194.3,     309.7,     309.7,       0.0);         ( 695750.4,
4232170.4,     309.1,     309.1,       0.0);
     ( 695750.4, 4232146.6,     309.1,     309.1,       0.0);         ( 695750.4,
4232122.7,     309.0,     309.0,       0.0);
     ( 695750.4, 4232098.8,     308.5,     308.5,       0.0);         ( 695750.4,
4232075.0,     308.1,     308.1,       0.0);
     ( 695791.8, 4232406.3,     316.7,     316.7,       0.0);         ( 695783.2,
4232427.3,     317.4,     317.4,       0.0);
     ( 695774.6, 4232448.4,     317.8,     317.8,       0.0);         ( 695765.9,
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*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

     (695757.3, 4232490.5,   318.6,   402.0,   0.0);   (695748.7,
4232511.5,   319.1,   402.0,   0.0);
     (695740.1, 4232532.6,   319.5,   402.0,   0.0);   (695731.4,
4232553.6,   319.1,   402.0,   0.0);
     (695722.8, 4232574.7,   317.6,   402.0,   0.0);   (695693.3,
4232604.7,   315.7,   402.0,   0.0);
     (695672.3, 4232613.6,   313.8,   402.0,   0.0);   (695651.4,
4232622.6,   311.4,   402.0,   0.0);
     (695630.5, 4232631.5,   309.7,   402.0,   0.0);   (695609.6,
4232640.5,   307.6,   402.0,   0.0);
     (695588.7, 4232649.4,   305.5,   402.0,   0.0);   (695567.8,
4232658.3,   303.4,   402.0,   0.0);
     (695546.8, 4232667.3,   301.2,   402.0,   0.0);   (695525.9,
4232676.2,   300.2,   402.0,   0.0);
     (695800.4, 4232385.2,   315.6,   315.6,   0.0);   (695800.4,
4232361.3,   314.8,   314.8,   0.0);
     (695800.4, 4232337.5,   313.4,   313.4,   0.0);   (695800.4,
4232313.6,   312.4,   312.4,   0.0);
     (695800.4, 4232289.8,   311.9,   311.9,   0.0);   (695800.4,
4232265.9,   310.6,   310.6,   0.0);
     (695800.4, 4232242.0,   310.6,   310.6,   0.0);   (695800.4,
4232218.2,   310.2,   310.2,   0.0);
     (695800.4, 4232194.3,   309.7,   309.7,   0.0);   (695800.4,
4232170.4,   309.0,   309.0,   0.0);
     (695800.4, 4232146.6,   309.0,   309.0,   0.0);   (695800.4,
4232122.7,   308.3,   308.3,   0.0);
     (695800.4, 4232098.8,   307.7,   307.7,   0.0);   (695800.4,
4232075.0,   307.3,   307.3,   0.0);
     (695891.6, 4232406.8,   316.8,   316.8,   0.0);   (695882.8,
4232428.4,   317.3,   317.3,   0.0);
     (695873.9, 4232450.0,   318.0,   318.0,   0.0);   (695865.1,
4232471.6,   318.3,   318.3,   0.0);
     (695856.2, 4232493.2,   319.2,   319.2,   0.0);   (695847.4,
4232514.8,   320.2,   402.0,   0.0);
     (695838.5, 4232536.4,   321.2,   402.0,   0.0);   (695829.7,
4232558.0,   321.9,   402.0,   0.0);
     (695820.8, 4232579.5,   322.4,   402.0,   0.0);   (695812.0,

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4232601.1,     323.0,     402.0,       0.0);
     ( 695803.1, 4232622.7,     323.0,     402.0,       0.0);         ( 695794.3,
4232644.3,     321.3,     402.0,       0.0);
     ( 695764.0, 4232675.1,     317.8,     402.0,       0.0);         ( 695742.5,
4232684.2,     316.6,     402.0,       0.0);
     ( 695721.1, 4232693.4,     315.2,     402.0,       0.0);         ( 695699.6,
4232702.6,     313.4,     402.0,       0.0);
     ( 695678.2, 4232711.8,     312.5,     402.0,       0.0);         ( 695656.7,
4232721.0,     311.9,     402.0,       0.0);
     ( 695635.2, 4232730.1,     311.5,     402.0,       0.0);         ( 695613.8,
4232739.3,     309.4,     402.0,       0.0);
     ( 695592.3, 4232748.5,     306.2,     402.0,       0.0);         ( 695570.9,
4232757.6,     304.0,     402.0,       0.0);
     ( 695549.4, 4232766.8,     304.4,     402.0,       0.0);         ( 695528.0,
4232776.0,     305.1,     402.0,       0.0);
     ( 695900.4, 4232385.2,     316.1,     316.1,       0.0);         ( 695900.4,
4232361.3,     316.0,     316.0,       0.0);
     ( 695900.4, 4232337.5,     314.9,     314.9,       0.0);         ( 695900.4,
4232313.6,     313.7,     313.7,       0.0);
     ( 695900.4, 4232289.8,     312.9,     312.9,       0.0);         ( 695900.4,
4232265.9,     312.1,     312.1,       0.0);
     ( 695900.4, 4232242.0,     312.0,     312.0,       0.0);         ( 695900.4,
4232218.2,     311.4,     311.4,       0.0);
     ( 695900.4, 4232194.3,     310.7,     310.7,       0.0);         ( 695900.4,
4232170.4,     309.7,     309.7,       0.0);
     ( 695900.4, 4232146.6,     308.2,     308.2,       0.0);         ( 695900.4,
4232122.7,     307.3,     307.3,       0.0);
     ( 695900.4, 4232098.8,     306.5,     306.5,       0.0);         ( 695900.4,
4232075.0,     306.1,     306.1,       0.0);
     ( 695991.5, 4232407.1,     312.2,     312.2,       0.0);         ( 695982.5,
4232429.1,     312.9,     312.9,       0.0);
     ( 695973.5, 4232451.0,     314.2,     314.2,       0.0);         ( 695964.5,
4232472.9,     315.9,     315.9,       0.0);
     ( 695955.5, 4232494.9,     316.5,     316.5,       0.0);         ( 695946.5,
4232516.8,     317.1,     317.1,       0.0);
     ( 695937.5, 4232538.7,     317.6,     402.0,       0.0);         ( 695928.6,
4232560.6,     317.5,     402.0,       0.0);
     ( 695919.6, 4232582.6,     317.4,     402.0,       0.0);         ( 695910.6,
4232604.5,     317.5,     402.0,       0.0);
     ( 695901.6, 4232626.4,     318.1,     402.0,       0.0);         ( 695892.6,
4232648.4,     318.4,     402.0,       0.0);
     ( 695883.6, 4232670.3,     318.2,     402.0,       0.0);         ( 695874.6,
4232692.2,     317.7,     402.0,       0.0);
     ( 695865.7, 4232714.1,     317.0,     402.0,       0.0);         ( 695834.9,
4232745.4,     316.0,     402.0,       0.0);
     ( 695813.1, 4232754.7,     316.0,     402.0,       0.0);         ( 695791.3,
4232764.0,     314.8,     402.0,       0.0);
     ( 695769.5, 4232773.3,     313.6,     402.0,       0.0);         ( 695747.7,
4232782.7,     313.1,     402.0,       0.0);
     ( 695725.9, 4232792.0,     311.8,     402.0,       0.0);         ( 695704.2,
```

4232801.3,   311.3,   402.0,   0.0);
     (695682.4, 4232810.6,   310.9,   402.0,   0.0);   (695660.6,
4232819.9,   309.9,   402.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (695638.8, 4232829.2,   309.6,   402.0,   0.0);   (695617.0,
4232838.6,   310.9,   402.0,   0.0);
     (695595.2, 4232847.9,   312.7,   402.0,   0.0);   (695573.4,
4232857.2,   315.0,   402.0,   0.0);
     (695551.6, 4232866.5,   316.1,   402.0,   0.0);   (695529.8,
4232875.8,   316.0,   402.0,   0.0);
     (696000.4, 4232385.2,   311.8,   311.8,   0.0);   (696000.4,
4232361.3,   311.0,   311.0,   0.0);
     (696000.4, 4232337.5,   310.8,   310.8,   0.0);   (696000.4,
4232313.6,   310.7,   310.7,   0.0);
     (696000.4, 4232289.8,   310.4,   310.4,   0.0);   (696000.4,
4232265.9,   309.8,   309.8,   0.0);
     (696000.4, 4232242.0,   309.0,   309.0,   0.0);   (696000.4,
4232218.2,   308.2,   308.2,   0.0);
     (696000.4, 4232194.3,   307.1,   307.1,   0.0);   (696000.4,
4232170.4,   305.7,   305.7,   0.0);
     (696000.4, 4232146.6,   305.0,   305.0,   0.0);   (696000.4,
4232122.7,   305.0,   305.0,   0.0);
     (696000.4, 4232098.8,   305.0,   305.0,   0.0);   (696000.4,
4232075.0,   305.1,   305.1,   0.0);
     (696091.8, 4232406.3,   308.7,   308.7,   0.0);   (696083.2,
4232427.3,   309.0,   309.0,   0.0);
     (696074.6, 4232448.4,   309.4,   309.4,   0.0);   (696065.9,
4232469.4,   309.9,   309.9,   0.0);
     (696057.3, 4232490.5,   310.0,   310.0,   0.0);   (696048.7,
4232511.5,   310.2,   402.0,   0.0);
     (696040.1, 4232532.6,   310.9,   402.0,   0.0);   (696031.4,
4232553.6,   311.2,   402.0,   0.0);
     (696022.8, 4232574.7,   311.0,   402.0,   0.0);   (696014.2,
4232595.7,   311.3,   402.0,   0.0);
     (696005.6, 4232616.8,   312.3,   402.0,   0.0);   (695996.9,
4232637.8,   313.3,   402.0,   0.0);
     (695988.3, 4232658.9,   314.2,   402.0,   0.0);   (695979.7,
4232679.9,   314.5,   402.0,   0.0);
     (695971.1, 4232701.0,   314.9,   402.0,   0.0);   (695962.4,

4232722.0,   315.3,   402.0,   0.0);
     (695953.8, 4232743.1,   316.0,   402.0,   0.0);   (695945.2,
4232764.1,   316.4,   402.0,   0.0);
     (695936.5, 4232785.2,   316.9,   402.0,   0.0);   (695907.0,
4232815.2,   318.2,   402.0,   0.0);
     (695886.1, 4232824.1,   318.6,   402.0,   0.0);   (695865.2,
4232833.1,   318.9,   402.0,   0.0);
     (695844.2, 4232842.0,   319.2,   402.0,   0.0);   (695823.3,
4232851.0,   318.9,   402.0,   0.0);
     (695802.4, 4232859.9,   318.5,   402.0,   0.0);   (695781.5,
4232868.9,   318.3,   402.0,   0.0);
     (695760.6, 4232877.8,   317.8,   402.0,   0.0);   (695739.7,
4232886.8,   317.4,   402.0,   0.0);
     (695718.7, 4232895.7,   316.5,   402.0,   0.0);   (695697.8,
4232904.6,   315.0,   402.0,   0.0);
     (695676.9, 4232913.6,   315.0,   402.0,   0.0);   (695656.0,
4232922.5,   315.8,   402.0,   0.0);
     (695635.1, 4232931.5,   316.7,   402.0,   0.0);   (695614.2,
4232940.4,   318.9,   402.0,   0.0);
     (695593.2, 4232949.4,   321.5,   402.0,   0.0);   (695572.3,
4232958.3,   324.6,   402.0,   0.0);
     (695551.4, 4232967.3,   326.8,   402.0,   0.0);   (695530.5,
4232976.2,   327.8,   402.0,   0.0);
     (696100.4, 4232385.2,   308.0,   308.0,   0.0);   (696100.4,
4232361.3,   307.6,   307.6,   0.0);
     (696100.4, 4232337.5,   306.9,   306.9,   0.0);   (696100.4,
4232313.6,   306.1,   306.1,   0.0);
     (696100.4, 4232289.8,   305.4,   305.4,   0.0);   (696100.4,
4232265.9,   305.4,   305.4,   0.0);
     (696100.4, 4232242.0,   305.1,   305.1,   0.0);   (696100.4,
4232218.2,   305.0,   305.0,   0.0);
     (696100.4, 4232194.3,   305.0,   305.0,   0.0);   (696100.4,
4232170.4,   305.2,   305.2,   0.0);
     (696100.4, 4232146.6,   306.1,   306.1,   0.0);   (696100.4,
4232122.7,   307.2,   307.2,   0.0);
     (696100.4, 4232098.8,   308.4,   308.4,   0.0);   (696100.4,
4232075.0,   309.4,   309.4,   0.0);
     (696191.7, 4232406.6,   308.7,   308.7,   0.0);   (696182.9,
4232427.9,   309.1,   309.1,   0.0);
     (696174.2, 4232449.3,   309.2,   309.2,   0.0);   (696165.4,
4232470.6,   309.9,   309.9,   0.0);
     (696156.7, 4232492.0,   310.2,   310.2,   0.0);   (696147.9,
4232513.4,   310.4,   310.4,   0.0);
     (696139.2, 4232534.7,   311.0,   311.0,   0.0);   (696130.4,
4232556.1,   311.0,   311.0,   0.0);
     (696121.7, 4232577.4,   311.4,   402.0,   0.0);   (696112.9,
4232598.8,   312.1,   402.0,   0.0);
     (696104.2, 4232620.1,   312.6,   402.0,   0.0);   (696095.4,
4232641.5,   312.7,   402.0,   0.0);
     (696086.7, 4232662.8,   313.3,   402.0,   0.0);   (696077.9,

4232684.2,   314.0,   402.0,   0.0);
     (696069.2, 4232705.6,   314.0,   402.0,   0.0);   (696060.4,
4232726.9,   314.4,   402.0,   0.0);
     (696051.7, 4232748.3,   315.0,   402.0,   0.0);   (696042.9,
4232769.6,   315.3,   402.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696034.2, 4232791.0,   315.8,   402.0,   0.0);   (696025.4,
4232812.3,   316.0,   402.0,   0.0);
     (696016.7, 4232833.7,   316.2,   402.0,   0.0);   (696007.9,
4232855.1,   316.8,   402.0,   0.0);
     (695977.9, 4232885.5,   317.9,   402.0,   0.0);   (695956.7,
4232894.6,   319.4,   402.0,   0.0);
     (695935.5, 4232903.6,   321.2,   402.0,   0.0);   (695914.3,
4232912.7,   322.2,   402.0,   0.0);
     (695893.1, 4232921.8,   323.2,   402.0,   0.0);   (695871.8,
4232930.9,   325.0,   402.0,   0.0);
     (695850.6, 4232939.9,   326.9,   402.0,   0.0);   (695829.4,
4232949.0,   328.8,   402.0,   0.0);
     (695808.2, 4232958.1,   330.1,   402.0,   0.0);   (695787.0,
4232967.2,   330.2,   402.0,   0.0);
     (695765.7, 4232976.2,   329.8,   402.0,   0.0);   (695744.5,
4232985.3,   329.8,   402.0,   0.0);
     (695723.3, 4232994.4,   330.6,   402.0,   0.0);   (695702.1,
4233003.5,   330.4,   402.0,   0.0);
     (695680.9, 4233012.5,   331.5,   402.0,   0.0);   (695659.6,
4233021.6,   334.1,   402.0,   0.0);
     (695638.4, 4233030.7,   336.7,   402.0,   0.0);   (695617.2,
4233039.8,   338.8,   402.0,   0.0);
     (695596.0, 4233048.8,   341.3,   402.0,   0.0);   (695574.8,
4233057.9,   344.4,   402.0,   0.0);
     (695553.5, 4233067.0,   346.2,   402.0,   0.0);   (695532.3,
4233076.1,   347.2,   402.0,   0.0);
     (696200.4, 4232385.2,   308.0,   308.0,   0.0);   (696200.4,
4232361.3,   307.9,   307.9,   0.0);
     (696200.4, 4232337.5,   307.4,   307.4,   0.0);   (696200.4,
4232313.6,   306.6,   306.6,   0.0);
     (696200.4, 4232289.8,   305.8,   305.8,   0.0);   (696200.4,
4232265.9,   305.0,   305.0,   0.0);
     (696200.4, 4232242.0,   305.0,   305.0,   0.0);   (696200.4,

4232218.2,   306.1,   306.1,   0.0);
     (696200.4, 4232194.3,   307.6,   307.6,   0.0);   (696200.4,
4232170.4,   309.2,   316.0,   0.0);
     (696200.4, 4232146.6,   310.8,   318.0,   0.0);   (696200.4,
4232122.7,   313.0,   317.0,   0.0);
     (696200.4, 4232098.8,   315.3,   317.0,   0.0);   (696200.4,
4232075.0,   317.0,   317.0,   0.0);
     (696391.5, 4232407.0,   310.7,   310.7,   0.0);   (696382.6,
4232428.8,   311.0,   311.0,   0.0);
     (696373.7, 4232450.5,   311.1,   311.1,   0.0);   (696364.8,
4232472.3,   311.3,   349.0,   0.0);
     (696355.8, 4232494.1,   312.3,   349.0,   0.0);   (696346.9,
4232515.9,   313.1,   349.0,   0.0);
     (696338.0, 4232537.7,   313.6,   351.0,   0.0);   (696329.1,
4232559.4,   314.0,   351.0,   0.0);
     (696320.1, 4232581.2,   314.4,   354.0,   0.0);   (696311.2,
4232603.0,   314.9,   354.0,   0.0);
     (696302.3, 4232624.8,   315.3,   354.0,   0.0);   (696293.4,
4232646.5,   315.0,   354.0,   0.0);
     (696284.4, 4232668.3,   315.4,   356.0,   0.0);   (696275.5,
4232690.1,   316.2,   356.0,   0.0);
     (696266.6, 4232711.9,   316.9,   356.0,   0.0);   (696257.7,
4232733.6,   317.9,   357.0,   0.0);
     (696248.7, 4232755.4,   318.7,   359.0,   0.0);   (696239.8,
4232777.2,   319.7,   360.0,   0.0);
     (696230.9, 4232799.0,   321.2,   360.0,   0.0);   (696222.0,
4232820.8,   321.9,   402.0,   0.0);
     (696213.1, 4232842.5,   322.4,   402.0,   0.0);   (696204.1,
4232864.3,   323.0,   402.0,   0.0);
     (696195.2, 4232886.1,   323.8,   402.0,   0.0);   (696186.3,
4232907.9,   324.5,   402.0,   0.0);
     (696177.4, 4232929.6,   325.3,   402.0,   0.0);   (696168.4,
4232951.4,   325.5,   402.0,   0.0);
     (696159.5, 4232973.2,   325.7,   402.0,   0.0);   (696150.6,
4232995.0,   326.1,   402.0,   0.0);
     (696120.0, 4233026.0,   326.1,   402.0,   0.0);   (696098.4,
4233035.3,   325.3,   625.0,   0.0);
     (696076.7, 4233044.5,   324.5,   625.0,   0.0);   (696055.1,
4233053.8,   323.4,   625.0,   0.0);
     (696033.5, 4233063.0,   322.3,   625.0,   0.0);   (696011.8,
4233072.3,   321.9,   625.0,   0.0);
     (695990.2, 4233081.5,   322.1,   625.0,   0.0);   (695968.6,
4233090.8,   322.8,   625.0,   0.0);
     (695946.9, 4233100.0,   324.8,   624.0,   0.0);   (695925.3,
4233109.3,   326.7,   402.0,   0.0);
     (695903.6, 4233118.5,   328.6,   402.0,   0.0);   (695882.0,
4233127.8,   333.3,   402.0,   0.0);
     (695860.4, 4233137.1,   337.4,   402.0,   0.0);   (695838.7,
4233146.3,   341.3,   402.0,   0.0);
     (695817.1, 4233155.6,   345.6,   402.0,   0.0);   (695795.4,

4233164.8,   350.2,   402.0,   0.0);
     (695773.8, 4233174.1,   355.3,   402.0,   0.0);   (695752.2,
4233183.3,   360.3,   402.0,   0.0);
     (695730.5, 4233192.6,   365.3,   402.0,   0.0);   (695708.9,
4233201.8,   369.7,   402.0,   0.0);
     (695687.2, 4233211.1,   373.7,   402.0,   0.0);   (695665.6,
4233220.3,   378.3,   402.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695644.0, 4233229.6,   382.5,   402.0,   0.0);   (695622.3,
4233238.8,   387.6,   402.0,   0.0);
     (695600.7, 4233248.1,   393.5,   402.0,   0.0);   (695579.1,
4233257.3,   397.6,   402.0,   0.0);
     (695557.4, 4233266.6,   398.8,   402.0,   0.0);   (695535.8,
4233275.9,   396.7,   402.0,   0.0);
     (696400.4, 4232385.2,   310.0,   310.0,   0.0);   (696400.4,
4232361.3,   310.0,   310.0,   0.0);
     (696400.4, 4232337.5,   309.4,   309.4,   0.0);   (696400.4,
4232313.6,   309.0,   309.0,   0.0);
     (696400.4, 4232289.8,   308.8,   308.8,   0.0);   (696400.4,
4232265.9,   308.0,   308.0,   0.0);
     (696400.4, 4232242.0,   308.8,   308.8,   0.0);   (696400.4,
4232218.2,   309.3,   309.3,   0.0);
     (696400.4, 4232194.3,   310.3,   334.0,   0.0);   (696400.4,
4232170.4,   312.1,   334.0,   0.0);
     (696400.4, 4232146.6,   314.8,   314.8,   0.0);   (696400.4,
4232122.7,   317.2,   317.2,   0.0);
     (696400.4, 4232098.8,   319.4,   319.4,   0.0);   (696400.4,
4232075.0,   321.2,   321.2,   0.0);
     (696591.4, 4232407.3,   314.5,   442.0,   0.0);   (696582.4,
4232429.3,   316.3,   353.0,   0.0);
     (696573.3, 4232451.4,   317.8,   353.0,   0.0);   (696564.3,
4232473.4,   318.9,   354.0,   0.0);
     (696555.3, 4232495.5,   320.5,   354.0,   0.0);   (696546.2,
4232517.5,   321.9,   354.0,   0.0);
     (696537.2, 4232539.6,   323.4,   354.0,   0.0);   (696528.2,
4232561.6,   324.4,   355.0,   0.0);
     (696519.1, 4232583.7,   325.3,   355.0,   0.0);   (696510.1,
4232605.8,   326.2,   355.0,   0.0);
     (696501.0, 4232627.8,   326.9,   355.0,   0.0);   (696492.0,

4232649.9,   327.8,   355.0,   0.0);
     (696483.0, 4232671.9,   328.5,   355.0,   0.0);   (696473.9,
4232694.0,   328.6,   355.0,   0.0);
     (696464.9, 4232716.0,   329.2,   356.0,   0.0);   (696455.9,
4232738.1,   329.0,   360.0,   0.0);
     (696446.8, 4232760.1,   328.8,   361.0,   0.0);   (696437.8,
4232782.2,   329.3,   361.0,   0.0);
     (696428.7, 4232804.2,   330.5,   361.0,   0.0);   (696419.7,
4232826.3,   332.5,   361.0,   0.0);
     (696410.7, 4232848.3,   334.2,   360.0,   0.0);   (696401.6,
4232870.4,   335.9,   360.0,   0.0);
     (696392.6, 4232892.5,   338.3,   357.0,   0.0);   (696383.6,
4232914.5,   340.6,   355.0,   0.0);
     (696374.5, 4232936.6,   342.8,   352.0,   0.0);   (696365.5,
4232958.6,   344.2,   353.0,   0.0);
     (696356.5, 4232980.7,   345.8,   353.0,   0.0);   (696347.4,
4233002.7,   346.6,   355.0,   0.0);
     (696338.4, 4233024.8,   347.1,   355.0,   0.0);   (696329.3,
4233046.8,   347.8,   360.0,   0.0);
     (696320.3, 4233068.9,   349.1,   357.0,   0.0);   (696311.3,
4233090.9,   350.4,   357.0,   0.0);
     (696302.2, 4233113.0,   351.6,   355.0,   0.0);   (696293.2,
4233135.0,   352.9,   353.0,   0.0);
     (696262.2, 4233166.5,   349.9,   360.0,   0.0);   (696240.3,
4233175.8,   347.6,   364.0,   0.0);
     (696218.4, 4233185.2,   345.3,   365.0,   0.0);   (696196.5,
4233194.6,   343.3,   625.0,   0.0);
     (696174.6, 4233204.0,   341.4,   625.0,   0.0);   (696152.7,
4233213.3,   339.2,   625.0,   0.0);
     (696130.8, 4233222.7,   337.6,   625.0,   0.0);   (696108.8,
4233232.1,   335.8,   625.0,   0.0);
     (696086.9, 4233241.4,   334.4,   625.0,   0.0);   (696065.0,
4233250.8,   332.9,   625.0,   0.0);
     (696043.1, 4233260.2,   331.4,   625.0,   0.0);   (696021.2,
4233269.5,   329.8,   625.0,   0.0);
     (695999.3, 4233278.9,   328.4,   625.0,   0.0);   (695977.4,
4233288.3,   328.1,   625.0,   0.0);
     (695955.5, 4233297.7,   328.0,   625.0,   0.0);   (695933.5,
4233307.0,   328.0,   625.0,   0.0);
     (695911.6, 4233316.4,   328.7,   625.0,   0.0);   (695889.7,
4233325.8,   330.4,   625.0,   0.0);
     (695867.8, 4233335.1,   332.4,   625.0,   0.0);   (695845.9,
4233344.5,   333.9,   625.0,   0.0);
     (695824.0, 4233353.9,   337.1,   625.0,   0.0);   (695802.1,
4233363.3,   340.2,   624.0,   0.0);
     (695780.1, 4233372.6,   343.5,   402.0,   0.0);   (695758.2,
4233382.0,   346.2,   402.0,   0.0);
     (695736.3, 4233391.4,   351.1,   402.0,   0.0);   (695714.4,
4233400.8,   356.3,   402.0,   0.0);
     (695692.5, 4233410.1,   361.2,   402.0,   0.0);   (695670.6,

4233419.5,   367.1,   402.0,   0.0);
     (695648.7, 4233428.9,   372.9,   402.0,   0.0);   (695626.7,
4233438.2,   377.6,   402.0,   0.0);
     (695604.8, 4233447.6,   379.9,   402.0,   0.0);   (695582.9,
4233457.0,   379.7,   402.0,   0.0);
     (695561.0, 4233466.3,   377.9,   402.0,   0.0);   (695539.1,
4233475.7,   375.9,   402.0,   0.0);
     (696600.4, 4232385.2,   313.2,   443.0,   0.0);   (696600.4,
4232361.3,   311.5,   445.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                        (METERS)

     (696600.4, 4232337.5,   310.4,   445.0,   0.0);   (696600.4,
4232313.6,   309.6,   445.0,   0.0);
     (696600.4, 4232289.8,   309.0,   445.0,   0.0);   (696600.4,
4232265.9,   309.0,   443.0,   0.0);
     (696600.4, 4232242.0,   310.5,   442.0,   0.0);   (696600.4,
4232218.2,   313.2,   428.0,   0.0);
     (696600.4, 4232194.3,   316.1,   428.0,   0.0);   (696600.4,
4232170.4,   318.7,   335.0,   0.0);
     (696600.4, 4232146.6,   321.1,   335.0,   0.0);   (696600.4,
4232122.7,   323.4,   335.0,   0.0);
     (696600.4, 4232098.8,   325.8,   335.0,   0.0);   (696600.4,
4232075.0,   328.5,   335.0,   0.0);
     (696791.5, 4232406.9,   318.1,   445.0,   0.0);   (696782.6,
4232428.7,   319.6,   445.0,   0.0);
     (696773.7, 4232450.4,   321.6,   445.0,   0.0);   (696764.8,
4232472.1,   323.8,   445.0,   0.0);
     (696755.9, 4232493.8,   325.3,   445.0,   0.0);   (696747.0,
4232515.5,   326.7,   445.0,   0.0);
     (696738.1, 4232537.3,   328.2,   445.0,   0.0);   (696729.2,
4232559.0,   329.6,   445.0,   0.0);
     (696720.3, 4232580.7,   331.6,   442.0,   0.0);   (696711.4,
4232602.4,   333.4,   354.0,   0.0);
     (696702.5, 4232624.1,   334.6,   354.0,   0.0);   (696693.6,
4232645.8,   337.6,   354.0,   0.0);
     (696684.7, 4232667.6,   340.6,   353.0,   0.0);   (696675.8,
4232689.3,   344.2,   353.0,   0.0);
     (696666.9, 4232711.0,   347.4,   347.4,   0.0);   (696658.0,
4232732.7,   349.3,   349.3,   0.0);
     (696649.1, 4232754.5,   350.5,   350.5,   0.0);   (696640.2,

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4232776.2,     351.6,     351.6,       0.0);
     ( 696631.3, 4232797.9,     352.2,     352.2,       0.0);         ( 696622.4,
4232819.6,     352.9,     352.9,       0.0);
     ( 696613.5, 4232841.3,     353.1,     353.1,       0.0);         ( 696604.6,
4232863.0,     352.7,     352.7,       0.0);
     ( 696595.7, 4232884.8,     352.8,     352.8,       0.0);         ( 696586.8,
4232906.5,     353.3,     353.3,       0.0);
     ( 696577.9, 4232928.2,     354.1,     354.1,       0.0);         ( 696569.0,
4232949.9,     354.9,     354.9,       0.0);
     ( 696560.1, 4232971.6,     356.0,     356.0,       0.0);         ( 696551.2,
4232993.4,     357.0,     357.0,       0.0);
     ( 696542.3, 4233015.1,     357.6,     357.6,       0.0);         ( 696533.4,
4233036.8,     358.4,     358.4,       0.0);
     ( 696524.5, 4233058.5,     359.0,     359.0,       0.0);         ( 696515.6,
4233080.2,     359.6,     359.6,       0.0);
     ( 696506.7, 4233102.0,     360.0,     360.0,       0.0);         ( 696497.8,
4233123.7,     359.9,     359.9,       0.0);
     ( 696488.9, 4233145.4,     360.2,     360.2,       0.0);         ( 696480.0,
4233167.1,     360.3,     360.3,       0.0);
     ( 696471.1, 4233188.8,     360.9,     360.9,       0.0);         ( 696462.2,
4233210.6,     361.9,     361.9,       0.0);
     ( 696453.3, 4233232.3,     363.0,     363.0,       0.0);         ( 696444.4,
4233254.0,     364.9,     365.0,       0.0);
     ( 696435.5, 4233275.7,     364.6,     364.6,       0.0);         ( 696405.1,
4233306.7,     365.2,     365.2,       0.0);
     ( 696383.5, 4233315.9,     365.0,     365.0,       0.0);         ( 696361.9,
4233325.1,     364.3,     364.3,       0.0);
     ( 696340.3, 4233334.4,     362.7,     625.0,       0.0);         ( 696318.7,
4233343.6,     360.5,     625.0,       0.0);
     ( 696297.2, 4233352.8,     358.1,     625.0,       0.0);         ( 696275.6,
4233362.0,     355.6,     625.0,       0.0);
     ( 696254.0, 4233371.3,     353.1,     625.0,       0.0);         ( 696232.4,
4233380.5,     350.6,     625.0,       0.0);
     ( 696210.8, 4233389.7,     347.5,     625.0,       0.0);         ( 696189.2,
4233399.0,     344.7,     625.0,       0.0);
     ( 696167.7, 4233408.2,     342.4,     625.0,       0.0);         ( 696146.1,
4233417.4,     340.2,     625.0,       0.0);
     ( 696124.5, 4233426.6,     339.4,     625.0,       0.0);         ( 696102.9,
4233435.9,     338.3,     625.0,       0.0);
     ( 696081.3, 4233445.1,     336.9,     625.0,       0.0);         ( 696059.8,
4233454.3,     335.9,     625.0,       0.0);
     ( 696038.2, 4233463.6,     334.9,     625.0,       0.0);         ( 696016.6,
4233472.8,     334.0,     625.0,       0.0);
     ( 695995.0, 4233482.0,     333.6,     625.0,       0.0);         ( 695973.4,
4233491.3,     333.1,     625.0,       0.0);
     ( 695951.9, 4233500.5,     332.5,     625.0,       0.0);         ( 695930.3,
4233509.7,     332.2,     625.0,       0.0);
     ( 695908.7, 4233518.9,     333.6,     625.0,       0.0);         ( 695887.1,
4233528.2,     335.2,     625.0,       0.0);
     ( 695865.5, 4233537.4,     336.7,     625.0,       0.0);         ( 695843.9,
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4233546.6,   338.7,   625.0,   0.0);
     (695822.4, 4233555.9,   340.4,   625.0,   0.0);   (695800.8,
4233565.1,   342.3,   625.0,   0.0);
     (695779.2, 4233574.3,   344.7,   625.0,   0.0);   (695757.6,
4233583.5,   348.3,   625.0,   0.0);
     (695736.0, 4233592.8,   353.6,   625.0,   0.0);   (695714.5,
4233602.0,   358.6,   402.0,   0.0);
     (695692.9, 4233611.2,   363.4,   402.0,   0.0);   (695671.3,
4233620.5,   369.2,   402.0,   0.0);
     (695649.7, 4233629.7,   374.0,   402.0,   0.0);   (695628.1,
4233638.9,   378.8,   402.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695606.5, 4233648.1,   382.7,   402.0,   0.0);   (695585.0,
4233657.4,   384.4,   402.0,   0.0);
     (695563.4, 4233666.6,   384.0,   402.0,   0.0);   (695541.8,
4233675.8,   381.5,   402.0,   0.0);
     (696800.4, 4232385.2,   317.1,   445.0,   0.0);   (696800.4,
4232361.3,   315.5,   445.0,   0.0);
     (696800.4, 4232337.5,   312.8,   445.0,   0.0);   (696800.4,
4232313.6,   311.1,   445.0,   0.0);
     (696800.4, 4232289.8,   311.3,   445.0,   0.0);   (696800.4,
4232265.9,   312.8,   445.0,   0.0);
     (696800.4, 4232242.0,   313.0,   445.0,   0.0);   (696800.4,
4232218.2,   314.7,   445.0,   0.0);
     (696800.4, 4232194.3,   317.0,   445.0,   0.0);   (696800.4,
4232170.4,   319.4,   445.0,   0.0);
     (696800.4, 4232146.6,   321.8,   442.0,   0.0);   (696800.4,
4232122.7,   325.0,   428.0,   0.0);
     (696800.4, 4232098.8,   327.6,   428.0,   0.0);   (696800.4,
4232075.0,   329.9,   428.0,   0.0);
     (696991.5, 4232407.1,   319.5,   445.0,   0.0);   (696982.5,
4232429.1,   318.9,   445.0,   0.0);
     (696973.5, 4232451.0,   318.4,   445.0,   0.0);   (696964.5,
4232472.9,   318.3,   445.0,   0.0);
     (696955.5, 4232494.9,   318.0,   445.0,   0.0);   (696946.5,
4232516.8,   318.2,   445.0,   0.0);
     (696937.5, 4232538.7,   318.7,   445.0,   0.0);   (696928.6,
4232560.6,   319.7,   445.0,   0.0);
     (696919.6, 4232582.6,   320.7,   445.0,   0.0);   (696910.6,

4232604.5,   321.6,   445.0,   0.0);
     (696901.6, 4232626.4,   322.0,   445.0,   0.0);   (696892.6,
4232648.4,   322.8,   445.0,   0.0);
     (696883.6, 4232670.3,   322.5,   451.0,   0.0);   (696874.6,
4232692.2,   322.5,   452.0,   0.0);
     (696865.7, 4232714.1,   328.0,   445.0,   0.0);   (696856.7,
4232736.1,   330.2,   445.0,   0.0);
     (696847.7, 4232758.0,   332.2,   445.0,   0.0);   (696838.7,
4232779.9,   333.8,   445.0,   0.0);
     (696829.7, 4232801.9,   335.0,   445.0,   0.0);   (696820.7,
4232823.8,   337.7,   445.0,   0.0);
     (696811.7, 4232845.7,   340.5,   445.0,   0.0);   (696802.8,
4232867.6,   343.2,   354.0,   0.0);
     (696793.8, 4232889.6,   344.7,   354.0,   0.0);   (696784.8,
4232911.5,   346.2,   354.0,   0.0);
     (696775.8, 4232933.4,   347.4,   354.0,   0.0);   (696766.8,
4232955.4,   348.1,   354.0,   0.0);
     (696757.8, 4232977.3,   348.9,   354.0,   0.0);   (696748.9,
4232999.2,   349.0,   353.0,   0.0);
     (696739.9, 4233021.1,   349.2,   358.0,   0.0);   (696730.9,
4233043.1,   349.7,   358.0,   0.0);
     (696721.9, 4233065.0,   349.9,   360.0,   0.0);   (696712.9,
4233086.9,   349.7,   625.0,   0.0);
     (696703.9, 4233108.9,   349.7,   625.0,   0.0);   (696694.9,
4233130.8,   349.1,   625.0,   0.0);
     (696686.0, 4233152.7,   349.2,   625.0,   0.0);   (696677.0,
4233174.6,   349.6,   625.0,   0.0);
     (696668.0, 4233196.6,   350.0,   625.0,   0.0);   (696659.0,
4233218.5,   349.2,   625.0,   0.0);
     (696650.0, 4233240.4,   348.7,   625.0,   0.0);   (696641.0,
4233262.4,   348.3,   625.0,   0.0);
     (696632.0, 4233284.3,   347.9,   625.0,   0.0);   (696623.1,
4233306.2,   346.9,   625.0,   0.0);
     (696614.1, 4233328.1,   346.8,   625.0,   0.0);   (696605.1,
4233350.1,   347.5,   625.0,   0.0);
     (696596.1, 4233372.0,   348.7,   625.0,   0.0);   (696587.1,
4233393.9,   348.8,   625.0,   0.0);
     (696578.1, 4233415.8,   348.3,   625.0,   0.0);   (696547.4,
4233447.1,   350.2,   625.0,   0.0);
     (696525.6, 4233456.4,   351.8,   625.0,   0.0);   (696503.8,
4233465.7,   353.0,   625.0,   0.0);
     (696482.0, 4233475.0,   354.8,   625.0,   0.0);   (696460.2,
4233484.4,   356.8,   625.0,   0.0);
     (696438.4, 4233493.7,   359.3,   625.0,   0.0);   (696416.6,
4233503.0,   361.1,   625.0,   0.0);
     (696394.8, 4233512.3,   361.2,   625.0,   0.0);   (696373.0,
4233521.6,   360.7,   625.0,   0.0);
     (696351.2, 4233531.0,   359.6,   625.0,   0.0);   (696329.5,
4233540.3,   357.1,   625.0,   0.0);
     (696307.7, 4233549.6,   355.1,   625.0,   0.0);   (696285.9,

4233558.9,   353.1,   625.0,   0.0);
     (696264.1, 4233568.2,   350.6,   625.0,   0.0);   (696242.3,
4233577.5,   347.9,   625.0,   0.0);
     (696220.5, 4233586.9,   346.6,   625.0,   0.0);   (696198.7,
4233596.2,   346.2,   625.0,   0.0);
     (696176.9, 4233605.5,   345.8,   625.0,   0.0);   (696155.1,
4233614.8,   345.4,   625.0,   0.0);
     (696133.4, 4233624.1,   345.1,   625.0,   0.0);   (696111.6,
4233633.5,   345.2,   625.0,   0.0);
     (696089.8, 4233642.8,   345.1,   625.0,   0.0);   (696068.0,
4233652.1,   345.0,   625.0,   0.0);
     (696046.2, 4233661.4,   344.6,   625.0,   0.0);   (696024.4,
4233670.7,   343.8,   625.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696002.6, 4233680.0,   343.7,   625.0,   0.0);   (695980.8,
4233689.4,   343.5,   625.0,   0.0);
     (695959.0, 4233698.7,   343.3,   625.0,   0.0);   (695937.2,
4233708.0,   342.5,   625.0,   0.0);
     (695915.5, 4233717.3,   342.4,   625.0,   0.0);   (695893.7,
4233726.6,   341.9,   625.0,   0.0);
     (695871.9, 4233736.0,   341.0,   625.0,   0.0);   (695850.1,
4233745.3,   340.6,   625.0,   0.0);
     (695828.3, 4233754.6,   340.8,   625.0,   0.0);   (695806.5,
4233763.9,   341.7,   625.0,   0.0);
     (695784.7, 4233773.2,   343.9,   625.0,   0.0);   (695762.9,
4233782.5,   346.1,   625.0,   0.0);
     (695741.2, 4233791.9,   347.5,   625.0,   0.0);   (695719.4,
4233801.2,   347.6,   625.0,   0.0);
     (695697.6, 4233810.5,   347.7,   625.0,   0.0);   (695675.8,
4233819.8,   347.3,   625.0,   0.0);
     (695654.0, 4233829.1,   346.2,   625.0,   0.0);   (695632.2,
4233838.5,   345.2,   625.0,   0.0);
     (695610.4, 4233847.8,   345.4,   625.0,   0.0);   (695588.6,
4233857.1,   345.4,   625.0,   0.0);
     (695566.8, 4233866.4,   346.3,   625.0,   0.0);   (695545.1,
4233875.7,   347.6,   625.0,   0.0);
     (697000.4, 4232385.2,   320.4,   445.0,   0.0);   (697000.4,
4232361.3,   321.8,   445.0,   0.0);
     (697000.4, 4232337.5,   323.1,   445.0,   0.0);   (697000.4,

4232313.6,   323.9,   445.0,   0.0);
     (697000.4, 4232289.8,   324.5,   445.0,   0.0);   (697000.4,
4232265.9,   325.6,   445.0,   0.0);
     (697000.4, 4232242.0,   327.2,   445.0,   0.0);   (697000.4,
4232218.2,   329.0,   445.0,   0.0);
     (697000.4, 4232194.3,   331.0,   445.0,   0.0);   (697000.4,
4232170.4,   333.1,   445.0,   0.0);
     (697000.4, 4232146.6,   335.1,   445.0,   0.0);   (697000.4,
4232122.7,   336.3,   442.0,   0.0);
     (697000.4, 4232098.8,   336.9,   442.0,   0.0);   (697000.4,
4232075.0,   337.4,   428.0,   0.0);
     (697191.6, 4232406.9,   344.6,   445.0,   0.0);   (697182.7,
4232428.6,   342.6,   445.0,   0.0);
     (697173.8, 4232450.3,   340.7,   445.0,   0.0);   (697164.9,
4232472.0,   338.3,   445.0,   0.0);
     (697156.0, 4232493.7,   335.6,   445.0,   0.0);   (697147.1,
4232515.3,   332.5,   445.0,   0.0);
     (697138.2, 4232537.0,   329.9,   452.0,   0.0);   (697129.3,
4232558.7,   328.2,   452.0,   0.0);
     (697120.5, 4232580.4,   327.0,   453.0,   0.0);   (697111.6,
4232602.1,   326.0,   453.0,   0.0);
     (697102.7, 4232623.8,   325.0,   453.0,   0.0);   (697093.8,
4232645.5,   324.7,   454.0,   0.0);
     (697084.9, 4232667.2,   324.0,   454.0,   0.0);   (697076.0,
4232688.9,   323.1,   454.0,   0.0);
     (697067.1, 4232710.6,   322.8,   454.0,   0.0);   (697058.2,
4232732.2,   323.1,   455.0,   0.0);
     (697049.4, 4232753.9,   323.5,   625.0,   0.0);   (697040.5,
4232775.6,   323.8,   625.0,   0.0);
     (697031.6, 4232797.3,   323.9,   625.0,   0.0);   (697022.7,
4232819.0,   324.2,   625.0,   0.0);
     (697013.8, 4232840.7,   324.4,   625.0,   0.0);   (697004.9,
4232862.4,   325.2,   625.0,   0.0);
     (696996.0, 4232884.1,   325.1,   625.0,   0.0);   (696987.1,
4232905.8,   324.4,   625.0,   0.0);
     (696978.2, 4232927.5,   324.0,   625.0,   0.0);   (696969.4,
4232949.1,   324.4,   625.0,   0.0);
     (696960.5, 4232970.8,   323.7,   625.0,   0.0);   (696951.6,
4232992.5,   323.2,   625.0,   0.0);
     (696942.7, 4233014.2,   323.6,   625.0,   0.0);   (696933.8,
4233035.9,   323.8,   625.0,   0.0);
     (696924.9, 4233057.6,   324.4,   625.0,   0.0);   (696916.0,
4233079.3,   324.8,   625.0,   0.0);
     (696907.2, 4233101.0,   324.4,   625.0,   0.0);   (696898.3,
4233122.6,   324.2,   625.0,   0.0);
     (696889.4, 4233144.3,   324.6,   625.0,   0.0);   (696880.5,
4233166.0,   325.6,   625.0,   0.0);
     (696871.6, 4233187.7,   325.3,   625.0,   0.0);   (696862.7,
4233209.4,   325.0,   625.0,   0.0);
     (696853.8, 4233231.1,   325.8,   625.0,   0.0);   (696844.9,

4233252.8,   325.1,   625.0,   0.0);
     (696836.1, 4233274.5,   325.7,   625.0,   0.0);   (696827.2,
4233296.2,   326.2,   625.0,   0.0);
     (696818.3, 4233317.8,   326.6,   625.0,   0.0);   (696809.4,
4233339.5,   327.0,   625.0,   0.0);
     (696800.5, 4233361.2,   328.0,   625.0,   0.0);   (696791.6,
4233382.9,   329.1,   625.0,   0.0);
     (696782.7, 4233404.6,   330.3,   625.0,   0.0);   (696773.8,
4233426.3,   331.4,   625.0,   0.0);
     (696765.0, 4233448.0,   332.3,   625.0,   0.0);   (696756.1,
4233469.7,   333.2,   625.0,   0.0);
     (696747.2, 4233491.4,   334.0,   625.0,   0.0);   (696738.3,
4233513.1,   335.4,   625.0,   0.0);
     (696729.4, 4233534.8,   336.6,   625.0,   0.0);   (696720.5,
4233556.4,   337.9,   625.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696690.1, 4233587.3,   337.5,   625.0,   0.0);   (696668.5,
4233596.6,   336.6,   625.0,   0.0);
     (696647.0, 4233605.8,   336.7,   625.0,   0.0);   (696625.4,
4233615.0,   338.9,   625.0,   0.0);
     (696603.9, 4233624.2,   343.0,   625.0,   0.0);   (696582.3,
4233633.4,   345.8,   625.0,   0.0);
     (696560.8, 4233642.6,   348.2,   625.0,   0.0);   (696539.2,
4233651.8,   349.6,   625.0,   0.0);
     (696517.7, 4233661.1,   351.6,   625.0,   0.0);   (696496.1,
4233670.3,   353.7,   625.0,   0.0);
     (696474.6, 4233679.5,   356.2,   625.0,   0.0);   (696453.0,
4233688.7,   359.4,   625.0,   0.0);
     (696431.5, 4233697.9,   360.8,   625.0,   0.0);   (696409.9,
4233707.1,   361.1,   625.0,   0.0);
     (696388.4, 4233716.4,   361.4,   625.0,   0.0);   (696366.8,
4233725.6,   361.1,   625.0,   0.0);
     (696345.2, 4233734.8,   360.7,   625.0,   0.0);   (696323.7,
4233744.0,   360.3,   625.0,   0.0);
     (696302.2, 4233753.2,   360.2,   625.0,   0.0);   (696280.6,
4233762.5,   359.5,   625.0,   0.0);
     (696259.1, 4233771.7,   359.5,   625.0,   0.0);   (696237.5,
4233780.9,   360.1,   625.0,   0.0);
     (696216.0, 4233790.1,   360.7,   625.0,   0.0);   (696194.4,

4233799.3,   361.3,   625.0,   0.0);
     (696172.8, 4233808.5,   361.9,   625.0,   0.0);   (696151.3,
4233817.8,   362.5,   625.0,   0.0);
     (696129.7, 4233827.0,   363.2,   625.0,   0.0);   (696108.2,
4233836.2,   363.6,   625.0,   0.0);
     (696086.6, 4233845.4,   363.5,   625.0,   0.0);   (696065.1,
4233854.6,   362.8,   625.0,   0.0);
     (696043.5, 4233863.8,   361.9,   625.0,   0.0);   (696022.0,
4233873.0,   361.1,   625.0,   0.0);
     (696000.4, 4233882.3,   360.2,   625.0,   0.0);   (695978.9,
4233891.5,   358.9,   625.0,   0.0);
     (695957.3, 4233900.7,   357.4,   625.0,   0.0);   (695935.8,
4233909.9,   355.9,   625.0,   0.0);
     (695914.2, 4233919.1,   354.9,   625.0,   0.0);   (695892.7,
4233928.3,   354.2,   625.0,   0.0);
     (695871.1, 4233937.6,   353.3,   625.0,   0.0);   (695849.6,
4233946.8,   351.5,   625.0,   0.0);
     (695828.0, 4233956.0,   348.4,   625.0,   0.0);   (695806.5,
4233965.2,   345.6,   625.0,   0.0);
     (695784.9, 4233974.4,   343.1,   625.0,   0.0);   (695763.4,
4233983.6,   340.8,   625.0,   0.0);
     (695741.8, 4233992.9,   338.4,   625.0,   0.0);   (695720.3,
4234002.1,   335.8,   625.0,   0.0);
     (695698.7, 4234011.3,   334.8,   625.0,   0.0);   (695677.2,
4234020.5,   333.4,   625.0,   0.0);
     (695655.6, 4234029.7,   331.7,   625.0,   0.0);   (695634.1,
4234038.9,   330.0,   625.0,   0.0);
     (695612.5, 4234048.2,   331.6,   625.0,   0.0);   (695591.0,
4234057.4,   330.8,   625.0,   0.0);
     (695569.4, 4234066.6,   329.2,   625.0,   0.0);   (695547.9,
4234075.8,   329.7,   625.0,   0.0);
     (697200.4, 4232385.2,   348.1,   445.0,   0.0);   (697200.4,
4232361.3,   348.5,   445.0,   0.0);
     (697200.4, 4232337.5,   346.2,   445.0,   0.0);   (697200.4,
4232313.6,   346.3,   445.0,   0.0);
     (697200.4, 4232289.8,   349.6,   445.0,   0.0);   (697200.4,
4232265.9,   351.6,   445.0,   0.0);
     (697200.4, 4232242.0,   353.6,   445.0,   0.0);   (697200.4,
4232218.2,   353.3,   445.0,   0.0);
     (697200.4, 4232194.3,   351.5,   445.0,   0.0);   (697200.4,
4232170.4,   349.1,   445.0,   0.0);
     (697200.4, 4232146.6,   346.9,   445.0,   0.0);   (697200.4,
4232122.7,   345.7,   445.0,   0.0);
     (697200.4, 4232098.8,   342.8,   445.0,   0.0);   (697200.4,
4232075.0,   338.5,   445.0,   0.0);
     (695518.2, 4232061.2,   309.6,   309.6,   0.0);   (695491.5,
4232051.6,   308.2,   312.0,   0.0);
     (695496.6, 4232007.7,   312.1,   312.1,   0.0);   (695519.8,
4232010.4,   311.9,   311.9,   0.0);
     (695546.5, 4232020.0,   311.2,   311.2,   0.0);   (695557.4,

4232040.6,   311.0,   311.0,   0.0);
     (695473.5, 4232005.0,   312.0,   312.0,   0.0);   (695472.2,
4231982.5,   312.4,   312.4,   0.0);
     (695571.5, 4232020.0,   311.0,   311.0,   0.0);   (695582.4,
4232040.6,   311.0,   311.0,   0.0);
     (695477.4, 4231938.6,   311.8,   311.8,   0.0);   (695589.0,
4231958.2,   310.6,   310.6,   0.0);
     (695599.8, 4231978.8,   310.5,   310.5,   0.0);   (695610.7,
4231999.4,   310.8,   310.8,   0.0);
     (695621.5, 4232020.0,   310.4,   310.4,   0.0);   (695632.4,
4232040.6,   310.5,   310.5,   0.0);
     (695509.1, 4231897.8,   312.0,   312.0,   0.0);   (695597.6,
4231908.2,   311.2,   311.2,   0.0);
     (695621.2, 4231924.4,   310.4,   310.4,   0.0);   (695632.5,
4231945.9,   310.0,   310.0,   0.0);
     (695643.9, 4231967.4,   309.7,   309.7,   0.0);   (695655.2,
4231988.9,   309.3,   309.3,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                       (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (695666.5, 4232010.5,   309.5,   309.5,   0.0);   (695677.8,
4232032.0,   309.5,   309.5,   0.0);
     (695689.1, 4232053.5,   309.2,   309.2,   0.0);   (695418.7,
4231842.6,   306.4,   311.0,   0.0);
     (695442.6, 4231845.4,   309.5,   311.0,   0.0);   (695466.5,
4231848.2,   311.4,   311.4,   0.0);
     (695490.5, 4231851.0,   312.0,   312.0,   0.0);   (695514.4,
4231853.8,   312.0,   312.0,   0.0);
     (695538.3, 4231856.7,   312.0,   312.0,   0.0);   (695562.2,
4231859.5,   312.0,   312.0,   0.0);
     (695586.2, 4231862.3,   311.6,   311.6,   0.0);   (695610.1,
4231865.1,   310.9,   310.9,   0.0);
     (695634.0, 4231867.9,   310.2,   310.2,   0.0);   (695653.2,
4231890.2,   309.4,   309.4,   0.0);
     (695664.4, 4231911.5,   309.0,   309.0,   0.0);   (695675.6,
4231932.8,   308.6,   308.6,   0.0);
     (695686.9, 4231954.2,   308.2,   308.2,   0.0);   (695698.1,
4231975.5,   308.3,   308.3,   0.0);
     (695709.3, 4231996.8,   308.5,   308.5,   0.0);   (695720.5,
4232018.1,   308.1,   308.1,   0.0);
     (695731.7, 4232039.4,   308.4,   308.4,   0.0);   (695472.0,

4231804.3,   312.0,   312.0,   0.0);
     (695511.7, 4231809.0,   312.9,   312.9,   0.0);   (695535.5,
4231811.8,   312.4,   312.4,   0.0);
     (695559.3, 4231814.6,   312.0,   312.0,   0.0);   (695583.1,
4231817.4,   311.7,   311.7,   0.0);
     (695614.8, 4231821.1,   310.7,   310.7,   0.0);   (695638.6,
4231823.9,   310.1,   310.1,   0.0);
     (695662.4, 4231826.7,   309.1,   309.1,   0.0);   (695681.4,
4231848.9,   308.4,   308.4,   0.0);
     (695692.6, 4231870.1,   308.0,   308.0,   0.0);   (695703.8,
4231891.3,   307.5,   307.5,   0.0);
     (695714.9, 4231912.5,   307.3,   307.3,   0.0);   (695726.1,
4231933.6,   306.9,   306.9,   0.0);
     (695737.2, 4231954.8,   307.2,   307.2,   0.0);   (695748.4,
4231976.0,   307.2,   307.2,   0.0);
     (695759.5, 4231997.2,   307.1,   307.1,   0.0);   (695770.7,
4232018.4,   307.3,   307.3,   0.0);
     (695781.9, 4232039.6,   307.1,   307.1,   0.0);   (695445.3,
4231712.0,   312.7,   312.7,   0.0);
     (695477.5, 4231715.8,   313.0,   313.0,   0.0);   (695501.7,
4231718.7,   313.0,   313.0,   0.0);
     (695525.8, 4231721.5,   313.0,   313.0,   0.0);   (695549.9,
4231724.4,   312.8,   312.8,   0.0);
     (695574.1, 4231727.2,   312.0,   312.0,   0.0);   (695598.2,
4231730.1,   311.9,   311.9,   0.0);
     (695622.3, 4231732.9,   311.3,   311.3,   0.0);   (695646.5,
4231735.8,   310.2,   310.2,   0.0);
     (695670.6, 4231738.6,   308.6,   308.6,   0.0);   (695694.7,
4231741.4,   307.5,   307.5,   0.0);
     (695718.9, 4231744.3,   306.3,   306.3,   0.0);   (695738.2,
4231766.7,   305.2,   305.2,   0.0);
     (695749.5, 4231788.2,   305.1,   305.1,   0.0);   (695760.9,
4231809.8,   304.8,   304.8,   0.0);
     (695772.2, 4231831.2,   304.4,   304.4,   0.0);   (695783.5,
4231852.8,   304.0,   304.0,   0.0);
     (695794.8, 4231874.3,   304.0,   304.0,   0.0);   (695806.1,
4231895.8,   304.7,   304.7,   0.0);
     (695817.4, 4231917.3,   304.9,   304.9,   0.0);   (695828.8,
4231938.8,   304.6,   304.6,   0.0);
     (695840.1, 4231960.3,   305.0,   305.0,   0.0);   (695851.4,
4231981.8,   304.9,   304.9,   0.0);
     (695862.7, 4232003.3,   305.1,   305.1,   0.0);   (695874.0,
4232024.8,   305.0,   305.0,   0.0);
     (695885.4, 4232046.3,   305.7,   305.7,   0.0);   (695369.6,
4231614.0,   304.4,   311.0,   0.0);
     (695410.2, 4231618.8,   306.4,   309.0,   0.0);   (695434.6,
4231621.7,   308.2,   308.2,   0.0);
     (695458.9, 4231624.5,   310.3,   310.3,   0.0);   (695483.2,
4231627.4,   311.5,   311.5,   0.0);
     (695507.6, 4231630.3,   311.9,   311.9,   0.0);   (695531.9,

4231633.1,   312.0,   312.0,   0.0);
     (695556.3, 4231636.0,   312.0,   312.0,   0.0);   (695580.6,
4231638.9,   312.0,   312.0,   0.0);
     (695605.0, 4231641.8,   312.0,   312.0,   0.0);   (695629.3,
4231644.6,   311.1,   311.1,   0.0);
     (695653.7, 4231647.5,   310.3,   310.3,   0.0);   (695678.0,
4231650.4,   309.3,   309.3,   0.0);
     (695702.4, 4231653.2,   308.0,   308.0,   0.0);   (695726.7,
4231656.1,   306.8,   306.8,   0.0);
     (695751.1, 4231659.0,   305.2,   305.2,   0.0);   (695775.4,
4231661.8,   301.4,   307.0,   0.0);
     (695794.9, 4231684.5,   301.9,   305.0,   0.0);   (695806.3,
4231706.2,   301.4,   305.0,   0.0);
     (695817.8, 4231727.9,   301.3,   301.3,   0.0);   (695829.2,
4231749.6,   303.2,   303.2,   0.0);
     (695840.6, 4231771.3,   303.9,   303.9,   0.0);   (695852.0,
4231793.0,   304.2,   304.2,   0.0);
     (695863.4, 4231814.6,   304.0,   304.0,   0.0);   (695874.9,
4231836.3,   304.0,   304.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695886.3, 4231858.0,   304.4,   304.4,   0.0);   (695897.7,
4231879.7,   304.7,   304.7,   0.0);
     (695909.1, 4231901.4,   304.3,   304.3,   0.0);   (695920.5,
4231923.1,   304.2,   304.2,   0.0);
     (695931.9, 4231944.8,   304.0,   304.0,   0.0);   (695943.4,
4231966.5,   304.3,   304.3,   0.0);
     (695954.8, 4231988.2,   304.7,   304.7,   0.0);   (695966.2,
4232009.9,   305.0,   305.0,   0.0);
     (695977.6, 4232031.6,   305.0,   305.0,   0.0);   (695989.0,
4232053.3,   305.0,   305.0,   0.0);
     (695341.4, 4231521.6,   300.7,   312.0,   0.0);   (695373.5,
4231525.4,   304.0,   311.0,   0.0);
     (695397.7, 4231528.2,   306.4,   306.4,   0.0);   (695421.8,
4231531.1,   308.3,   308.3,   0.0);
     (695445.9, 4231533.9,   310.3,   310.3,   0.0);   (695470.1,
4231536.8,   311.0,   311.0,   0.0);
     (695494.2, 4231539.6,   311.3,   311.3,   0.0);   (695518.3,
4231542.5,   311.9,   311.9,   0.0);
     (695542.5, 4231545.3,   312.0,   312.0,   0.0);   (695566.6,

4231548.1,   311.3,   311.3,   0.0);
     (695590.7, 4231551.0,   311.2,   311.2,   0.0);   (695614.9,
4231553.8,   310.9,   310.9,   0.0);
     (695639.0, 4231556.7,   310.2,   310.2,   0.0);   (695663.1,
4231559.5,   309.5,   309.5,   0.0);
     (695687.3, 4231562.4,   308.0,   308.0,   0.0);   (695711.4,
4231565.2,   306.5,   306.5,   0.0);
     (695735.5, 4231568.0,   305.8,   305.8,   0.0);   (695759.7,
4231570.9,   305.6,   305.6,   0.0);
     (695783.8, 4231573.7,   304.8,   305.0,   0.0);   (695807.9,
4231576.6,   300.9,   305.0,   0.0);
     (695832.1, 4231579.4,   298.8,   305.0,   0.0);   (695851.4,
4231601.9,   298.0,   298.0,   0.0);
     (695862.8, 4231623.4,   298.0,   298.0,   0.0);   (695874.1,
4231644.9,   298.7,   305.0,   0.0);
     (695885.4, 4231666.4,   301.3,   301.3,   0.0);   (695896.7,
4231687.9,   303.4,   303.4,   0.0);
     (695908.0, 4231709.4,   304.6,   304.6,   0.0);   (695919.4,
4231730.9,   305.5,   305.5,   0.0);
     (695930.7, 4231752.4,   305.9,   305.9,   0.0);   (695942.0,
4231773.9,   306.5,   306.5,   0.0);
     (695953.3, 4231795.4,   307.3,   307.3,   0.0);   (695964.6,
4231816.9,   308.0,   308.0,   0.0);
     (695975.9, 4231838.4,   308.0,   308.0,   0.0);   (695987.3,
4231859.9,   308.6,   308.6,   0.0);
     (695998.6, 4231881.4,   308.9,   308.9,   0.0);   (696009.9,
4231902.9,   308.6,   308.6,   0.0);
     (696021.2, 4231924.4,   308.3,   308.3,   0.0);   (696032.5,
4231945.9,   308.3,   308.3,   0.0);
     (696043.9, 4231967.4,   308.7,   308.7,   0.0);   (696055.2,
4231988.9,   309.1,   309.1,   0.0);
     (696066.5, 4232010.5,   309.1,   309.1,   0.0);   (696077.8,
4232032.0,   309.4,   309.4,   0.0);
     (696089.1, 4232053.5,   309.4,   309.4,   0.0);   (695257.2,
4231422.6,   301.0,   301.0,   0.0);
     (695281.5, 4231425.4,   302.5,   302.5,   0.0);   (695305.8,
4231428.3,   304.2,   311.0,   0.0);
     (695330.1, 4231431.2,   305.4,   313.0,   0.0);   (695354.4,
4231434.0,   308.2,   310.0,   0.0);
     (695378.7, 4231436.9,   310.4,   310.4,   0.0);   (695403.0,
4231439.7,   311.7,   311.7,   0.0);
     (695427.2, 4231442.6,   312.0,   312.0,   0.0);   (695451.5,
4231445.5,   312.0,   312.0,   0.0);
     (695475.8, 4231448.3,   312.0,   312.0,   0.0);   (695500.1,
4231451.2,   312.0,   312.0,   0.0);
     (695524.4, 4231454.1,   311.6,   311.6,   0.0);   (695548.7,
4231456.9,   311.0,   311.0,   0.0);
     (695573.0, 4231459.8,   311.0,   311.0,   0.0);   (695597.2,
4231462.6,   310.2,   310.2,   0.0);
     (695621.5, 4231465.5,   309.4,   309.4,   0.0);   (695645.8,

4231468.4,   308.4,   308.4,   0.0);
     (695670.1, 4231471.2,   307.2,   307.2,   0.0);   (695694.4,
4231474.1,   306.0,   306.0,   0.0);
     (695718.7, 4231477.0,   305.2,   305.2,   0.0);   (695742.9,
4231479.8,   300.6,   306.0,   0.0);
     (695767.2, 4231482.7,   298.0,   306.0,   0.0);   (695791.5,
4231485.5,   298.3,   298.3,   0.0);
     (695815.8, 4231488.4,   298.9,   298.9,   0.0);   (695840.1,
4231491.3,   299.0,   299.0,   0.0);
     (695864.4, 4231494.1,   300.2,   300.2,   0.0);   (695888.6,
4231497.0,   301.3,   301.3,   0.0);
     (695908.1, 4231519.6,   301.9,   305.0,   0.0);   (695919.5,
4231541.2,   301.0,   306.0,   0.0);
     (695930.9, 4231562.9,   300.9,   306.0,   0.0);   (695942.3,
4231584.5,   301.2,   306.0,   0.0);
     (695953.7, 4231606.1,   303.1,   305.0,   0.0);   (695965.1,
4231627.8,   305.1,   305.1,   0.0);
     (695976.5, 4231649.4,   306.1,   306.1,   0.0);   (695987.9,
4231671.0,   307.0,   307.0,   0.0);
     (695999.2, 4231692.7,   308.1,   308.1,   0.0);   (696010.6,
4231714.3,   308.6,   308.6,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (696022.0, 4231736.0,   308.9,   308.9,   0.0);   (696033.4,
4231757.6,   309.4,   309.4,   0.0);
     (696044.8, 4231779.2,   310.5,   310.5,   0.0);   (696056.2,
4231800.9,   312.2,   312.2,   0.0);
     (696067.6, 4231822.5,   314.2,   317.0,   0.0);   (696079.0,
4231844.1,   316.3,   317.0,   0.0);
     (696090.4, 4231865.8,   316.0,   316.0,   0.0);   (696101.7,
4231887.4,   314.3,   317.0,   0.0);
     (696113.1, 4231909.1,   312.0,   318.0,   0.0);   (696124.5,
4231930.7,   313.1,   313.1,   0.0);
     (696135.9, 4231952.3,   313.6,   313.6,   0.0);   (696147.3,
4231974.0,   314.3,   314.3,   0.0);
     (696158.7, 4231995.6,   315.5,   315.5,   0.0);   (696170.1,
4232017.3,   316.6,   316.6,   0.0);
     (696181.5, 4232038.9,   316.9,   316.9,   0.0);   (695185.4,
4231235.9,   295.4,   295.4,   0.0);
     (695209.7, 4231238.8,   296.9,   296.9,   0.0);   (695233.9,

4231241.6,   298.5,   312.0,   0.0);
     (695258.2, 4231244.5,   300.5,   312.0,   0.0);   (695282.4,
4231247.3,   303.1,   312.0,   0.0);
     (695306.7, 4231250.2,   306.1,   309.0,   0.0);   (695331.0,
4231253.0,   308.5,   308.5,   0.0);
     (695355.2, 4231255.9,   310.3,   310.3,   0.0);   (695379.5,
4231258.8,   311.5,   311.5,   0.0);
     (695403.7, 4231261.6,   312.3,   312.3,   0.0);   (695428.0,
4231264.5,   313.0,   313.0,   0.0);
     (695452.2, 4231267.3,   313.0,   313.0,   0.0);   (695476.5,
4231270.2,   313.0,   313.0,   0.0);
     (695500.7, 4231273.1,   312.4,   312.4,   0.0);   (695525.0,
4231275.9,   312.0,   312.0,   0.0);
     (695549.2, 4231278.8,   311.7,   311.7,   0.0);   (695573.5,
4231281.6,   311.0,   311.0,   0.0);
     (695597.7, 4231284.5,   310.2,   310.2,   0.0);   (695622.0,
4231287.3,   308.8,   308.8,   0.0);
     (695646.2, 4231290.2,   307.4,   307.4,   0.0);   (695686.6,
4231295.0,   306.4,   306.4,   0.0);
     (695767.5, 4231304.5,   306.0,   306.0,   0.0);   (695791.7,
4231307.4,   305.7,   305.7,   0.0);
     (695816.0, 4231310.2,   304.4,   305.0,   0.0);   (695840.2,
4231313.1,   299.7,   306.0,   0.0);
     (695864.5, 4231315.9,   297.6,   306.0,   0.0);   (695888.7,
4231318.8,   297.0,   305.0,   0.0);
     (695913.0, 4231321.6,   298.2,   307.0,   0.0);   (695937.2,
4231324.5,   301.5,   305.0,   0.0);
     (695961.5, 4231327.4,   304.7,   304.7,   0.0);   (695985.7,
4231330.2,   306.5,   306.5,   0.0);
     (696013.8, 4231340.3,   308.3,   308.3,   0.0);   (696025.1,
4231361.9,   309.1,   309.1,   0.0);
     (696036.5, 4231383.5,   309.2,   309.2,   0.0);   (696047.9,
4231405.1,   309.3,   309.3,   0.0);
     (696059.2, 4231426.7,   308.9,   308.9,   0.0);   (696070.6,
4231448.3,   307.9,   307.9,   0.0);
     (696082.0, 4231469.9,   307.4,   307.4,   0.0);   (696093.4,
4231491.5,   308.0,   308.0,   0.0);
     (696104.7, 4231513.1,   309.6,   309.6,   0.0);   (696116.1,
4231534.8,   310.1,   310.1,   0.0);
     (696127.5, 4231556.4,   311.1,   317.0,   0.0);   (696138.9,
4231578.0,   312.6,   317.0,   0.0);
     (696150.2, 4231599.6,   314.5,   317.0,   0.0);   (696161.6,
4231621.2,   316.6,   316.6,   0.0);
     (696173.0, 4231642.8,   318.0,   318.0,   0.0);   (696184.4,
4231664.4,   318.4,   318.4,   0.0);
     (696195.7, 4231686.0,   319.1,   319.1,   0.0);   (696207.1,
4231707.6,   320.7,   320.7,   0.0);
     (696218.5, 4231729.2,   321.9,   321.9,   0.0);   (696229.8,
4231750.8,   322.6,   322.6,   0.0);
     (696241.2, 4231772.5,   322.4,   322.4,   0.0);   (696252.6,

4231794.0,   321.9,   321.9,   0.0);
     (696264.0, 4231815.7,   322.0,   322.0,   0.0);   (696275.3,
4231837.3,   322.4,   322.4,   0.0);
     (696286.7, 4231858.9,   322.8,   322.8,   0.0);   (696298.1,
4231880.5,   323.2,   323.2,   0.0);
     (696309.5, 4231902.1,   323.5,   323.5,   0.0);   (696320.8,
4231923.7,   323.9,   323.9,   0.0);
     (696332.2, 4231945.3,   324.3,   324.3,   0.0);   (696343.6,
4231966.9,   324.6,   324.6,   0.0);
     (696355.0, 4231988.5,   324.2,   324.2,   0.0);   (696366.3,
4232010.1,   323.9,   323.9,   0.0);
     (696377.7, 4232031.7,   323.4,   323.4,   0.0);   (696389.1,
4232053.3,   322.3,   322.3,   0.0);
     (695113.7, 4231049.2,   291.5,   318.0,   0.0);   (695138.1,
4231052.1,   292.2,   292.2,   0.0);
     (695162.6, 4231055.0,   293.9,   293.9,   0.0);   (695187.0,
4231057.9,   296.3,   296.3,   0.0);
     (695211.4, 4231060.8,   298.8,   298.8,   0.0);   (695235.8,
4231063.6,   300.5,   300.5,   0.0);
     (695260.2, 4231066.5,   302.1,   302.1,   0.0);   (695284.7,
4231069.4,   303.8,   303.8,   0.0);
     (695309.1, 4231072.3,   305.4,   305.4,   0.0);   (695333.5,
4231075.1,   306.3,   306.3,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695357.9, 4231078.0,   308.1,   308.1,   0.0);   (695382.4,
4231080.9,   309.2,   309.2,   0.0);
     (695406.8, 4231083.8,   309.5,   309.5,   0.0);   (695431.2,
4231086.7,   309.1,   309.1,   0.0);
     (695455.6, 4231089.5,   308.4,   309.0,   0.0);   (695480.1,
4231092.4,   307.9,   307.9,   0.0);
     (695504.5, 4231095.3,   307.3,   307.3,   0.0);   (695528.9,
4231098.2,   306.7,   306.7,   0.0);
     (695577.7, 4231103.9,   304.3,   304.3,   0.0);   (695838.2,
4231134.6,   296.3,   307.0,   0.0);
     (695862.7, 4231137.5,   294.1,   307.0,   0.0);   (695887.1,
4231140.4,   297.3,   307.0,   0.0);
     (695911.5, 4231143.3,   303.5,   307.0,   0.0);   (695936.0,
4231146.1,   306.7,   306.7,   0.0);
     (695960.4, 4231149.0,   307.0,   307.0,   0.0);   (695984.8,

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4231151.9,     307.0,     307.0,       0.0);
     ( 696009.2, 4231154.8,     307.0,     307.0,       0.0);         ( 696033.6,
4231157.7,     307.0,     307.0,       0.0);
     ( 696058.1, 4231160.5,     307.2,     307.2,       0.0);         ( 696082.5,
4231163.4,     307.3,     307.3,       0.0);
     ( 696106.9, 4231166.3,     306.9,     306.9,       0.0);         ( 696130.8,
4231182.7,     309.0,     309.0,       0.0);
     ( 696142.3, 4231204.5,     310.0,     310.0,       0.0);         ( 696153.7,
4231226.2,     311.1,     311.1,       0.0);
     ( 696165.2, 4231248.0,     312.6,     312.6,       0.0);         ( 696176.6,
4231269.8,     314.1,     314.1,       0.0);
     ( 696188.1, 4231291.5,     315.5,     315.5,       0.0);         ( 696199.6,
4231313.3,     316.7,     316.7,       0.0);
     ( 696211.0, 4231335.1,     317.2,     317.2,       0.0);         ( 696222.5,
4231356.8,     317.4,     317.4,       0.0);
     ( 696233.9, 4231378.6,     317.6,     317.6,       0.0);         ( 696245.4,
4231400.3,     317.3,     317.3,       0.0);
     ( 696256.8, 4231422.1,     317.6,     317.6,       0.0);         ( 696268.3,
4231443.9,     316.9,     316.9,       0.0);
     ( 696279.7, 4231465.6,     316.9,     316.9,       0.0);         ( 696291.2,
4231487.4,     317.0,     317.0,       0.0);
     ( 696302.6, 4231509.1,     318.1,     318.1,       0.0);         ( 696314.1,
4231530.9,     319.8,     319.8,       0.0);
     ( 696325.5, 4231552.7,     321.3,     321.3,       0.0);         ( 696337.0,
4231574.4,     322.4,     322.4,       0.0);
     ( 696348.5, 4231596.2,     322.9,     322.9,       0.0);         ( 696359.9,
4231618.0,     323.6,     323.6,       0.0);
     ( 696371.4, 4231639.7,     324.1,     324.1,       0.0);         ( 696382.8,
4231661.5,     324.9,     324.9,       0.0);
     ( 696394.3, 4231683.2,     325.2,     325.2,       0.0);         ( 696405.7,
4231705.0,     325.7,     325.7,       0.0);
     ( 696417.2, 4231726.8,     326.1,     326.1,       0.0);         ( 696428.6,
4231748.5,     326.5,     326.5,       0.0);
     ( 696440.1, 4231770.3,     327.4,     327.4,       0.0);         ( 696451.5,
4231792.1,     328.1,     328.1,       0.0);
     ( 696463.0, 4231813.8,     328.6,     328.6,       0.0);         ( 696474.5,
4231835.6,     329.0,     329.0,       0.0);
     ( 696485.9, 4231857.3,     329.6,     329.6,       0.0);         ( 696497.4,
4231879.1,     330.9,     330.9,       0.0);
     ( 696508.8, 4231900.9,     332.0,     332.0,       0.0);         ( 696520.3,
4231922.6,     333.7,     333.7,       0.0);
     ( 696531.7, 4231944.4,     334.6,     334.6,       0.0);         ( 696543.2,
4231966.1,     334.0,     334.0,       0.0);
     ( 696554.6, 4231987.9,     334.6,     336.0,       0.0);         ( 696566.1,
4232009.7,     335.0,     335.0,       0.0);
     ( 696577.5, 4232031.4,     333.6,     333.6,       0.0);         ( 696589.0,
4232053.2,     331.1,     335.0,       0.0);
     ( 695041.9, 4230862.6,     308.7,     310.0,       0.0);         ( 695066.3,
4230865.4,     306.4,     310.0,       0.0);
     ( 695090.7, 4230868.3,     303.4,     316.0,       0.0);         ( 695115.0,
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4230871.2,   300.8,   318.0,   0.0);
     (695139.4, 4230874.1,   299.0,   310.0,   0.0);   (695163.8,
4230876.9,   298.2,   298.2,   0.0);
     (695188.2, 4230879.8,   298.0,   298.0,   0.0);   (695212.5,
4230882.7,   298.1,   298.1,   0.0);
     (695236.9, 4230885.5,   298.8,   298.8,   0.0);   (695261.3,
4230888.4,   299.6,   299.6,   0.0);
     (695285.7, 4230891.3,   301.4,   301.4,   0.0);   (695310.1,
4230894.2,   303.4,   303.4,   0.0);
     (695334.4, 4230897.0,   303.9,   303.9,   0.0);   (695358.8,
4230899.9,   305.3,   305.3,   0.0);
     (695383.2, 4230902.8,   305.6,   305.6,   0.0);   (695407.6,
4230905.7,   305.7,   305.7,   0.0);
     (695431.9, 4230908.5,   305.5,   305.5,   0.0);   (695472.6,
4230913.3,   304.9,   304.9,   0.0);
     (695724.5, 4230943.0,   293.3,   304.0,   0.0);   (695757.0,
4230946.8,   292.0,   305.0,   0.0);
     (695789.5, 4230950.7,   291.1,   307.0,   0.0);   (695813.9,
4230953.5,   290.0,   307.0,   0.0);
     (695838.2, 4230956.4,   292.2,   304.0,   0.0);   (695887.0,
4230962.2,   293.1,   298.0,   0.0);
     (695911.4, 4230965.0,   293.3,   295.0,   0.0);   (695935.8,
4230967.9,   293.3,   303.0,   0.0);
     (695960.1, 4230970.8,   293.1,   303.0,   0.0);   (695984.5,
4230973.7,   292.3,   305.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (696008.9, 4230976.5,   292.1,   307.0,   0.0);   (696033.3,
4230979.4,   293.2,   305.0,   0.0);
     (696057.7, 4230982.3,   295.8,   300.0,   0.0);   (696082.0,
4230985.2,   299.1,   299.1,   0.0);
     (696106.4, 4230988.0,   299.7,   304.0,   0.0);   (696130.8,
4230990.9,   301.2,   304.0,   0.0);
     (696155.2, 4230993.8,   302.9,   302.9,   0.0);   (696179.5,
4230996.6,   304.1,   304.1,   0.0);
     (696203.9, 4230999.5,   305.3,   306.0,   0.0);   (696228.3,
4231002.4,   305.6,   305.6,   0.0);
     (696247.9, 4231025.1,   306.7,   306.7,   0.0);   (696259.3,
4231046.8,   305.8,   305.8,   0.0);
     (696270.7, 4231068.5,   303.7,   305.0,   0.0);   (696282.2,

4231090.2,   301.1,   319.0,   0.0);
     (696293.6, 4231112.0,   300.7,   319.0,   0.0);   (696305.0,
4231133.7,   300.5,   323.0,   0.0);
     (696316.5, 4231155.4,   301.1,   323.0,   0.0);   (696327.9,
4231177.1,   304.3,   323.0,   0.0);
     (696339.3, 4231198.8,   308.0,   323.0,   0.0);   (696350.8,
4231220.6,   311.5,   320.0,   0.0);
     (696362.2, 4231242.3,   316.1,   316.1,   0.0);   (696373.6,
4231264.0,   317.4,   317.4,   0.0);
     (696385.0, 4231285.7,   318.8,   318.8,   0.0);   (696396.5,
4231307.5,   321.0,   321.0,   0.0);
     (696407.9, 4231329.2,   322.6,   322.6,   0.0);   (696419.3,
4231350.9,   323.1,   323.1,   0.0);
     (696430.8, 4231372.6,   323.6,   323.6,   0.0);   (696442.2,
4231394.3,   323.9,   323.9,   0.0);
     (696453.6, 4231416.1,   324.0,   324.0,   0.0);   (696465.1,
4231437.8,   323.9,   323.9,   0.0);
     (696476.5, 4231459.5,   324.1,   324.1,   0.0);   (696487.9,
4231481.2,   324.5,   324.5,   0.0);
     (696499.4, 4231503.0,   324.9,   324.9,   0.0);   (696510.8,
4231524.7,   325.5,   325.5,   0.0);
     (696522.2, 4231546.4,   326.2,   326.2,   0.0);   (696533.7,
4231568.1,   327.0,   327.0,   0.0);
     (696545.1, 4231589.8,   327.4,   327.4,   0.0);   (696556.5,
4231611.6,   327.8,   327.8,   0.0);
     (696568.0, 4231633.3,   328.1,   328.1,   0.0);   (696579.4,
4231655.0,   328.5,   328.5,   0.0);
     (696590.8, 4231676.7,   328.6,   328.6,   0.0);   (696602.3,
4231698.5,   328.0,   328.0,   0.0);
     (696613.7, 4231720.2,   328.0,   328.0,   0.0);   (696625.1,
4231741.9,   328.0,   328.0,   0.0);
     (696636.6, 4231763.6,   328.0,   328.0,   0.0);   (696648.0,
4231785.3,   328.0,   328.0,   0.0);
     (696659.4, 4231807.1,   328.2,   328.2,   0.0);   (696670.9,
4231828.8,   328.8,   328.8,   0.0);
     (696682.3, 4231850.5,   329.2,   329.2,   0.0);   (696693.7,
4231872.2,   329.9,   329.9,   0.0);
     (696705.2, 4231894.0,   330.6,   330.6,   0.0);   (696716.6,
4231915.7,   331.5,   331.5,   0.0);
     (696728.0, 4231937.4,   332.5,   332.5,   0.0);   (696739.5,
4231959.1,   333.0,   333.0,   0.0);
     (696750.9, 4231980.8,   333.1,   333.1,   0.0);   (696762.3,
4232002.5,   332.9,   332.9,   0.0);
     (696773.8, 4232024.3,   333.0,   333.0,   0.0);   (696785.2,
4232046.0,   332.0,   428.0,   0.0);
     (694970.1, 4230675.9,   313.4,   313.4,   0.0);   (694994.4,
4230678.8,   311.1,   311.1,   0.0);
     (695018.8, 4230681.6,   310.0,   310.0,   0.0);   (695043.1,
4230684.5,   310.0,   310.0,   0.0);
     (695067.5, 4230687.4,   310.7,   310.7,   0.0);   (695091.8,

4230690.2,   311.4,   311.4,   0.0);
     (695116.2, 4230693.1,   311.2,   311.2,   0.0);   (695140.5,
4230696.0,   311.5,   317.0,   0.0);
     (695164.9, 4230698.8,   312.0,   318.0,   0.0);   (695189.2,
4230701.7,   312.3,   312.3,   0.0);
     (695213.5, 4230704.6,   312.0,   312.0,   0.0);   (695237.9,
4230707.5,   311.8,   311.8,   0.0);
     (695262.2, 4230710.3,   310.3,   310.3,   0.0);   (695286.6,
4230713.2,   308.6,   308.6,   0.0);
     (695310.9, 4230716.1,   306.9,   306.9,   0.0);   (695335.3,
4230718.9,   305.4,   305.4,   0.0);
     (695359.6, 4230721.8,   304.2,   304.2,   0.0);   (695408.3,
4230727.5,   303.5,   303.5,   0.0);
     (695659.9, 4230757.2,   301.9,   301.9,   0.0);   (695692.3,
4230761.0,   303.0,   303.0,   0.0);
     (695716.7, 4230763.9,   303.8,   303.8,   0.0);   (695741.0,
4230766.8,   304.6,   304.6,   0.0);
     (695765.4, 4230769.6,   305.3,   305.3,   0.0);   (695789.7,
4230772.5,   305.7,   305.7,   0.0);
     (695814.1, 4230775.4,   305.7,   305.7,   0.0);   (695838.4,
4230778.2,   304.7,   304.7,   0.0);
     (695862.7, 4230781.1,   301.1,   307.0,   0.0);   (695887.1,
4230784.0,   295.4,   307.0,   0.0);
     (695911.4, 4230786.8,   288.5,   310.0,   0.0);   (695935.8,
4230789.7,   281.4,   314.0,   0.0);
     (695960.1, 4230792.6,   275.5,   317.0,   0.0);   (695984.5,
4230795.5,   268.8,   317.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (696008.8, 4230798.3,   269.8,   317.0,   0.0);   (696033.2,
4230801.2,   279.2,   317.0,   0.0);
     (696057.5, 4230804.1,   291.1,   295.0,   0.0);   (696081.9,
4230806.9,   292.9,   292.9,   0.0);
     (696106.2, 4230809.8,   289.2,   317.0,   0.0);   (696130.5,
4230812.7,   282.7,   317.0,   0.0);
     (696154.9, 4230815.5,   275.2,   317.0,   0.0);   (696179.2,
4230818.4,   270.6,   319.0,   0.0);
     (696203.6, 4230821.3,   276.0,   317.0,   0.0);   (696227.9,
4230824.1,   284.2,   317.0,   0.0);
     (696252.3, 4230827.0,   292.2,   317.0,   0.0);   (696276.6,

4230829.9,   299.9,   317.0,   0.0);
     (696301.0, 4230832.8,   305.7,   317.0,   0.0);   (696325.3,
4230835.6,   308.4,   317.0,   0.0);
     (696353.5, 4230845.7,   314.5,   317.0,   0.0);   (696364.9,
4230867.4,   313.2,   317.0,   0.0);
     (696376.3, 4230889.1,   308.3,   317.0,   0.0);   (696387.7,
4230910.8,   301.6,   317.0,   0.0);
     (696399.1, 4230932.5,   293.3,   317.0,   0.0);   (696410.5,
4230954.2,   288.4,   317.0,   0.0);
     (696422.0, 4230975.9,   285.7,   324.0,   0.0);   (696433.4,
4230997.6,   285.1,   325.0,   0.0);
     (696444.8, 4231019.3,   285.1,   325.0,   0.0);   (696456.2,
4231041.0,   286.5,   325.0,   0.0);
     (696467.6, 4231062.6,   289.6,   325.0,   0.0);   (696479.0,
4231084.3,   290.9,   325.0,   0.0);
     (696490.5, 4231106.0,   292.4,   325.0,   0.0);   (696501.9,
4231127.7,   294.4,   325.0,   0.0);
     (696513.3, 4231149.4,   297.9,   325.0,   0.0);   (696524.7,
4231171.1,   300.1,   325.0,   0.0);
     (696536.1, 4231192.8,   302.1,   325.0,   0.0);   (696547.6,
4231214.5,   304.6,   325.0,   0.0);
     (696559.0, 4231236.2,   307.0,   325.0,   0.0);   (696570.4,
4231257.9,   310.3,   325.0,   0.0);
     (696581.8, 4231279.6,   314.1,   325.0,   0.0);   (696593.2,
4231301.3,   319.9,   325.0,   0.0);
     (696604.6, 4231323.0,   322.1,   325.0,   0.0);   (696616.1,
4231344.6,   324.1,   324.1,   0.0);
     (696627.5, 4231366.3,   322.2,   323.0,   0.0);   (696638.9,
4231388.0,   317.8,   326.0,   0.0);
     (696650.3, 4231409.7,   315.7,   329.0,   0.0);   (696661.7,
4231431.4,   315.5,   330.0,   0.0);
     (696673.1, 4231453.1,   317.7,   330.0,   0.0);   (696684.6,
4231474.8,   320.5,   329.0,   0.0);
     (696696.0, 4231496.5,   322.4,   329.0,   0.0);   (696707.4,
4231518.2,   324.7,   329.0,   0.0);
     (696718.8, 4231539.9,   326.7,   328.0,   0.0);   (696730.2,
4231561.6,   327.5,   330.0,   0.0);
     (696741.6, 4231583.3,   328.4,   328.4,   0.0);   (696753.1,
4231605.0,   327.4,   329.0,   0.0);
     (696764.5, 4231626.6,   325.3,   329.0,   0.0);   (696775.9,
4231648.3,   323.9,   329.0,   0.0);
     (696787.3, 4231670.0,   323.6,   329.0,   0.0);   (696798.7,
4231691.7,   325.9,   329.0,   0.0);
     (696810.2, 4231713.4,   327.0,   329.0,   0.0);   (696821.6,
4231735.1,   327.6,   327.6,   0.0);
     (696833.0, 4231756.8,   328.0,   428.0,   0.0);   (696844.4,
4231778.5,   326.1,   428.0,   0.0);
     (696855.8, 4231800.2,   326.5,   428.0,   0.0);   (696867.2,
4231821.9,   328.5,   428.0,   0.0);
     (696878.7, 4231843.6,   329.9,   428.0,   0.0);   (696890.1,

4231865.3,   331.4,   428.0,   0.0);
     (696901.5, 4231887.0,   333.5,   428.0,   0.0);   (696912.9,
4231908.6,   335.2,   428.0,   0.0);
     (696924.3, 4231930.3,   335.8,   428.0,   0.0);   (696935.7,
4231952.0,   336.2,   428.0,   0.0);
     (696947.2, 4231973.7,   336.2,   428.0,   0.0);   (696958.6,
4231995.4,   336.2,   428.0,   0.0);
     (696970.0, 4232017.1,   336.5,   428.0,   0.0);   (696981.4,
4232038.8,   336.9,   428.0,   0.0);
     (694898.3, 4230489.2,   323.5,   323.5,   0.0);   (694922.8,
4230492.1,   323.7,   323.7,   0.0);
     (694947.2, 4230495.0,   322.9,   322.9,   0.0);   (694971.7,
4230497.9,   321.9,   321.9,   0.0);
     (694996.1, 4230500.8,   320.9,   320.9,   0.0);   (695020.6,
4230503.6,   321.0,   321.0,   0.0);
     (695045.0, 4230506.5,   322.0,   322.0,   0.0);   (695069.5,
4230509.4,   323.3,   323.3,   0.0);
     (695093.9, 4230512.3,   324.4,   324.4,   0.0);   (695118.3,
4230515.2,   324.3,   324.3,   0.0);
     (695142.8, 4230518.0,   324.7,   324.7,   0.0);   (695167.2,
4230520.9,   324.6,   324.6,   0.0);
     (695191.7, 4230523.8,   323.8,   323.8,   0.0);   (695216.1,
4230526.7,   323.0,   323.0,   0.0);
     (695240.6, 4230529.6,   323.6,   323.6,   0.0);   (695265.0,
4230532.5,   322.8,   322.8,   0.0);
     (695305.8, 4230537.2,   321.0,   321.0,   0.0);   (695346.5,
4230542.1,   318.0,   318.0,   0.0);
     (695550.2, 4230566.1,   299.0,   311.0,   0.0);   (695591.0,
4230570.9,   298.0,   298.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (695615.4, 4230573.8,   298.0,   298.0,   0.0);   (695639.9,
4230576.6,   298.7,   306.0,   0.0);
     (695664.3, 4230579.5,   301.7,   305.0,   0.0);   (695688.8,
4230582.4,   304.4,   305.0,   0.0);
     (695713.2, 4230585.3,   305.7,   305.7,   0.0);   (695737.6,
4230588.1,   306.1,   306.1,   0.0);
     (695762.1, 4230591.0,   306.0,   306.0,   0.0);   (695786.5,
4230593.9,   305.7,   305.7,   0.0);
     (695811.0, 4230596.8,   306.9,   306.9,   0.0);   (695835.4,

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4230599.7,     307.7,     307.7,       0.0);
     ( 695859.9, 4230602.6,     308.4,     308.4,       0.0);         ( 695884.3,
4230605.4,     308.5,     308.5,       0.0);
     ( 695908.8, 4230608.3,     307.9,     307.9,       0.0);         ( 695933.2,
4230611.2,     306.2,     306.2,       0.0);
     ( 695957.7, 4230614.1,     300.5,     313.0,       0.0);         ( 695982.1,
4230617.0,     291.8,     314.0,       0.0);
     ( 696006.6, 4230619.8,     281.2,     314.0,       0.0);         ( 696031.0,
4230622.7,     268.2,     317.0,       0.0);
     ( 696055.4, 4230625.6,     254.6,     317.0,       0.0);         ( 696079.9,
4230628.5,     252.0,     319.0,       0.0);
     ( 696104.3, 4230631.4,     259.4,     317.0,       0.0);         ( 696128.8,
4230634.2,     269.2,     317.0,       0.0);
     ( 696153.2, 4230637.1,     277.6,     317.0,       0.0);         ( 696177.7,
4230640.0,     281.9,     317.0,       0.0);
     ( 696202.1, 4230642.9,     275.8,     317.0,       0.0);         ( 696226.6,
4230645.8,     267.1,     317.0,       0.0);
     ( 696251.0, 4230648.7,     258.4,     319.0,       0.0);         ( 696275.5,
4230651.5,     252.3,     324.0,       0.0);
     ( 696299.9, 4230654.4,     250.6,     324.0,       0.0);         ( 696324.3,
4230657.3,     253.2,     324.0,       0.0);
     ( 696348.8, 4230660.2,     262.9,     317.0,       0.0);         ( 696373.2,
4230663.1,     273.4,     317.0,       0.0);
     ( 696397.7, 4230666.0,     282.5,     317.0,       0.0);         ( 696422.1,
4230668.8,     289.5,     317.0,       0.0);
     ( 696446.6, 4230671.7,     294.7,     317.0,       0.0);         ( 696470.5,
4230688.1,     300.8,     307.0,       0.0);
     ( 696482.0, 4230709.9,     302.6,     305.0,       0.0);         ( 696493.4,
4230731.7,     298.8,     312.0,       0.0);
     ( 696504.9, 4230753.5,     293.9,     317.0,       0.0);         ( 696516.4,
4230775.3,     288.1,     317.0,       0.0);
     ( 696527.8, 4230797.1,     280.0,     317.0,       0.0);         ( 696539.3,
4230818.8,     273.8,     323.0,       0.0);
     ( 696550.8, 4230840.6,     279.0,     317.0,       0.0);         ( 696562.2,
4230862.4,     286.1,     317.0,       0.0);
     ( 696573.7, 4230884.2,     294.1,     317.0,       0.0);         ( 696585.2,
4230906.0,     299.2,     307.0,       0.0);
     ( 696596.6, 4230927.8,     303.2,     307.0,       0.0);         ( 696608.1,
4230949.5,     304.9,     304.9,       0.0);
     ( 696619.6, 4230971.3,     305.0,     305.0,       0.0);         ( 696631.0,
4230993.1,     302.8,     305.0,       0.0);
     ( 696642.5, 4231014.9,     299.9,     305.0,       0.0);         ( 696654.0,
4231036.7,     297.9,     305.0,       0.0);
     ( 696665.4, 4231058.5,     295.4,     325.0,       0.0);         ( 696676.9,
4231080.2,     293.4,     325.0,       0.0);
     ( 696688.4, 4231102.0,     291.9,     325.0,       0.0);         ( 696699.8,
4231123.8,     288.3,     329.0,       0.0);
     ( 696711.3, 4231145.6,     282.0,     330.0,       0.0);         ( 696722.7,
4231167.4,     281.1,     428.0,       0.0);
     ( 696734.2, 4231189.1,     283.4,     428.0,       0.0);         ( 696745.7,
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4231210.9,   287.1,   428.0,   0.0);
     (696757.1, 4231232.7,   289.5,   428.0,   0.0);   (696768.6,
4231254.5,   291.4,   428.0,   0.0);
     (696780.1, 4231276.3,   293.2,   428.0,   0.0);   (696791.5,
4231298.1,   296.2,   428.0,   0.0);
     (696803.0, 4231319.8,   296.1,   428.0,   0.0);   (696814.5,
4231341.6,   294.8,   428.0,   0.0);
     (696825.9, 4231363.4,   291.9,   428.0,   0.0);   (696837.4,
4231385.2,   286.6,   428.0,   0.0);
     (696848.9, 4231407.0,   282.2,   428.0,   0.0);   (696860.3,
4231428.8,   278.6,   442.0,   0.0);
     (696871.8, 4231450.5,   278.2,   442.0,   0.0);   (696883.2,
4231472.3,   278.2,   445.0,   0.0);
     (696894.7, 4231494.1,   277.9,   445.0,   0.0);   (696906.2,
4231515.9,   273.0,   445.0,   0.0);
     (696917.6, 4231537.7,   272.2,   445.0,   0.0);   (696929.1,
4231559.4,   273.9,   445.0,   0.0);
     (696940.6, 4231581.2,   276.2,   445.0,   0.0);   (696952.0,
4231603.0,   278.0,   445.0,   0.0);
     (696963.5, 4231624.8,   278.2,   445.0,   0.0);   (696975.0,
4231646.6,   278.2,   445.0,   0.0);
     (696986.4, 4231668.4,   278.6,   445.0,   0.0);   (696997.9,
4231690.1,   282.6,   445.0,   0.0);
     (697009.4, 4231711.9,   289.5,   445.0,   0.0);   (697020.8,
4231733.7,   296.8,   445.0,   0.0);
     (697032.3, 4231755.5,   302.7,   445.0,   0.0);   (697043.8,
4231777.3,   306.0,   445.0,   0.0);
     (697055.2, 4231799.0,   309.2,   445.0,   0.0);   (697066.7,
4231820.8,   311.7,   445.0,   0.0);
     (697078.2, 4231842.6,   312.7,   445.0,   0.0);   (697089.6,
4231864.4,   313.8,   445.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (697101.1, 4231886.2,   314.5,   445.0,   0.0);   (697112.5,
4231908.0,   315.2,   445.0,   0.0);
     (697124.0, 4231929.7,   317.3,   445.0,   0.0);   (697135.5,
4231951.5,   321.7,   445.0,   0.0);
     (697146.9, 4231973.3,   325.4,   445.0,   0.0);   (697158.4,
4231995.1,   329.9,   445.0,   0.0);
     (697169.9, 4232016.9,   331.9,   445.0,   0.0);   (697181.3,

4232038.7,   334.4,   445.0,   0.0);
     (695335.4, 4231395.8,   307.2,   311.0,   0.0);   (695290.4,
4231201.0,   304.2,   312.0,   0.0);
     (695245.4, 4231006.1,   300.2,   300.2,   0.0);   (695200.5,
4230811.2,   302.1,   310.0,   0.0);
     (695155.5, 4230616.3,   318.9,   318.9,   0.0);   (695110.5,
4230421.4,   326.9,   326.9,   0.0);
     (695441.6, 4232051.5,   306.0,   312.0,   0.0);   (695410.5,
4232058.2,   303.9,   312.0,   0.0);
     (695387.0, 4232069.3,   302.2,   311.0,   0.0);   (695426.8,
4232005.5,   310.1,   310.1,   0.0);
     (695341.1, 4232072.1,   300.1,   300.1,   0.0);   (695344.5,
4232022.7,   303.5,   303.5,   0.0);
     (695414.2, 4231957.8,   310.1,   310.1,   0.0);   (695297.8,
4232037.3,   300.1,   300.1,   0.0);
     (695321.5, 4231971.2,   304.2,   304.2,   0.0);   (695402.2,
4231909.7,   306.9,   306.9,   0.0);
     (695253.8, 4232014.4,   296.9,   303.0,   0.0);   (695255.5,
4231988.7,   298.2,   298.2,   0.0);
     (695277.8, 4231947.3,   300.3,   300.3,   0.0);   (695308.5,
4231923.9,   301.3,   301.3,   0.0);
     (695380.2, 4231869.1,   302.4,   311.0,   0.0);   (695201.6,
4232108.1,   284.9,   311.0,   0.0);
     (695296.1, 4231876.0,   292.7,   313.0,   0.0);   (695316.8,
4231860.2,   296.8,   313.0,   0.0);
     (695337.5, 4231844.4,   299.1,   313.0,   0.0);   (695358.2,
4231828.6,   301.7,   313.0,   0.0);
     (695378.9, 4231812.8,   304.8,   313.0,   0.0);   (695112.5,
4232076.2,   276.4,   312.0,   0.0);
     (695114.3, 4232049.8,   275.3,   313.0,   0.0);   (695118.9,
4231984.0,   277.9,   313.0,   0.0);
     (695120.7, 4231957.7,   278.8,   313.0,   0.0);   (695122.5,
4231931.3,   279.1,   313.0,   0.0);
     (695261.6, 4231787.8,   306.7,   313.0,   0.0);   (695282.6,
4231771.8,   309.9,   313.0,   0.0);
     (695303.6, 4231755.7,   312.9,   313.0,   0.0);   (695324.5,
4231739.7,   312.5,   312.5,   0.0);
     (695345.5, 4231723.7,   312.0,   312.0,   0.0);   (695009.8,
4232242.6,   294.3,   310.0,   0.0);
     (695011.6, 4232216.1,   292.1,   310.0,   0.0);   (695013.4,
4232189.5,   289.1,   310.0,   0.0);
     (695015.2, 4232163.0,   285.8,   310.0,   0.0);   (695017.1,
4232136.4,   282.8,   310.0,   0.0);
     (695018.9, 4232109.9,   280.3,   310.0,   0.0);   (695020.7,
4232083.3,   276.9,   310.0,   0.0);
     (695022.6, 4232056.8,   274.2,   310.0,   0.0);   (695024.4,
4232030.3,   272.9,   313.0,   0.0);
     (695026.2, 4232003.7,   272.8,   313.0,   0.0);   (695031.7,
4231924.1,   277.9,   313.0,   0.0);
     (695033.5, 4231897.5,   281.2,   313.0,   0.0);   (695035.3,

4231871.0,   285.5,   301.0,   0.0);
     (695153.5, 4231755.7,   301.0,   301.0,   0.0);   (695238.1,
4231691.1,   305.2,   309.0,   0.0);
     (695259.2, 4231675.0,   305.9,   311.0,   0.0);   (695280.4,
4231658.8,   306.4,   311.0,   0.0);
     (695301.6, 4231642.7,   306.7,   309.0,   0.0);   (695322.7,
4231626.5,   305.5,   310.0,   0.0);
     (695013.6, 4232268.6,   296.5,   310.0,   0.0);   (694916.0,
4232277.4,   302.3,   308.0,   0.0);
     (694917.9, 4232250.7,   300.0,   308.0,   0.0);   (694919.7,
4232224.0,   297.6,   299.0,   0.0);
     (694921.6, 4232197.4,   294.5,   308.0,   0.0);   (694923.4,
4232170.7,   291.1,   308.0,   0.0);
     (694925.2, 4232144.0,   287.1,   310.0,   0.0);   (694927.1,
4232117.3,   282.5,   310.0,   0.0);
     (694928.9, 4232090.6,   278.8,   310.0,   0.0);   (694930.7,
4232063.9,   275.2,   310.0,   0.0);
     (694932.6, 4232037.2,   273.0,   310.0,   0.0);   (694934.4,
4232010.5,   272.0,   310.0,   0.0);
     (694936.2, 4231983.9,   271.4,   310.0,   0.0);   (694939.0,
4231943.8,   270.7,   313.0,   0.0);
     (694943.6, 4231877.1,   274.8,   313.0,   0.0);   (694945.4,
4231850.4,   274.5,   313.0,   0.0);
     (694947.3, 4231823.7,   276.1,   313.0,   0.0);   (695066.1,
4231707.8,   297.6,   297.6,   0.0);
     (695204.3, 4231602.3,   292.4,   313.0,   0.0);   (695236.2,
4231578.0,   293.4,   313.0,   0.0);
     (695257.5, 4231561.7,   292.6,   313.0,   0.0);   (695278.7,
4231545.5,   292.9,   313.0,   0.0);
     (695300.0, 4231529.3,   293.4,   313.0,   0.0);   (694919.8,
4232303.4,   304.8,   304.8,   0.0);
     (694832.5, 4232164.9,   294.0,   299.0,   0.0);   (694834.3,
4232138.1,   289.7,   301.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694836.2, 4232111.3,   286.2,   301.0,   0.0);   (694838.0,
4232084.5,   283.0,   302.0,   0.0);
     (694839.9, 4232057.7,   279.8,   302.0,   0.0);   (694841.7,
4232031.0,   277.0,   302.0,   0.0);
     (694843.5, 4232004.2,   274.5,   302.0,   0.0);   (694845.4,

4231977.4,   272.4,   302.0,   0.0);
     (694847.2, 4231950.6,   270.0,   302.0,   0.0);   (694849.1,
4231923.8,   267.2,   302.0,   0.0);
     (694852.8, 4231870.2,   264.6,   313.0,   0.0);   (694856.5,
4231816.6,   265.3,   313.0,   0.0);
     (694858.3, 4231789.8,   268.6,   311.0,   0.0);   (694860.1,
4231763.0,   267.5,   313.0,   0.0);
     (695202.6, 4231489.0,   292.1,   311.0,   0.0);   (695224.0,
4231472.7,   293.9,   313.0,   0.0);
     (695245.3, 4231456.4,   297.8,   305.0,   0.0);   (694821.4,
4232325.6,   298.7,   299.0,   0.0);
     (694655.3, 4232085.7,   281.1,   300.0,   0.0);   (694657.2,
4232058.8,   277.1,   300.0,   0.0);
     (694659.0, 4232031.9,   274.9,   300.0,   0.0);   (694660.9,
4232004.9,   274.2,   300.0,   0.0);
     (694662.7, 4231978.0,   274.4,   287.0,   0.0);   (694664.6,
4231951.1,   275.0,   287.0,   0.0);
     (694666.4, 4231924.1,   274.8,   287.0,   0.0);   (694668.3,
4231897.2,   273.4,   287.0,   0.0);
     (694670.1, 4231870.3,   271.1,   287.0,   0.0);   (694672.0,
4231843.4,   267.9,   305.0,   0.0);
     (694673.8, 4231816.4,   261.3,   305.0,   0.0);   (694675.7,
4231789.5,   256.9,   305.0,   0.0);
     (694677.5, 4231762.6,   255.5,   305.0,   0.0);   (694679.4,
4231735.6,   254.7,   305.0,   0.0);
     (694681.2, 4231708.7,   255.6,   305.0,   0.0);   (694683.1,
4231681.8,   257.9,   305.0,   0.0);
     (694695.7, 4231646.7,   264.6,   305.0,   0.0);   (694717.1,
4231630.3,   271.8,   302.0,   0.0);
     (694738.6, 4231613.9,   279.5,   302.0,   0.0);   (694760.1,
4231597.5,   286.5,   302.0,   0.0);
     (694781.5, 4231581.2,   292.8,   300.0,   0.0);   (694803.0,
4231564.8,   296.9,   296.9,   0.0);
     (694824.4, 4231548.4,   297.8,   297.8,   0.0);   (694845.9,
4231532.0,   297.7,   297.7,   0.0);
     (694878.1, 4231507.5,   297.0,   297.0,   0.0);   (694921.0,
4231474.7,   293.0,   300.0,   0.0);
     (694953.2, 4231450.1,   290.1,   299.0,   0.0);   (694985.4,
4231425.6,   291.3,   291.3,   0.0);
     (695039.0, 4231384.6,   293.6,   301.0,   0.0);   (695146.3,
4231302.8,   292.0,   299.0,   0.0);
     (695167.8, 4231286.4,   292.8,   292.8,   0.0);   (695189.2,
4231270.0,   294.5,   294.5,   0.0);
     (695253.6, 4231220.9,   300.8,   312.0,   0.0);   (694463.0,
4232225.6,   280.3,   280.3,   0.0);
     (694465.8, 4232185.7,   281.1,   281.1,   0.0);   (694472.2,
4232092.5,   278.1,   278.1,   0.0);
     (694474.9, 4232052.5,   280.8,   280.8,   0.0);   (694476.8,
4232025.9,   281.4,   281.4,   0.0);
     (694478.6, 4231999.3,   282.8,   282.8,   0.0);   (694480.4,

4231972.7,   284.2,   284.2,   0.0);
     (694482.3, 4231946.1,   285.9,   285.9,   0.0);   (694484.1,
4231919.5,   286.0,   286.0,   0.0);
     (694485.9, 4231892.8,   283.5,   303.0,   0.0);   (694487.8,
4231866.2,   278.6,   305.0,   0.0);
     (694489.6, 4231839.6,   272.4,   305.0,   0.0);   (694491.4,
4231813.0,   267.3,   305.0,   0.0);
     (694493.3, 4231786.3,   263.3,   305.0,   0.0);   (694495.1,
4231759.7,   266.1,   305.0,   0.0);
     (694496.9, 4231733.1,   266.9,   305.0,   0.0);   (694498.8,
4231706.5,   266.2,   305.0,   0.0);
     (694500.6, 4231679.8,   262.1,   305.0,   0.0);   (694502.4,
4231653.2,   255.7,   341.0,   0.0);
     (694504.3, 4231626.6,   249.1,   341.0,   0.0);   (694506.1,
4231600.0,   245.2,   341.0,   0.0);
     (694507.9, 4231573.4,   248.1,   341.0,   0.0);   (694519.5,
4231552.0,   252.5,   341.0,   0.0);
     (694540.7, 4231535.8,   257.4,   341.0,   0.0);   (694561.9,
4231519.6,   262.7,   341.0,   0.0);
     (694583.1, 4231503.4,   266.9,   341.0,   0.0);   (694604.3,
4231487.2,   272.2,   302.0,   0.0);
     (694625.5, 4231471.0,   277.9,   302.0,   0.0);   (694646.7,
4231454.8,   284.4,   302.0,   0.0);
     (694668.0, 4231438.6,   290.4,   301.0,   0.0);   (694689.2,
4231422.4,   295.4,   297.0,   0.0);
     (694710.4, 4231406.3,   295.5,   295.5,   0.0);   (694731.6,
4231390.1,   295.4,   296.0,   0.0);
     (694752.8, 4231373.9,   293.6,   301.0,   0.0);   (694774.0,
4231357.7,   290.8,   302.0,   0.0);
     (694795.2, 4231341.5,   288.7,   302.0,   0.0);   (694816.4,
4231325.3,   287.1,   302.0,   0.0);
     (694837.7, 4231309.1,   285.4,   302.0,   0.0);   (694858.9,
4231292.9,   285.0,   301.0,   0.0);
     (694880.1, 4231276.7,   285.0,   285.0,   0.0);   (694901.3,
4231260.5,   286.1,   286.1,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694922.5, 4231244.4,   286.7,   286.7,   0.0);   (694943.7,
4231228.2,   287.1,   308.0,   0.0);
     (694964.9, 4231212.0,   287.4,   313.0,   0.0);   (694986.1,

4231195.8,   287.4,   318.0,   0.0);
     (695007.4, 4231179.6,   287.2,   318.0,   0.0);   (695113.4,
4231098.7,   291.0,   291.0,   0.0);
     (695134.6, 4231082.5,   292.3,   292.3,   0.0);   (695198.3,
4231033.9,   297.4,   299.0,   0.0);
     (695219.5, 4231017.7,   298.8,   298.8,   0.0);   (694446.5,
4232465.2,   273.4,   287.0,   0.0);
     (694456.0, 4232490.5,   274.0,   287.0,   0.0);   (694260.0,
4232521.6,   283.4,   287.0,   0.0);
     (694261.9, 4232494.8,   284.2,   287.0,   0.0);   (694265.5,
4232441.4,   281.6,   281.6,   0.0);
     (694268.3, 4232401.2,   276.2,   287.0,   0.0);   (694270.2,
4232374.5,   271.8,   287.0,   0.0);
     (694272.0, 4232347.8,   268.0,   288.0,   0.0);   (694273.8,
4232321.0,   265.3,   288.0,   0.0);
     (694275.7, 4232294.3,   265.7,   287.0,   0.0);   (694277.5,
4232267.5,   267.1,   268.0,   0.0);
     (694279.4, 4232240.8,   266.7,   266.7,   0.0);   (694281.2,
4232214.0,   266.8,   266.8,   0.0);
     (694283.0, 4232187.3,   267.0,   303.0,   0.0);   (694284.9,
4232160.6,   268.0,   303.0,   0.0);
     (694296.8, 4231986.7,   285.1,   303.0,   0.0);   (694298.7,
4231960.0,   288.7,   303.0,   0.0);
     (694300.5, 4231933.2,   292.7,   303.0,   0.0);   (694302.4,
4231906.5,   296.8,   296.8,   0.0);
     (694304.2, 4231879.8,   298.7,   303.0,   0.0);   (694306.1,
4231853.0,   301.6,   303.0,   0.0);
     (694307.9, 4231826.3,   302.6,   302.6,   0.0);   (694309.7,
4231799.5,   302.7,   302.7,   0.0);
     (694311.6, 4231772.8,   303.5,   303.5,   0.0);   (694313.4,
4231746.0,   303.2,   305.0,   0.0);
     (694315.2, 4231719.3,   297.8,   305.0,   0.0);   (694317.1,
4231692.6,   292.3,   305.0,   0.0);
     (694318.9, 4231665.8,   286.0,   305.0,   0.0);   (694320.8,
4231639.1,   276.3,   305.0,   0.0);
     (694322.6, 4231612.3,   265.9,   341.0,   0.0);   (694324.5,
4231585.6,   254.7,   341.0,   0.0);
     (694326.3, 4231558.8,   245.5,   341.0,   0.0);   (694328.1,
4231532.1,   241.5,   341.0,   0.0);
     (694330.0, 4231505.4,   242.2,   341.0,   0.0);   (694331.8,
4231478.6,   244.4,   341.0,   0.0);
     (694343.4, 4231457.1,   248.6,   341.0,   0.0);   (694364.7,
4231440.9,   252.2,   341.0,   0.0);
     (694386.0, 4231424.6,   256.0,   341.0,   0.0);   (694407.3,
4231408.3,   257.1,   341.0,   0.0);
     (694428.6, 4231392.1,   256.6,   341.0,   0.0);   (694450.0,
4231375.8,   255.4,   341.0,   0.0);
     (694471.3, 4231359.5,   255.9,   341.0,   0.0);   (694492.6,
4231343.3,   255.3,   341.0,   0.0);
     (694513.9, 4231327.0,   258.7,   341.0,   0.0);   (694535.2,

4231310.8,   263.4,   341.0,   0.0);
     (694556.5, 4231294.5,   267.4,   341.0,   0.0);   (694577.8,
4231278.2,   267.7,   341.0,   0.0);
     (694599.1, 4231262.0,   268.7,   341.0,   0.0);   (694620.4,
4231245.7,   272.1,   341.0,   0.0);
     (694641.7, 4231229.4,   277.2,   341.0,   0.0);   (694663.0,
4231213.2,   281.7,   337.0,   0.0);
     (694684.4, 4231196.9,   284.7,   319.0,   0.0);   (694705.7,
4231180.6,   286.9,   319.0,   0.0);
     (694727.0, 4231164.4,   288.2,   321.0,   0.0);   (694748.3,
4231148.1,   290.3,   321.0,   0.0);
     (694769.6, 4231131.9,   292.0,   321.0,   0.0);   (694790.9,
4231115.6,   294.4,   321.0,   0.0);
     (694812.2, 4231099.3,   298.8,   318.0,   0.0);   (694833.5,
4231083.1,   302.1,   311.0,   0.0);
     (694854.8, 4231066.8,   304.8,   304.8,   0.0);   (694876.1,
4231050.5,   306.3,   306.3,   0.0);
     (694897.4, 4231034.3,   307.6,   307.6,   0.0);   (694918.8,
4231018.0,   307.7,   307.7,   0.0);
     (694940.1, 4231001.8,   306.7,   318.0,   0.0);   (694961.4,
4230985.5,   307.0,   318.0,   0.0);
     (695057.3, 4230912.3,   304.6,   318.0,   0.0);   (695078.6,
4230896.1,   303.3,   318.0,   0.0);
     (695142.5, 4230847.3,   300.1,   300.1,   0.0);   (695163.8,
4230831.0,   299.7,   304.0,   0.0);
     (694263.8, 4232547.6,   283.4,   287.0,   0.0);   (694072.6,
4232591.3,   249.2,   379.0,   0.0);
     (694074.4, 4232564.5,   251.1,   376.0,   0.0);   (694077.2,
4232524.2,   254.4,   376.0,   0.0);
     (694082.8, 4232443.7,   267.0,   282.0,   0.0);   (694084.6,
4232416.9,   269.6,   269.6,   0.0);
     (694086.4, 4232390.1,   268.7,   268.7,   0.0);   (694088.3,
4232363.2,   263.1,   284.0,   0.0);
     (694090.1, 4232336.4,   257.9,   329.0,   0.0);   (694092.0,
4232309.6,   256.8,   329.0,   0.0);
     (694093.8, 4232282.8,   259.6,   281.0,   0.0);   (694095.7,
4232255.9,   263.1,   275.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

     (694097.5, 4232229.1,   265.1,   275.0,   0.0);   (694099.4,

4232202.2,   267.5,   275.0,   0.0);
     (694101.2, 4232175.4,   268.6,   275.0,   0.0);   (694103.1,
4232148.6,   268.0,   293.0,   0.0);
     (694104.9, 4232121.8,   266.7,   303.0,   0.0);   (694106.8,
4232094.9,   264.6,   305.0,   0.0);
     (694121.5, 4231880.3,   294.4,   294.4,   0.0);   (694123.4,
4231853.4,   294.1,   294.1,   0.0);
     (694125.2, 4231826.6,   290.6,   295.0,   0.0);   (694127.1,
4231799.8,   285.3,   305.0,   0.0);
     (694128.9, 4231772.9,   279.9,   305.0,   0.0);   (694130.8,
4231746.1,   274.5,   305.0,   0.0);
     (694132.6, 4231719.3,   267.6,   305.0,   0.0);   (694134.5,
4231692.4,   259.5,   341.0,   0.0);
     (694136.3, 4231665.6,   255.3,   341.0,   0.0);   (694138.2,
4231638.8,   250.7,   341.0,   0.0);
     (694140.0, 4231611.9,   248.8,   341.0,   0.0);   (694141.9,
4231585.1,   245.8,   341.0,   0.0);
     (694143.7, 4231558.3,   242.8,   341.0,   0.0);   (694145.6,
4231531.5,   240.5,   341.0,   0.0);
     (694147.4, 4231504.6,   239.0,   341.0,   0.0);   (694149.2,
4231477.8,   238.2,   341.0,   0.0);
     (694151.1, 4231451.0,   239.5,   341.0,   0.0);   (694153.0,
4231424.1,   242.7,   341.0,   0.0);
     (694154.8, 4231397.3,   244.6,   341.0,   0.0);   (694167.3,
4231362.3,   247.2,   341.0,   0.0);
     (694188.7, 4231346.0,   248.4,   341.0,   0.0);   (694210.1,
4231329.7,   249.0,   341.0,   0.0);
     (694231.5, 4231313.3,   249.2,   341.0,   0.0);   (694252.9,
4231297.0,   250.1,   341.0,   0.0);
     (694274.2, 4231280.7,   251.7,   341.0,   0.0);   (694295.6,
4231264.4,   253.2,   341.0,   0.0);
     (694317.0, 4231248.1,   256.2,   341.0,   0.0);   (694338.4,
4231231.8,   256.7,   341.0,   0.0);
     (694359.8, 4231215.4,   256.4,   341.0,   0.0);   (694381.1,
4231199.1,   256.8,   341.0,   0.0);
     (694402.5, 4231182.8,   256.3,   341.0,   0.0);   (694423.9,
4231166.5,   259.7,   341.0,   0.0);
     (694445.3, 4231150.2,   262.2,   341.0,   0.0);   (694466.7,
4231133.9,   264.4,   341.0,   0.0);
     (694488.0, 4231117.5,   267.0,   341.0,   0.0);   (694509.4,
4231101.2,   269.2,   341.0,   0.0);
     (694530.8, 4231084.9,   271.4,   341.0,   0.0);   (694552.2,
4231068.6,   273.9,   341.0,   0.0);
     (694573.6, 4231052.3,   277.6,   341.0,   0.0);   (694594.9,
4231036.0,   280.8,   341.0,   0.0);
     (694616.3, 4231019.6,   281.2,   341.0,   0.0);   (694637.7,
4231003.3,   286.2,   341.0,   0.0);
     (694659.1, 4230987.0,   289.9,   339.0,   0.0);   (694680.5,
4230970.7,   293.4,   339.0,   0.0);
     (694701.8, 4230954.4,   298.3,   324.0,   0.0);   (694723.2,

4230938.0,   302.1,   324.0,   0.0);
     (694744.6, 4230921.7,   307.2,   322.0,   0.0);   (694766.0,
4230905.4,   311.7,   321.0,   0.0);
     (694787.4, 4230889.1,   316.4,   318.0,   0.0);   (694808.7,
4230872.8,   318.9,   318.9,   0.0);
     (694830.1, 4230856.5,   320.9,   320.9,   0.0);   (694851.5,
4230840.1,   321.5,   321.5,   0.0);
     (694872.9, 4230823.8,   321.4,   321.4,   0.0);   (694894.3,
4230807.5,   321.6,   321.6,   0.0);
     (694915.7, 4230791.2,   320.9,   320.9,   0.0);   (695001.2,
4230725.9,   311.9,   311.9,   0.0);
     (695022.6, 4230709.6,   309.9,   309.9,   0.0);   (695086.7,
4230660.7,   313.1,   315.0,   0.0);
     (695108.1, 4230644.3,   315.5,   315.5,   0.0);   (695129.5,
4230628.0,   317.3,   317.3,   0.0);
     (694076.4, 4232617.4,   250.1,   382.0,   0.0);   (693885.2,
4232661.0,   243.8,   387.0,   0.0);
     (693887.0, 4232634.1,   242.7,   386.0,   0.0);   (693888.9,
4232607.2,   242.2,   386.0,   0.0);
     (693890.7, 4232580.3,   242.1,   385.0,   0.0);   (693896.3,
4232499.6,   242.4,   379.0,   0.0);
     (693898.1, 4232472.8,   243.7,   376.0,   0.0);   (693900.0,
4232445.8,   246.7,   376.0,   0.0);
     (693901.8, 4232418.9,   249.1,   376.0,   0.0);   (693903.7,
4232392.0,   251.2,   376.0,   0.0);
     (693905.5, 4232365.1,   252.0,   376.0,   0.0);   (693907.4,
4232338.2,   251.5,   329.0,   0.0);
     (693909.2, 4232311.3,   249.9,   329.0,   0.0);   (693911.1,
4232284.4,   247.3,   336.0,   0.0);
     (693912.9, 4232257.5,   244.4,   336.0,   0.0);   (693914.8,
4232230.6,   242.4,   336.0,   0.0);
     (693916.6, 4232203.7,   242.9,   336.0,   0.0);   (693918.5,
4232176.8,   246.2,   336.0,   0.0);
     (693920.3, 4232149.9,   250.8,   336.0,   0.0);   (693922.2,
4232123.0,   255.5,   329.0,   0.0);
     (693924.1, 4232096.1,   257.6,   329.0,   0.0);   (693925.9,
4232069.2,   257.4,   329.0,   0.0);
     (693927.8, 4232042.3,   255.5,   336.0,   0.0);   (693930.5,
4232002.0,   248.1,   336.0,   0.0);

                                  *** DISCRETE CARTESIAN RECEPTORS ***
                                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                          (METERS)

```
     ( 693940.7, 4231854.0,     269.7,     296.0,       0.0);         ( 693942.6,
4231827.1,     273.9,     296.0,       0.0);
     ( 693944.4, 4231800.2,     276.7,     296.0,       0.0);         ( 693946.3,
4231773.3,     278.0,     296.0,       0.0);
     ( 693948.1, 4231746.4,     278.5,     296.0,       0.0);         ( 693950.0,
4231719.5,     278.7,     294.0,       0.0);
     ( 693951.8, 4231692.6,     277.4,     294.0,       0.0);         ( 693953.7,
4231665.7,     275.1,     294.0,       0.0);
     ( 693955.5, 4231638.8,     269.0,     296.0,       0.0);         ( 693957.4,
4231611.9,     262.7,     341.0,       0.0);
     ( 693959.2, 4231585.0,     254.4,     341.0,       0.0);         ( 693961.1,
4231558.1,     246.5,     341.0,       0.0);
     ( 693962.9, 4231531.2,     240.0,     341.0,       0.0);         ( 693964.8,
4231504.3,     236.2,     341.0,       0.0);
     ( 693966.6, 4231477.4,     236.0,     341.0,       0.0);         ( 693968.5,
4231450.5,     236.2,     341.0,       0.0);
     ( 693970.4, 4231423.6,     237.7,     341.0,       0.0);         ( 693972.2,
4231396.7,     241.4,     341.0,       0.0);
     ( 693974.1, 4231369.8,     244.5,     341.0,       0.0);         ( 693975.9,
4231342.9,     247.0,     341.0,       0.0);
     ( 693977.8, 4231316.0,     250.2,     341.0,       0.0);         ( 693979.6,
4231289.1,     255.9,     341.0,       0.0);
     ( 693991.2, 4231267.5,     262.2,     341.0,       0.0);         ( 694012.7,
4231251.1,     266.9,     341.0,       0.0);
     ( 694034.1, 4231234.8,     272.3,     341.0,       0.0);         ( 694055.6,
4231218.4,     276.7,     341.0,       0.0);
     ( 694077.0, 4231202.0,     280.7,     341.0,       0.0);         ( 694098.4,
4231185.7,     283.3,     341.0,       0.0);
     ( 694119.9, 4231169.3,     285.5,     341.0,       0.0);         ( 694141.3,
4231153.0,     287.4,     341.0,       0.0);
     ( 694162.7, 4231136.6,     288.4,     341.0,       0.0);         ( 694184.2,
4231120.2,     288.4,     341.0,       0.0);
     ( 694205.6, 4231103.9,     287.7,     341.0,       0.0);         ( 694227.0,
4231087.5,     287.2,     341.0,       0.0);
     ( 694248.5, 4231071.2,     285.5,     341.0,       0.0);         ( 694269.9,
4231054.8,     283.7,     341.0,       0.0);
     ( 694291.4, 4231038.5,     282.9,     341.0,       0.0);         ( 694312.8,
4231022.1,     282.3,     341.0,       0.0);
     ( 694334.2, 4231005.7,     281.5,     341.0,       0.0);         ( 694355.7,
4230989.4,     281.4,     341.0,       0.0);
     ( 694377.1, 4230973.0,     281.3,     341.0,       0.0);         ( 694398.5,
4230956.6,     283.2,     341.0,       0.0);
     ( 694420.0, 4230940.3,     285.9,     341.0,       0.0);         ( 694441.4,
4230923.9,     289.3,     341.0,       0.0);
     ( 694462.8, 4230907.6,     292.2,     341.0,       0.0);         ( 694484.3,
4230891.2,     294.3,     341.0,       0.0);
     ( 694505.7, 4230874.9,     295.1,     341.0,       0.0);         ( 694527.1,
4230858.5,     295.1,     341.0,       0.0);
     ( 694548.6, 4230842.1,     294.9,     341.0,       0.0);         ( 694570.0,
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4230825.8,   294.2,   341.0,   0.0);
     (694591.4, 4230809.4,   295.3,   339.0,   0.0);   (694612.9,
4230793.1,   297.0,   339.0,   0.0);
     (694634.3, 4230776.7,   298.9,   339.0,   0.0);   (694655.8,
4230760.3,   300.3,   339.0,   0.0);
     (694677.2, 4230744.0,   301.5,   339.0,   0.0);   (694698.6,
4230727.6,   303.5,   324.0,   0.0);
     (694720.1, 4230711.3,   305.4,   324.0,   0.0);   (694741.5,
4230694.9,   307.3,   324.0,   0.0);
     (694762.9, 4230678.5,   309.2,   324.0,   0.0);   (694784.4,
4230662.2,   310.4,   324.0,   0.0);
     (694805.8, 4230645.8,   312.1,   324.0,   0.0);   (694827.2,
4230629.5,   314.4,   323.0,   0.0);
     (694848.7, 4230613.1,   316.3,   317.0,   0.0);   (694870.1,
4230596.8,   317.8,   317.8,   0.0);
     (694955.8, 4230531.3,   320.6,   320.6,   0.0);   (695030.9,
4230474.1,   322.6,   322.6,   0.0);
     (695052.3, 4230457.7,   323.8,   323.8,   0.0);   (695073.7,
4230441.3,   325.1,   325.1,   0.0);
     (693889.0, 4232687.2,   246.2,   387.0,   0.0);   (695492.8,
4232077.9,   305.6,   312.0,   0.0);
     (695500.4, 4232075.0,   306.7,   312.0,   0.0);   (695500.4,
4232385.2,   317.6,   317.6,   0.0);
     (695345.3, 4232387.6,   296.7,   402.0,   0.0);   (695341.2,
4232202.4,   288.4,   402.0,   0.0);
     (695439.1, 4232169.3,   292.1,   319.0,   0.0);   (695482.7,
4232182.9,   298.7,   318.0,   0.0);
     (695486.9, 4232106.8,   302.8,   312.0,   0.0);   (695477.4,
4232081.5,   304.1,   313.0,   0.0);

                                                *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\stockton-metropolit-23237\Stockton_18-22.SFC
Met Version: 21112
Profile file: ..\stockton-metropolit-23237\Stockton_18-22.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 23237 Upper air station no.: 23230
Name: UNKNOWN Name: OAKLAND/WSO_AP
Year: 2018 Year: 2018

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
18	01	01	1	01	-4.8	0.090	-9.000	-9.000	-999.	65.	13.7	0.04	0.91	1.00	1.42	14.	10.0	278.8	2.0
18	01	01	1	02	-5.2	0.093	-9.000	-9.000	-999.	68.	14.2	0.04	0.91						

```
1.00    1.47    7.   10.0  279.2    2.0
 18 01 01   1 03   -2.7  0.069 -9.000 -9.000 -999.   43.     11.2  0.03   0.91
1.00    1.04   44.   10.0  278.8    2.0
 18 01 01   1 04   -2.1  0.065 -9.000 -9.000 -999.   40.     11.8  0.03   0.91
1.00    0.86   79.   10.0  278.1    2.0
 18 01 01   1 05   -5.8  0.100 -9.000 -9.000 -999.   76.     15.6  0.05   0.91
1.00    1.48  186.   10.0  277.5    2.0
 18 01 01   1 06   -1.8  0.063 -9.000 -9.000 -999.   38.     12.8  0.04   0.91
1.00    0.74  221.   10.0  276.4    2.0
 18 01 01   1 07   -2.3  0.067 -9.000 -9.000 -999.   41.     11.9  0.04   0.91
1.00    0.89  116.   10.0  275.9    2.0
 18 01 01   1 08   -2.0  0.065 -9.000 -9.000 -999.   40.     12.5  0.04   0.91
0.73    0.79  144.   10.0  274.9    2.0
 18 01 01   1 09   -1.1  0.052 -9.000 -9.000 -999.   29.     12.4  0.04   0.91
0.39    0.80  107.   10.0  277.5    2.0
 18 01 01   1 10   43.4  0.095  0.542  0.006  133.   70.     -1.8  0.03   0.91
0.27    0.86   66.   10.0  283.1    2.0
 18 01 01   1 11   78.0  0.102  0.984  0.015  445.   78.     -1.2  0.03   0.91
0.23    0.91   58.   10.0  286.4    2.0
 18 01 01   1 12   97.1  0.128  1.130  0.017  542.  110.     -2.0  0.03   0.91
0.22    1.21  317.   10.0  288.1    2.0
 18 01 01   1 13   99.8  0.180  1.195  0.018  623.  183.     -5.3  0.18   0.91
0.21    1.21  273.   10.0  289.2    2.0
 18 01 01   1 14   86.4  0.206  1.182  0.019  696.  225.     -9.2  0.18   0.91
0.22    1.52  277.   10.0  290.9    2.0
 18 01 01   1 15   57.0  0.162  1.042  0.019  723.  157.     -6.8  0.03   0.91
0.26    1.82  307.   10.0  291.4    2.0
 18 01 01   1 16   14.4  0.269  0.661  0.019  726.  334.   -122.2  0.18   0.91
0.35    2.55  299.   10.0  290.9    2.0
 18 01 01   1 17  -15.6  0.177 -9.000 -9.000 -999.  183.     34.6  0.03   0.91
0.60    2.74  306.   10.0  287.5    2.0
 18 01 01   1 18  -11.1  0.138 -9.000 -9.000 -999.  123.     21.5  0.03   0.91
1.00    2.18  307.   10.0  285.4    2.0
 18 01 01   1 19  -15.0  0.173 -9.000 -9.000 -999.  173.     33.0  0.20   0.91
1.00    1.81  252.   10.0  283.8    2.0
 18 01 01   1 20   -4.2  0.091 -9.000 -9.000 -999.   68.     16.4  0.20   0.91
1.00    0.96  266.   10.0  283.8    2.0
 18 01 01   1 21   -2.6  0.071 -9.000 -9.000 -999.   45.     12.1  0.04   0.91
1.00    0.97  168.   10.0  281.4    2.0
 18 01 01   1 22  -11.3  0.141 -9.000 -9.000 -999.  127.     22.5  0.04   0.91
1.00    2.08  169.   10.0  281.4    2.0
 18 01 01   1 23  -13.3  0.152 -9.000 -9.000 -999.  142.     25.4  0.04   0.91
1.00    2.30  114.   10.0  280.4    2.0
 18 01 01   1 24  -13.7  0.154 -9.000 -9.000 -999.  145.     26.1  0.04   0.91
1.00    2.33   97.   10.0  280.9    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 18 01 01 01   10.0 1   14.    1.42   278.8   99.0  -99.00  -99.00
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695661.08	4232679.32	544.30477	(22121924)	696389.86	4231902.08	138.05980	(22021302)
696375.82	4231858.45	149.85763	(21061706)	696400.89	4231827.36	148.23204	(21061706)
696433.99	4231825.36	134.65687	(21061706)	696463.07	4231820.34	124.86555	(21061706)
696483.63	4231820.34	117.36042	(21061706)	694911.06	4231854.69	326.13847	(20021508)
694872.29	4231812.30	279.84342	(20021508)	694882.07	4231877.87	308.37582	(22022503)
695461.91	4232105.46	3310.47466	(19022505)	695459.84	4232143.50	3726.68836	(18011101)
695436.94	4232104.10	3410.73123	(18020601)	695434.88	4232142.15	3901.71515	(18020601)
695411.98	4232102.75	3166.18991	(19122418)	695409.92	4232140.79	3759.64060	(20022008)
695407.85	4232178.84	6325.24610	(20012008)	695387.02	4232101.39	2970.22646	(19010305)
695384.95	4232139.44	3291.54526	(22120523)	695382.89	4232177.48	5570.36271	(20021908)
695337.09	4232098.68	2367.30131	(22021208)	695335.03	4232136.73	2570.06360	(19022819)
695332.96	4232174.77	3298.14613	(20021508)	695287.16	4232095.97	1685.08363	(20022608)
695285.10	4232134.02	1897.78978	(20021508)	695283.03	4232172.06	2014.35895	(21121902)

695237.24 4232093.26 1243.59354 (20021508) 695235.17 4232131.31 1346.05006 (18121508)
695233.11 4232169.35 1453.38273 (19111208) 695187.31 4232090.55 982.84686 (22021020)
695185.25 4232128.60 1003.06499 (21121902) 695183.18 4232166.64 1074.35405 (20122004)
695087.46 4232085.13 629.67137 (21121902) 695085.39 4232123.18 666.38103 (19111208)
695083.33 4232161.22 701.32903 (20011217) 694987.60 4232079.71 476.06479 (19111208)
694985.54 4232117.76 480.34782 (20122004) 694983.47 4232155.80 494.24442 (19021118)
694887.75 4232074.29 360.14875 (22022504) 694885.69 4232112.34 384.79306 (20011217)
694883.62 4232150.38 408.55465 (19011907) 694787.90 4232068.87 292.36907 (19122419)
694785.83 4232106.92 308.20606 (20011217) 694783.77 4232144.96 337.01939 (19011907)
694588.19 4232058.03 213.41826 (20011217) 694586.13 4232096.08 212.73979 (19011907)
694584.06 4232134.12 221.43387 (22122306) 694388.49 4232047.19 153.67233 (19021118)
694386.42 4232085.24 153.52626 (19011907) 694384.36 4232123.28 156.17974 (21011719)
694188.78 4232036.35 123.47515 (19011907) 694186.72 4232074.40 123.54985 (22122306)
694184.65 4232112.44 124.12638 (21011719) 693989.07 4232025.51 96.56004 (19011907)
693987.01 4232063.56 98.30262 (22122306) 693984.94 4232101.60 97.93499 (21011719)
693789.37 4232014.67 80.17126 (22122306) 693787.30 4232052.72 81.65271 (21011719)
693785.24 4232090.76 80.38807 (21011719) 695504.99 4232111.28 2784.22685 (18020520)
695512.41 4232087.40 2261.28283 (22121303) 695468.76 4232073.84 2325.69528 (18011122)
695527.24 4232039.65 1300.77505 (19111808) 695505.42 4232032.87 1403.11541 (19110608)
695483.59 4232026.09 1380.62514 (21102908) 695542.07 4231991.90 1025.23937 (19110117)
695520.25 4231985.12 1114.80112 (19110608) 695498.42 4231978.34 1023.18977 (20052506)
695556.91 4231944.15 960.46830 (19110117) 695535.08 4231937.37 982.01374 (19110608)
695513.26 4231930.59 932.48345 (20052506) 695571.74 4231896.41 812.45557 (18111308)
695549.92 4231889.63 867.17407 (19110608) 695528.09 4231882.85 830.55681 (20052506)
695601.41 4231800.91 703.97075 (18111308) 695579.58 4231794.13 691.61852 (19110608)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695557.76	4231787.35	649.08724	(20052506)	695631.07	4231705.41	574.31780	(19110608)
695609.25	4231698.63	556.29163	(19110608)	695587.42	4231691.85	547.19921	(20052506)
695660.74	4231609.91	489.80615	(19110608)	695638.92	4231603.13	457.27470	(19110608)
695617.09	4231596.35	458.09074	(20052506)	695690.41	4231514.41	386.29711	(19110608)
695668.58	4231507.63	383.63137	(18011101)	695646.76	4231500.85	394.02108	(21120303)
695749.74	4231323.42	279.50746	(19110608)	695727.92	4231316.64	270.23010	(18011101)
695706.09	4231309.86	278.64193	(21120303)	695809.07	4231132.42	182.06233	(18011101)
695787.25	4231125.64	177.48764	(19020621)	695765.42	4231118.86	179.92083	(21120303)
695868.41	4230941.42	135.55249	(18011101)	695846.58	4230934.64	129.36250	(19020621)
695824.76	4230927.86	129.18779	(21120303)	695927.74	4230750.43	106.96462	(18011101)
695905.92	4230743.65	110.39572	(19020621)	695884.09	4230736.87	116.72418	(21120303)
695987.07	4230559.43	101.80815	(18011101)	695965.25	4230552.65	121.99150	(21120303)
695943.42	4230545.87	136.13765	(21120303)	695356.37	4232118.09	2799.66306	(22010619)
695427.67	4232074.34	2625.37486	(21010309)	695367.96	4232087.80	2551.25694	(22012817)

695309.21 4232107.62 1971.94526 (19022819) 695409.63 4232026.99 1784.04904 (22120221)
695446.61 4232026.54 1612.87267 (21092207) 695371.56 4232033.82 1707.20974 (18011020)
695332.40 4232047.03 1759.27781 (22020318) 695293.23 4232060.24 1708.92703 (20021908)
695395.70 4231979.58 1354.43705 (22092907) 695436.79 4231979.09 1110.36322 (21021821)
695355.58 4231986.44 1416.40489 (21120204) 695316.41 4231999.65 1309.02355 (18011024)
695277.25 4232012.86 1391.03944 (20021908) 695378.44 4231932.22 1164.72871 (20022008)
695416.96 4231931.76 1212.98875 (21010309) 695455.48 4231931.29 1018.32257 (19052406)
695339.60 4231939.06 1021.34114 (19010305) 695300.43 4231952.27 1055.71954 (18011024)
695261.27 4231965.49 1060.04374 (20120205) 695363.74 4231884.83 913.31264 (20022008)
695404.83 4231884.33 969.96193 (21010309) 695445.91 4231883.84 940.64616 (22010604)
695487.00 4231883.34 797.11833 (19080303) 695323.61 4231891.69 843.57676 (20012008)
695284.45 4231904.90 805.84347 (22120523) 695245.28 4231918.11 781.12298 (22010619)
695331.77 4231790.08 751.99264 (20022008) 695372.86 4231789.58 730.26876 (22092907)
695413.95 4231789.08 805.46648 (21010309) 695455.04 4231788.59 669.83204 (22010604)
695496.13 4231788.09 615.77675 (21092207) 695291.65 4231796.93 697.92415 (20012008)
695252.48 4231810.14 608.60000 (22120523) 695213.32 4231823.36 566.52936 (22020318)
695299.81 4231695.32 552.04958 (21100307) 695340.90 4231694.83 549.65209 (22112008)
695381.98 4231694.33 536.62559 (22120221) 695423.07 4231693.84 644.48855 (21010309)
695464.16 4231693.34 531.96149 (19052406) 695505.25 4231692.84 541.49571 (21092207)
695546.34 4231692.35 565.47581 (21102908) 695259.68 4231702.18 549.69813 (20012008)
695220.52 4231715.39 464.78179 (20012704) 695181.35 4231728.60 464.08809 (21120103)
695267.84 4231600.57 377.15131 (18011020) 695308.93 4231600.07 409.64098 (20022008)
695350.02 4231599.58 382.85541 (19122418) 695391.11 4231599.08 391.34610 (18122303)
695432.19 4231598.59 551.98934 (21010309) 695473.28 4231598.09 476.46649 (19052406)
695514.37 4231597.59 491.52845 (21092207) 695555.46 4231597.10 458.26172 (20121105)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695359.14	4231504.33	313.05625	(19122418)	695400.23	4231503.83	441.70911	(21010309)
695441.32	4231503.34	474.26826	(21010309)	695482.41	4231502.84	414.00539	(19052406)
695523.49	4231502.34	433.27880	(21092207)	695564.58	4231501.85	400.27231	(20121105)
695605.67	4231501.35	463.86467	(21102908)	695195.75	4231512.67	261.82592	(20012008)
695156.59	4231525.88	263.14348	(20012704)	695117.42	4231539.10	255.23208	(18011024)
695171.95	4231316.31	210.50937	(19010305)	695213.04	4231315.81	223.74964	(19022402)
695254.12	4231315.32	245.45722	(20022008)	695295.21	4231314.82	228.20745	(19011402)
695336.30	4231314.32	296.79317	(22092907)	695377.39	4231313.83	293.16179	(21010306)
695418.48	4231313.33	368.72766	(21010309)	695459.56	4231312.84	320.07310	(21010309)
695500.65	4231312.34	317.56131	(19052406)	695541.74	4231311.84	333.39478	(21092207)
695582.83	4231311.35	289.87007	(19080303)	695623.91	4231310.85	308.44193	(21102908)

695665.00 4231310.35 317.24201 (21102908) 695131.82 4231323.16 208.44697 (20012008)
695092.66 4231336.38 209.51608 (20012704) 695053.49 4231349.59 210.92374 (22120523)
695108.02 4231126.80 159.77318 (19010305) 695149.11 4231126.31 167.90194 (18011020)
695190.19 4231125.81 182.91501 (20022008) 695231.28 4231125.31 186.13378 (20022008)
695272.37 4231124.82 176.74480 (19011402) 695313.46 4231124.32 178.49432 (19122418)
695354.54 4231123.82 236.79547 (22120221) 695395.63 4231123.33 275.66723 (21010309)
695436.72 4231122.83 297.88489 (21010309) 695477.81 4231122.34 249.12933 (22010604)
695518.90 4231121.84 242.21427 (19052406) 695559.98 4231121.34 226.41263 (21092207)
695601.07 4231120.85 182.60454 (19121302) 695642.16 4231120.35 178.42239 (19042703)
695683.25 4231119.85 181.40620 (18011122) 695724.34 4231119.36 184.28908 (19022505)
695067.89 4231133.66 149.95110 (18121819) 695028.73 4231146.87 150.46001 (18121819)
694989.56 4231160.08 151.85657 (20012704) 695044.09 4230937.30 138.65548 (19010305)
695085.17 4230936.80 138.18404 (18011020) 695126.26 4230936.30 138.03217 (19022402)
695167.35 4230935.81 149.36800 (20022008) 695208.44 4230935.31 142.78268 (20022008)
695249.53 4230934.81 141.64107 (19011402) 695290.61 4230934.32 144.47209 (19122418)
695331.70 4230933.82 143.28067 (22120221) 695372.79 4230933.33 176.82736 (21010309)
695413.88 4230932.83 206.99724 (21010309) 695454.97 4230932.33 155.37446 (22010603)
695496.05 4230931.84 152.31781 (22010604) 695537.14 4230931.34 154.54332 (18020601)
695578.23 4230930.84 152.34847 (21011207) 695619.32 4230930.35 150.66033 (19121302)
695660.41 4230929.85 146.82155 (19011205) 695701.49 4230929.35 140.42029 (22012720)
695742.58 4230928.86 145.07414 (18011122) 695783.67 4230928.36 139.81170 (19022505)
695003.96 4230944.15 166.91558 (18121819) 694964.80 4230957.36 176.95532 (19013022)
694925.63 4230970.57 184.90281 (18010221) 694980.16 4230747.79 157.63752 (21120204)
695021.24 4230747.29 154.09764 (21120204) 695062.33 4230746.80 152.88033 (22120521)
695103.42 4230746.30 145.16871 (20022008) 695144.51 4230745.80 155.32813 (20022008)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695514.30	4230741.34	126.09461	(22010604)	695555.39	4230740.84	127.92539	(18020601)
695596.48	4230740.34	125.52630	(21011207)	695637.56	4230739.85	125.55057	(19121302)
695678.65	4230739.35	121.30359	(19011205)	695719.74	4230738.85	118.31511	(19042703)
695760.83	4230738.36	119.39963	(22012720)	695801.92	4230737.86	122.96544	(18011122)
695843.00	4230737.37	120.79004	(19022505)	694940.03	4230754.64	147.70641	(21053103)
694900.87	4230767.86	134.25056	(20102903)	694861.70	4230781.07	132.78703	(22012817)
694916.23	4230558.28	129.33376	(22121721)	694957.31	4230557.79	134.15817	(21120204)
694998.40	4230557.29	140.41945	(22120521)	695039.49	4230556.79	135.66949	(20120519)
695080.58	4230556.30	136.52036	(20022008)	695121.67	4230555.80	131.20325	(22112008)
695162.75	4230555.30	124.61426	(21120402)	695203.84	4230554.81	124.74487	(19011402)

695244.93 4230554.31 133.38182 (22092907) 695286.02
4230553.81 131.10011 (18111407)
695327.11 4230553.32 136.62504 (20100604) 695368.19
4230552.82 146.96865 (21010309)
695409.28 4230552.33 178.95149 (21010309) 695450.37
4230551.83 161.57392 (21010309)
695491.46 4230551.33 105.05916 (21021821) 695532.55
4230550.84 105.93974 (22010604)
695573.63 4230550.34 107.99077 (18020601) 695614.72
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695655.81 4230549.35 105.84827 (19121302) 695696.90
4230548.85 100.81259 (19121302)
695737.99 4230548.35 101.83297 (19011205) 695779.07
4230547.86 97.65842 (19042703)
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4230546.87 151.90059 (21102908)
695902.34 4230546.37 147.14873 (20052506) 694876.10
4230565.14 130.08431 (19013022)
694836.94 4230578.35 137.02585 (19013022) 694797.77
4230591.56 130.46531 (18010221)
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4232226.08 3249.97483 (21011719)
695317.22 4232249.23 3156.68596 (19120423) 695317.73
4232272.38 3197.30918 (18021608)
695318.25 4232295.53 3216.99623 (19012824) 695318.77
4232318.68 2960.35681 (22120424)
695319.28 4232341.83 2540.09742 (20120201) 695319.80
4232364.99 2072.90869 (22020607)
695320.32 4232388.14 1637.27741 (21022821) 695312.72
4232164.33 2580.95278 (18121720)
695291.19 4232203.48 2377.94716 (19122419) 695291.71
4232226.64 2489.52460 (21011719)
695292.22 4232249.79 2412.94559 (21020207) 695292.74
4232272.94 2375.38424 (22011706)
695293.26 4232296.09 2320.13087 (18010223) 695293.77
4232319.24 2117.61185 (18021607)
695294.29 4232342.39 1923.26421 (21022603) 695294.81
4232365.54 1646.84386 (20120201)
695295.32 4232388.69 1414.51231 (19121922) 695266.20
4232204.04 1950.59544 (20011217)
695266.71 4232227.19 1988.69329 (22012801) 695267.23
4232250.34 1913.39047 (21020207)
695267.75 4232273.50 1966.34113 (19012817) 695268.26
4232296.65 1873.25426 (21021908)
695268.78 4232319.80 1695.74838 (19012824) 695269.30
4232342.95 1506.22263 (18013023)
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4232389.25 1235.05107 (20120201)
695241.20 4232204.60 1582.51167 (19021118) 695241.72
4232227.75 1634.42911 (22012801)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695191.73	4232228.87	1180.23421	(18123024)	695192.25	4232252.02	1132.65080	(20021102)
695192.77	4232275.17	1158.01099	(19012817)	695193.28	4232298.32	1099.28086	(22011706)
695193.80	4232321.47	1107.56641	(18021608)	695194.31	4232344.62	1020.14546	(18010223)
695194.83	4232367.77	968.52607	(21120107)	695195.35	4232390.92	876.36455	(18013023)
695147.26	4232186.95	908.72098	(19021118)	695159.33	4232147.18	935.06283	(19111208)
695171.40	4232107.42	903.90023	(18022107)	695210.70	4232062.65	999.31089	(20122120)
695243.98	4232037.76	1113.39504	(20020201)	695141.75	4232229.98	920.41136	(19122023)
695142.26	4232253.13	868.65062	(22122324)	695142.78	4232276.28	868.21646	(21021904)
695143.29	4232299.43	903.05751	(19012817)	695143.81	4232322.58	866.09685	(18010109)
695242.24	4232250.90	1573.60017	(20021102)	695242.75	4232274.05	1644.96454	(19012817)
695243.27	4232297.20	1538.54607	(18021608)	695243.79	4232320.36	1423.72082	(18010223)
695244.30	4232343.51	1318.40391	(21120107)	695244.82	4232366.66	1201.62815	(22120602)
695245.33	4232389.81	1094.68932	(19121608)	695196.65	4232187.82	1206.35260	(20011217)
695207.51	4232152.03	1188.36263	(18011203)	695263.29	4232082.64	1489.72806	(20022608)

695144.33 4232345.74 851.96796 (21021908) 695144.84
4232368.89 795.30661 (20120204)
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4232186.64 743.63109 (19011907)
695110.64 4232144.04 750.11336 (20122004) 695123.56
4232101.44 734.73074 (21121902)
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4232018.83 904.87744 (20022608)
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4232231.09 746.98843 (19122023)
695092.27 4232254.25 699.92782 (22122324) 695092.79
4232277.40 708.00283 (21021904)
695093.31 4232300.55 766.88313 (19012817) 695093.82
4232323.70 761.85369 (22011706)
695094.34 4232346.85 791.39287 (18021608) 695094.86
4232370.00 793.30176 (21021908)
695095.37 4232393.15 771.98474 (20120204) 695047.29
4232189.18 622.66542 (22122306)
695059.35 4232149.41 634.24915 (20011217) 695089.52
4232050.01 616.83804 (18121508)
695112.19 4232017.68 658.77440 (20021508) 695145.47
4231992.79 711.68774 (20022608)
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4231943.00 763.20220 (20021908)
695041.77 4232232.21 649.65146 (19122023) 695042.29
4232255.36 632.14632 (22122324)
695042.80 4232278.51 673.93643 (19120423) 695043.32
4232301.66 727.43359 (19012817)
695043.84 4232324.81 761.07366 (19012817) 695044.35
4232347.97 758.98826 (18010109)
695044.87 4232371.12 746.05500 (18021608) 695045.38
4232394.27 696.17302 (21021908)
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4232146.22 455.64120 (20011217)
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4231945.55 469.34257 (20021508)
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4231918.40 545.99059 (20022608)
695104.43 4231904.82 501.01367 (22010618) 695122.57
4231891.24 507.27575 (19022819)
695140.72 4231877.67 506.75596 (18121707) 695158.87
4231864.09 544.34402 (20021908)
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4232234.44 575.44560 (19122023)
694942.31 4232257.59 554.13965 (22120501) 694942.83
4232280.74 559.97589 (21020207)

694943.34 4232303.89 623.49388 (20020705) 694943.86
4232327.04 749.90747 (19012817)
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4232373.35 706.62745 (18010109)
694945.41 4232396.50 703.29404 (18010109) 694847.77
4232192.22 442.41548 (22012801)
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4231957.90 347.18937 (18122917)
694949.63 4231901.96 371.90852 (20021508) 694985.28
4231875.29 375.37960 (20122120)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M)
Y-COORD (M) CONC (YYMMDDHH)
- - - -

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4231899.98 289.56587 (18121508)
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694938.01 4231791.99 337.79686 (20022608) 694973.24
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695008.47 4231739.27 342.50730 (19022819) 695043.70
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4232308.35 309.46484 (19120423)
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4232354.65 321.05842 (19012817)
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4232174.03 268.07998 (22012801)
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4232086.13 241.52269 (20011217)
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4231998.23 240.14877 (22012705)
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694734.71 4231910.33 234.20646 (21121902) 694741.38
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694915.16 4231690.41 256.96009 (21022223) 694933.55
4231676.66 260.96799 (19022819)
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4231649.14 259.54649 (18121707)
694988.71 4231635.39 271.44008 (20021908) 695007.10
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695025.49 4231607.88 265.54620 (22021208) 695043.87
4231594.12 259.60116 (18013008)

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        695062.26   4231580.36      255.97024  (22010619)                695080.65
4231566.61      236.46932  (22020318)
        695099.04   4231552.85      246.04332  (21120103)                694641.35
4232217.98      278.62415  (19122023)
        694641.87   4232241.13      271.46708  (19122023)                694642.39
4232264.28      260.02461  (20021601)
        694642.90   4232287.43      247.33671  (20021102)                694643.42
4232310.58      237.39412  (21020207)
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4232356.88      219.74641  (22020603)
        694644.97   4232380.03      238.64551  (19012817)                694645.48
4232403.19      239.45242  (19012817)
        694447.92   4232200.96      174.56148  (18123024)                694460.95
4232158.02      175.67461  (22012801)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  47
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                        *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                     ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        694473.98   4232115.07      177.69625  (22122306)                694487.02
4232072.13      181.69048  (19021118)
        694500.05   4232029.19      190.61982  (20011217)                694513.08
4231986.24      193.09133  (20122004)
        694526.11   4231943.30      199.19523  (22012705)                694539.15
4231900.35      198.42769  (19111208)
        694552.18   4231857.41      183.97054  (21121919)                694565.21
4231814.46      173.88715  (18022107)
        694578.24   4231771.52      169.56661  (18122917)                694591.27
4231728.58      178.61783  (18121508)
        694622.27   4231672.19      180.00000  (20021508)                694640.24
4231658.75      183.79572  (20021508)
        694676.18   4231631.87      178.14600  (20122120)                694712.11
4231604.98      196.79869  (20022608)
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694748.05 4231578.10 220.06519 (20022608) 694783.98 4231551.21 241.99900 (21022223)
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694891.79 4231470.56 261.52547 (20021908) 694927.72 4231443.68 235.74842 (22021208)
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695017.56 4231376.47 209.92832 (21120103) 694441.92 4232245.59 166.31943 (19122023)
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694321.09 4231964.46 160.38504 (19122419) 694327.73 4231942.59 162.52314 (20122004)
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694354.28 4231855.11 183.69300 (19111208) 694360.92 4231833.24 180.93537 (18011203)
694374.19 4231789.50 168.78192 (21121919) 694380.83 4231767.63 166.16573 (21121902)
694394.10 4231723.89 162.19142 (18022107) 694400.74 4231702.02 155.14842 (18022107)
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694605.26 4231447.59 163.40601 (20022608) 694623.56 4231433.89 158.79482 (19022818)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694934.66	4231201.15	159.17068	(21120103)	694952.96	4231187.46	159.31587	(18011024)
694971.26	4231173.77	156.96442	(22120523)	694241.45	4232226.89	130.26128	(19122023)
694241.97	4232250.04	123.79722	(20021601)	694242.49	4232273.20	122.97257	(20021601)
694243.00	4232296.35	121.93757	(22122324)	694243.52	4232319.50	123.47988	(20021102)
694244.03	4232342.65	124.71077	(21020207)	694244.55	4232365.80	125.89630	(19120423)
694245.07	4232388.95	127.38661	(21021904)	694245.58	4232412.10	128.43899	(19012403)

694048.23 4232209.20 105.97453 (19122023) 694054.95 4232187.04 105.00114 (18123024)
694061.67 4232164.89 103.90549 (22012801) 694068.40 4232142.74 107.13838 (22012801)
694075.12 4232120.58 105.43311 (21011719) 694081.84 4232098.43 109.09218 (21011719)
694088.56 4232076.28 109.04498 (22122306) 694095.29 4232054.12 106.89666 (22122306)
694102.01 4232031.97 109.65474 (19011907) 694108.73 4232009.81 109.87662 (19021118)
694115.46 4231987.66 111.23351 (19021118) 694122.18 4231965.51 118.19873 (20011217)
694128.90 4231943.35 129.30465 (20011217) 694135.62 4231921.20 135.40778 (19122419)
694142.35 4231899.05 138.28630 (19122419) 694149.07 4231876.89 141.97209 (20122004)
694155.79 4231854.74 135.91420 (22022504) 694162.52 4231832.58 129.05420 (22012705)
694169.24 4231810.43 120.19809 (20021907) 694175.96 4231788.28 116.72738 (19111208)
694182.69 4231766.12 112.50325 (18011203) 694189.41 4231743.97 110.78178 (22010508)
694196.13 4231721.82 110.53409 (21121919) 694202.85 4231699.66 109.81361 (21121919)
694209.58 4231677.51 112.02132 (21121902) 694216.30 4231655.35 110.06323 (22020321)
694223.02 4231633.20 110.15936 (18022107) 694229.75 4231611.05 107.06934 (20121104)
694236.47 4231588.89 104.90501 (20121104) 694243.19 4231566.74 108.32376 (18122917)
694249.92 4231544.59 112.28334 (18121508) 694256.64 4231522.43 111.55876 (18121508)
694263.36 4231500.28 110.31048 (22021020) 694270.08 4231478.12 109.35594 (18121720)
694295.35 4231442.10 111.64605 (20021508) 694313.88 4231428.23 114.60444 (20021508)
694332.42 4231414.37 112.32043 (20021508) 694350.96 4231400.50 108.76254 (22013021)
694369.50 4231386.63 110.13164 (21011704) 694388.03 4231372.76 114.61028 (20122120)
694406.57 4231358.89 114.03156 (22120206) 694425.11 4231345.02 122.10750 (20022608)
694443.65 4231331.15 127.90943 (20022608) 694462.19 4231317.29 126.98369 (20022608)
694480.72 4231303.42 119.43139 (20022608) 694499.26 4231289.55 117.64817 (22010618)
694517.80 4231275.68 117.30775 (21022223) 694536.34 4231261.81 117.80821 (20020201)
694554.88 4231247.94 119.51688 (19022819) 694573.41 4231234.08 118.94453 (19022819)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694041.50	4232231.35	103.78222	(19122023)	694042.02	4232254.50	99.68143	(20021601)
694042.54	4232277.65	98.82959	(20021601)	694043.05	4232300.81	97.52466	(22122324)
694043.57	4232323.96	98.39925	(20021102)	694044.08	4232347.11	98.83827	(21020207)
694044.60	4232370.26	99.31815	(21020207)	694045.12	4232393.41	99.82728	(19120423)
694045.63	4232416.56	99.56119	(21021904)	693848.17	4232213.99	87.57583	(19122023)

693854.80 4232192.17 86.71525 (19122023) 693868.04
4232148.53 86.70383 (22012801)
693874.66 4232126.70 88.46847 (22012801) 693887.91
4232083.06 90.10624 (21011719)
693894.53 4232061.24 90.03781 (22122306) 693907.77
4232017.60 88.94454 (19011907)
693921.02 4231973.96 89.55884 (19021118) 693927.64
4231952.13 88.05085 (19021118)
693940.88 4231908.49 92.79955 (20011217) 693947.51
4231886.67 94.01083 (20011217)
693960.75 4231843.03 96.23263 (20122004) 693967.37
4231821.21 102.83629 (20122004)
693980.62 4231777.56 108.36839 (22012705) 693987.24
4231755.74 108.81681 (22012705)
694000.48 4231712.10 108.80800 (19111208) 694013.73
4231668.46 98.37134 (22010508)
694020.35 4231646.64 94.26970 (21121919) 694033.59
4231602.99 89.91306 (21121902)
694040.22 4231581.17 89.44646 (21121902) 694053.46
4231537.53 89.21971 (18022107)
694060.08 4231515.71 88.41555 (20121104) 694073.33
4231472.07 89.73994 (18122917)
694079.95 4231450.25 92.63737 (18121508) 694093.19
4231406.60 92.29439 (22021020)
694106.44 4231362.96 90.39115 (22022503) 694131.32
4231327.48 92.33334 (20021508)
694149.58 4231313.82 95.05506 (20021508) 694167.84
4231300.16 94.30898 (20021508)
694186.10 4231286.50 91.96519 (22013021) 694204.36
4231272.84 89.69371 (21011704)
694222.62 4231259.18 92.60149 (20122120) 694240.88
4231245.52 95.35180 (20122120)
694259.14 4231231.86 94.77124 (22120206) 694277.39
4231218.20 99.86364 (20022608)
694295.65 4231204.54 105.36761 (20022608) 694313.91
4231190.88 106.41642 (20022608)
694332.17 4231177.22 102.93006 (20022608) 694350.43
4231163.56 96.74819 (19022818)
694368.69 4231149.90 97.91677 (22010618) 694386.95
4231136.24 97.18357 (21022223)
694405.21 4231122.58 96.99622 (20020201) 694423.47
4231108.91 97.94052 (19022819)
694441.73 4231095.25 98.92305 (19022819) 694459.99
4231081.59 96.22856 (22121406)
694478.25 4231067.93 98.29259 (18013005) 694496.51
4231054.27 99.30694 (18121707)
694514.77 4231040.61 97.89453 (18121707) 694533.03
4231026.95 100.83561 (20021908)
694551.29 4231013.29 108.87240 (20021908) 694569.55
4230999.63 111.44874 (20021908)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694587.81	4230985.97	110.45770	(20021908)	694606.07	4230972.31	118.02655	(22021208)
694624.33	4230958.65	119.00561	(22021208)	694642.59	4230944.99	121.31857	(20120205)
694660.85	4230931.33	125.61461	(18013008)	694679.11	4230917.67	127.08180	(18013008)
694697.37	4230904.01	122.36834	(18013008)	694715.63	4230890.35	113.11402	(21121709)
694733.89	4230876.69	145.41331	(22020318)	694752.14	4230863.03	162.98842	(22020318)
694770.40	4230849.37	161.79374	(18121104)	694788.66	4230835.71	154.35518	(18121104)
694806.92	4230822.05	147.79160	(18012607)	694825.18	4230808.39	142.35183	(18011023)
694843.44	4230794.73	136.72469	(22010605)	693841.55	4232235.81	84.83859	(19122023)
693842.07	4232258.96	82.47875	(20021601)	693842.59	4232282.11	81.84904	(20021601)
693843.10	4232305.26	80.54959	(22120501)	693843.62	4232328.42	81.06667	(22122324)
693844.13	4232351.57	81.88188	(20021102)	693844.65	4232374.72	82.18950	(21020207)
693845.17	4232397.87	81.83623	(19120423)	693845.68	4232421.02	81.23820	(21021904)
693648.29	4232218.23	80.40798	(19122023)	693654.98	4232196.18	79.47840	(19122023)
693661.67	4232174.14	76.25918	(18123024)	693668.36	4232152.10	72.90524	(18123024)

693675.05 4232130.06 74.42496 (22012801) 693681.74
4232108.01 74.96705 (22012801)
693688.43 4232085.97 73.66120 (21011719) 693695.12
4232063.93 76.31088 (21011719)
693701.81 4232041.89 75.99030 (21011719) 693708.50
4232019.84 76.47796 (22122306)
693715.18 4231997.80 74.36706 (19010302) 693721.87
4231975.76 76.67865 (19011907)
693728.56 4231953.72 76.24608 (19011907) 693735.25
4231931.67 75.80693 (19021118)
693741.94 4231909.63 73.58368 (19021118) 693748.63
4231887.59 75.41288 (20011217)
693755.32 4231865.54 78.32261 (20011217) 693762.01
4231843.50 78.52509 (20011217)
693768.70 4231821.46 77.67262 (19122419) 693775.39
4231799.42 75.73900 (19122419)
693782.08 4231777.37 77.77422 (20122004) 693788.77
4231755.33 77.56415 (20122004)
693795.46 4231733.29 77.05574 (22022504) 693802.14
4231711.25 78.06969 (22012705)
693808.83 4231689.20 77.38058 (20021907) 693815.52
4231667.16 78.18036 (19111208)
693822.21 4231645.12 78.40371 (19111208) 693828.90
4231623.08 77.87577 (18011203)
693835.59 4231601.03 77.27178 (22010508) 693842.28
4231578.99 76.56172 (21121919)
693848.97 4231556.95 76.42314 (21121919) 693855.66
4231534.91 74.43182 (21121902)
693862.35 4231512.86 76.23457 (21121902) 693869.04
4231490.82 74.89549 (21121902)
693875.73 4231468.78 75.01439 (18022107) 693882.42
4231446.74 75.58279 (18022107)
693889.11 4231424.69 75.02600 (20121104) 693895.79
4231402.65 73.62279 (20121104)
693902.48 4231380.61 75.73985 (18122917) 693909.17
4231358.56 77.66764 (18121508)
693915.86 4231336.52 79.39871 (18121508) 693922.55
4231314.48 78.22515 (18121508)
693929.24 4231292.44 78.03314 (22021020) 693935.93
4231270.39 77.85054 (18121720)
693942.62 4231248.35 77.89746 (22022503) 693967.75
4231212.51 82.36959 (20021508)
693986.20 4231198.71 89.72139 (20021508) 694004.64
4231184.91 95.08157 (20021508)
694023.09 4231171.11 96.79212 (22013021) 694041.53
4231157.31 96.84849 (22013021)
694059.98 4231143.52 100.73143 (21011704) 694078.42
4231129.72 105.43568 (20122120)
694096.87 4231115.92 107.36451 (20122120) 694115.31
4231102.12 106.66818 (22120206)

694133.76 4231088.32 112.13007 (20022608) 694152.20
4231074.52 117.98976 (20022608)
694170.65 4231060.72 119.66925 (20022608) 694189.09
4231046.92 116.87473 (20022608)
694207.54 4231033.12 110.33335 (19022818) 694225.98
4231019.33 108.87873 (22010618)
694244.43 4231005.53 109.88091 (22010618) 694262.87
4230991.73 109.16255 (21022223)
694281.32 4230977.93 108.25806 (20020201) 694299.76
4230964.13 108.73110 (19022819)
694318.21 4230950.33 109.13212 (19022819) 694336.65
4230936.53 107.30658 (22121406)
694355.10 4230922.73 109.64047 (18013005) 694373.54
4230908.93 109.51123 (18121707)
694391.99 4230895.14 109.27640 (18121707) 694410.43
4230881.34 106.97712 (22010606)
694428.88 4230867.54 112.66471 (20021908) 694447.32
4230853.74 116.73741 (20021908)
694465.76 4230839.94 115.62687 (20021908) 694484.21
4230826.14 111.24918 (22021208)
694502.65 4230812.34 130.25655 (22021208) 694521.10
4230798.54 125.85556 (22021208)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694539.54	4230784.74	108.75345	(20120205)	694557.99	4230770.95	109.28070	(18013008)
694576.43	4230757.15	110.33703	(18013008)	694594.88	4230743.35	106.80640	(18013008)
694613.32	4230729.55	99.43077	(18013008)	694631.77	4230715.75	96.80831	(18020423)

694650.21 4230701.95 97.78322 (22020318) 694668.66
4230688.15 99.43248 (22020318)
694687.10 4230674.35 99.75708 (21120103) 694705.55
4230660.55 98.99982 (18011024)
694723.99 4230646.76 99.34469 (18011024) 694742.44
4230632.96 98.45323 (22120523)
694760.88 4230619.16 96.37860 (22120523) 694779.33
4230605.36 119.16479 (20012704)
693641.60 4232240.27 76.57524 (19122023) 693642.12
4232263.42 73.32888 (20021601)
693642.64 4232286.57 71.62633 (20021601) 693643.15
4232309.72 71.47223 (22120501)
693643.67 4232332.87 74.12345 (22122324) 693644.18
4232356.03 76.29395 (20021102)
693644.70 4232379.18 75.10794 (21020207) 693645.22
4232402.33 74.87699 (21020207)
693645.73 4232425.48 74.54947 (19120423) 695345.69
4232412.58 1468.08009 (20032507)
695390.01 4232411.90 1945.16320 (21040107) 695434.34
4232411.23 2027.11435 (22040107)
695478.66 4232410.55 893.90659 (20012503) 695328.35
4232430.58 1250.67315 (20032507)
695368.23 4232437.24 1444.05317 (18121503) 695412.55
4232436.56 1760.77432 (19110808)
695456.88 4232435.89 1045.94632 (22030208) 695501.20
4232435.21 778.85008 (21052406)
695328.73 4232455.58 1112.48023 (22121724) 695285.63
4232424.15 1122.28206 (19020719)
695368.61 4232462.23 1420.59327 (21022820) 695412.94
4232461.56 1656.24082 (19110808)
695457.26 4232460.89 890.31856 (22030208) 695501.58
4232460.21 607.69491 (20012503)
695329.11 4232480.58 1070.05779 (20120507) 695293.66
4232466.60 1011.81730 (20121609)
695268.29 4232442.16 976.56744 (18011705) 695368.99
4232487.23 1298.93596 (21040107)
695413.32 4232486.56 1357.41264 (19110808) 695457.64
4232485.88 800.79865 (22052206)
695501.96 4232485.21 567.57362 (20012503) 695329.87
4232530.57 902.55975 (19010404)
695294.42 4232516.59 804.92116 (20032507) 695258.97
4232502.61 756.83317 (20011524)
695233.60 4232478.17 761.89067 (18011705) 695218.30
4232443.27 825.93153 (20120201)
695369.75 4232537.23 1012.80326 (21040107) 695414.08
4232536.55 1141.19631 (19110808)
695458.40 4232535.88 852.78083 (21101620) 695502.72
4232535.20 582.56228 (18102623)
695328.10 4232579.57 650.08425 (18121503) 695287.59
4232563.59 620.66539 (20120507)

695247.08 4232547.61 653.05915 (20121609) 695197.82
4232511.69 643.21870 (22020607)
695180.33 4232471.80 677.20510 (22011405) 695162.85
4232431.92 730.75519 (22120424)
695370.51 4232587.22 741.08095 (20020606) 695414.84
4232586.55 819.15316 (18121022)
695459.16 4232585.87 777.16185 (20020102) 695503.48
4232585.20 877.25034 (22122321)
695329.42 4232629.78 537.66505 (21022820) 695290.04
4232614.25 528.83827 (22012905)
695250.65 4232598.71 543.87531 (20032507) 695211.26
4232583.18 555.17343 (20121609)
695163.38 4232548.25 613.69165 (22020607) 695146.38
4232509.48 671.83103 (20120201)
695129.38 4232470.70 758.19455 (21022603) 695112.37
4232431.93 764.50208 (22120720)
695371.27 4232637.21 556.42365 (18011019) 695415.60
4232636.54 591.70281 (18121022)
695459.92 4232635.87 638.02665 (18011624) 695504.24
4232635.19 644.99153 (22122806)
695330.54 4232679.92 490.01931 (21040107) 695291.87
4232664.67 476.61930 (19010404)
695253.20 4232649.41 494.59683 (20120507) 695214.53
4232634.16 530.13781 (20121609)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695175.86	4232618.91	548.75462	(20011524)	695128.85	4232584.62	562.00701	(22020607)
695112.15	4232546.55	604.79455	(20120201)	695095.46	4232508.48	637.88536	(19121608)

695078.77 4232470.41 655.46218 (18013023) 695062.08
4232432.34 684.84926 (19012824)
695372.03 4232687.21 502.39266 (19010401) 695416.36
4232686.53 507.39040 (18121022)
695460.68 4232685.86 519.47010 (22040107) 695505.00
4232685.19 545.36825 (19102418)
695331.14 4232779.54 405.32961 (18020320) 695290.63
4232763.56 416.10382 (21022820)
695250.12 4232747.58 421.28966 (22012905) 695209.61
4232731.61 451.41346 (18012605)
695169.10 4232715.63 465.29769 (20121609) 695128.59
4232699.65 451.52852 (20011524)
695088.08 4232683.67 411.79266 (19020719) 695059.08
4232655.74 401.36835 (19121922)
695041.59 4232615.85 431.18149 (20120201) 695024.10
4232575.97 445.96166 (19121608)
695006.62 4232536.09 483.71583 (22120602) 694989.13
4232496.20 514.22408 (18021607)
694971.64 4232456.32 519.71641 (20120204) 695373.56
4232787.20 410.50218 (18120924)
695417.88 4232786.52 432.68048 (18121022) 695462.20
4232785.85 433.28000 (22040107)
695506.52 4232785.17 413.56488 (20122417) 695333.22
4232879.75 357.00296 (18121108)
695293.84 4232864.22 369.42178 (21040107) 695254.45
4232848.68 365.39434 (18121503)
695215.07 4232833.15 363.54383 (22012905) 695175.68
4232817.61 366.05962 (20120507)
695136.30 4232802.08 363.05447 (20032507) 695096.91
4232786.54 357.51584 (20121609)
695057.53 4232771.00 315.68690 (22120717) 695018.14
4232755.47 292.86496 (18011705)
694989.95 4232728.31 289.91689 (19121922) 694972.95
4232689.54 300.21946 (20120201)
694955.94 4232650.76 315.63178 (19012302) 694938.94
4232611.99 327.96253 (21022603)
694921.94 4232573.21 330.43303 (18013023) 694904.94
4232534.44 361.68955 (21120107)
694887.94 4232495.66 389.70244 (20120204) 694870.94
4232456.89 429.82970 (21021908)
695375.08 4232887.19 357.23766 (19110808) 695419.40
4232886.51 426.21569 (20012505)
695463.72 4232885.84 452.80945 (22040107) 695508.05
4232885.16 370.56835 (21101620)
695334.18 4232979.52 371.76983 (20033007) 695293.67
4232963.54 295.19110 (19011019)
695253.16 4232947.56 357.88926 (19111108) 695212.65
4232931.58 348.14256 (18020101)
695172.14 4232915.60 300.17421 (22012905) 695131.63
4232899.62 300.65452 (18012605)

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        695091.12   4232883.64      285.72219  (18121106)                695050.61
4232867.66      282.44344  (20121609)
        695010.10   4232851.68      254.25173  (22012605)                694969.59
4232835.71      243.62201  (19020719)
        694920.33   4232799.78      241.57065  (19121922)                694902.85
4232759.90      244.94953  (20120201)
        694885.36   4232720.02      246.65343  (19012302)                694867.87
4232680.14      251.47495  (21022603)
        694850.38   4232640.25      259.18768  (22120602)                694832.90
4232600.37      257.97715  (21122103)
        694815.41   4232560.49      272.83415  (19012824)                694797.92
4232520.60      275.73444  (18010223)
        694780.43   4232480.72      293.14448  (21021908)                694762.95
4232440.84      318.86358  (18010109)
        695376.60   4232987.17      358.33678  (19110808)                695420.92
4232986.50      287.19057  (19122323)
        695465.24   4232985.82      215.51674  (20071103)                695509.57
4232985.15      151.55893  (19020618)
        695336.11   4233079.67      221.38723  (20121602)                695296.41
4233064.01      308.16043  (20033007)
        695256.71   4233048.35      374.85110  (19111108)                695217.01
4233032.69      310.27285  (21022820)
        695177.31   4233017.03      256.41951  (19010404)                695137.61
4233001.37      253.74524  (22012905)
        695097.91   4232985.71      251.91491  (18012605)                695058.21
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  53
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                         ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  54
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                 **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M)
Y-COORD (M) CONC (YYMMDDHH)

- - - -

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4233773.14       74.26115  (20121609)
        694533.67   4233757.03       74.24738  (20121609)                694492.81
4233740.91       71.08506  (22022502)
        694451.96   4233724.80       73.30013  (20011524)                694411.10
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4233676.45       73.69601  (19020719)
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4233644.22       81.23131  (22020607)
        694206.84   4233628.11       81.30349  (19121922)                694157.16
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4233350.56       86.22605  (22022805)
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        693998.44   4233229.89       87.66678  (22120602)                693980.81
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        693963.17   4233149.45       75.31253  (22120720)                693945.54
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  56
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                          ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **
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X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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693857.36	4232908.13	74.27465	(21010602)	693839.72	4232867.91	77.21210	(21021908)
693822.09	4232827.69	76.27227	(21021908)	693804.45	4232787.47	77.23551	(18021608)
693786.82	4232747.25	75.65756	(18010109)	693769.18	4232707.02	72.59393	(18010109)
693751.55	4232666.80	72.15458	(22011706)	693733.91	4232626.58	72.12000	(22120705)
693716.27	4232586.36	75.88172	(19012817)	693698.64	4232546.14	74.27809	(19012817)
693681.00	4232505.92	70.85882	(22020603)	693663.37	4232465.70	72.19602	(21021904)
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695525.44	4232385.22	950.91955	(22010821)	695525.44	4232361.35	1094.12592	(22021122)
695525.44	4232337.49	1316.63117	(20101620)	695525.44	4232313.62	1578.89786	(21120409)
695525.44	4232289.76	1892.87974	(19011017)	695525.44	4232265.89	2306.40719	(20010809)
695525.44	4232242.02	2770.49061	(22090406)	695525.44	4232218.16	3657.58373	(19082305)
695525.44	4232194.29	3740.73842	(19011407)	695525.44	4232170.42	4052.44913	(18022108)
695525.44	4232146.56	3247.38564	(18012703)	695525.44	4232122.69	2680.75804	(18120807)
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695550.44	4232337.49	1190.89476	(21120409)	695550.44	4232313.62	1259.38344	(21121008)
695550.44	4232289.76	1483.02716	(19012818)	695550.44	4232265.89	1656.03573	(22121609)
695550.44	4232242.02	1894.77848	(19062906)	695550.44	4232218.16	2276.11072	(19020619)
695550.44	4232194.29	2821.40273	(19062406)	695550.44	4232170.42	2914.25691	(19022418)
695550.44	4232146.56	2646.90167	(18022108)	695550.44	4232122.69	2302.48672	(18101007)
695550.44	4232098.83	1878.62652	(18121421)	695550.44	4232074.96	1412.53022	(18110903)

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4232289.76     1136.26103  (20120117)
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4232242.02     1474.37876  (19062906)
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4232194.29     1794.49459  (19062306)
        695575.44   4232170.42     1930.25000  (19091307)                695575.44
4232146.56     1984.31894  (18120708)
        695575.44   4232122.69     1880.30277  (18123009)                695575.44
4232098.83     1498.11866  (18101007)
        695575.44   4232074.96     1290.34811  (18121421)                695593.25
4232402.76      717.41455  (20101620)
        695578.87   4232437.85      632.70973  (20122803)                695554.26
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4232337.49      862.15151  (22012305)
        695600.44   4232313.62      929.57293  (19012818)                695600.44
4232289.76      984.83077  (20122017)
        695600.44   4232265.89     1085.42138  (22011909)                695600.44
4232242.02     1173.39330  (19062906)
        695600.44   4232218.16     1324.85661  (19110317)                695600.44
4232194.29     1422.14999  (19062306)
        695600.44   4232170.42     1549.17688  (19062406)                695600.44
4232146.56     1450.26662  (19022418)
        695600.44   4232122.69     1411.62054  (18022108)                695600.44
4232098.83     1332.79657  (18123009)
        695600.44   4232074.96     1144.04116  (18101007)                695641.81
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        695633.19   4232427.32      683.77652  (22030308)                695624.56
4232448.37      615.84985  (21120209)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  57
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
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**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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695565.47	4232508.37	542.29611	(19040807)	695544.56	4232517.31	499.23129	(19010809)
695523.64	4232526.26	497.24567	(20012503)	695650.44	4232385.22	735.52148	(21091307)
695650.44	4232361.35	741.24368	(22071106)	695650.44	4232337.49	780.71715	(19012818)
695650.44	4232313.62	808.29741	(20120117)	695650.44	4232289.76	977.70787	(22121609)
695650.44	4232265.89	960.38208	(22021908)	695650.44	4232242.02	1091.03841	(19040303)
695650.44	4232218.16	1169.15760	(19100505)	695650.44	4232194.29	1199.85087	(19082305)
695650.44	4232170.42	1224.39700	(19062306)	695650.44	4232146.56	1246.19982	(19062406)
695650.44	4232122.69	1170.62070	(19091307)	695650.44	4232098.83	1136.33524	(18120708)
695650.44	4232074.96	1177.09840	(18022108)	695692.22	4232405.27	692.28091	(21091307)
695675.79	4232445.37	640.48287	(21120409)	695659.36	4232485.46	512.23971	(21120209)
695623.01	4232534.08	437.36269	(22010821)	695583.17	4232551.12	501.78898	(19040807)
695543.33	4232568.16	580.17709	(20063006)	695700.44	4232361.35	763.82711	(20112921)
695700.44	4232337.49	891.87244	(19102621)	695700.44	4232313.62	1047.87388	(22070806)
695700.44	4232289.76	1137.33436	(19091107)	695700.44	4232265.89	1095.30742	(22021402)
695700.44	4232242.02	1150.20390	(22121308)	695700.44	4232218.16	1168.02354	(19012503)
695700.44	4232194.29	1120.05509	(19010321)	695700.44	4232170.42	1127.89156	(19111619)
695700.44	4232146.56	1093.45641	(19062406)	695700.44	4232122.69	1133.91210	(19091307)
695700.44	4232098.83	1107.43935	(19091307)	695700.44	4232074.96	1013.24287	(19022418)
695741.45	4232407.15	618.75911	(22071106)	695732.47	4232429.08	617.91842	(21091307)
695723.48	4232451.01	512.65972	(19110420)	695714.50	4232472.93	539.99048	(21120409)
695705.51	4232494.86	496.00511	(22030308)	695696.53	4232516.79	429.48804	(22011918)

695687.54 4232538.72 428.26185 (18120917) 695656.77
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695750.44 4232146.56 990.65565 (19021906) 695750.44
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695757.31 4232490.48 419.71011 (21091407) 695748.68
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695722.81 4232574.68 407.61150 (18031822) 695693.26
4232604.68 474.05746 (22112107)
695672.34 4232613.62 563.68438 (20121106) 695651.43
4232622.57 653.49012 (20020720)
695630.51 4232631.51 668.67197 (22121924) 695609.59
4232640.46 694.25157 (18060206)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695588.67	4232649.40	574.94362	(19022508)	695567.76	4232658.35	567.29548	(18020503)
695546.84	4232667.29	569.97570	(20021108)	695525.92	4232676.24	568.12852	(18121419)
695800.44	4232385.22	569.94085	(19011209)	695800.44	4232361.35	595.08560	(20050805)
695800.44	4232337.49	704.08392	(22070806)	695800.44	4232313.62	748.82897	(19091107)
695800.44	4232289.76	842.06114	(19091107)	695800.44	4232265.89	815.22704	(19022419)
695800.44	4232242.02	836.00397	(22121308)	695800.44	4232218.16	842.41745	(19012503)
695800.44	4232194.29	854.57689	(19120817)	695800.44	4232170.42	813.34440	(19011319)
695800.44	4232146.56	845.92824	(19111619)	695800.44	4232122.69	831.13506	(19021906)
695800.44	4232098.83	896.18725	(19062406)	695800.44	4232074.96	861.02730	(19091307)
695891.59	4232406.81	427.84060	(19011209)	695882.75	4232428.40	416.65086	(22021324)
695873.90	4232449.99	388.41368	(22100507)	695865.05	4232471.58	396.91846	(22071106)
695856.20	4232493.18	354.41280	(19081405)	695847.36	4232514.77	340.66947	(21091307)
695838.51	4232536.36	303.38471	(21102017)	695829.66	4232557.95	313.73892	(21120409)
695820.81	4232579.54	326.03527	(21120409)	695811.97	4232601.13	281.22138	(22030308)
695803.12	4232622.72	249.22086	(20101620)	695794.27	4232644.31	271.25912	(20052504)
695763.97	4232675.08	360.02160	(21120408)	695742.52	4232684.25	391.65014	(19110908)
695721.06	4232693.43	441.74997	(20121106)	695699.61	4232702.60	495.54595	(22013006)
695678.16	4232711.78	494.15263	(22121924)	695656.70	4232720.95	518.78760	(20042806)
695635.25	4232730.13	561.77039	(18060206)	695613.79	4232739.30	535.67960	(20063006)
695592.34	4232748.48	524.03274	(20021308)	695570.89	4232757.65	433.57909	(20021108)
695549.43	4232766.82	433.34597	(18121419)	695527.98	4232776.00	421.14486	(22122806)

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4232361.35      481.15929  (22070806)
        695900.44   4232337.49      505.36602  (19011406)                695900.44
4232313.62      631.02650  (19091107)
        695900.44   4232289.76      589.01994  (22021402)                695900.44
4232265.89      591.02104  (19013023)
        695900.44   4232242.02      615.77853  (22121308)                695900.44
4232218.16      605.89220  (19012503)
        695900.44   4232194.29      630.20638  (19012503)                695900.44
4232170.42      662.13378  (19010321)
        695900.44   4232146.56      629.56775  (19011319)                695900.44
4232122.69      637.25265  (19111804)
        695900.44   4232098.83      628.99045  (19021906)                695900.44
4232074.96      611.83874  (19062406)
        695991.45   4232407.15      476.83860  (22022224)                695982.47
4232429.08      485.65129  (20022722)
        695973.48   4232451.01      457.37794  (22010504)                695964.50
4232472.93      405.13043  (19071803)
        695955.51   4232494.86      394.27276  (22100507)                695946.53
4232516.79      384.51447  (19040307)
        695937.54   4232538.72      347.87066  (19081405)                695928.56
4232560.65      377.88802  (21091307)
        695919.57   4232582.58      351.32716  (22100807)                695910.59
4232604.50      354.65153  (21091407)
        695901.60   4232626.43      342.81722  (22011409)                695892.61
4232648.36      319.17966  (20111601)
        695883.63   4232670.29      319.40779  (19091105)                695874.64
4232692.22      329.52602  (18101622)
        695865.66   4232714.15      339.41346  (22011723)                695834.88
4232745.39      366.32541  (22021323)
        695813.09   4232754.71      390.27344  (19110908)                695791.30
4232764.03      425.64298  (19110908)
        695769.52   4232773.35      421.73479  (20121106)                695747.73
4232782.66      433.19013  (22013006)
        695725.94   4232791.98      425.11440  (19111302)                695704.15
4232801.30      440.10193  (18101619)
        695682.36   4232810.62      460.37707  (18060206)                695660.57
4232819.94      465.22955  (18060206)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  59
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,
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*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695638.78	4232829.25	426.93579	(19012907)	695616.99	4232838.57	462.03642	(20021308)
695595.20	4232847.89	437.45994	(20021108)	695573.41	4232857.21	386.15230	(21100120)
695551.62	4232866.53	360.63222	(22121919)	695529.83	4232875.84	372.09880	(19112208)
696000.44	4232385.22	507.63105	(22070806)	696000.44	4232361.35	508.49486	(19011302)
696000.44	4232337.49	578.78344	(19091107)	696000.44	4232313.62	560.67319	(19091107)
696000.44	4232289.76	519.04613	(22021807)	696000.44	4232265.89	529.35181	(19013023)
696000.44	4232242.02	532.46031	(22121308)	696000.44	4232218.16	523.31196	(19011408)
696000.44	4232194.29	526.42154	(19012503)	696000.44	4232170.42	506.01646	(19120817)
696000.44	4232146.56	435.74080	(19020619)	696000.44	4232122.69	406.93655	(19121919)
696000.44	4232098.83	412.89079	(19020102)	696000.44	4232074.96	414.04177	(19020102)
696091.81	4232406.27	431.75495	(22070806)	696083.19	4232427.32	432.00506	(22070806)
696074.56	4232448.37	426.07027	(20022722)	696065.94	4232469.42	432.21374	(20022722)
696057.31	4232490.48	428.87575	(19121620)	696048.68	4232511.53	415.64211	(22030123)
696040.06	4232532.58	424.43352	(22100507)	696031.43	4232553.63	419.31477	(20011203)
696022.81	4232574.68	422.19919	(19040307)	696014.18	4232595.73	413.44884	(19102521)
696005.55	4232616.78	403.51664	(20012305)	695996.93	4232637.83	390.03605	(19040305)
695988.30	4232658.89	376.40101	(18020222)	695979.68	4232679.94	371.58908	(22011409)
695971.05	4232700.99	355.64469	(20103022)	695962.42	4232722.04	348.16362	(20011921)
695953.80	4232743.09	333.61136	(21102921)	695945.17	4232764.14	319.04510	(21022524)
695936.54	4232785.19	308.38962	(21120306)	695907.00	4232815.19	285.51254	(20012304)

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        695886.08   4232824.14      283.14379  (21120408)               695865.17
4232833.08      276.40988  (19110908)
        695844.25   4232842.03      269.79624  (19100601)               695823.33
4232850.97      282.06117  (20020706)
        695802.41   4232859.92      289.60461  (19062305)               695781.50
4232868.86      286.91085  (19111302)
        695760.58   4232877.81      296.90831  (19103021)               695739.66
4232886.75      307.38145  (18101619)
        695718.74   4232895.70      333.12207  (18060206)               695697.83
4232904.64      362.90850  (18060206)
        695676.91   4232913.59      341.63912  (20063006)               695655.99
4232922.53      326.31345  (18020503)
        695635.07   4232931.48      329.73700  (20021308)               695614.15
4232940.42      275.70363  (18111618)
        695593.24   4232949.37      217.91236  (21100120)               695572.32
4232958.31      197.97094  (22030208)
        695551.40   4232967.26      190.98415  (22030208)               695530.48
4232976.21      154.33377  (22052206)
        696100.44   4232385.22      417.04353  (19011302)               696100.44
4232361.35      444.42273  (19091107)
        696100.44   4232337.49      446.40996  (19091107)               696100.44
4232313.62      409.82876  (19011819)
        696100.44   4232289.76      350.90517  (20011920)               696100.44
4232265.89      347.33193  (19013023)
        696100.44   4232242.02      349.04860  (19011408)               696100.44
4232218.16      356.49161  (19011408)
        696100.44   4232194.29      347.56594  (19012503)               696100.44
4232170.42      347.76339  (19120817)
        696100.44   4232146.56      416.03027  (19010321)               696100.44
4232122.69      405.86750  (19020619)
        696100.44   4232098.83      410.43627  (19011319)               696100.44
4232074.96      418.33867  (19111804)
        696191.69   4232406.58      357.79413  (19011302)               696182.94
4232427.93      367.22578  (20021424)
        696174.19   4232449.29      372.57555  (22070806)               696165.44
4232470.65      356.45380  (20111521)
        696156.68   4232492.00      376.64951  (20022722)               696147.93
4232513.36      367.82301  (22010504)
        696139.18   4232534.71      364.97218  (19121620)               696130.43
4232556.07      344.14763  (20112921)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                  PAGE  60
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
```

INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696121.68	4232577.43	365.17433	(22100507)	696112.93	4232598.78	356.36390	(19120221)
696104.18	4232620.14	364.00736	(19040307)	696095.43	4232641.50	351.83602	(19102521)
696086.68	4232662.85	343.06987	(20012305)	696077.92	4232684.21	334.02269	(22020503)
696069.17	4232705.57	332.38609	(20032506)	696060.42	4232726.92	324.95066	(18020222)
696051.67	4232748.28	322.03119	(22011409)	696042.92	4232769.63	313.44287	(19022324)
696034.17	4232790.99	301.50368	(20011921)	696025.42	4232812.35	297.96677	(20010320)
696016.67	4232833.70	290.82285	(21022524)	696007.92	4232855.06	279.82597	(21120306)
695977.94	4232885.49	276.17173	(21011717)	695956.72	4232894.57	245.17163	(22021323)
695935.50	4232903.64	220.34504	(21120408)	695914.28	4232912.72	196.95807	(22112107)
695893.06	4232921.79	195.23143	(19100601)	695871.84	4232930.87	167.38042	(20012517)
695850.62	4232939.94	154.27596	(20012517)	695829.40	4232949.02	132.46332	(18052906)
695808.18	4232958.09	144.78627	(19040807)	695786.96	4232967.16	148.59244	(19040807)
695765.74	4232976.24	139.14117	(19010809)	695744.52	4232985.31	136.55923	(19010809)
695723.30	4232994.39	130.28010	(21052406)	695702.07	4233003.46	133.26222	(20060306)
695680.85	4233012.54	115.28579	(20012503)	695659.63	4233021.61	101.84604	(20092720)
695638.41	4233030.69	107.53990	(18121909)	695617.19	4233039.76	105.26489	(18121909)
695595.97	4233048.84	76.79404	(18121502)	695574.75	4233057.91	72.29095	(19012923)
695553.53	4233066.99	78.42363	(19030308)	695532.31	4233076.06	76.14956	(19030308)
696200.44	4232385.22	365.06547	(19091107)	696200.44	4232361.35	391.72436	(19091107)

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        696200.44   4232289.76      337.56028  (20011920)                696200.44
4232265.89      289.04433  (19013023)
        696200.44   4232242.02      289.16532  (19011408)                696200.44
4232218.16      346.73228  (19011408)
        696200.44   4232194.29      358.41409  (19012503)                696200.44
4232170.42      360.63429  (19012503)
        696200.44   4232146.56      363.67396  (19120817)                696200.44
4232122.69      348.83489  (19010321)
        696200.44   4232098.83      295.92128  (19110904)                696200.44
4232074.96      305.32430  (19011319)
        696391.52   4232407.00      308.75971  (19091107)                696382.59
4232428.77      281.60072  (19010419)
        696373.67   4232450.55      276.63701  (19011302)                696364.75
4232472.33      282.17138  (20021424)
        696355.82   4232494.11      289.85114  (22070806)                696346.90
4232515.88      270.17887  (19110219)
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4232559.44      276.92332  (20022722)
        696320.13   4232581.21      275.42990  (22010504)                696311.20
4232602.99      270.49960  (19121620)
        696302.28   4232624.77      256.49945  (19071803)                696293.36
4232646.55      261.45521  (22100507)
        696284.43   4232668.32      265.13513  (20011203)                696275.51
4232690.10      266.60006  (19040307)
        696266.59   4232711.88      266.84132  (19040307)                696257.66
4232733.65      239.74504  (19102521)
        696248.74   4232755.43      229.15377  (22112524)                696239.82
4232777.21      224.44213  (21091307)
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4232820.76      189.95666  (19110420)
        696213.05   4232842.54      191.29824  (21091407)                696204.12
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4232907.87      158.78474  (20111601)
        696177.35   4232929.65      151.92498  (22030308)                696168.43
4232951.43      136.60453  (21102921)
        696159.51   4232973.20      136.68610  (18101622)                696150.58
4232994.98      136.94411  (18101622)
        696120.02   4233026.01      145.53202  (18031822)                696098.38
4233035.26      150.31525  (18031822)
↟ *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                PAGE  61
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*
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*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696076.74	4233044.52	152.59120	(21120408)	696055.10	4233053.77	170.77962	(21120408)
696033.46	4233063.03	179.39013	(19110908)	696011.82	4233072.28	181.00592	(19100601)
695990.19	4233081.53	187.05911	(19100601)	695968.55	4233090.79	176.29965	(20020706)
695946.91	4233100.04	154.14152	(19062305)	695925.27	4233109.29	130.52372	(19110221)
695903.63	4233118.55	120.14229	(21012117)	695881.99	4233127.80	116.06165	(19040807)
695860.35	4233137.06	89.59444	(19040807)	695838.71	4233146.31	72.32923	(19010809)
695817.07	4233155.56	60.46306	(18020619)	695795.44	4233164.82	63.64929	(18102608)
695773.80	4233174.07	63.90636	(18102608)	695752.16	4233183.32	57.56952	(18102608)
695730.52	4233192.58	59.13844	(20012709)	695708.88	4233201.83	67.71667	(20012709)
695687.24	4233211.09	39.63807	(19040507)	695665.60	4233220.34	40.29564	(19040507)
695643.96	4233229.59	32.97972	(19040507)	695622.32	4233238.85	43.29191	(20012310)
695600.69	4233248.10	56.22690	(20012310)	695579.05	4233257.35	62.27658	(20012310)
695557.41	4233266.61	57.59139	(20012310)	695535.77	4233275.86	44.72291	(20012310)
696400.44	4232385.22	308.30463	(19091107)	696400.44	4232361.35	283.07232	(19091107)
696400.44	4232337.49	273.49533	(19011819)	696400.44	4232313.62	267.82020	(20011920)
696400.44	4232289.76	266.51519	(19013023)	696400.44	4232265.89	269.26243	(19013023)
696400.44	4232242.02	269.08041	(22121308)	696400.44	4232218.16	277.80833	(19011408)
696400.44	4232194.29	263.87942	(19012503)	696400.44	4232170.42	281.98059	(19012503)

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        696400.44   4232146.56      260.28447  (19100505)                696400.44
4232122.69      243.74222  (19120817)
        696400.44   4232098.83      220.62638  (19010321)                696400.44
4232074.96      191.94691  (19110904)
        696591.40   4232407.27      248.61141  (19091107)                696582.37
4232429.33      246.94257  (19091107)
        696573.33   4232451.38      216.11727  (19091107)                696564.29
4232473.43      193.39489  (19011406)
        696555.26   4232495.49      182.66126  (19112118)                696546.22
4232517.54      167.93917  (22111920)
        696537.18   4232539.60      159.69953  (22070806)                696528.15
4232561.65      146.46770  (22060806)
        696519.11   4232583.70      133.60674  (20050805)                696510.07
4232605.76      131.36776  (19012423)
        696501.03   4232627.81      124.72827  (19011209)                696492.00
4232649.86      129.60665  (19011209)
        696482.96   4232671.92      110.81123  (22021324)                696473.92
4232693.97      111.07442  (22021324)
        696464.89   4232716.03      111.93528  (20031018)                696455.85
4232738.08      113.73165  (18111602)
        696446.81   4232760.13      109.78784  (19101220)                696437.78
4232782.19      106.88112  (22071106)
        696428.74   4232804.24       99.16288  (18031606)                696419.70
4232826.29       89.21995  (19072506)
        696410.67   4232848.35       86.73343  (18092607)                696401.63
4232870.40       85.20335  (20092007)
        696392.59   4232892.45       82.32233  (21103108)                696383.56
4232914.51       86.51581  (21103108)
        696374.52   4232936.56       77.66253  (21102017)                696365.48
4232958.62       61.60841  (21102017)
        696356.45   4232980.67       77.97900  (21120110)                696347.41
4233002.72       90.77021  (21120110)
        696338.37   4233024.78       96.44784  (21120110)                696329.34
4233046.83       93.73657  (21120110)
        696320.30   4233068.88       83.49572  (21120110)                696311.26
4233090.94       68.30411  (21120110)
        696302.22   4233112.99       58.77061  (19102317)                696293.19
4233135.05       65.41124  (21120209)
        696262.24   4233166.47       68.22547  (21120209)                696240.32
4233175.84       57.46806  (21120209)
        696218.41   4233185.21       63.95005  (18120509)                696196.50
4233194.58       70.24665  (18120509)
        696174.58   4233203.96       69.72418  (19012109)                696152.67
4233213.33       72.03928  (22122309)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                PAGE  62
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696130.76	4233222.70	70.46638	(20061906)	696108.84	4233232.07	74.71261	(20061906)
696086.93	4233241.44	75.89263	(22021801)	696065.01	4233250.81	93.31821	(20012517)
696043.10	4233260.18	93.55106	(20012517)	696021.19	4233269.55	99.18377	(19110221)
695999.27	4233278.93	110.59975	(19103021)	695977.36	4233288.30	116.75939	(19103021)
695955.45	4233297.67	118.94869	(19040807)	695933.53	4233307.04	121.22755	(18111601)
695911.62	4233316.41	115.74008	(19010809)	695889.70	4233325.78	101.94284	(19010809)
695867.79	4233335.15	87.44916	(21052406)	695845.88	4233344.52	88.30868	(21052406)
695823.96	4233353.90	78.07285	(20060306)	695802.05	4233363.27	59.92001	(19092104)
695780.14	4233372.64	54.17235	(20012709)	695758.22	4233382.01	60.40820	(20012709)
695736.31	4233391.38	62.71598	(20012709)	695714.40	4233400.75	60.62307	(20012709)
695692.48	4233410.12	54.55057	(20012709)	695670.57	4233419.49	45.69326	(20012709)
695648.65	4233428.87	32.69201	(22052506)	695626.74	4233438.24	35.67828	(20012310)
695604.83	4233447.61	35.86902	(20012310)	695582.91	4233456.98	32.36266	(20012310)
695561.00	4233466.35	28.67242	(22121817)	695539.09	4233475.72	31.04667	(19122409)
696600.44	4232385.22	223.03175	(19091107)	696600.44	4232361.35	219.18547	(19011819)
696600.44	4232337.49	215.99319	(22021807)	696600.44	4232313.62	212.22401	(20011920)
696600.44	4232289.76	214.23979	(19013023)	696600.44	4232265.89	214.70229	(22121308)

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        696600.44   4232242.02      215.86739  (22121308)                696600.44
4232218.16      221.50006  (19011408)
        696600.44   4232194.29      195.94834  (19011408)                696600.44
4232170.42      192.52074  (19012503)
        696600.44   4232146.56      175.29501  (19100505)                696600.44
4232122.69      152.83087  (19110906)
        696600.44   4232098.83      133.27155  (18012217)                696600.44
4232074.96      113.74411  (21102817)
        696791.54   4232406.94      168.29008  (20091704)                696782.64
4232428.66      183.96098  (19091107)
        696773.74   4232450.38      178.37298  (19091107)                696764.84
4232472.10      150.15622  (19091107)
        696755.94   4232493.82      126.55411  (20082304)                696747.04
4232515.54      113.16380  (19112118)
        696738.14   4232537.26      113.37521  (22121609)                696729.24
4232558.98      100.67172  (22121609)
        696720.34   4232580.70       94.28281  (20010809)                696711.44
4232602.42       88.45859  (22060806)
        696702.54   4232624.13       78.99097  (22060806)                696693.64
4232645.85       70.51615  (18041706)
        696684.74   4232667.57       61.35717  (18041706)                696675.84
4232689.29       50.81972  (19030408)
        696666.94   4232711.01       55.42733  (19030408)                696658.04
4232732.73       49.74343  (19030408)
        696649.14   4232754.45       53.62056  (20040707)                696640.24
4232776.17       49.51233  (20040707)
        696631.34   4232797.89       53.33903  (22090107)                696622.44
4232819.61       68.95348  (22090107)
        696613.54   4232841.33       80.64681  (22090107)                696604.64
4232863.05       85.36000  (22090107)
        696595.74   4232884.77       81.80248  (22090107)                696586.84
4232906.49       71.02635  (22090107)
        696577.94   4232928.21       55.90591  (22090107)                696569.04
4232949.93       40.11987  (20021218)
        696560.14   4232971.65       39.26337  (22111808)                696551.24
4232993.37       43.37368  (20102817)
        696542.34   4233015.09       43.93764  (21102017)                696533.44
4233036.81       50.16698  (21102017)
        696524.54   4233058.53       46.52616  (21102017)                696515.64
4233080.25       37.95298  (21120409)
        696506.74   4233101.96       49.10459  (21120409)                696497.84
4233123.68       56.07003  (21120409)
        696488.94   4233145.40       55.46393  (21120409)                696480.04
4233167.12       51.29047  (19083107)
        696471.14   4233188.84       58.86168  (19083107)                696462.24
4233210.56       60.56255  (19083107)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696453.34	4233232.28	56.00460	(19083107)	696444.44	4233254.00	46.62309	(19083107)
696435.54	4233275.72	47.11197	(21120209)	696405.06	4233306.67	51.44474	(21120209)
696383.48	4233315.90	45.66763	(21120209)	696361.90	4233325.13	43.13641	(19012109)
696340.32	4233334.36	52.94630	(19012109)	696318.74	4233343.59	60.04085	(19012109)
696297.15	4233352.82	62.82439	(19012109)	696275.57	4233362.05	62.73701	(21020709)
696253.99	4233371.27	61.50224	(21020709)	696232.41	4233380.50	56.93832	(21020709)
696210.83	4233389.73	49.76822	(21020709)	696189.25	4233398.96	47.34161	(19011003)
696167.66	4233408.19	57.88717	(20012517)	696146.08	4233417.42	64.74535	(18030608)
696124.50	4233426.65	74.07575	(18030608)	696102.92	4233435.88	73.88553	(18030608)
696081.34	4233445.11	68.57546	(21012117)	696059.76	4233454.34	82.19125	(19040807)
696038.17	4233463.57	85.49450	(19040807)	696016.59	4233472.80	75.26084	(19040807)
695995.01	4233482.03	83.57463	(19010809)	695973.43	4233491.26	86.67088	(19010809)
695951.85	4233500.48	81.67381	(19100204)	695930.27	4233509.71	89.28410	(22020618)
695908.68	4233518.94	81.39524	(22020618)	695887.10	4233528.17	74.37785	(20060306)
695865.52	4233537.40	61.88788	(20121221)	695843.94	4233546.63	58.51789	(20012503)
695822.36	4233555.86	54.36616	(18032923)	695800.78	4233565.09	55.58075	(20012709)

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4233602.01       42.13697  (20012709)
        695692.87   4233611.24       34.15988  (20012709)                695671.29
4233620.46       30.93988  (22052506)
        695649.70   4233629.69       30.63246  (20012310)                695628.12
4233638.92       30.04488  (20012310)
        695606.54   4233648.15       27.59619  (20012310)                695584.96
4233657.38       23.87263  (18041807)
        695563.38   4233666.61       24.76864  (19122409)                695541.80
4233675.84       25.28684  (19122409)
        696800.44   4232385.22      176.22823  (22021402)                696800.44
4232361.35      179.83213  (19022419)
        696800.44   4232337.49      178.29568  (20011920)                696800.44
4232313.62      172.27306  (19013023)
        696800.44   4232289.76      182.70026  (19013023)                696800.44
4232265.89      184.73357  (22121308)
        696800.44   4232242.02      178.93165  (19103020)                696800.44
4232218.16      181.72979  (19011408)
        696800.44   4232194.29      167.44791  (19011408)                696800.44
4232170.42      154.38383  (19012503)
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4232122.69      129.89208  (19110906)
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4232074.96       99.36155  (18012217)
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4232429.08      144.47321  (20091704)
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4232472.93      176.92499  (19091107)
        696955.51   4232494.86      177.23928  (19091107)                696946.53
4232516.79      163.03508  (19091107)
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4232560.65      146.69175  (19011302)
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4232604.50      137.79865  (22111920)
        696901.60   4232626.43      142.06339  (22070806)                696892.61
4232648.36      135.10182  (22070806)
        696883.63   4232670.29      132.81317  (22022224)                696874.64
4232692.22      133.73241  (22022224)
        696865.66   4232714.15      101.78345  (19012423)                696856.67
4232736.07       89.96843  (19012423)
        696847.69   4232758.00       82.40176  (18041706)                696838.70
4232779.93       80.90056  (19011209)
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4232823.79       59.77070  (19012818)
        696811.74   4232845.72       55.09617  (18062906)                696802.76
4232867.64       51.26073  (20031018)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
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                             *** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
                                INCLUDING SOURCE(S):   STCK1   ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                       ** CONC OF VARIOUS IN MICROGRAMS/M**3
                  **

      X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)   X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)
 - - -

696438.40 4233493.69 54.91886 (19012109) 696416.61
4233503.01 57.34944 (19012109)
696394.82 4233512.33 57.12870 (21020709) 696373.03
4233521.64 56.74055 (21020709)
696351.25 4233530.96 53.65805 (21020709) 696329.46
4233540.28 48.29684 (21020709)
696307.67 4233549.60 41.35627 (21020709) 696285.88
4233558.92 33.80182 (20121620)
696264.09 4233568.23 45.38326 (18030608) 696242.30
4233577.55 58.50063 (18030608)
696220.51 4233586.87 66.77514 (18030608) 696198.72
4233596.19 67.59212 (18030608)
696176.93 4233605.51 60.71343 (18030608) 696155.14
4233614.82 51.35366 (19040807)
696133.35 4233624.14 56.72889 (19040807) 696111.56
4233633.46 52.59974 (19040807)
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696046.20 4233661.41 48.48696 (19010809) 696024.41
4233670.73 42.79005 (21120823)
696002.62 4233680.05 46.05971 (18102608) 695980.83
4233689.37 49.60546 (21052406)
695959.04 4233698.69 53.21844 (20060306) 695937.25
4233708.00 50.69999 (20060306)
695915.46 4233717.32 45.87827 (19092104) 695893.67
4233726.64 46.38082 (18032923)
695871.88 4233735.96 48.44018 (20092720) 695850.09
4233745.28 50.79587 (20012709)
695828.31 4233754.59 56.52227 (18121909) 695806.52
4233763.91 59.50883 (18121909)
695784.73 4233773.23 51.52974 (18121909) 695762.94
4233782.55 40.47567 (20012709)
695741.15 4233791.87 37.32794 (18121408) 695719.36
4233801.18 40.56065 (22030208)
695697.57 4233810.50 41.75471 (22030208) 695675.78
4233819.82 39.57563 (19030308)
695653.99 4233829.14 44.32464 (19030308) 695632.20
4233838.46 43.45019 (19030308)
695610.41 4233847.77 39.53675 (20022519) 695588.62
4233857.09 41.02385 (19020618)
695566.84 4233866.41 39.94608 (19092520) 695545.05
4233875.73 37.16237 (19012822)
697000.44 4232385.22 142.55013 (19022419) 697000.44
4232361.35 134.82570 (19022419)
697000.44 4232337.49 120.59368 (20011920) 697000.44
4232313.62 117.20315 (19013023)
697000.44 4232289.76 117.88947 (19013023) 697000.44
4232265.89 110.74394 (22121308)
697000.44 4232242.02 103.91401 (19100306) 697000.44
4232218.16 92.99327 (19110801)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
697000.44	4232194.29	85.25650	(22021907)	697000.44	4232170.42	74.95517	(18010206)
697000.44	4232146.56	67.17152	(21120406)	697000.44	4232122.69	65.21848	(20090521)
697000.44	4232098.83	62.73742	(22032407)	697000.44	4232074.96	59.96851	(21120208)
697191.55	4232406.91	43.12227	(20030418)	697182.67	4232428.60	44.54421	(21120403)
697173.78	4232450.29	54.77853	(21120403)	697164.89	4232471.98	63.77910	(21120403)
697156.00	4232493.67	70.05408	(21120403)	697147.12	4232515.35	74.54109	(19091107)
697138.23	4232537.04	88.90437	(20082304)	697129.34	4232558.73	94.80594	(20082304)
697120.45	4232580.42	97.48104	(19011406)	697111.57	4232602.11	103.26495	(19112118)
697102.68	4232623.80	111.61330	(19112118)	697093.79	4232645.49	110.06783	(22111920)
697084.90	4232667.18	117.82591	(22070806)	697076.02	4232688.87	124.10406	(22070806)
697067.13	4232710.56	116.57028	(22070806)	697058.24	4232732.25	119.53661	(22022224)
697049.35	4232753.94	116.78402	(20050805)	697040.47	4232775.62	115.39533	(20050805)
697031.58	4232797.31	116.66850	(19012423)	697022.69	4232819.00	112.63832	(19102621)
697013.80	4232840.69	114.98767	(22010504)	697004.92	4232862.38	108.49847	(19121620)

696996.03 4232884.07 110.28769 (22021324) 696987.14
4232905.76 115.11108 (22021324)
696978.25 4232927.45 111.47418 (22021324) 696969.37
4232949.14 103.48633 (20081424)
696960.48 4232970.83 114.36955 (22100507) 696951.59
4232992.52 117.72332 (22100507)
696942.70 4233014.21 118.22323 (20011203) 696933.82
4233035.89 119.56268 (19040307)
696924.93 4233057.58 123.61665 (19040307) 696916.04
4233079.27 121.32451 (19040307)
696907.15 4233100.96 114.59613 (19040307) 696898.27
4233122.65 114.47439 (19102521)
696889.38 4233144.34 111.89981 (22112524) 696880.49
4233166.03 110.27672 (21091307)
696871.60 4233187.72 112.26960 (21091307) 696862.72
4233209.41 110.31328 (22020503)
696853.83 4233231.10 108.51860 (22100807) 696844.94
4233252.79 108.94988 (22100807)
696836.05 4233274.48 105.03911 (21120405) 696827.17
4233296.16 105.40905 (21120405)
696818.28 4233317.85 104.00251 (21091407) 696809.39
4233339.54 100.42938 (21091407)
696800.50 4233361.23 96.06325 (22011409) 696791.62
4233382.92 85.98681 (20111601)
696782.73 4233404.61 85.74452 (20111601) 696773.84
4233426.30 79.99811 (20111601)
696764.95 4233447.99 76.41522 (22030308) 696756.07
4233469.68 71.12357 (22030308)
696747.18 4233491.37 61.50350 (19091105) 696738.29
4233513.06 57.78820 (20111604)
696729.40 4233534.75 56.36770 (20101620) 696720.52
4233556.43 51.39039 (20101620)
696690.08 4233587.34 54.13301 (20022518) 696668.53
4233596.56 54.54642 (18031822)
696646.98 4233605.77 59.12695 (18031822) 696625.42
4233614.99 52.28103 (18031822)
696603.87 4233624.21 43.14012 (21093018) 696582.32
4233633.42 45.34905 (19012109)
696560.77 4233642.64 50.33017 (19012109) 696539.22
4233651.85 52.82823 (19012109)
696517.67 4233661.07 52.36597 (19012109) 696496.12
4233670.29 52.77219 (21020709)
696474.56 4233679.50 51.17585 (21020709) 696453.01
4233688.72 47.61208 (21020709)
696431.46 4233697.94 42.47660 (21020709) 696409.91
4233707.15 36.32942 (21020709)
696388.36 4233716.37 29.76977 (21020709) 696366.81
4233725.59 25.90529 (18092907)
696345.25 4233734.80 25.84038 (18092907) 696323.70
4233744.02 31.71153 (18121910)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696259.05	4233771.67	45.13119	(18121910)	696237.50	4233780.88	45.58781	(18121910)
696215.95	4233790.10	43.61870	(18121910)	696194.39	4233799.32	39.51694	(18121910)
696172.84	4233808.53	33.89232	(18121910)	696151.29	4233817.75	27.50926	(18121910)
696129.74	4233826.97	30.75897	(18102608)	696108.19	4233836.18	36.10641	(18102608)
696086.64	4233845.40	40.33753	(18102608)	696065.09	4233854.61	42.88440	(18102608)
696043.53	4233863.83	43.38852	(18102608)	696021.98	4233873.05	41.78407	(18102608)
696000.43	4233882.26	38.31136	(18102608)	695978.88	4233891.48	33.45731	(18102608)
695957.33	4233900.70	36.83221	(20012709)	695935.78	4233909.91	41.72042	(20012709)
695914.23	4233919.13	45.33789	(20012709)	695892.67	4233928.35	47.29179	(20012709)
695871.12	4233937.56	47.36781	(20012709)	695849.57	4233946.78	45.57802	(20012709)
695828.02	4233955.99	42.16194	(20012709)	695806.47	4233965.21	37.52153	(20012709)
695784.92	4233974.43	41.22614	(19100806)	695763.37	4233983.64	54.73269	(22030208)
695741.81	4233992.86	66.30574	(22030208)	695720.26	4234002.08	72.50584	(22030208)

695698.71 4234011.29 66.72389 (22030208) 695677.16
4234020.51 71.18505 (19112207)
695655.61 4234029.73 78.49469 (20021221) 695634.06
4234038.94 84.39459 (20021221)
695612.51 4234048.16 78.54872 (19020618) 695590.95
4234057.37 82.01649 (19020618)
695569.40 4234066.59 86.82943 (22042506) 695547.85
4234075.81 85.84695 (22042506)
697200.44 4232385.22 40.16303 (20120909) 697200.44
4232361.35 38.17779 (20120909)
697200.44 4232337.49 40.15334 (21031022) 697200.44
4232313.62 40.73363 (22062306)
697200.44 4232289.76 38.01163 (22062306) 697200.44
4232265.89 33.47607 (19062906)
697200.44 4232242.02 31.46882 (22020317) 697200.44
4232218.16 39.10796 (22020317)
697200.44 4232194.29 45.61976 (22020317) 697200.44
4232170.42 48.82205 (22020317)
697200.44 4232146.56 47.51886 (22020317) 697200.44
4232122.69 41.71466 (22020317)
697200.44 4232098.83 44.45481 (20090521) 697200.44
4232074.96 54.63386 (22032407)
695518.21 4232061.22 1650.75574 (19111808) 695491.47
4232051.63 1914.87051 (19110608)
695496.64 4232007.68 1084.18536 (21120303) 695519.77
4232010.41 1146.67045 (18111308)
695546.52 4232020.01 1168.53933 (21010818) 695557.36
4232040.61 1189.43753 (18020520)
695473.52 4232004.96 1101.13831 (19042703) 695472.25
4231982.53 995.70569 (19080303)
695571.52 4232020.01 1091.11150 (18020520) 695582.36
4232040.61 1108.54752 (18101804)
695477.43 4231938.59 930.59549 (19080303) 695588.98
4231958.18 979.92361 (22121303)
695599.82 4231978.79 965.99650 (18020520) 695610.67
4231999.40 984.21391 (18110903)
695621.52 4232020.01 1089.68302 (18121421) 695632.36
4232040.61 1112.11836 (18101007)
695509.09 4231897.77 920.02562 (21102908) 695597.58
4231908.20 860.96132 (19111808)
695621.21 4231924.43 881.43176 (18020520) 695632.53
4231945.94 870.83857 (18110307)
695643.85 4231967.44 902.85047 (18120807) 695655.17
4231988.94 1006.80335 (18121421)
695666.49 4232010.45 1024.72891 (18101007) 695677.80
4232031.95 978.89320 (18012703)
695689.12 4232053.46 1144.54087 (18022108) 695418.67
4231842.56 993.15875 (21010309)
695442.60 4231845.38 879.21743 (21010309) 695466.52
4231848.20 815.93137 (21092207)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695586.15	4231862.30	768.76073	(18111308)	695610.07	4231865.12	784.67132	(19111808)
695634.00	4231867.94	768.32522	(21010818)	695653.19	4231890.20	795.55098	(18020520)
695664.42	4231911.52	801.98616	(18110307)	695675.64	4231932.84	833.64942	(18120807)
695686.86	4231954.16	900.94139	(18121421)	695698.08	4231975.47	916.86897	(18101007)
695709.30	4231996.79	923.42022	(18012703)	695720.52	4232018.11	966.24118	(18022108)
695731.74	4232039.43	963.72298	(18022108)	695472.04	4231804.30	720.50929	(21092207)
695511.69	4231808.97	647.88024	(19100307)	695535.48	4231811.78	754.38120	(21102908)
695559.27	4231814.58	674.14880	(21120303)	695583.06	4231817.39	738.75460	(19110608)
695614.77	4231821.12	723.45962	(19110117)	695638.56	4231823.93	729.75019	(19111808)
695662.35	4231826.73	704.39074	(22121303)	695681.44	4231848.86	706.25741	(18020520)
695692.59	4231870.06	707.16891	(18110307)	695703.75	4231891.26	713.95310	(18120807)
695714.91	4231912.45	784.46910	(18121421)	695726.06	4231933.65	760.50904	(18101007)

695737.22 4231954.85 784.39616 (18012703) 695748.38 4231976.04 774.46685 (18012703)
695759.53 4231997.24 897.27233 (18022108) 695770.69 4232018.44 838.01859 (18120708)
695781.85 4232039.63 856.95162 (19022418) 695445.34 4231712.05 571.01845 (21010309)
695477.52 4231715.84 560.39463 (21092207) 695501.65 4231718.69 564.90850 (21092207)
695525.78 4231721.53 549.22638 (20121105) 695549.92 4231724.38 630.59614 (21102908)
695574.05 4231727.22 596.92084 (20052506) 695598.18 4231730.07 590.66589 (19110608)
695622.32 4231732.91 599.15717 (19110608) 695646.45 4231735.75 603.34671 (19110117)
695670.58 4231738.60 594.84913 (19111808) 695694.72 4231741.44 569.80026 (21010818)
695718.85 4231744.29 544.87005 (22121303) 695738.21 4231766.74 461.26154 (18020520)
695749.53 4231788.24 463.45096 (18110307) 695760.85 4231809.75 467.38853 (18110903)
695772.17 4231831.25 516.15647 (18120807) 695783.49 4231852.75 522.24169 (18121421)
695794.80 4231874.26 513.46104 (18042206) 695806.12 4231895.76 537.69617 (18012703)
695817.44 4231917.27 535.71784 (18020522) 695828.76 4231938.77 579.86375 (18022108)
695840.08 4231960.27 597.97816 (18022108) 695851.39 4231981.78 522.07040 (19022418)
695862.71 4232003.28 553.73466 (19022418) 695874.03 4232024.78 519.24667 (19111221)
695885.35 4232046.29 618.98786 (19062406) 695369.64 4231614.03 392.15993 (19122418)
695410.22 4231618.81 550.94652 (21010309) 695434.56 4231621.68 599.13857 (21010309)
695458.91 4231624.55 518.85640 (22010604) 695483.25 4231627.42 512.07887 (19052406)
695507.60 4231630.29 526.28651 (21092207) 695531.94 4231633.15 476.66220 (20121105)
695556.29 4231636.02 525.92321 (21102908) 695580.63 4231638.89 564.24522 (21102908)
695604.98 4231641.76 489.72514 (20052506) 695629.32 4231644.63 512.82467 (19110608)
695653.67 4231647.50 514.81108 (19110608) 695678.01 4231650.37 500.63159 (19110117)
695702.36 4231653.24 478.77805 (19110117) 695726.70 4231656.11 475.33473 (19111808)
695751.05 4231658.98 389.63018 (21010818) 695775.39 4231661.85 379.54364 (21120419)
695794.93 4231684.50 371.70900 (18020520) 695806.34 4231706.19 375.68568 (18110307)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695817.76	4231727.88	381.68094	(18110903)	695829.18	4231749.57	411.62311	(18120807)
695840.60	4231771.27	416.35690	(18121421)	695852.01	4231792.96	404.13106	(18121421)
695863.43	4231814.65	406.94504	(18042206)	695874.85	4231836.34	435.38067	(18012703)
695886.27	4231858.04	432.08016	(18020522)	695897.68	4231879.73	442.76770	(18022108)
695909.10	4231901.42	490.22687	(18022108)	695920.52	4231923.11	444.19981	(18022108)
695931.94	4231944.81	440.71161	(19022418)	695943.35	4231966.50	438.59583	(19022418)
695954.77	4231988.19	415.33196	(19111221)	695966.19	4232009.88	424.67273	(19011407)
695977.61	4232031.58	421.45506	(19062406)	695989.02	4232053.27	388.50122	(19102907)
695341.36	4231521.59	327.52882	(19122418)	695373.54	4231525.38	330.42264	(22120221)
695397.68	4231528.23	431.13767	(21010309)	695421.81	4231531.07	511.80024	(21010309)
695445.94	4231533.92	484.86955	(21010309)	695470.08	4231536.76	435.66424	(22010604)
695494.21	4231539.60	439.89152	(19052406)	695518.34	4231542.45	456.12055	(21092207)
695542.48	4231545.29	406.86219	(19080303)	695566.61	4231548.14	429.21854	(21102908)
695590.74	4231550.98	498.12367	(21102908)	695614.88	4231553.83	476.40148	(21102908)

695639.01 4231556.67 432.19445 (21120303) 695663.14 4231559.51 447.68360 (19110608)
695687.28 4231562.36 429.72481 (18111308) 695711.41 4231565.20 408.99825 (18111308)
695735.54 4231568.05 390.03420 (19110117) 695759.68 4231570.89 328.96211 (18120606)
695783.81 4231573.74 328.89537 (20013118) 695807.94 4231576.58 329.06394 (21120419)
695832.08 4231579.42 313.22709 (18020520) 695851.44 4231601.88 298.12214 (18020520)
695862.76 4231623.38 302.23192 (18110307) 695874.08 4231644.88 310.61692 (18110903)
695885.39 4231666.39 328.51957 (18120807) 695896.71 4231687.89 342.18331 (18120807)
695908.03 4231709.40 344.90148 (18121421) 695919.35 4231730.90 328.58265 (18042206)
695930.67 4231752.40 401.01557 (18101007) 695941.99 4231773.91 413.85964 (18012703)
695953.30 4231795.41 427.11925 (18012703) 695964.62 4231816.91 422.97253 (18042705)
695975.94 4231838.42 477.10181 (18022108) 695987.26 4231859.92 483.23833 (18022108)
695998.58 4231881.43 445.64341 (18120708) 696009.89 4231902.93 455.56502 (19022418)
696021.21 4231924.43 448.11854 (19022418) 696032.53 4231945.94 481.18508 (19091307)
696043.85 4231967.44 473.15258 (19091307) 696055.17 4231988.94 473.09272 (19062406)
696066.49 4232010.45 454.09771 (19062406) 696077.80 4232031.95 418.84250 (19102907)
696089.12 4232053.46 429.75522 (19021906) 695257.25 4231422.57 289.41373 (20022008)
695281.53 4231425.43 290.26410 (20022008) 695305.82 4231428.30 271.62104 (19011402)
695330.10 4231431.16 273.51776 (19122418) 695354.39 4231434.02 349.64618 (22092907)
695378.67 4231436.88 356.69245 (22120221) 695402.96 4231439.74 407.55983 (21010309)
695427.24 4231442.61 442.33507 (21010309) 695451.52 4231445.47 400.19256 (21010309)
695475.81 4231448.33 373.72178 (22010604) 695500.09 4231451.19 382.09586 (19052406)
695524.38 4231454.06 404.70130 (21092207) 695548.66 4231456.92 368.86296 (21011206)
695572.95 4231459.78 375.02378 (20121105) 695597.23 4231462.64 412.88651 (21102908)
695621.51 4231465.50 434.11721 (21102908) 695645.80 4231468.37 386.80802 (21102908)
695670.08 4231471.23 359.07811 (21120303) 695694.37 4231474.09 354.20242 (19110608)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695908.12	4231519.58	253.14708	(18020520)	695919.51	4231541.22	258.78925	(18122103)
695930.90	4231562.86	263.73432	(18110903)	695942.29	4231584.49	265.80138	(18120807)
695953.68	4231606.13	288.84125	(18120807)	695965.07	4231627.77	287.00295	(18121421)
695976.46	4231649.41	337.34054	(18121421)	695987.85	4231671.05	337.87567	(18101007)
695999.24	4231692.69	366.52136	(18101007)	696010.62	4231714.32	367.35696	(18012703)
696022.01	4231735.96	372.71494	(18012703)	696033.40	4231757.60	364.71144	(18042705)
696044.79	4231779.24	388.60610	(18022108)	696056.18	4231800.88	412.85376	(18022108)
696067.57	4231822.51	357.84331	(18120708)	696078.96	4231844.15	309.32508	(18062905)
696090.35	4231865.79	340.60378	(19022418)	696101.74	4231887.43	338.11401	(19101224)
696113.12	4231909.07	422.83703	(19091307)	696124.51	4231930.71	406.45032	(19091307)

696135.90 4231952.34 385.53585 (19062406) 696147.29
4231973.98 378.94146 (19062406)
696158.68 4231995.62 308.80416 (19102907) 696170.07
4232017.26 310.58459 (19021906)
696181.46 4232038.90 303.23712 (19111619) 695185.44
4231235.90 196.44754 (19022402)
695209.69 4231238.76 208.33682 (20022008) 695233.94
4231241.62 220.20584 (20022008)
695258.19 4231244.48 214.51586 (20022008) 695282.44
4231247.33 207.15821 (19011402)
695306.70 4231250.19 246.78783 (22092907) 695330.95
4231253.05 274.28852 (22092907)
695355.20 4231255.91 279.93113 (22120221) 695379.45
4231258.77 277.73439 (21010306)
695403.70 4231261.63 330.24059 (21010309) 695427.95
4231264.48 348.77894 (21010309)
695452.20 4231267.34 321.16922 (21010309) 695476.45
4231270.20 295.99378 (22010604)
695500.70 4231273.06 298.57292 (19052406) 695524.95
4231275.92 305.09128 (21092207)
695549.20 4231278.77 318.57926 (21092207) 695573.45
4231281.63 290.91282 (21011206)
695597.70 4231284.49 287.28267 (20121105) 695621.95
4231287.35 286.36968 (21102908)
695646.20 4231290.21 308.32917 (21102908) 695686.62
4231294.97 283.48135 (21102908)
695767.46 4231304.50 271.38619 (19110608) 695791.71
4231307.36 263.56568 (18111308)
695815.96 4231310.21 223.31893 (22120520) 695840.21
4231313.07 219.01836 (19110117)
695864.46 4231315.93 213.34438 (18120606) 695888.71
4231318.79 210.80404 (21011718)
695912.96 4231321.65 212.69990 (20013118) 695937.21
4231324.51 211.81969 (21010818)
695961.46 4231327.36 207.62511 (21120419) 695985.71
4231330.22 242.23047 (18020520)
696013.75 4231340.28 242.50509 (18020520) 696025.13
4231361.89 229.47051 (18122103)
696036.50 4231383.50 246.59633 (18110307) 696047.87
4231405.11 249.24100 (18110903)
696059.25 4231426.71 243.41814 (18110903) 696070.62
4231448.32 252.82570 (18120807)
696081.99 4231469.93 257.51358 (18120807) 696093.37
4231491.54 274.29820 (18121421)
696104.74 4231513.15 273.96896 (18121421) 696116.11
4231534.76 266.06657 (18101007)
696127.49 4231556.36 291.01361 (18101007) 696138.86
4231577.97 278.52845 (18101007)
696150.23 4231599.58 273.87854 (18012703) 696161.60
4231621.19 249.76190 (18012703)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696172.98	4231642.80	236.17606	(18042705)	696184.35	4231664.40	254.40943	(18123009)
696195.72	4231686.01	242.53294	(18022108)	696207.10	4231707.62	214.69831	(18022108)
696218.47	4231729.23	194.61115	(18111508)	696229.84	4231750.84	189.04800	(18111508)
696241.22	4231772.45	183.81303	(19022418)	696252.59	4231794.05	193.74988	(19101224)
696263.96	4231815.66	190.77036	(19091307)	696275.34	4231837.27	210.04471	(19091307)
696286.71	4231858.88	191.18128	(19091307)	696298.08	4231880.49	181.49211	(21061706)
696309.46	4231902.09	184.82557	(19062406)	696320.83	4231923.70	161.93017	(22021302)
696332.20	4231945.31	166.82550	(21012118)	696343.57	4231966.92	174.99243	(19062306)
696354.95	4231988.53	175.24415	(18111108)	696366.32	4232010.14	167.57652	(21120218)
696377.69	4232031.74	174.62997	(19011319)	696389.07	4232053.35	181.69749	(19111021)
695113.70	4231049.24	146.94287	(18011020)	695138.13	4231052.12	151.21657	(18011020)
695162.55	4231055.00	156.43692	(20022008)	695186.97	4231057.87	170.76851	(20022008)
695211.40	4231060.75	173.83915	(20022008)	695235.82	4231063.63	164.34988	(20022008)
695260.24	4231066.51	164.80096	(19011402)	695284.67	4231069.39	164.17308	(19122418)

695309.09 4231072.27 167.50525 (19122418) 695333.51 4231075.15 201.40706 (22120221)
695357.93 4231078.02 213.68582 (22120221) 695382.36 4231080.90 238.32517 (21010309)
695406.78 4231083.78 273.70144 (21010309) 695431.20 4231086.66 280.66428 (21010309)
695455.63 4231089.54 257.44660 (21010309) 695480.05 4231092.42 231.30060 (22010604)
695504.47 4231095.30 221.82298 (22010604) 695528.90 4231098.17 223.09619 (18020601)
695577.74 4231103.93 183.07237 (19121302) 695838.25 4231134.63 175.88198 (20022721)
695862.68 4231137.51 171.93983 (18111308) 695887.10 4231140.39 175.46815 (22120520)
695911.52 4231143.27 173.73135 (19110117) 695935.95 4231146.15 204.83373 (19110117)
695960.37 4231149.03 206.33575 (19111808) 695984.79 4231151.91 209.04260 (19111808)
696009.22 4231154.78 202.54432 (20013118) 696033.64 4231157.66 202.21839 (21010818)
696058.06 4231160.54 200.15310 (22121303) 696082.48 4231163.42 197.33836 (18020520)
696106.91 4231166.30 193.99072 (18020520) 696130.83 4231182.73 184.08489 (18020520)
696142.28 4231204.49 188.53077 (18122103) 696153.73 4231226.25 202.86774 (18110307)
696165.19 4231248.01 204.48666 (18110903) 696176.64 4231269.77 199.69013 (18110903)
696188.10 4231291.53 190.11055 (18120807) 696199.55 4231313.30 201.82722 (18120807)
696211.00 4231335.06 205.65940 (18111322) 696222.46 4231356.82 211.54424 (18121421)
696233.91 4231378.58 196.87076 (18121820) 696245.37 4231400.34 195.52092 (18042206)
696256.82 4231422.11 216.16997 (18101007) 696268.27 4231443.87 220.12950 (18101007)
696279.73 4231465.63 202.01171 (18012703) 696291.18 4231487.39 217.96763 (18012703)
696302.64 4231509.15 196.84516 (18020522) 696314.09 4231530.91 187.06163 (18042705)
696325.54 4231552.68 198.52123 (18123009) 696337.00 4231574.44 186.79200 (18123009)
696348.45 4231596.20 169.88193 (18022108) 696359.91 4231617.96 154.57839 (22121720)
696371.36 4231639.72 158.29168 (18111508) 696382.81 4231661.49 146.49849 (18111508)
696394.27 4231683.25 138.54707 (18121004) 696405.72 4231705.01 134.19073 (21031302)
696417.18 4231726.77 138.12838 (22120208) 696428.63 4231748.53 133.91546 (20112405)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696577.53	4232031.44	95.44712	(22021906)	696588.99	4232053.20	107.44539	(22021906)
695041.89	4230862.57	167.26403	(21120204)	695066.27	4230865.44	154.24605	(22120521)
695090.65	4230868.31	131.38487	(18011020)	695115.03	4230871.19	133.53819	(19022402)
695139.41	4230874.06	139.55317	(20022008)	695163.78	4230876.93	143.04775	(20022008)
695188.16	4230879.81	139.59855	(20022008)	695212.54	4230882.68	131.52521	(21120119)
695236.92	4230885.55	134.47487	(19011402)	695261.30	4230888.43	133.92796	(19122418)
695285.67	4230891.30	138.39765	(19122418)	695310.05	4230894.17	134.85273	(22120221)
695334.43	4230897.05	138.56874	(22120221)	695358.81	4230899.92	140.78225	(18122303)

695383.19 4230902.79 143.57601 (21010309) 695407.56
4230905.67 195.37757 (21010309)
695431.94 4230908.54 156.72524 (21010309) 695472.57
4230913.33 147.93038 (22010603)
695724.48 4230943.02 141.25649 (22012720) 695756.98
4230946.85 142.55507 (18011122)
695789.49 4230950.68 137.94216 (19022505) 695813.86
4230953.55 137.03616 (21120303)
695838.24 4230956.43 137.97398 (19020621) 695887.00
4230962.17 141.62477 (22020723)
695911.38 4230965.05 141.56615 (20022721) 695935.75
4230967.92 140.84923 (18111308)
695960.13 4230970.79 139.28326 (22120520) 695984.51
4230973.67 135.50090 (19110117)
696008.89 4230976.54 132.05501 (19110117) 696033.27
4230979.41 135.13324 (18120606)
696057.65 4230982.28 136.66080 (21011718) 696082.02
4230985.16 138.86643 (20013118)
696106.40 4230988.03 137.40592 (21010818) 696130.78
4230990.90 136.61667 (21120419)
696155.16 4230993.78 135.87240 (21120419) 696179.54
4230996.65 130.10570 (18020520)
696203.91 4230999.52 130.56535 (18020520) 696228.29
4231002.40 125.61133 (18020520)
696247.85 4231025.08 138.68802 (18122103) 696259.28
4231046.80 140.82538 (18122103)
696270.72 4231068.52 125.79597 (18110307) 696282.15
4231090.24 126.41040 (18110903)
696293.58 4231111.96 126.69678 (18110903) 696305.01
4231133.69 127.79205 (18120807)
696316.45 4231155.41 137.44679 (18120807) 696327.88
4231177.13 139.08556 (18120807)
696339.31 4231198.85 175.07719 (18121421) 696350.75
4231220.57 191.00793 (18121421)
696362.18 4231242.29 174.11512 (18121421) 696373.61
4231264.02 164.52946 (18042206)
696385.04 4231285.74 175.92033 (18101007) 696396.48
4231307.46 167.96326 (18101007)
696407.91 4231329.18 143.31588 (18101007) 696419.34
4231350.90 138.10301 (18012703)
696430.78 4231372.62 140.27685 (18012703) 696442.21
4231394.35 133.44040 (18020522)
696453.64 4231416.07 136.26649 (18123009) 696465.08
4231437.79 158.22842 (18123009)
696476.51 4231459.51 159.72937 (18123009) 696487.94
4231481.23 140.38350 (18123009)
696499.37 4231502.95 134.63283 (18022108) 696510.81
4231524.68 126.49627 (22121720)
696522.24 4231546.40 129.19861 (18111508) 696533.67
4231568.12 119.80886 (18111508)

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        696545.11   4231589.84      112.13299  (19101219)               696556.54
4231611.56      111.75388  (21031302)
        696567.97   4231633.28      111.09104  (22120208)               696579.40
4231655.01      113.24793  (22120208)
        696590.84   4231676.73      110.96903  (20112405)               696602.27
4231698.45      116.18124  (19091307)
        696613.70   4231720.17      119.04422  (21061706)               696625.14
4231741.89      119.36120  (21061706)
        696636.57   4231763.62      112.10636  (19062406)               696648.00
4231785.34      110.32752  (19062406)
        696659.43   4231807.06      106.91552  (22021302)               696670.87
4231828.78      108.99324  (21012118)
        696682.30   4231850.50      103.43088  (21012118)               696693.73
4231872.22      108.77987  (19062306)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  72
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        696705.17   4231893.95      106.06234  (18111108)               696716.60
4231915.67       97.14253  (18111108)
        696728.03   4231937.39       86.77800  (21120218)               696739.46
4231959.11       83.84831  (18032504)
        696750.90   4231980.83       83.19807  (21101523)               696762.33
4232002.55       90.11699  (22021906)
        696773.76   4232024.28       92.55974  (22021906)               696785.20
4232046.00       90.86327  (22021906)
        694970.09   4230675.90      152.13304  (21120204)               694994.43
4230678.77      148.06912  (21120204)
        695018.78   4230681.64      146.22539  (22120521)               695043.12
4230684.51      150.08122  (22120521)
        695067.47   4230687.38      149.00763  (21100307)               695091.81
4230690.24      159.06954  (21100307)
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695116.16 4230693.11 169.14186 (20022008) 695140.50
4230695.98 169.07086 (20022008)
695164.85 4230698.85 164.94028 (22112008) 695189.19
4230701.72 159.51213 (21120402)
695213.54 4230704.59 160.92993 (19011402) 695237.88
4230707.46 157.40055 (22092907)
695262.23 4230710.33 161.61574 (22092907) 695286.57
4230713.20 151.28742 (22092907)
695310.92 4230716.07 143.33986 (22120221) 695335.26
4230718.94 117.36838 (18122303)
695359.61 4230721.81 118.48865 (22011902) 695408.30
4230727.55 130.55286 (21010309)
695659.87 4230757.20 122.99555 (19121302) 695692.33
4230761.02 124.04647 (19011205)
695716.67 4230763.89 121.21448 (19042703) 695741.02
4230766.76 120.71489 (22012720)
695765.36 4230769.63 123.37420 (18011122) 695789.71
4230772.50 156.73367 (21102908)
695814.05 4230775.37 152.74681 (21102908) 695838.40
4230778.24 123.59044 (19022505)
695862.74 4230781.11 124.58714 (21120303) 695887.09
4230783.98 120.51389 (21120303)
695911.43 4230786.84 114.24896 (18011101) 695935.78
4230789.71 105.45499 (18011101)
695960.12 4230792.58 99.29739 (22020723) 695984.47
4230795.45 95.62521 (20022721)
696008.81 4230798.32 95.83421 (18111308) 696033.16
4230801.19 101.48595 (22120520)
696057.50 4230804.06 113.26257 (19110117) 696081.85
4230806.93 113.30878 (19110117)
696106.19 4230809.80 109.19421 (18120606) 696130.54
4230812.67 101.54677 (18120606)
696154.88 4230815.54 93.91050 (21011718) 696179.23
4230818.41 91.35409 (20013118)
696203.57 4230821.28 93.72165 (21010818) 696227.92
4230824.15 100.61907 (21120419)
696252.26 4230827.02 109.09692 (21120419) 696276.61
4230829.88 108.78505 (21120419)
696300.95 4230832.75 129.15027 (18020520) 696325.30
4230835.62 138.86561 (18020520)
696353.45 4230845.72 128.96381 (18020520) 696364.87
4230867.42 131.94373 (18122103)
696376.29 4230889.11 129.05193 (18110307) 696387.70
4230910.80 105.63872 (18110307)
696399.12 4230932.49 102.27238 (18110903) 696410.54
4230954.19 98.44731 (18110903)
696421.96 4230975.88 92.33224 (18110903) 696433.37
4230997.57 99.29630 (18120807)
696444.79 4231019.26 103.14017 (18120807) 696456.21
4231040.96 103.88560 (18120807)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696650.30	4231409.73	177.21419	(18022108)	696661.72	4231431.42	173.60715	(18120708)
696673.14	4231453.11	161.38590	(18120708)	696684.56	4231474.80	142.10760	(18062905)
696695.97	4231496.50	128.07043	(18062905)	696707.39	4231518.19	122.64343	(19022418)
696718.81	4231539.88	107.29368	(19101224)	696730.23	4231561.57	103.49457	(22120208)
696741.64	4231583.27	101.91693	(22120208)	696753.06	4231604.96	114.24134	(19091307)
696764.48	4231626.65	132.85187	(19091307)	696775.90	4231648.34	132.49086	(19091307)

696787.31 4231670.04 131.79590 (19062903) 696798.73
4231691.73 118.31374 (19062406)
696810.15 4231713.42 113.18672 (19062406) 696821.57
4231735.11 102.84160 (19062406)
696832.98 4231756.80 96.45904 (21012118) 696844.40
4231778.50 106.49183 (21012118)
696855.82 4231800.19 107.84510 (19102907) 696867.24
4231821.88 105.57369 (19062306)
696878.65 4231843.57 98.72654 (18111108) 696890.07
4231865.27 90.56618 (18111108)
696901.49 4231886.96 77.61926 (21120218) 696912.91
4231908.65 67.54598 (18030824)
696924.32 4231930.34 65.76727 (18032504) 696935.74
4231952.04 67.26722 (22021906)
696947.16 4231973.73 73.15288 (22021906) 696958.58
4231995.42 75.06223 (22021906)
696969.99 4232017.11 71.85209 (22021906) 696981.41
4232038.81 67.04486 (21102817)
694898.32 4230489.23 114.90048 (22121721) 694922.77
4230492.11 115.20463 (20101722)
694947.22 4230495.00 115.73286 (22020707) 694971.66
4230497.88 119.28818 (18102406)
694996.11 4230500.76 126.85140 (22120521) 695020.55
4230503.64 123.96586 (20120519)
695045.00 4230506.52 125.79781 (21100307) 695069.45
4230509.40 121.28045 (20022008)
695093.89 4230512.28 119.69119 (20022008) 695118.34
4230515.16 121.18817 (22112008)
695142.78 4230518.04 116.00161 (22112008) 695167.23
4230520.93 113.91260 (20010502)
695191.68 4230523.81 117.66159 (19011402) 695216.12
4230526.69 120.74985 (18091101)
695240.57 4230529.57 123.97684 (22092907) 695265.02
4230532.45 125.31386 (22092907)
695305.76 4230537.25 131.85713 (20100604) 695346.50
4230542.06 137.19408 (21010306)
695550.22 4230566.07 107.79836 (18020601) 695590.96
4230570.87 108.11673 (18020601)
695615.41 4230573.75 107.75862 (21011207) 695639.85
4230576.63 108.62099 (21011207)
695664.30 4230579.51 108.80378 (19121302) 695688.75
4230582.39 104.37126 (19121302)
695713.19 4230585.27 120.03259 (19011205) 695737.64
4230588.15 123.90646 (20121105)
695762.08 4230591.04 122.14350 (20121105) 695786.53
4230593.92 124.12659 (21102908)
695810.98 4230596.80 142.57853 (21102908) 695835.42
4230599.68 152.42630 (21102908)
695859.87 4230602.56 153.26853 (21102908) 695884.32
4230605.44 142.98488 (20052506)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696348.79	4230660.18	74.82818	(21120419)	696373.24	4230663.07	75.59506	(21120419)
696397.68	4230665.95	83.19496	(18020520)	696422.13	4230668.83	88.16695	(18020520)
696446.57	4230671.71	87.88093	(18020520)	696470.52	4230688.15	84.00294	(18122103)
696481.98	4230709.93	87.72094	(18122103)	696493.44	4230731.72	88.37781	(18122103)
696504.91	4230753.50	88.05647	(18110307)	696516.37	4230775.28	84.14428	(18110903)

696527.84 4230797.06 78.33206 (18110903) 696539.30 4230818.85 72.02786 (18110903)
696550.77 4230840.63 78.76563 (18120807) 696562.23 4230862.41 89.25866 (18120807)
696573.70 4230884.19 97.16973 (18120807) 696585.16 4230905.98 96.71445 (18120807)
696596.63 4230927.76 100.25285 (18121421) 696608.09 4230949.54 99.98359 (18121421)
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4232038.66       69.31492  (18012217)
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4231200.96      193.41098  (19011402)
        695245.42   4231006.08      153.09364  (19011402)               695200.45
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        695386.95   4232069.32     2360.79882  (20022008)               695426.84
4232005.46     1484.40405  (21010309)
        695341.10   4232072.06     2071.75362  (22010619)               695344.50
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  75
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                         ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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        695321.50   4231971.25     1153.13630  (20012704)               695402.20
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        695253.76   4232014.38     1159.73879  (18121707)               695255.53
4231988.66     1174.14001  (20021908)
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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        694710.37   4231406.26      196.95930  (19022819)               694731.58
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  77
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  78
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
        694074.44   4232564.48       96.96347  (22120705)               694077.21
4232524.24      103.64752  (19012817)
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694090.14 4232336.41 103.71497 (20021102) 694091.98
4232309.58 103.17141 (22122324)
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4232255.91 106.01726 (20021601)
694097.53 4232229.08 111.12550 (19122023) 694099.37
4232202.25 111.92022 (19122023)
694101.22 4232175.42 109.90799 (18123024) 694103.07
4232148.59 112.09285 (22012801)
694104.92 4232121.75 109.72807 (21011719) 694106.76
4232094.92 112.02086 (21011719)
694121.54 4231880.26 137.49972 (20122004) 694123.39
4231853.43 137.04334 (20122004)
694125.24 4231826.60 131.56842 (22012705) 694127.08
4231799.77 122.13562 (20021907)
694128.93 4231772.94 116.96230 (19111208) 694130.78
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694132.63 4231719.27 104.63994 (22010508) 694134.47
4231692.44 102.23677 (21121919)
694136.32 4231665.61 98.27387 (21121919) 694138.17
4231638.78 99.87481 (21121902)
694140.01 4231611.94 97.71031 (22020321) 694141.86
4231585.11 98.00973 (18022107)
694143.71 4231558.28 96.49662 (20121104) 694145.56
4231531.45 94.90654 (18122917)
694147.40 4231504.62 97.50281 (18121508) 694149.25
4231477.78 100.29313 (18121508)
694151.10 4231450.95 98.31600 (22021020) 694152.95
4231424.12 96.59375 (18121720)
694154.79 4231397.29 95.14103 (18121720) 694167.33
4231362.30 95.76752 (18013107)
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4231329.66 98.24598 (20021508)
694231.47 4231313.34 95.09836 (22013021) 694252.85
4231297.03 95.23763 (21011704)
694274.23 4231280.71 99.16904 (20122120) 694295.61
4231264.39 98.73080 (22120206)
694316.99 4231248.08 105.60482 (20022608) 694338.37
4231231.76 110.89000 (20022608)
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4231166.49 101.66888 (21022223)
694445.28 4231150.17 102.05669 (20020201) 694466.66
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4231101.22 103.56689 (18013005)

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        694530.80   4231084.90      104.98500  (18121707)               694552.18
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4231035.95      118.53042  (20021908)
        694616.32   4231019.63      114.96796  (22021208)               694637.70
4231003.32      122.31706  (22021208)
        694659.08   4230987.00      123.80143  (20120205)               694680.46
4230970.68      129.63473  (18013008)
        694701.84   4230954.37      133.29213  (18013008)               694723.22
4230938.05      124.39015  (18013008)
        694744.60   4230921.73      144.05633  (18110705)               694765.98
4230905.41      168.08782  (22020318)
        694787.36   4230889.10      165.39921  (18121104)               694808.74
4230872.78      156.69702  (18012607)
        694830.12   4230856.46      149.25387  (18011023)               694851.50
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        694872.89   4230823.83      144.56041  (21121901)               694894.27
4230807.51      141.40253  (20102903)
        694915.65   4230791.19      144.48374  (19013022)               695001.17
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        695022.55   4230709.61      148.17028  (22120521)               695086.69
4230660.66      157.89091  (21100307)
        695108.07   4230644.34      165.27353  (20022008)               695129.45
4230628.02      157.97417  (20022008)
        694076.38   4232617.41       96.58790  (18010109)               693885.16
4232661.05       81.07224  (22011706)
        693887.01   4232634.15       81.06453  (22011706)               693888.86
4232607.25       81.14130  (22120705)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE  79
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                         ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

693890.71 4232580.35 82.62523 (19012817) 693896.27
4232499.65 85.71455 (19012817)
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693962.94 4231531.21 81.70321 (22020321) 693964.79
4231504.31 81.87645 (18022107)
693966.64 4231477.41 80.64512 (18022107) 693968.50
4231450.51 79.81948 (20121104)
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693991.25 4231267.48 81.27293 (22022503) 694012.69
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694076.99 4231202.04 91.73401 (22013021) 694098.43
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        694377.09   4230973.01       95.77751  (18013005)                694398.52
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        694505.70   4230874.86      115.56846  (20021908)                694527.13
4230858.50      115.95323  (22021208)
        694548.57   4230842.14      112.53186  (22021208)                694570.00
4230825.78      110.93875  (20120205)
        694591.44   4230809.42      112.69524  (18013008)                694612.88
4230793.06      112.22620  (18013008)
        694634.31   4230776.70      105.24680  (18013008)                694655.75
4230760.35      101.05493  (18020423)
        694677.18   4230743.99      102.73882  (22020318)                694698.62
4230727.63      103.03458  (22020318)
        694720.05   4230711.27      103.35714  (21120103)                694741.49
4230694.91      129.36059  (18011024)
        694762.92   4230678.55      133.68837  (22120523)                694784.36
4230662.19      133.61180  (21041906)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        09:13:53

                                 PAGE  80
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
```

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 - - -
```

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of   0 Fatal Error Message(s)
 A Total of   1 Warning Message(s)
 A Total of   1399 Informational Message(s)

 A Total of   43824 Hours Were Processed

 A Total of   723 Calm Hours Identified

 A Total of   676 Missing Hours Identified (1.54 Percent)

    ******** FATAL ERROR MESSAGES ********
               *** NONE ***

    ********   WARNING MESSAGES   ********
 ME W187   61   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

    ****
    *** AERMOD Finishes Successfully ***
    ****

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                            ***   MODEL SETUP OPTIONS SUMMARY
 ***
 - - -

```
 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  21112

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    10.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   Double Springs AERMOD.err

 **File for Summary of Results:   Double Springs AERMOD.sum

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/13/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        09:13:53

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                          *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

```
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\stockton-metropolit-23237\Stockton_18-22.SFC
Met Version: 21112
Profile file: ..\stockton-metropolit-23237\Stockton_18-22.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 23237 Upper air station no.: 23230
Name: UNKNOWN Name: OAKLAND/WSO_AP
Year: 2018 Year: 2018

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT

- - - -

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	NETWORK TYPE	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	6325.24610	ON 20012008:	AT (695407.85, 4232178.84, 289.69, 402.00, 0.00)	DC

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of   0 Fatal Error Message(s)

```
A Total of            1 Warning Message(s)
A Total of         1399 Informational Message(s)

A Total of        43824 Hours Were Processed

A Total of          723 Calm Hours Identified

A Total of          676 Missing Hours Identified (  1.54 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W187      61       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Point of Maximum Impact

Table 1. Max Emission Rates (lbs/day) for Project - Unit Level		
Max Rates	**Propane**	**Carbon Monoxide**
Hourl Max, g/s	0.733	4.896
Hourly Max lbs/hr	5.82	38.86

Table 2. AERMOD Maximum Impact X/Q, (µg/m^3)/(g/s)
Max 1-Hour
936.00

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)**	**X/Q (µg/m3)/(g/s)**	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
		(from Table 1)	**(from Table 2)**					
Propane	74986	0.733	936.00	686.38	NA	9,920	No	NA
Carbon Monoxide	630080	4.90	936.00	4,582.92	23,000	NA	No	0.20
							Hazard Index	**0.20**

Notes: A threshold of 1 was assumed for the acute hazard index.

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Maximally Exposed Individual Resident

Table 1. Max Emission Rates (lbs/day) for Project - Unit Level		
Max Rates	**Propane**	**Carbon Monoxide**
Hourl Max, g/s	0.733	4.896
Hourly Max lbs/hr	5.82	38.86

Table 2. AERMOD Maximum Impact X/Q, (µg/m^3)/(g/s)
Max 1-Hour
210.71

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)**	**X/Q (µg/m3)/(g/s)**	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
		(from Table 1)	**(from Table 2)**					
Propane	74986	0.733	210.71	154.52	NA	9,920	No	NA
Carbon Monoxide	630080	4.90	210.71	1,031.69	23,000	NA	No	0.04
							Hazard Index	**0.04**

Notes: A threshold of 1 was assumed for the acute hazard index.

Double Springs Battery Energy Storage Project Thermal Runaway Analysis - Toyon Middle School

Table 1. Max Emission Rates (lbs/day) for Project - Unit Level		
Max Rates	**Propane**	**Carbon Monoxide**
Hourl Max, g/s	0.733	4.896
Hourly Max lbs/hr	5.82	38.86

Table 2. AERMOD Maximum Impact X/Q, (µg/m^3)/(g/s)
Max 1-Hour
148.80

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)								
Pollutant	**CAS No.**	**Hr. Max (g/s)**	**X/Q (µg/m3)/(g/s)**	**Project Concentration (µg/m3)**	**REL (µg/m3)**	**AEGL (µg/m3)**	**Project Exceed REL or AEGL?**	**Acute Hazard Quotient**
		(from Table 1)	**(from Table 2)**					
Propane	74986	0.733	148.80	109.12	NA	9,920	No	NA
Carbon Monoxide	630080	4.90	148.80	728.57	23,000	NA	No	0.03
							Hazard Index	**0.03**

Notes: A threshold of 1 was assumed for the acute hazard index.
Carbon monoxide, benzene, and toluene do not share a common health endpoint. Therefore the hazard index is not additive.

```
** Lakes Environmental AERMOD MPI
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 13.0.0
** Lakes Environmental Software Inc.
** Date: 10/10/2025
** File: C:\Users\apoll\OneDrive - Dudek\Desktop\HARP2\HARP\Double Springs
BESS\Double Springs AERMOD - Unit\Double Springs AERMOD.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Users\apoll\OneDrive - Dudek\Desktop\HARP2\HARP\Double Springs BE
   MODELOPT DFAULT CONC
   AVERTIME 1
   POLLUTID VARIOUS
   RUNORNOT RUN
   ERRORFIL "Double Springs AERMOD.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STCK1        POINTHOR   695426.130  4232238.610      300.620
** Source Parameters **
   SRCPARAM STCK1              1.0     2.237   568.850 0.544028925875343  0.810768
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Double Springs AERMOD.rou"
RE FINISHED
```

```
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE ..\stockton-metropolit-23237\Stockton_18-22.SFC
   PROFFILE ..\stockton-metropolit-23237\Stockton_18-22.PFL
   SURFDATA 23237 2018
   UAIRDATA 23230 2018 OAKLAND/WSO_AP
   PROFBASE 10.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST "Double Springs AERMOD.AD\01H1GALL.PLT" 31
   SUMMFILE "Double Springs AERMOD.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W187      61       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 **********************************
 *** SETUP Finishes Successfully ***
 **********************************

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
```

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          ***   MODEL SETUP OPTIONS SUMMARY
 ***
 - - -

```
 **The AERMET Input Meteorological Data Version Date:  21112

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    10.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   Double Springs AERMOD.err

 **File for Summary of Results:   Double Springs AERMOD.sum

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*


                                                    *** POINT SOURCE DATA ***

               NUMBER EMISSION RATE                      BASE     STACK   STACK
STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.    HEIGHT  TEMP.   EXIT
VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (DEG.K)
(M/SEC)  (METERS)                    VARY BY
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4232101.4,     300.2,     302.0,       0.0);
     ( 695385.0, 4232139.4,     293.0,     313.0,       0.0);         ( 695382.9,
4232177.5,     286.9,     402.0,       0.0);
     ( 695337.1, 4232098.7,     297.8,     297.8,       0.0);         ( 695335.0,
4232136.7,     291.7,     313.0,       0.0);
     ( 695333.0, 4232174.8,     285.0,     402.0,       0.0);         ( 695287.2,
4232096.0,     294.8,     300.0,       0.0);
     ( 695285.1, 4232134.0,     291.0,     311.0,       0.0);         ( 695283.0,
4232172.1,     285.4,     402.0,       0.0);
     ( 695237.2, 4232093.3,     290.1,     305.0,       0.0);         ( 695235.2,
4232131.3,     287.9,     305.0,       0.0);
     ( 695233.1, 4232169.3,     284.9,     402.0,       0.0);         ( 695187.3,
4232090.5,     283.5,     312.0,       0.0);
     ( 695185.2, 4232128.6,     284.4,     305.0,       0.0);         ( 695183.2,
4232166.6,     284.5,     284.5,       0.0);
     ( 695087.5, 4232085.1,     275.2,     311.0,       0.0);         ( 695085.4,
4232123.2,     279.7,     310.0,       0.0);
     ( 695083.3, 4232161.2,     282.8,     310.0,       0.0);         ( 694987.6,
4232079.7,     276.5,     310.0,       0.0);
     ( 694985.5, 4232117.8,     280.8,     310.0,       0.0);         ( 694983.5,
4232155.8,     286.4,     310.0,       0.0);
     ( 694887.8, 4232074.3,     279.3,     310.0,       0.0);         ( 694885.7,
4232112.3,     284.5,     308.0,       0.0);
     ( 694883.6, 4232150.4,     289.9,     302.0,       0.0);         ( 694787.9,
4232068.9,     281.8,     301.0,       0.0);
     ( 694785.8, 4232106.9,     286.1,     301.0,       0.0);         ( 694783.8,
4232145.0,     291.0,     301.0,       0.0);
     ( 694588.2, 4232058.0,     281.9,     281.9,       0.0);         ( 694586.1,
4232096.1,     282.4,     282.4,       0.0);
     ( 694584.1, 4232134.1,     284.3,     284.3,       0.0);         ( 694388.5,
4232047.2,     275.5,     303.0,       0.0);
     ( 694386.4, 4232085.2,     273.0,     303.0,       0.0);         ( 694384.4,
4232123.3,     272.6,     303.0,       0.0);
     ( 694188.8, 4232036.3,     274.1,     305.0,       0.0);         ( 694186.7,
4232074.4,     273.7,     303.0,       0.0);
     ( 694184.7, 4232112.4,     272.1,     303.0,       0.0);         ( 693989.1,
4232025.5,     250.8,     329.0,       0.0);
     ( 693987.0, 4232063.6,     254.9,     329.0,       0.0);         ( 693984.9,
4232101.6,     257.6,     329.0,       0.0);
     ( 693789.4, 4232014.7,     238.4,     336.0,       0.0);         ( 693787.3,
4232052.7,     238.5,     336.0,       0.0);
     ( 693785.2, 4232090.8,     238.7,     336.0,       0.0);         ( 695505.0,
4232111.3,     303.8,     311.0,       0.0);
     ( 695512.4, 4232087.4,     306.6,     310.0,       0.0);         ( 695468.8,
4232073.8,     304.6,     313.0,       0.0);
     ( 695527.2, 4232039.6,     311.0,     311.0,       0.0);         ( 695505.4,
4232032.9,     311.1,     311.1,       0.0);
     ( 695483.6, 4232026.1,     310.8,     311.0,       0.0);         ( 695542.1,
4231991.9,     312.0,     312.0,       0.0);
     ( 695520.2, 4231985.1,     312.0,     312.0,       0.0);         ( 695498.4,
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4231978.3,   312.2,   312.2,   0.0);
     (695556.9, 4231944.1,   311.6,   311.6,   0.0);   (695535.1,
4231937.4,   312.0,   312.0,   0.0);
     (695513.3, 4231930.6,   312.0,   312.0,   0.0);   (695571.7,
4231896.4,   312.0,   312.0,   0.0);
     (695549.9, 4231889.6,   312.0,   312.0,   0.0);   (695528.1,
4231882.8,   312.0,   312.0,   0.0);
     (695601.4, 4231800.9,   311.1,   311.1,   0.0);   (695579.6,
4231794.1,   311.8,   311.8,   0.0);
     (695557.8, 4231787.3,   312.5,   312.5,   0.0);   (695631.1,
4231705.4,   311.1,   311.1,   0.0);
     (695609.2, 4231698.6,   311.8,   311.8,   0.0);   (695587.4,
4231691.8,   312.0,   312.0,   0.0);
     (695660.7, 4231609.9,   310.9,   310.9,   0.0);   (695638.9,
4231603.1,   311.8,   311.8,   0.0);
     (695617.1, 4231596.3,   311.9,   311.9,   0.0);   (695690.4,
4231514.4,   306.2,   306.2,   0.0);
     (695668.6, 4231507.6,   307.7,   307.7,   0.0);   (695646.8,
4231500.8,   308.9,   308.9,   0.0);
     (695749.7, 4231323.4,   306.1,   306.1,   0.0);   (695727.9,
4231316.6,   306.3,   306.3,   0.0);
     (695706.1, 4231309.9,   306.7,   306.7,   0.0);   (695809.1,
4231132.4,   299.4,   299.4,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (695787.2, 4231125.6,   299.9,   299.9,   0.0);   (695765.4,
4231118.9,   300.4,   300.4,   0.0);
     (695868.4, 4230941.4,   290.2,   307.0,   0.0);   (695846.6,
4230934.6,   288.6,   307.0,   0.0);
     (695824.8, 4230927.9,   287.3,   307.0,   0.0);   (695927.7,
4230750.4,   285.2,   314.0,   0.0);
     (695905.9, 4230743.6,   290.3,   311.0,   0.0);   (695884.1,
4230736.9,   294.9,   308.0,   0.0);
     (695987.1, 4230559.4,   301.2,   314.0,   0.0);   (695965.2,
4230552.6,   307.0,   312.0,   0.0);
     (695943.4, 4230545.9,   309.8,   309.8,   0.0);   (695356.4,
4232118.1,   297.5,   299.0,   0.0);
     (695427.7, 4232074.3,   303.2,   313.0,   0.0);   (695368.0,
4232087.8,   300.2,   311.0,   0.0);
     (695309.2, 4232107.6,   295.7,   295.7,   0.0);   (695409.6,

4232027.0,   306.4,   312.0,   0.0);
     (695446.6, 4232026.5,   309.3,   309.3,   0.0);   (695371.6,
4232033.8,   303.7,   311.0,   0.0);
     (695332.4, 4232047.0,   301.5,   301.5,   0.0);   (695293.2,
4232060.2,   298.4,   300.0,   0.0);
     (695395.7, 4231979.6,   308.7,   308.7,   0.0);   (695436.8,
4231979.1,   311.4,   311.4,   0.0);
     (695355.6, 4231986.4,   305.9,   305.9,   0.0);   (695316.4,
4231999.6,   303.5,   303.5,   0.0);
     (695277.2, 4232012.9,   299.7,   303.0,   0.0);   (695378.4,
4231932.2,   306.8,   306.8,   0.0);
     (695417.0, 4231931.8,   309.4,   309.4,   0.0);   (695455.5,
4231931.3,   311.1,   311.1,   0.0);
     (695339.6, 4231939.1,   304.5,   304.5,   0.0);   (695300.4,
4231952.3,   302.3,   302.3,   0.0);
     (695261.3, 4231965.5,   298.8,   298.8,   0.0);   (695363.7,
4231884.8,   302.0,   310.0,   0.0);
     (695404.8, 4231884.3,   305.6,   311.0,   0.0);   (695445.9,
4231883.8,   310.1,   310.1,   0.0);
     (695487.0, 4231883.3,   312.0,   312.0,   0.0);   (695323.6,
4231891.7,   298.9,   313.0,   0.0);
     (695284.5, 4231904.9,   297.1,   313.0,   0.0);   (695245.3,
4231918.1,   294.5,   313.0,   0.0);
     (695331.8, 4231790.1,   309.0,   313.0,   0.0);   (695372.9,
4231789.6,   308.3,   313.0,   0.0);
     (695414.0, 4231789.1,   309.9,   311.0,   0.0);   (695455.0,
4231788.6,   311.9,   311.9,   0.0);
     (695496.1, 4231788.1,   312.9,   312.9,   0.0);   (695291.7,
4231796.9,   306.9,   313.0,   0.0);
     (695252.5, 4231810.1,   302.4,   313.0,   0.0);   (695213.3,
4231823.4,   297.0,   313.0,   0.0);
     (695299.8, 4231695.3,   310.8,   310.8,   0.0);   (695340.9,
4231694.8,   312.0,   312.0,   0.0);
     (695382.0, 4231694.3,   312.0,   312.0,   0.0);   (695423.1,
4231693.8,   312.0,   312.0,   0.0);
     (695464.2, 4231693.3,   312.9,   312.9,   0.0);   (695505.2,
4231692.8,   313.0,   313.0,   0.0);
     (695546.3, 4231692.3,   312.9,   312.9,   0.0);   (695259.7,
4231702.2,   307.9,   307.9,   0.0);
     (695220.5, 4231715.4,   304.9,   304.9,   0.0);   (695181.4,
4231728.6,   303.0,   303.0,   0.0);
     (695267.8, 4231600.6,   299.6,   312.0,   0.0);   (695308.9,
4231600.1,   301.4,   312.0,   0.0);
     (695350.0, 4231599.6,   302.1,   312.0,   0.0);   (695391.1,
4231599.1,   303.1,   313.0,   0.0);
     (695432.2, 4231598.6,   306.6,   313.0,   0.0);   (695473.3,
4231598.1,   311.8,   311.8,   0.0);
     (695514.4, 4231597.6,   312.0,   312.0,   0.0);   (695555.5,
4231597.1,   312.0,   312.0,   0.0);
     (695227.7, 4231607.4,   296.1,   313.0,   0.0);   (695188.6,

4231620.6,   293.1,   313.0,   0.0);
     (695149.4, 4231633.8,   291.7,   313.0,   0.0);   (695235.9,
4231505.8,   289.0,   313.0,   0.0);
     (695277.0, 4231505.3,   294.0,   313.0,   0.0);   (695318.1,
4231504.8,   299.9,   312.0,   0.0);
     (695359.1, 4231504.3,   305.3,   305.3,   0.0);   (695400.2,
4231503.8,   308.2,   308.2,   0.0);
     (695441.3, 4231503.3,   310.7,   310.7,   0.0);   (695482.4,
4231502.8,   311.4,   311.4,   0.0);
     (695523.5, 4231502.3,   311.3,   311.3,   0.0);   (695564.6,
4231501.8,   311.0,   311.0,   0.0);
     (695605.7, 4231501.3,   310.5,   310.5,   0.0);   (695195.8,
4231512.7,   288.6,   313.0,   0.0);
     (695156.6, 4231525.9,   288.3,   311.0,   0.0);   (695117.4,
4231539.1,   286.4,   311.0,   0.0);
     (695172.0, 4231316.3,   293.4,   293.4,   0.0);   (695213.0,
4231315.8,   296.3,   296.3,   0.0);
     (695254.1, 4231315.3,   299.4,   311.0,   0.0);   (695295.2,
4231314.8,   304.0,   308.0,   0.0);
     (695336.3, 4231314.3,   308.2,   308.2,   0.0);   (695377.4,
4231313.8,   311.1,   311.1,   0.0);
     (695418.5, 4231313.3,   312.6,   312.6,   0.0);   (695459.6,
4231312.8,   312.6,   312.6,   0.0);
     (695500.7, 4231312.3,   311.4,   311.4,   0.0);   (695541.7,
4231311.8,   310.8,   310.8,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     (695582.8, 4231311.3,   310.5,   310.5,   0.0);   (695623.9,
4231310.8,   308.6,   308.6,   0.0);
     (695665.0, 4231310.3,   307.2,   307.2,   0.0);   (695131.8,
4231323.2,   293.2,   299.0,   0.0);
     (695092.7, 4231336.4,   293.1,   300.0,   0.0);   (695053.5,
4231349.6,   293.3,   293.3,   0.0);
     (695108.0, 4231126.8,   290.5,   290.5,   0.0);   (695149.1,
4231126.3,   293.8,   293.8,   0.0);
     (695190.2, 4231125.8,   297.4,   297.4,   0.0);   (695231.3,
4231125.3,   300.2,   300.2,   0.0);
     (695272.4, 4231124.8,   302.9,   302.9,   0.0);   (695313.5,
4231124.3,   305.3,   311.0,   0.0);
     (695354.5, 4231123.8,   310.0,   311.0,   0.0);   (695395.6,

4231123.3,   310.9,   310.9,   0.0);
     (695436.7, 4231122.8,   310.9,   310.9,   0.0);   (695477.8,
4231122.3,   310.0,   310.0,   0.0);
     (695518.9, 4231121.8,   308.5,   308.5,   0.0);   (695560.0,
4231121.3,   305.8,   305.8,   0.0);
     (695601.1, 4231120.8,   304.1,   304.1,   0.0);   (695642.2,
4231120.3,   303.0,   303.0,   0.0);
     (695683.2, 4231119.8,   302.2,   302.2,   0.0);   (695724.3,
4231119.4,   300.8,   300.8,   0.0);
     (695067.9, 4231133.7,   287.3,   319.0,   0.0);   (695028.7,
4231146.9,   287.5,   320.0,   0.0);
     (694989.6, 4231160.1,   288.7,   320.0,   0.0);   (695044.1,
4230937.3,   303.8,   318.0,   0.0);
     (695085.2, 4230936.8,   298.7,   321.0,   0.0);   (695126.3,
4230936.3,   294.2,   324.0,   0.0);
     (695167.4, 4230935.8,   295.8,   295.8,   0.0);   (695208.4,
4230935.3,   296.9,   296.9,   0.0);
     (695249.5, 4230934.8,   299.3,   305.0,   0.0);   (695290.6,
4230934.3,   303.4,   303.4,   0.0);
     (695331.7, 4230933.8,   305.6,   305.6,   0.0);   (695372.8,
4230933.3,   306.0,   306.0,   0.0);
     (695413.9, 4230932.8,   306.0,   306.0,   0.0);   (695455.0,
4230932.3,   305.0,   305.0,   0.0);
     (695496.1, 4230931.8,   304.8,   304.8,   0.0);   (695537.1,
4230931.3,   303.8,   303.8,   0.0);
     (695578.2, 4230930.8,   302.4,   302.4,   0.0);   (695619.3,
4230930.3,   300.7,   300.7,   0.0);
     (695660.4, 4230929.8,   299.6,   299.6,   0.0);   (695701.5,
4230929.3,   298.2,   298.2,   0.0);
     (695742.6, 4230928.9,   295.2,   304.0,   0.0);   (695783.7,
4230928.4,   292.6,   307.0,   0.0);
     (695004.0, 4230944.1,   307.0,   318.0,   0.0);   (694964.8,
4230957.4,   308.8,   318.0,   0.0);
     (694925.6, 4230970.6,   310.6,   318.0,   0.0);   (694980.2,
4230747.8,   313.9,   324.0,   0.0);
     (695021.2, 4230747.3,   310.8,   310.8,   0.0);   (695062.3,
4230746.8,   308.7,   308.7,   0.0);
     (695103.4, 4230746.3,   306.2,   311.0,   0.0);   (695144.5,
4230745.8,   306.4,   318.0,   0.0);
     (695185.6, 4230745.3,   308.0,   308.0,   0.0);   (695226.7,
4230744.8,   308.5,   308.5,   0.0);
     (695267.8, 4230744.3,   307.6,   307.6,   0.0);   (695308.9,
4230743.8,   305.6,   305.6,   0.0);
     (695350.0, 4230743.3,   304.5,   304.5,   0.0);   (695391.0,
4230742.8,   304.0,   304.0,   0.0);
     (695432.1, 4230742.3,   302.7,   302.7,   0.0);   (695473.2,
4230741.8,   301.4,   301.4,   0.0);
     (695514.3, 4230741.3,   300.0,   300.0,   0.0);   (695555.4,
4230740.8,   299.1,   299.1,   0.0);
     (695596.5, 4230740.3,   299.8,   299.8,   0.0);   (695637.6,

4230739.8,   301.1,   301.1,   0.0);
     (695678.7, 4230739.3,   302.5,   302.5,   0.0);   (695719.7,
4230738.8,   304.6,   304.6,   0.0);
     (695760.8, 4230738.4,   305.2,   305.2,   0.0);   (695801.9,
4230737.9,   305.4,   305.4,   0.0);
     (695843.0, 4230737.4,   303.1,   303.1,   0.0);   (694940.0,
4230754.6,   318.0,   324.0,   0.0);
     (694900.9, 4230767.9,   322.2,   324.0,   0.0);   (694861.7,
4230781.1,   323.5,   323.5,   0.0);
     (694916.2, 4230558.3,   320.7,   320.7,   0.0);   (694957.3,
4230557.8,   318.4,   322.0,   0.0);
     (694998.4, 4230557.3,   317.0,   317.0,   0.0);   (695039.5,
4230556.8,   318.2,   318.2,   0.0);
     (695080.6, 4230556.3,   321.0,   321.0,   0.0);   (695121.7,
4230555.8,   322.9,   322.9,   0.0);
     (695162.8, 4230555.3,   323.0,   323.0,   0.0);   (695203.8,
4230554.8,   322.3,   322.3,   0.0);
     (695244.9, 4230554.3,   322.0,   322.0,   0.0);   (695286.0,
4230553.8,   320.7,   320.7,   0.0);
     (695327.1, 4230553.3,   318.5,   318.5,   0.0);   (695368.2,
4230552.8,   315.8,   315.8,   0.0);
     (695409.3, 4230552.3,   312.5,   318.0,   0.0);   (695450.4,
4230551.8,   308.5,   318.0,   0.0);
     (695491.5, 4230551.3,   305.3,   310.0,   0.0);   (695532.6,
4230550.8,   301.2,   311.0,   0.0);
     (695573.6, 4230550.3,   298.2,   298.2,   0.0);   (695614.7,
4230549.8,   298.0,   298.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (695655.8, 4230549.3,   299.2,   305.0,   0.0);   (695696.9,
4230548.8,   303.5,   303.5,   0.0);
     (695738.0, 4230548.3,   304.8,   304.8,   0.0);   (695779.1,
4230547.9,   305.0,   305.0,   0.0);
     (695820.2, 4230547.4,   305.2,   305.2,   0.0);   (695861.2,
4230546.9,   308.8,   308.8,   0.0);
     (695902.3, 4230546.4,   311.2,   311.2,   0.0);   (694876.1,
4230565.1,   318.4,   318.4,   0.0);
     (694836.9, 4230578.3,   315.0,   318.0,   0.0);   (694797.8,
4230591.6,   309.6,   323.0,   0.0);
     (695316.2, 4232202.9,   287.3,   402.0,   0.0);   (695316.7,

4232226.1,   291.3,   402.0,   0.0);
     (695317.2, 4232249.2,   294.3,   402.0,   0.0);   (695317.7,
4232272.4,   296.6,   402.0,   0.0);
     (695318.2, 4232295.5,   298.5,   402.0,   0.0);   (695318.8,
4232318.7,   299.3,   402.0,   0.0);
     (695319.3, 4232341.8,   299.0,   402.0,   0.0);   (695319.8,
4232365.0,   297.4,   402.0,   0.0);
     (695320.3, 4232388.1,   294.7,   402.0,   0.0);   (695312.7,
4232164.3,   286.8,   402.0,   0.0);
     (695291.2, 4232203.5,   286.5,   402.0,   0.0);   (695291.7,
4232226.6,   289.7,   402.0,   0.0);
     (695292.2, 4232249.8,   292.5,   402.0,   0.0);   (695292.7,
4232272.9,   294.7,   402.0,   0.0);
     (695293.3, 4232296.1,   296.0,   402.0,   0.0);   (695293.8,
4232319.2,   296.6,   402.0,   0.0);
     (695294.3, 4232342.4,   296.2,   402.0,   0.0);   (695294.8,
4232365.5,   294.9,   402.0,   0.0);
     (695295.3, 4232388.7,   292.6,   402.0,   0.0);   (695266.2,
4232204.0,   286.0,   402.0,   0.0);
     (695266.7, 4232227.2,   287.9,   402.0,   0.0);   (695267.2,
4232250.3,   290.4,   402.0,   0.0);
     (695267.8, 4232273.5,   292.4,   402.0,   0.0);   (695268.3,
4232296.6,   293.1,   402.0,   0.0);
     (695268.8, 4232319.8,   293.2,   402.0,   0.0);   (695269.3,
4232343.0,   292.8,   402.0,   0.0);
     (695269.8, 4232366.1,   291.7,   402.0,   0.0);   (695270.3,
4232389.2,   289.9,   402.0,   0.0);
     (695241.2, 4232204.6,   285.9,   402.0,   0.0);   (695241.7,
4232227.8,   286.7,   402.0,   0.0);
     (695242.2, 4232250.9,   288.0,   402.0,   0.0);   (695242.8,
4232274.0,   288.9,   402.0,   0.0);
     (695243.3, 4232297.2,   289.0,   402.0,   0.0);   (695243.8,
4232320.4,   289.0,   402.0,   0.0);
     (695244.3, 4232343.5,   289.1,   402.0,   0.0);   (695244.8,
4232366.7,   288.4,   402.0,   0.0);
     (695245.3, 4232389.8,   286.9,   402.0,   0.0);   (695196.7,
4232187.8,   284.4,   402.0,   0.0);
     (695207.5, 4232152.0,   284.9,   303.0,   0.0);   (695263.3,
4232082.6,   293.2,   305.0,   0.0);
     (695191.7, 4232228.9,   285.8,   402.0,   0.0);   (695192.2,
4232252.0,   285.6,   402.0,   0.0);
     (695192.8, 4232275.2,   285.3,   402.0,   0.0);   (695193.3,
4232298.3,   285.3,   402.0,   0.0);
     (695193.8, 4232321.5,   285.3,   402.0,   0.0);   (695194.3,
4232344.6,   285.4,   402.0,   0.0);
     (695194.8, 4232367.8,   285.2,   402.0,   0.0);   (695195.4,
4232390.9,   285.0,   402.0,   0.0);
     (695147.3, 4232187.0,   283.9,   402.0,   0.0);   (695159.3,
4232147.2,   282.9,   300.0,   0.0);
     (695171.4, 4232107.4,   282.1,   311.0,   0.0);   (695210.7,

4232062.6,   288.1,   311.0,   0.0);
     (695244.0, 4232037.8,   294.2,   305.0,   0.0);   (695141.8,
4232230.0,   284.8,   402.0,   0.0);
     (695142.3, 4232253.1,   285.0,   402.0,   0.0);   (695142.8,
4232276.3,   285.1,   402.0,   0.0);
     (695143.3, 4232299.4,   285.5,   402.0,   0.0);   (695143.8,
4232322.6,   286.2,   402.0,   0.0);
     (695144.3, 4232345.7,   287.6,   402.0,   0.0);   (695144.8,
4232368.9,   288.9,   402.0,   0.0);
     (695145.4, 4232392.0,   290.3,   402.0,   0.0);   (695097.7,
4232186.6,   283.4,   310.0,   0.0);
     (695110.6, 4232144.0,   281.0,   310.0,   0.0);   (695123.6,
4232101.4,   279.1,   311.0,   0.0);
     (695154.3, 4232045.5,   280.4,   312.0,   0.0);   (695190.0,
4232018.8,   286.3,   311.0,   0.0);
     (695225.6, 4231992.2,   293.4,   305.0,   0.0);   (695091.8,
4232231.1,   286.7,   310.0,   0.0);
     (695092.3, 4232254.2,   286.5,   402.0,   0.0);   (695092.8,
4232277.4,   287.8,   402.0,   0.0);
     (695093.3, 4232300.5,   290.8,   402.0,   0.0);   (695093.8,
4232323.7,   293.8,   402.0,   0.0);
     (695094.3, 4232346.8,   294.7,   402.0,   0.0);   (695094.9,
4232370.0,   295.4,   402.0,   0.0);
     (695095.4, 4232393.1,   296.7,   402.0,   0.0);   (695047.3,
4232189.2,   286.5,   310.0,   0.0);
     (695059.4, 4232149.4,   283.3,   310.0,   0.0);   (695089.5,
4232050.0,   273.8,   313.0,   0.0);
     (695112.2, 4232017.7,   275.3,   313.0,   0.0);   (695145.5,
4231992.8,   280.9,   313.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     (695178.7, 4231967.9,   285.9,   313.0,   0.0);   (695212.0,
4231943.0,   291.7,   313.0,   0.0);
     (695041.8, 4232232.2,   290.7,   310.0,   0.0);   (695042.3,
4232255.4,   292.4,   310.0,   0.0);
     (695042.8, 4232278.5,   294.3,   310.0,   0.0);   (695043.3,
4232301.7,   296.5,   310.0,   0.0);
     (695043.8, 4232324.8,   299.0,   310.0,   0.0);   (695044.4,
4232348.0,   301.5,   310.0,   0.0);
     (695044.9, 4232371.1,   303.8,   310.0,   0.0);   (695045.4,

4232394.3,   305.6,   308.0,   0.0);
     (694947.9, 4232189.6,   292.3,   310.0,   0.0);   (694961.0,
4232146.2,   285.6,   310.0,   0.0);
     (694993.9, 4232037.8,   272.9,   310.0,   0.0);   (695000.5,
4232016.1,   272.0,   313.0,   0.0);
     (695031.8, 4231959.1,   275.3,   313.0,   0.0);   (695050.0,
4231945.5,   276.8,   313.0,   0.0);
     (695068.1, 4231932.0,   278.3,   313.0,   0.0);   (695086.3,
4231918.4,   279.7,   313.0,   0.0);
     (695104.4, 4231904.8,   280.7,   313.0,   0.0);   (695122.6,
4231891.2,   282.8,   313.0,   0.0);
     (695140.7, 4231877.7,   285.4,   313.0,   0.0);   (695158.9,
4231864.1,   287.7,   313.0,   0.0);
     (695177.0, 4231850.5,   289.9,   313.0,   0.0);   (695195.2,
4231836.9,   293.1,   313.0,   0.0);
     (694941.3, 4232211.3,   295.0,   310.0,   0.0);   (694941.8,
4232234.4,   298.0,   308.0,   0.0);
     (694942.3, 4232257.6,   300.3,   308.0,   0.0);   (694942.8,
4232280.7,   303.1,   308.0,   0.0);
     (694943.3, 4232303.9,   305.9,   308.0,   0.0);   (694943.9,
4232327.0,   308.1,   308.1,   0.0);
     (694944.4, 4232350.2,   308.9,   308.9,   0.0);   (694944.9,
4232373.3,   309.0,   309.0,   0.0);
     (694945.4, 4232396.5,   308.3,   308.3,   0.0);   (694847.8,
4232192.2,   297.4,   299.0,   0.0);
     (694860.7, 4232149.6,   290.6,   301.0,   0.0);   (694893.0,
4232043.1,   275.1,   310.0,   0.0);
     (694906.0, 4232000.5,   271.6,   310.0,   0.0);   (694918.9,
4231957.9,   270.0,   311.0,   0.0);
     (694949.6, 4231902.0,   273.1,   313.0,   0.0);   (694985.3,
4231875.3,   279.1,   311.0,   0.0);
     (695020.9, 4231848.6,   286.3,   301.0,   0.0);   (695056.6,
4231822.0,   292.0,   300.0,   0.0);
     (695092.2, 4231795.3,   296.2,   296.2,   0.0);   (695127.9,
4231768.6,   300.2,   300.2,   0.0);
     (694841.8, 4232236.7,   301.0,   301.0,   0.0);   (694842.3,
4232259.8,   301.0,   301.0,   0.0);
     (694842.9, 4232283.0,   301.2,   301.2,   0.0);   (694843.4,
4232306.1,   300.9,   300.9,   0.0);
     (694843.9, 4232329.3,   300.5,   300.5,   0.0);   (694844.4,
4232352.4,   301.3,   301.3,   0.0);
     (694844.9, 4232375.6,   301.6,   301.6,   0.0);   (694845.4,
4232398.7,   301.1,   301.1,   0.0);
     (694747.7, 4232194.7,   296.8,   299.0,   0.0);   (694760.5,
4232152.6,   291.9,   299.0,   0.0);
     (694798.8, 4232026.3,   277.9,   301.0,   0.0);   (694811.6,
4231984.2,   274.7,   301.0,   0.0);
     (694824.4, 4231942.1,   270.7,   301.0,   0.0);   (694837.2,
4231900.0,   265.7,   303.0,   0.0);
     (694867.6, 4231844.7,   265.8,   313.0,   0.0);   (694902.8,

4231818.3,   270.9,   313.0,   0.0);
     (694938.0, 4231792.0,   276.6,   311.0,   0.0);   (694973.2,
4231765.6,   283.6,   303.0,   0.0);
     (695008.5, 4231739.3,   289.8,   300.0,   0.0);   (695043.7,
4231712.9,   294.9,   298.0,   0.0);
     (695078.9, 4231686.6,   297.4,   300.0,   0.0);   (695114.2,
4231660.2,   295.8,   300.0,   0.0);
     (694741.9, 4232238.9,   299.1,   299.1,   0.0);   (694742.4,
4232262.0,   298.0,   298.0,   0.0);
     (694742.9, 4232285.2,   294.5,   301.0,   0.0);   (694743.4,
4232308.3,   291.6,   301.0,   0.0);
     (694743.9, 4232331.5,   290.6,   305.0,   0.0);   (694744.4,
4232354.6,   292.7,   299.0,   0.0);
     (694744.9, 4232377.8,   294.3,   294.3,   0.0);   (694745.5,
4232401.0,   294.8,   294.8,   0.0);
     (694648.0, 4232196.0,   292.3,   292.3,   0.0);   (694654.7,
4232174.0,   290.7,   290.7,   0.0);
     (694661.4, 4232152.0,   288.8,   296.0,   0.0);   (694668.0,
4232130.1,   286.1,   299.0,   0.0);
     (694674.7, 4232108.1,   283.4,   300.0,   0.0);   (694681.4,
4232086.1,   281.1,   300.0,   0.0);
     (694688.0, 4232064.1,   277.5,   301.0,   0.0);   (694694.7,
4232042.2,   274.7,   301.0,   0.0);
     (694701.4, 4232020.2,   272.8,   301.0,   0.0);   (694708.0,
4231998.2,   272.1,   301.0,   0.0);
     (694721.4, 4231954.3,   268.4,   301.0,   0.0);   (694728.1,
4231932.3,   267.9,   301.0,   0.0);
     (694734.7, 4231910.3,   266.5,   301.0,   0.0);   (694741.4,
4231888.4,   264.7,   301.0,   0.0);
     (694748.1, 4231866.4,   263.1,   302.0,   0.0);   (694754.7,
4231844.4,   261.0,   303.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694761.4, 4231822.4,   259.5,   305.0,   0.0);   (694786.4,
4231786.7,   261.4,   311.0,   0.0);
     (694804.8, 4231773.0,   262.5,   313.0,   0.0);   (694823.2,
4231759.2,   264.0,   313.0,   0.0);
     (694841.6, 4231745.4,   264.4,   313.0,   0.0);   (694860.0,
4231731.7,   265.5,   313.0,   0.0);
     (694878.4, 4231717.9,   267.9,   313.0,   0.0);   (694896.8,

4231704.2,   270.3,   313.0,   0.0);
     (694915.2, 4231690.4,   271.7,   313.0,   0.0);   (694933.6,
4231676.7,   273.6,   313.0,   0.0);
     (694951.9, 4231662.9,   275.3,   313.0,   0.0);   (694970.3,
4231649.1,   276.2,   313.0,   0.0);
     (694988.7, 4231635.4,   277.1,   313.0,   0.0);   (695007.1,
4231621.6,   277.8,   313.0,   0.0);
     (695025.5, 4231607.9,   276.9,   313.0,   0.0);   (695043.9,
4231594.1,   278.3,   313.0,   0.0);
     (695062.3, 4231580.4,   279.8,   313.0,   0.0);   (695080.7,
4231566.6,   281.4,   313.0,   0.0);
     (695099.0, 4231552.8,   283.7,   313.0,   0.0);   (694641.4,
4232218.0,   292.8,   292.8,   0.0);
     (694641.9, 4232241.1,   292.7,   292.7,   0.0);   (694642.4,
4232264.3,   291.9,   291.9,   0.0);
     (694642.9, 4232287.4,   289.0,   293.0,   0.0);   (694643.4,
4232310.6,   285.9,   300.0,   0.0);
     (694643.9, 4232333.7,   282.8,   301.0,   0.0);   (694644.5,
4232356.9,   280.4,   305.0,   0.0);
     (694645.0, 4232380.0,   283.5,   299.0,   0.0);   (694645.5,
4232403.2,   284.8,   294.0,   0.0);
     (694447.9, 4232201.0,   279.4,   279.4,   0.0);   (694461.0,
4232158.0,   279.7,   279.7,   0.0);
     (694474.0, 4232115.1,   277.1,   281.0,   0.0);   (694487.0,
4232072.1,   280.4,   280.4,   0.0);
     (694500.1, 4232029.2,   282.2,   282.2,   0.0);   (694513.1,
4231986.2,   284.9,   284.9,   0.0);
     (694526.1, 4231943.3,   286.7,   286.7,   0.0);   (694539.2,
4231900.3,   286.5,   286.5,   0.0);
     (694552.2, 4231857.4,   282.2,   287.0,   0.0);   (694565.2,
4231814.5,   276.3,   305.0,   0.0);
     (694578.2, 4231771.5,   267.4,   305.0,   0.0);   (694591.3,
4231728.6,   256.0,   305.0,   0.0);
     (694622.3, 4231672.2,   250.7,   341.0,   0.0);   (694640.2,
4231658.8,   253.2,   305.0,   0.0);
     (694676.2, 4231631.9,   262.9,   305.0,   0.0);   (694712.1,
4231605.0,   274.2,   302.0,   0.0);
     (694748.1, 4231578.1,   286.4,   302.0,   0.0);   (694784.0,
4231551.2,   296.2,   300.0,   0.0);
     (694819.9, 4231524.3,   299.4,   299.4,   0.0);   (694855.9,
4231497.5,   299.4,   299.4,   0.0);
     (694891.8, 4231470.6,   297.4,   297.4,   0.0);   (694927.7,
4231443.7,   293.5,   299.0,   0.0);
     (694963.7, 4231416.8,   291.6,   291.6,   0.0);   (694999.6,
4231389.9,   291.7,   291.7,   0.0);
     (695017.6, 4231376.5,   292.1,   299.0,   0.0);   (694441.9,
4232245.6,   278.2,   278.2,   0.0);
     (694442.4, 4232268.7,   277.4,   277.4,   0.0);   (694443.0,
4232291.9,   276.1,   276.1,   0.0);
     (694443.5, 4232315.0,   276.4,   276.4,   0.0);   (694444.0,

4232338.2,   275.8,   281.0,   0.0);
     (694444.5, 4232361.3,   274.4,   281.0,   0.0);   (694445.0,
4232384.5,   273.4,   273.4,   0.0);
     (694445.5, 4232407.6,   273.1,   273.1,   0.0);   (694248.1,
4232205.0,   265.0,   303.0,   0.0);
     (694254.7, 4232183.1,   267.2,   303.0,   0.0);   (694268.0,
4232139.4,   270.0,   303.0,   0.0);
     (694274.6, 4232117.5,   271.8,   303.0,   0.0);   (694281.3,
4232095.7,   273.3,   303.0,   0.0);
     (694287.9, 4232073.8,   275.1,   303.0,   0.0);   (694294.6,
4232051.9,   277.3,   303.0,   0.0);
     (694301.2, 4232030.1,   279.5,   303.0,   0.0);   (694307.8,
4232008.2,   282.2,   303.0,   0.0);
     (694321.1, 4231964.5,   287.6,   303.0,   0.0);   (694327.7,
4231942.6,   290.0,   303.0,   0.0);
     (694334.4, 4231920.7,   293.0,   303.0,   0.0);   (694347.6,
4231877.0,   298.2,   303.0,   0.0);
     (694354.3, 4231855.1,   299.1,   301.0,   0.0);   (694360.9,
4231833.2,   298.3,   301.0,   0.0);
     (694374.2, 4231789.5,   292.3,   305.0,   0.0);   (694380.8,
4231767.6,   292.8,   305.0,   0.0);
     (694394.1, 4231723.9,   290.5,   305.0,   0.0);   (694400.7,
4231702.0,   287.8,   305.0,   0.0);
     (694407.4, 4231680.1,   281.3,   305.0,   0.0);   (694420.7,
4231636.4,   265.5,   305.0,   0.0);
     (694427.3, 4231614.5,   254.8,   341.0,   0.0);   (694433.9,
4231592.7,   246.5,   341.0,   0.0);
     (694458.9, 4231557.1,   246.5,   341.0,   0.0);   (694477.2,
4231543.4,   249.1,   341.0,   0.0);
     (694495.5, 4231529.7,   252.3,   341.0,   0.0);   (694513.8,
4231516.0,   257.2,   341.0,   0.0);
     (694532.1, 4231502.3,   261.4,   341.0,   0.0);   (694550.4,
4231488.7,   265.2,   341.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (694568.7, 4231475.0,   269.2,   341.0,   0.0);   (694587.0,
4231461.3,   274.5,   302.0,   0.0);
     (694605.3, 4231447.6,   279.2,   302.0,   0.0);   (694623.6,
4231433.9,   283.9,   302.0,   0.0);
     (694641.9, 4231420.2,   288.6,   298.0,   0.0);   (694660.2,

4231406.5,   291.8,   297.0,   0.0);
     (694678.5, 4231392.8,   293.8,   293.8,   0.0);   (694696.8,
4231379.1,   292.7,   292.7,   0.0);
     (694715.1, 4231365.4,   292.4,   296.0,   0.0);   (694733.4,
4231351.8,   290.8,   301.0,   0.0);
     (694751.7, 4231338.1,   288.5,   302.0,   0.0);   (694770.0,
4231324.4,   286.7,   302.0,   0.0);
     (694788.3, 4231310.7,   286.1,   302.0,   0.0);   (694806.6,
4231297.0,   285.3,   302.0,   0.0);
     (694824.9, 4231283.3,   285.0,   301.0,   0.0);   (694843.2,
4231269.6,   285.2,   300.0,   0.0);
     (694861.5, 4231255.9,   285.6,   311.0,   0.0);   (694879.8,
4231242.2,   286.4,   311.0,   0.0);
     (694898.1, 4231228.5,   288.1,   311.0,   0.0);   (694916.4,
4231214.8,   288.9,   311.0,   0.0);
     (694934.7, 4231201.1,   289.4,   313.0,   0.0);   (694953.0,
4231187.5,   289.2,   318.0,   0.0);
     (694971.3, 4231173.8,   288.9,   318.0,   0.0);   (694241.5,
4232226.9,   263.7,   303.0,   0.0);
     (694242.0, 4232250.0,   263.2,   268.0,   0.0);   (694242.5,
4232273.2,   262.9,   287.0,   0.0);
     (694243.0, 4232296.3,   262.2,   288.0,   0.0);   (694243.5,
4232319.5,   265.3,   288.0,   0.0);
     (694244.0, 4232342.6,   268.6,   287.0,   0.0);   (694244.6,
4232365.8,   272.0,   287.0,   0.0);
     (694245.1, 4232389.0,   275.5,   285.0,   0.0);   (694245.6,
4232412.1,   278.6,   278.6,   0.0);
     (694048.2, 4232209.2,   259.6,   329.0,   0.0);   (694055.0,
4232187.0,   261.3,   296.0,   0.0);
     (694061.7, 4232164.9,   262.2,   303.0,   0.0);   (694068.4,
4232142.7,   262.5,   303.0,   0.0);
     (694075.1, 4232120.6,   263.2,   303.0,   0.0);   (694081.8,
4232098.4,   262.2,   305.0,   0.0);
     (694088.6, 4232076.3,   260.5,   305.0,   0.0);   (694095.3,
4232054.1,   259.0,   305.0,   0.0);
     (694102.0, 4232032.0,   263.0,   305.0,   0.0);   (694108.7,
4232009.8,   268.3,   305.0,   0.0);
     (694115.5, 4231987.7,   274.2,   305.0,   0.0);   (694122.2,
4231965.5,   280.1,   303.0,   0.0);
     (694128.9, 4231943.3,   284.9,   295.0,   0.0);   (694135.6,
4231921.2,   289.8,   295.0,   0.0);
     (694142.4, 4231899.0,   293.3,   293.3,   0.0);   (694149.1,
4231876.9,   293.9,   293.9,   0.0);
     (694155.8, 4231854.7,   290.7,   295.0,   0.0);   (694162.5,
4231832.6,   285.7,   305.0,   0.0);
     (694169.2, 4231810.4,   280.1,   305.0,   0.0);   (694176.0,
4231788.3,   273.9,   305.0,   0.0);
     (694182.7, 4231766.1,   268.9,   305.0,   0.0);   (694189.4,
4231744.0,   266.5,   305.0,   0.0);
     (694196.1, 4231721.8,   267.3,   305.0,   0.0);   (694202.9,

4231699.7,   271.2,   305.0,   0.0);
     (694209.6, 4231677.5,   272.9,   305.0,   0.0);   (694216.3,
4231655.3,   272.7,   305.0,   0.0);
     (694223.0, 4231633.2,   270.4,   305.0,   0.0);   (694229.8,
4231611.0,   264.1,   341.0,   0.0);
     (694236.5, 4231588.9,   256.9,   341.0,   0.0);   (694243.2,
4231566.7,   249.0,   341.0,   0.0);
     (694249.9, 4231544.6,   241.0,   341.0,   0.0);   (694256.6,
4231522.4,   241.0,   341.0,   0.0);
     (694263.4, 4231500.3,   241.2,   341.0,   0.0);   (694270.1,
4231478.1,   241.8,   341.0,   0.0);
     (694295.4, 4231442.1,   244.8,   341.0,   0.0);   (694313.9,
4231428.2,   247.7,   341.0,   0.0);
     (694332.4, 4231414.4,   251.7,   341.0,   0.0);   (694351.0,
4231400.5,   255.4,   341.0,   0.0);
     (694369.5, 4231386.6,   257.3,   341.0,   0.0);   (694388.0,
4231372.8,   257.7,   341.0,   0.0);
     (694406.6, 4231358.9,   258.2,   341.0,   0.0);   (694425.1,
4231345.0,   259.1,   341.0,   0.0);
     (694443.7, 4231331.1,   260.2,   341.0,   0.0);   (694462.2,
4231317.3,   261.2,   341.0,   0.0);
     (694480.7, 4231303.4,   262.6,   341.0,   0.0);   (694499.3,
4231289.5,   263.2,   341.0,   0.0);
     (694517.8, 4231275.7,   265.3,   341.0,   0.0);   (694536.3,
4231261.8,   266.7,   341.0,   0.0);
     (694554.9, 4231247.9,   266.9,   341.0,   0.0);   (694573.4,
4231234.1,   268.6,   341.0,   0.0);
     (694592.0, 4231220.2,   270.5,   341.0,   0.0);   (694610.5,
4231206.3,   273.9,   341.0,   0.0);
     (694629.0, 4231192.5,   277.9,   341.0,   0.0);   (694647.6,
4231178.6,   281.1,   341.0,   0.0);
     (694666.1, 4231164.7,   284.0,   338.0,   0.0);   (694684.6,
4231150.9,   285.8,   321.0,   0.0);
     (694703.2, 4231137.0,   287.8,   321.0,   0.0);   (694721.7,
4231123.1,   290.3,   321.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694740.2, 4231109.3,   292.0,   321.0,   0.0);   (694758.8,
4231095.4,   294.5,   321.0,   0.0);
     (694777.3, 4231081.5,   297.7,   321.0,   0.0);   (694795.9,

4231067.6,   300.9,   318.0,   0.0);
     (694814.4, 4231053.8,   304.1,   318.0,   0.0);   (694832.9,
4231039.9,   306.0,   316.0,   0.0);
     (694851.5, 4231026.0,   308.1,   311.0,   0.0);   (694870.0,
4231012.2,   309.8,   309.8,   0.0);
     (694888.6, 4230998.3,   310.5,   313.0,   0.0);   (694907.1,
4230984.4,   310.7,   310.7,   0.0);
     (694041.5, 4232231.3,   257.7,   329.0,   0.0);   (694042.0,
4232254.5,   257.0,   329.0,   0.0);
     (694042.5, 4232277.6,   254.2,   329.0,   0.0);   (694043.1,
4232300.8,   252.0,   329.0,   0.0);
     (694043.6, 4232324.0,   255.8,   329.0,   0.0);   (694044.1,
4232347.1,   259.0,   329.0,   0.0);
     (694044.6, 4232370.3,   262.6,   329.0,   0.0);   (694045.1,
4232393.4,   265.4,   327.0,   0.0);
     (694045.6, 4232416.6,   266.0,   327.0,   0.0);   (693848.2,
4232214.0,   241.5,   336.0,   0.0);
     (693854.8, 4232192.2,   241.6,   336.0,   0.0);   (693868.0,
4232148.5,   245.3,   336.0,   0.0);
     (693874.7, 4232126.7,   248.1,   336.0,   0.0);   (693887.9,
4232083.1,   255.0,   336.0,   0.0);
     (693894.5, 4232061.2,   257.6,   336.0,   0.0);   (693907.8,
4232017.6,   252.8,   336.0,   0.0);
     (693921.0, 4231974.0,   244.6,   336.0,   0.0);   (693927.6,
4231952.1,   246.9,   336.0,   0.0);
     (693940.9, 4231908.5,   259.0,   305.0,   0.0);   (693947.5,
4231886.7,   264.6,   305.0,   0.0);
     (693960.8, 4231843.0,   275.9,   296.0,   0.0);   (693967.4,
4231821.2,   280.4,   296.0,   0.0);
     (693980.6, 4231777.6,   285.4,   294.0,   0.0);   (693987.2,
4231755.7,   286.4,   293.0,   0.0);
     (694000.5, 4231712.1,   284.6,   287.0,   0.0);   (694013.7,
4231668.5,   276.8,   296.0,   0.0);
     (694020.4, 4231646.6,   271.2,   305.0,   0.0);   (694033.6,
4231603.0,   259.7,   341.0,   0.0);
     (694040.2, 4231581.2,   252.9,   341.0,   0.0);   (694053.5,
4231537.5,   241.1,   341.0,   0.0);
     (694060.1, 4231515.7,   237.7,   341.0,   0.0);   (694073.3,
4231472.1,   238.4,   341.0,   0.0);
     (694080.0, 4231450.2,   239.3,   341.0,   0.0);   (694093.2,
4231406.6,   242.6,   341.0,   0.0);
     (694106.4, 4231363.0,   247.3,   341.0,   0.0);   (694131.3,
4231327.5,   254.3,   341.0,   0.0);
     (694149.6, 4231313.8,   256.4,   341.0,   0.0);   (694167.8,
4231300.2,   258.2,   341.0,   0.0);
     (694186.1, 4231286.5,   258.1,   341.0,   0.0);   (694204.4,
4231272.8,   258.3,   341.0,   0.0);
     (694222.6, 4231259.2,   258.2,   341.0,   0.0);   (694240.9,
4231245.5,   258.2,   341.0,   0.0);
     (694259.1, 4231231.9,   259.1,   341.0,   0.0);   (694277.4,

4231218.2,   260.8,   341.0,   0.0);
     (694295.7, 4231204.5,   261.1,   341.0,   0.0);   (694313.9,
4231190.9,   260.6,   341.0,   0.0);
     (694332.2, 4231177.2,   260.4,   341.0,   0.0);   (694350.4,
4231163.6,   260.2,   341.0,   0.0);
     (694368.7, 4231149.9,   260.7,   341.0,   0.0);   (694387.0,
4231136.2,   261.2,   341.0,   0.0);
     (694405.2, 4231122.6,   261.2,   341.0,   0.0);   (694423.5,
4231108.9,   261.5,   341.0,   0.0);
     (694441.7, 4231095.2,   261.3,   341.0,   0.0);   (694460.0,
4231081.6,   262.5,   341.0,   0.0);
     (694478.2, 4231067.9,   264.5,   341.0,   0.0);   (694496.5,
4231054.3,   266.9,   341.0,   0.0);
     (694514.8, 4231040.6,   268.0,   341.0,   0.0);   (694533.0,
4231027.0,   271.4,   341.0,   0.0);
     (694551.3, 4231013.3,   275.9,   341.0,   0.0);   (694569.6,
4230999.6,   278.2,   341.0,   0.0);
     (694587.8, 4230986.0,   281.5,   341.0,   0.0);   (694606.1,
4230972.3,   285.7,   341.0,   0.0);
     (694624.3, 4230958.6,   289.1,   341.0,   0.0);   (694642.6,
4230945.0,   291.0,   339.0,   0.0);
     (694660.9, 4230931.3,   294.0,   339.0,   0.0);   (694679.1,
4230917.7,   296.4,   339.0,   0.0);
     (694697.4, 4230904.0,   300.5,   324.0,   0.0);   (694715.6,
4230890.3,   304.2,   324.0,   0.0);
     (694733.9, 4230876.7,   307.9,   324.0,   0.0);   (694752.1,
4230863.0,   311.8,   324.0,   0.0);
     (694770.4, 4230849.4,   315.2,   321.0,   0.0);   (694788.7,
4230835.7,   318.1,   318.1,   0.0);
     (694806.9, 4230822.0,   320.0,   320.0,   0.0);   (694825.2,
4230808.4,   321.6,   321.6,   0.0);
     (694843.4, 4230794.7,   322.7,   322.7,   0.0);   (693841.6,
4232235.8,   242.3,   336.0,   0.0);
     (693842.1, 4232259.0,   243.9,   376.0,   0.0);   (693842.6,
4232282.1,   245.0,   376.0,   0.0);
     (693843.1, 4232305.3,   246.0,   376.0,   0.0);   (693843.6,
4232328.4,   246.5,   376.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     (693844.1, 4232351.6,   245.2,   376.0,   0.0);   (693844.7,

4232374.7,   244.9,   376.0,   0.0);
     (693845.2, 4232397.9,   244.3,   376.0,   0.0);   (693845.7,
4232421.0,   243.6,   376.0,   0.0);
     (693648.3, 4232218.2,   274.9,   336.0,   0.0);   (693655.0,
4232196.2,   272.9,   336.0,   0.0);
     (693661.7, 4232174.1,   266.8,   336.0,   0.0);   (693668.4,
4232152.1,   257.2,   336.0,   0.0);
     (693675.1, 4232130.1,   250.0,   336.0,   0.0);   (693681.7,
4232108.0,   245.9,   336.0,   0.0);
     (693688.4, 4232086.0,   248.5,   336.0,   0.0);   (693695.1,
4232063.9,   247.8,   336.0,   0.0);
     (693701.8, 4232041.9,   245.3,   336.0,   0.0);   (693708.5,
4232019.8,   242.0,   336.0,   0.0);
     (693715.2, 4231997.8,   238.3,   336.0,   0.0);   (693721.9,
4231975.8,   238.0,   336.0,   0.0);
     (693728.6, 4231953.7,   238.0,   336.0,   0.0);   (693735.2,
4231931.7,   238.0,   336.0,   0.0);
     (693741.9, 4231909.6,   238.0,   336.0,   0.0);   (693748.6,
4231887.6,   238.0,   336.0,   0.0);
     (693755.3, 4231865.5,   238.0,   341.0,   0.0);   (693762.0,
4231843.5,   238.0,   341.0,   0.0);
     (693768.7, 4231821.5,   238.0,   341.0,   0.0);   (693775.4,
4231799.4,   238.5,   341.0,   0.0);
     (693782.1, 4231777.4,   240.1,   341.0,   0.0);   (693788.8,
4231755.3,   241.1,   341.0,   0.0);
     (693795.5, 4231733.3,   241.3,   341.0,   0.0);   (693802.1,
4231711.2,   241.8,   341.0,   0.0);
     (693808.8, 4231689.2,   243.2,   341.0,   0.0);   (693815.5,
4231667.2,   244.1,   341.0,   0.0);
     (693822.2, 4231645.1,   245.3,   341.0,   0.0);   (693828.9,
4231623.1,   246.3,   341.0,   0.0);
     (693835.6, 4231601.0,   245.8,   341.0,   0.0);   (693842.3,
4231579.0,   243.7,   341.0,   0.0);
     (693849.0, 4231557.0,   241.0,   341.0,   0.0);   (693855.7,
4231534.9,   238.3,   341.0,   0.0);
     (693862.4, 4231512.9,   235.9,   341.0,   0.0);   (693869.0,
4231490.8,   234.5,   341.0,   0.0);
     (693875.7, 4231468.8,   235.3,   341.0,   0.0);   (693882.4,
4231446.7,   236.5,   341.0,   0.0);
     (693889.1, 4231424.7,   238.0,   341.0,   0.0);   (693895.8,
4231402.6,   238.8,   341.0,   0.0);
     (693902.5, 4231380.6,   241.5,   341.0,   0.0);   (693909.2,
4231358.6,   244.5,   341.0,   0.0);
     (693915.9, 4231336.5,   246.6,   341.0,   0.0);   (693922.6,
4231314.5,   248.3,   341.0,   0.0);
     (693929.2, 4231292.4,   251.1,   341.0,   0.0);   (693935.9,
4231270.4,   255.7,   341.0,   0.0);
     (693942.6, 4231248.3,   261.7,   341.0,   0.0);   (693967.8,
4231212.5,   272.1,   341.0,   0.0);
     (693986.2, 4231198.7,   279.2,   341.0,   0.0);   (694004.6,

4231184.9,   285.1,   341.0,   0.0);
     (694023.1, 4231171.1,   289.1,   341.0,   0.0);   (694041.5,
4231157.3,   292.4,   341.0,   0.0);
     (694060.0, 4231143.5,   295.5,   341.0,   0.0);   (694078.4,
4231129.7,   298.7,   341.0,   0.0);
     (694096.9, 4231115.9,   301.3,   341.0,   0.0);   (694115.3,
4231102.1,   302.8,   341.0,   0.0);
     (694133.8, 4231088.3,   303.5,   341.0,   0.0);   (694152.2,
4231074.5,   303.2,   341.0,   0.0);
     (694170.7, 4231060.7,   302.7,   341.0,   0.0);   (694189.1,
4231046.9,   302.2,   341.0,   0.0);
     (694207.5, 4231033.1,   301.3,   341.0,   0.0);   (694226.0,
4231019.3,   300.6,   341.0,   0.0);
     (694244.4, 4231005.5,   299.3,   341.0,   0.0);   (694262.9,
4230991.7,   298.7,   341.0,   0.0);
     (694281.3, 4230977.9,   297.1,   341.0,   0.0);   (694299.8,
4230964.1,   296.3,   341.0,   0.0);
     (694318.2, 4230950.3,   295.9,   341.0,   0.0);   (694336.7,
4230936.5,   298.0,   341.0,   0.0);
     (694355.1, 4230922.7,   299.4,   341.0,   0.0);   (694373.5,
4230908.9,   298.8,   341.0,   0.0);
     (694392.0, 4230895.1,   298.4,   341.0,   0.0);   (694410.4,
4230881.3,   298.3,   341.0,   0.0);
     (694428.9, 4230867.5,   298.9,   341.0,   0.0);   (694447.3,
4230853.7,   300.7,   341.0,   0.0);
     (694465.8, 4230839.9,   303.4,   341.0,   0.0);   (694484.2,
4230826.1,   305.1,   339.0,   0.0);
     (694502.7, 4230812.3,   305.8,   339.0,   0.0);   (694521.1,
4230798.5,   305.8,   339.0,   0.0);
     (694539.5, 4230784.7,   304.2,   339.0,   0.0);   (694558.0,
4230771.0,   302.6,   339.0,   0.0);
     (694576.4, 4230757.1,   300.0,   339.0,   0.0);   (694594.9,
4230743.3,   299.5,   339.0,   0.0);
     (694613.3, 4230729.5,   299.7,   339.0,   0.0);   (694631.8,
4230715.8,   300.2,   339.0,   0.0);
     (694650.2, 4230702.0,   300.1,   339.0,   0.0);   (694668.7,
4230688.1,   301.1,   339.0,   0.0);
     (694687.1, 4230674.3,   302.2,   339.0,   0.0);   (694705.6,
4230660.5,   302.9,   337.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                  *** DISCRETE CARTESIAN RECEPTORS ***
                                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                          (METERS)

```
     ( 694724.0, 4230646.8,     303.6,     324.0,       0.0);         ( 694742.4,
4230633.0,     304.2,     324.0,       0.0);
     ( 694760.9, 4230619.2,     305.0,     324.0,       0.0);         ( 694779.3,
4230605.4,     307.1,     324.0,       0.0);
     ( 693641.6, 4232240.3,     273.7,     336.0,       0.0);         ( 693642.1,
4232263.4,     268.0,     336.0,       0.0);
     ( 693642.6, 4232286.6,     264.7,     336.0,       0.0);         ( 693643.2,
4232309.7,     267.4,     336.0,       0.0);
     ( 693643.7, 4232332.9,     272.5,     329.0,       0.0);         ( 693644.2,
4232356.0,     275.4,     329.0,       0.0);
     ( 693644.7, 4232379.2,     273.8,     329.0,       0.0);         ( 693645.2,
4232402.3,     272.7,     329.0,       0.0);
     ( 693645.7, 4232425.5,     271.8,     329.0,       0.0);         ( 695345.7,
4232412.6,     292.8,     402.0,       0.0);
     ( 695390.0, 4232411.9,     297.9,     402.0,       0.0);         ( 695434.3,
4232411.2,     308.0,     402.0,       0.0);
     ( 695478.7, 4232410.5,     317.0,     318.0,       0.0);         ( 695328.4,
4232430.6,     291.7,     402.0,       0.0);
     ( 695368.2, 4232437.2,     296.0,     402.0,       0.0);         ( 695412.6,
4232436.6,     304.1,     402.0,       0.0);
     ( 695456.9, 4232435.9,     314.2,     402.0,       0.0);         ( 695501.2,
4232435.2,     318.4,     318.4,       0.0);
     ( 695328.7, 4232455.6,     293.0,     402.0,       0.0);         ( 695285.6,
4232424.1,     288.0,     402.0,       0.0);
     ( 695368.6, 4232462.2,     299.1,     402.0,       0.0);         ( 695412.9,
4232461.6,     306.7,     402.0,       0.0);
     ( 695457.3, 4232460.9,     314.5,     402.0,       0.0);         ( 695501.6,
4232460.2,     318.6,     402.0,       0.0);
     ( 695329.1, 4232480.6,     295.9,     402.0,       0.0);         ( 695293.7,
4232466.6,     291.0,     402.0,       0.0);
     ( 695268.3, 4232442.2,     287.3,     402.0,       0.0);         ( 695369.0,
4232487.2,     301.3,     402.0,       0.0);
     ( 695413.3, 4232486.6,     308.7,     402.0,       0.0);         ( 695457.6,
4232485.9,     314.4,     402.0,       0.0);
     ( 695502.0, 4232485.2,     318.1,     402.0,       0.0);         ( 695329.9,
4232530.6,     296.5,     402.0,       0.0);
     ( 695294.4, 4232516.6,     291.7,     402.0,       0.0);         ( 695259.0,
4232502.6,     287.1,     402.0,       0.0);
     ( 695233.6, 4232478.2,     285.6,     402.0,       0.0);         ( 695218.3,
4232443.3,     285.0,     402.0,       0.0);
     ( 695369.8, 4232537.2,     301.6,     402.0,       0.0);         ( 695414.1,
4232536.5,     306.8,     402.0,       0.0);
     ( 695458.4, 4232535.9,     312.2,     402.0,       0.0);         ( 695502.7,
4232535.2,     315.9,     402.0,       0.0);
     ( 695328.1, 4232579.6,     290.7,     402.0,       0.0);         ( 695287.6,
4232563.6,     286.5,     402.0,       0.0);
     ( 695247.1, 4232547.6,     285.1,     402.0,       0.0);         ( 695197.8,
4232511.7,     287.9,     402.0,       0.0);
     ( 695180.3, 4232471.8,     287.7,     402.0,       0.0);         ( 695162.9,
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4232431.9,   290.1,   402.0,   0.0);
     (695370.5, 4232587.2,   295.7,   402.0,   0.0);   (695414.8,
4232586.5,   299.5,   402.0,   0.0);
     (695459.2, 4232585.9,   304.8,   402.0,   0.0);   (695503.5,
4232585.2,   308.5,   402.0,   0.0);
     (695329.4, 4232629.8,   288.3,   402.0,   0.0);   (695290.0,
4232614.2,   286.7,   402.0,   0.0);
     (695250.7, 4232598.7,   287.1,   402.0,   0.0);   (695211.3,
4232583.2,   290.1,   402.0,   0.0);
     (695163.4, 4232548.2,   294.2,   402.0,   0.0);   (695146.4,
4232509.5,   295.9,   402.0,   0.0);
     (695129.4, 4232470.7,   298.7,   402.0,   0.0);   (695112.4,
4232431.9,   298.8,   402.0,   0.0);
     (695371.3, 4232637.2,   290.4,   402.0,   0.0);   (695415.6,
4232636.5,   293.2,   402.0,   0.0);
     (695459.9, 4232635.9,   297.5,   402.0,   0.0);   (695504.2,
4232635.2,   299.7,   402.0,   0.0);
     (695330.5, 4232679.9,   290.0,   402.0,   0.0);   (695291.9,
4232664.7,   289.4,   402.0,   0.0);
     (695253.2, 4232649.4,   291.2,   402.0,   0.0);   (695214.5,
4232634.2,   293.5,   402.0,   0.0);
     (695175.9, 4232618.9,   295.3,   402.0,   0.0);   (695128.9,
4232584.6,   296.8,   402.0,   0.0);
     (695112.2, 4232546.5,   298.0,   402.0,   0.0);   (695095.5,
4232508.5,   299.8,   402.0,   0.0);
     (695078.8, 4232470.4,   303.1,   402.0,   0.0);   (695062.1,
4232432.3,   305.2,   305.2,   0.0);
     (695372.0, 4232687.2,   292.3,   402.0,   0.0);   (695416.4,
4232686.5,   293.1,   402.0,   0.0);
     (695460.7, 4232685.9,   295.0,   402.0,   0.0);   (695505.0,
4232685.2,   299.4,   402.0,   0.0);
     (695331.1, 4232779.5,   293.6,   402.0,   0.0);   (695290.6,
4232763.6,   294.2,   402.0,   0.0);
     (695250.1, 4232747.6,   295.5,   402.0,   0.0);   (695209.6,
4232731.6,   299.1,   402.0,   0.0);
     (695169.1, 4232715.6,   300.0,   402.0,   0.0);   (695128.6,
4232699.6,   297.8,   402.0,   0.0);
     (695088.1, 4232683.7,   294.4,   402.0,   0.0);   (695059.1,
4232655.7,   292.8,   402.0,   0.0);
     (695041.6, 4232615.8,   294.3,   402.0,   0.0);   (695024.1,
4232576.0,   294.6,   402.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***

(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(695006.6, 4232536.1, 297.0, 402.0, 0.0); (694989.1, 4232496.2, 300.8, 402.0, 0.0);
(694971.6, 4232456.3, 305.3, 307.0, 0.0); (695373.6, 4232787.2, 295.1, 402.0, 0.0);
(695417.9, 4232786.5, 299.7, 402.0, 0.0); (695462.2, 4232785.8, 303.7, 402.0, 0.0);
(695506.5, 4232785.2, 305.6, 402.0, 0.0); (695333.2, 4232879.8, 301.0, 402.0, 0.0);
(695293.8, 4232864.2, 299.6, 402.0, 0.0); (695254.5, 4232848.7, 300.8, 402.0, 0.0);
(695215.1, 4232833.1, 299.9, 402.0, 0.0); (695175.7, 4232817.6, 301.2, 402.0, 0.0);
(695136.3, 4232802.1, 299.4, 402.0, 0.0); (695096.9, 4232786.5, 294.9, 402.0, 0.0);
(695057.5, 4232771.0, 290.6, 402.0, 0.0); (695018.1, 4232755.5, 287.3, 402.0, 0.0);
(694990.0, 4232728.3, 285.5, 402.0, 0.0); (694973.0, 4232689.5, 285.8, 402.0, 0.0);
(694955.9, 4232650.8, 287.6, 402.0, 0.0); (694938.9, 4232612.0, 288.7, 402.0, 0.0);
(694921.9, 4232573.2, 288.8, 402.0, 0.0); (694904.9, 4232534.4, 291.2, 402.0, 0.0);
(694887.9, 4232495.7, 294.5, 402.0, 0.0); (694870.9, 4232456.9, 297.8, 309.0, 0.0);
(695375.1, 4232887.2, 303.8, 402.0, 0.0); (695419.4, 4232886.5, 308.8, 402.0, 0.0);
(695463.7, 4232885.8, 311.7, 402.0, 0.0); (695508.1, 4232885.2, 315.5, 402.0, 0.0);
(695334.2, 4232979.5, 309.5, 402.0, 0.0); (695293.7, 4232963.5, 304.7, 402.0, 0.0);
(695253.2, 4232947.6, 305.7, 402.0, 0.0); (695212.7, 4232931.6, 306.0, 402.0, 0.0);
(695172.1, 4232915.6, 303.2, 402.0, 0.0); (695131.6, 4232899.6, 298.6, 402.0, 0.0);
(695091.1, 4232883.6, 295.1, 402.0, 0.0); (695050.6, 4232867.7, 291.2, 402.0, 0.0);
(695010.1, 4232851.7, 288.4, 402.0, 0.0); (694969.6, 4232835.7, 285.9, 402.0, 0.0);
(694920.3, 4232799.8, 284.9, 402.0, 0.0); (694902.9, 4232759.9, 283.8, 402.0, 0.0);
(694885.4, 4232720.0, 283.1, 402.0, 0.0); (694867.9, 4232680.1, 281.8, 402.0, 0.0);
(694850.4, 4232640.2, 283.3, 402.0, 0.0); (694832.9, 4232600.4, 283.4, 402.0, 0.0);
(694815.4, 4232560.5, 283.8, 402.0, 0.0); (694797.9, 4232520.6, 284.2, 402.0, 0.0);
(694780.4, 4232480.7, 286.6, 402.0, 0.0); (694763.0,

4232440.8,   292.5,   301.0,   0.0);
     (695376.6, 4232987.2,   314.5,   402.0,   0.0);   (695420.9,
4232986.5,   318.0,   402.0,   0.0);
     (695465.2, 4232985.8,   322.7,   402.0,   0.0);   (695509.6,
4232985.1,   327.6,   402.0,   0.0);
     (695336.1, 4233079.7,   320.9,   402.0,   0.0);   (695296.4,
4233064.0,   315.2,   402.0,   0.0);
     (695256.7, 4233048.3,   310.8,   402.0,   0.0);   (695217.0,
4233032.7,   307.6,   402.0,   0.0);
     (695177.3, 4233017.0,   303.3,   402.0,   0.0);   (695137.6,
4233001.4,   300.1,   402.0,   0.0);
     (695097.9, 4232985.7,   297.3,   402.0,   0.0);   (695058.2,
4232970.0,   293.1,   402.0,   0.0);
     (695018.5, 4232954.4,   291.0,   402.0,   0.0);   (694978.8,
4232938.7,   290.0,   402.0,   0.0);
     (694939.1, 4232923.1,   288.8,   402.0,   0.0);   (694899.4,
4232907.4,   286.9,   402.0,   0.0);
     (694851.1, 4232872.2,   285.0,   402.0,   0.0);   (694834.0,
4232833.1,   285.0,   402.0,   0.0);
     (694816.9, 4232794.0,   284.8,   402.0,   0.0);   (694799.7,
4232755.0,   283.2,   402.0,   0.0);
     (694782.6, 4232715.9,   282.4,   402.0,   0.0);   (694765.5,
4232676.8,   280.7,   402.0,   0.0);
     (694748.3, 4232637.7,   280.2,   402.0,   0.0);   (694731.2,
4232598.6,   280.8,   402.0,   0.0);
     (694714.0, 4232559.5,   280.3,   402.0,   0.0);   (694696.9,
4232520.4,   279.8,   402.0,   0.0);
     (694679.8, 4232481.4,   281.7,   402.0,   0.0);   (694662.6,
4232442.3,   286.3,   294.0,   0.0);
     (695378.1, 4233087.2,   327.4,   402.0,   0.0);   (695422.4,
4233086.5,   333.8,   402.0,   0.0);
     (695466.8, 4233085.8,   340.5,   402.0,   0.0);   (695511.1,
4233085.1,   347.3,   402.0,   0.0);
     (695338.4, 4233279.4,   338.9,   402.0,   0.0);   (695297.2,
4233263.1,   329.2,   402.0,   0.0);
     (695256.1, 4233246.9,   322.9,   402.0,   0.0);   (695214.9,
4233230.6,   317.2,   402.0,   0.0);
     (695173.8, 4233214.4,   312.3,   402.0,   0.0);   (695132.6,
4233198.2,   308.0,   402.0,   0.0);
     (695091.4, 4233181.9,   303.9,   402.0,   0.0);   (695050.3,
4233165.7,   298.2,   402.0,   0.0);
     (695009.1, 4233149.5,   297.7,   402.0,   0.0);   (694967.9,
4233133.2,   297.3,   402.0,   0.0);

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694926.8, 4233117.0, 299.6, 402.0, 0.0); (694885.6, 4233100.8, 296.3, 402.0, 0.0);
(694844.5, 4233084.5, 290.2, 402.0, 0.0); (694803.3, 4233068.3, 284.7, 402.0, 0.0);
(694762.1, 4233052.0, 280.7, 402.0, 0.0); (694712.1, 4233015.5, 280.7, 402.0, 0.0);
(694694.3, 4232975.0, 286.4, 402.0, 0.0); (694676.5, 4232934.5, 290.4, 402.0, 0.0);
(694658.8, 4232894.0, 292.0, 402.0, 0.0); (694641.0, 4232853.4, 292.8, 402.0, 0.0);
(694623.2, 4232812.9, 293.5, 402.0, 0.0); (694605.5, 4232772.4, 294.5, 294.5, 0.0);
(694587.7, 4232731.8, 294.1, 294.1, 0.0); (694569.9, 4232691.3, 292.3, 292.3, 0.0);
(694552.2, 4232650.8, 288.7, 288.7, 0.0); (694534.4, 4232610.3, 285.7, 285.7, 0.0);
(694516.6, 4232569.8, 282.1, 282.1, 0.0); (694498.8, 4232529.2, 276.4, 287.0, 0.0);
(694481.1, 4232488.7, 273.2, 282.0, 0.0); (694463.3, 4232448.2, 273.0, 273.0, 0.0);
(695381.2, 4233287.1, 350.2, 402.0, 0.0); (695425.5, 4233286.5, 362.7, 402.0, 0.0);
(695469.8, 4233285.8, 375.9, 402.0, 0.0); (695514.1, 4233285.1, 390.1, 402.0, 0.0);
(695341.5, 4233479.4, 342.3, 402.0, 0.0); (695300.5, 4233463.2, 335.1, 402.0, 0.0);
(695259.4, 4233447.0, 326.8, 402.0, 0.0); (695218.4, 4233430.8, 321.0, 402.0, 0.0);
(695177.4, 4233414.6, 313.1, 402.0, 0.0); (695136.3, 4233398.4, 308.2, 402.0, 0.0);
(695095.3, 4233382.2, 308.4, 402.0, 0.0); (695054.2, 4233366.0, 308.2, 402.0, 0.0);
(695013.2, 4233349.8, 307.9, 402.0, 0.0); (694972.1, 4233333.6, 305.2, 402.0, 0.0);
(694931.1, 4233317.5, 301.5, 402.0, 0.0); (694890.0, 4233301.3, 300.2, 402.0, 0.0);
(694849.0, 4233285.1, 299.8, 402.0, 0.0); (694808.0, 4233268.9, 296.1, 402.0, 0.0);
(694766.9, 4233252.7, 292.1, 402.0, 0.0); (694725.9, 4233236.5, 289.1, 402.0, 0.0);
(694684.8, 4233220.3, 287.4, 402.0, 0.0); (694643.8, 4233204.1, 285.3, 402.0, 0.0);
(694602.7, 4233187.9, 282.3, 402.0, 0.0); (694573.4, 4233159.6, 279.4, 402.0, 0.0);
(694555.6, 4233119.2, 271.7, 402.0, 0.0); (694537.9,

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4233078.8,     273.8,     402.0,       0.0);
     ( 694520.2, 4233038.4,     280.3,     402.0,       0.0);         ( 694502.5,
4232998.0,     286.9,     402.0,       0.0);
     ( 694484.8, 4232957.6,     291.4,     299.0,       0.0);         ( 694467.1,
4232917.2,     295.9,     299.0,       0.0);
     ( 694449.3, 4232876.8,     299.6,     299.6,       0.0);         ( 694431.6,
4232836.4,     297.0,     300.0,       0.0);
     ( 694413.9, 4232796.0,     290.2,     300.0,       0.0);         ( 694396.2,
4232755.6,     281.1,     300.0,       0.0);
     ( 694378.5, 4232715.2,     271.6,     300.0,       0.0);         ( 694360.8,
4232674.8,     275.4,     300.0,       0.0);
     ( 694343.0, 4232634.3,     280.7,     286.0,       0.0);         ( 694325.3,
4232593.9,     285.7,     285.7,       0.0);
     ( 694307.6, 4232553.5,     287.8,     287.8,       0.0);         ( 694289.9,
4232513.1,     287.1,     287.1,       0.0);
     ( 694272.2, 4232472.7,     284.4,     284.4,       0.0);         ( 695384.2,
4233487.1,     349.5,     402.0,       0.0);
     ( 695428.5, 4233486.4,     355.6,     402.0,       0.0);         ( 695472.9,
4233485.8,     363.4,     402.0,       0.0);
     ( 695517.2, 4233485.1,     372.5,     402.0,       0.0);         ( 695344.6,
4233679.3,     345.9,     402.0,       0.0);
     ( 695303.6, 4233663.2,     344.4,     402.0,       0.0);         ( 695262.7,
4233647.0,     340.8,     402.0,       0.0);
     ( 695221.7, 4233630.9,     337.7,     402.0,       0.0);         ( 695180.8,
4233614.7,     334.9,     402.0,       0.0);
     ( 695139.8, 4233598.6,     332.1,     402.0,       0.0);         ( 695098.8,
4233582.4,     327.9,     402.0,       0.0);
     ( 695057.9, 4233566.2,     320.3,     402.0,       0.0);         ( 695016.9,
4233550.1,     309.8,     402.0,       0.0);
     ( 694976.0, 4233533.9,     299.0,     625.0,       0.0);         ( 694935.0,
4233517.8,     290.5,     625.0,       0.0);
     ( 694894.0, 4233501.6,     289.0,     625.0,       0.0);         ( 694853.1,
4233485.5,     291.9,     402.0,       0.0);
     ( 694812.1, 4233469.3,     285.4,     402.0,       0.0);         ( 694771.2,
4233453.1,     278.6,     624.0,       0.0);
     ( 694730.2, 4233437.0,     279.9,     402.0,       0.0);         ( 694689.2,
4233420.8,     282.0,     402.0,       0.0);
     ( 694648.3, 4233404.7,     278.5,     402.0,       0.0);         ( 694607.3,
4233388.5,     272.7,     402.0,       0.0);
     ( 694566.4, 4233372.4,     275.9,     402.0,       0.0);         ( 694525.4,
4233356.2,     277.6,     402.0,       0.0);
     ( 694484.4, 4233340.0,     273.8,     402.0,       0.0);         ( 694434.6,
4233303.7,     271.4,     402.0,       0.0);
     ( 694417.0, 4233263.4,     270.9,     402.0,       0.0);         ( 694399.3,
4233223.1,     268.8,     402.0,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***       13:59:05
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694381.6, 4233182.8, 265.2, 402.0, 0.0); (694363.9, 4233142.4, 261.4, 402.0, 0.0);
(694346.2, 4233102.1, 266.8, 402.0, 0.0); (694328.5, 4233061.8, 274.0, 402.0, 0.0);
(694310.9, 4233021.5, 278.7, 388.0, 0.0); (694293.2, 4232981.1, 282.6, 376.0, 0.0);
(694275.5, 4232940.8, 284.0, 376.0, 0.0); (694257.8, 4232900.5, 281.9, 376.0, 0.0);
(694240.1, 4232860.1, 276.7, 376.0, 0.0); (694222.5, 4232819.8, 270.3, 376.0, 0.0);
(694204.8, 4232779.5, 261.3, 385.0, 0.0); (694187.1, 4232739.2, 255.2, 386.0, 0.0);
(694169.4, 4232698.8, 258.0, 376.0, 0.0); (694151.7, 4232658.5, 258.7, 376.0, 0.0);
(694134.0, 4232618.2, 257.8, 376.0, 0.0); (694116.4, 4232577.9, 255.3, 376.0, 0.0);
(694098.7, 4232537.5, 255.3, 376.0, 0.0); (694081.0, 4232497.2, 258.0, 376.0, 0.0);
(694063.3, 4232456.9, 262.6, 329.0, 0.0); (695387.2, 4233687.1, 351.7, 402.0, 0.0);
(695431.6, 4233686.4, 359.5, 402.0, 0.0); (695475.9, 4233685.7, 368.9, 402.0, 0.0);
(695520.2, 4233685.1, 376.2, 402.0, 0.0); (695347.7, 4233879.3, 323.1, 625.0, 0.0);
(695306.8, 4233863.2, 323.9, 625.0, 0.0); (695265.9, 4233847.1, 334.0, 625.0, 0.0);
(695225.0, 4233830.9, 338.2, 624.0, 0.0); (695184.1, 4233814.8, 339.0, 402.0, 0.0);
(695143.2, 4233798.7, 337.8, 402.0, 0.0); (695102.3, 4233782.5, 336.7, 402.0, 0.0);
(695061.4, 4233766.4, 333.6, 402.0, 0.0); (695020.5, 4233750.3, 325.8, 402.0, 0.0);
(694979.6, 4233734.1, 319.0, 402.0, 0.0); (694938.7, 4233718.0, 311.4, 402.0, 0.0);
(694897.8, 4233701.9, 301.6, 625.0, 0.0); (694856.9, 4233685.7, 293.3, 625.0, 0.0);
(694816.0, 4233669.6, 286.4, 625.0, 0.0); (694775.1, 4233653.5, 279.1, 625.0, 0.0);
(694734.2, 4233637.3, 275.0, 625.0, 0.0); (694693.3, 4233621.2, 274.3, 625.0, 0.0);
(694652.4, 4233605.1, 270.2, 625.0, 0.0); (694611.5, 4233588.9, 268.0, 625.0, 0.0);
(694570.6, 4233572.8, 269.2, 625.0, 0.0); (694529.7,

```
4233556.7,     266.7,     624.0,       0.0);
     ( 694488.8, 4233540.5,     263.3,     624.0,       0.0);         ( 694447.9,
4233524.4,     263.0,     402.0,       0.0);
     ( 694407.0, 4233508.3,     261.2,     402.0,       0.0);         ( 694366.1,
4233492.1,     260.2,     402.0,       0.0);
     ( 694325.2, 4233476.0,     260.5,     402.0,       0.0);         ( 694295.9,
4233447.8,     260.5,     402.0,       0.0);
     ( 694278.2, 4233407.5,     257.5,     402.0,       0.0);         ( 694260.6,
4233367.3,     256.9,     402.0,       0.0);
     ( 694242.9, 4233327.0,     256.8,     402.0,       0.0);         ( 694225.3,
4233286.8,     256.1,     402.0,       0.0);
     ( 694207.6, 4233246.5,     255.3,     402.0,       0.0);         ( 694190.0,
4233206.2,     254.2,     402.0,       0.0);
     ( 694172.3, 4233166.0,     254.7,     402.0,       0.0);         ( 694154.7,
4233125.7,     253.3,     402.0,       0.0);
     ( 694137.0, 4233085.4,     251.6,     402.0,       0.0);         ( 694119.3,
4233045.1,     253.5,     402.0,       0.0);
     ( 694101.7, 4233004.9,     260.2,     388.0,       0.0);         ( 694084.0,
4232964.6,     262.4,     388.0,       0.0);
     ( 694066.4, 4232924.3,     261.0,     388.0,       0.0);         ( 694048.7,
4232884.1,     257.0,     388.0,       0.0);
     ( 694031.1, 4232843.8,     251.2,     388.0,       0.0);         ( 694013.4,
4232803.5,     243.9,     388.0,       0.0);
     ( 693995.8, 4232763.3,     243.2,     388.0,       0.0);         ( 693978.1,
4232723.0,     243.7,     388.0,       0.0);
     ( 693960.4, 4232682.8,     243.5,     388.0,       0.0);         ( 693942.8,
4232642.5,     242.6,     387.0,       0.0);
     ( 693925.1, 4232602.2,     242.0,     386.0,       0.0);         ( 693907.5,
4232562.0,     242.1,     384.0,       0.0);
     ( 693889.8, 4232521.7,     242.0,     382.0,       0.0);         ( 693872.2,
4232481.4,     242.2,     376.0,       0.0);
     ( 695390.3, 4233887.1,     330.6,     625.0,       0.0);         ( 695434.6,
4233886.4,     339.2,     625.0,       0.0);
     ( 695478.9, 4233885.7,     347.2,     625.0,       0.0);         ( 695523.3,
4233885.0,     348.7,     625.0,       0.0);
     ( 695350.7, 4234079.3,     324.0,     625.0,       0.0);         ( 695309.9,
4234063.2,     321.9,     625.0,       0.0);
     ( 695269.0, 4234047.1,     313.5,     625.0,       0.0);         ( 695228.2,
4234031.0,     309.2,     625.0,       0.0);
     ( 695187.3, 4234014.9,     313.0,     625.0,       0.0);         ( 695146.5,
4233998.8,     314.9,     625.0,       0.0);
     ( 695105.6, 4233982.6,     311.8,     625.0,       0.0);         ( 695064.8,
4233966.5,     313.4,     625.0,       0.0);
     ( 695023.9, 4233950.4,     315.3,     625.0,       0.0);         ( 694983.1,
4233934.3,     311.9,     625.0,       0.0);
     ( 694942.2, 4233918.2,     303.8,     625.0,       0.0);         ( 694901.4,
4233902.1,     296.9,     625.0,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(694860.5, 4233886.0, 292.7, 625.0, 0.0); (694819.6, 4233869.8, 288.0, 625.0, 0.0);
(694778.8, 4233853.7, 284.2, 625.0, 0.0); (694737.9, 4233837.6, 284.0, 625.0, 0.0);
(694697.1, 4233821.5, 285.3, 625.0, 0.0); (694656.2, 4233805.4, 281.0, 625.0, 0.0);
(694615.4, 4233789.3, 275.7, 625.0, 0.0); (694574.5, 4233773.1, 270.7, 625.0, 0.0);
(694533.7, 4233757.0, 267.8, 625.0, 0.0); (694492.8, 4233740.9, 267.5, 625.0, 0.0);
(694452.0, 4233724.8, 271.4, 624.0, 0.0); (694411.1, 4233708.7, 275.5, 402.0, 0.0);
(694370.2, 4233692.6, 275.5, 402.0, 0.0); (694329.4, 4233676.5, 276.1, 402.0, 0.0);
(694288.5, 4233660.3, 282.2, 388.0, 0.0); (694247.7, 4233644.2, 287.7, 388.0, 0.0);
(694206.8, 4233628.1, 291.3, 388.0, 0.0); (694157.2, 4233591.9, 293.5, 388.0, 0.0);
(694139.5, 4233551.7, 287.9, 388.0, 0.0); (694121.9, 4233511.4, 281.9, 388.0, 0.0);
(694104.3, 4233471.2, 279.1, 388.0, 0.0); (694086.6, 4233431.0, 283.5, 388.0, 0.0);
(694069.0, 4233390.8, 288.1, 388.0, 0.0); (694051.4, 4233350.6, 292.1, 388.0, 0.0);
(694033.7, 4233310.3, 294.3, 388.0, 0.0); (694016.1, 4233270.1, 293.0, 388.0, 0.0);
(693998.4, 4233229.9, 288.5, 388.0, 0.0); (693980.8, 4233189.7, 280.7, 388.0, 0.0);
(693963.2, 4233149.5, 272.6, 388.0, 0.0); (693945.5, 4233109.2, 265.0, 388.0, 0.0);
(693927.9, 4233069.0, 259.8, 388.0, 0.0); (693910.3, 4233028.8, 256.4, 388.0, 0.0);
(693892.6, 4232988.6, 254.5, 388.0, 0.0); (693875.0, 4232948.3, 254.2, 388.0, 0.0);
(693857.4, 4232908.1, 255.3, 388.0, 0.0); (693839.7, 4232867.9, 258.4, 388.0, 0.0);
(693822.1, 4232827.7, 257.4, 388.0, 0.0); (693804.5, 4232787.5, 253.3, 388.0, 0.0);
(693786.8, 4232747.2, 249.2, 388.0, 0.0); (693769.2, 4232707.0, 250.6, 386.0, 0.0);
(693751.6, 4232666.8, 252.5, 382.0, 0.0); (693733.9,

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4232626.6,     253.7,     380.0,       0.0);
     ( 693716.3, 4232586.4,     254.4,     376.0,       0.0);         ( 693698.6,
4232546.1,     256.9,     376.0,       0.0);
     ( 693681.0, 4232505.9,     259.8,     376.0,       0.0);         ( 693663.4,
4232465.7,     265.8,     376.0,       0.0);
     ( 695393.3, 4234087.0,     326.7,     625.0,       0.0);         ( 695437.7,
4234086.4,     330.1,     625.0,       0.0);
     ( 695482.0, 4234085.7,     332.9,     625.0,       0.0);         ( 695526.3,
4234085.0,     331.1,     625.0,       0.0);
     ( 695525.4, 4232385.2,     318.0,     318.0,       0.0);         ( 695525.4,
4232361.3,     317.5,     317.5,       0.0);
     ( 695525.4, 4232337.5,     316.5,     316.5,       0.0);         ( 695525.4,
4232313.6,     315.0,     315.0,       0.0);
     ( 695525.4, 4232289.8,     313.3,     313.3,       0.0);         ( 695525.4,
4232265.9,     310.9,     317.0,       0.0);
     ( 695525.4, 4232242.0,     308.8,     317.0,       0.0);         ( 695525.4,
4232218.2,     306.5,     318.0,       0.0);
     ( 695525.4, 4232194.3,     304.3,     318.0,       0.0);         ( 695525.4,
4232170.4,     302.4,     318.0,       0.0);
     ( 695525.4, 4232146.6,     301.6,     316.0,       0.0);         ( 695525.4,
4232122.7,     303.9,     311.0,       0.0);
     ( 695543.2, 4232402.8,     318.6,     318.6,       0.0);         ( 695550.4,
4232361.3,     318.0,     318.0,       0.0);
     ( 695550.4, 4232337.5,     317.6,     317.6,       0.0);         ( 695550.4,
4232313.6,     316.6,     316.6,       0.0);
     ( 695550.4, 4232289.8,     315.0,     315.0,       0.0);         ( 695550.4,
4232265.9,     312.8,     317.0,       0.0);
     ( 695550.4, 4232242.0,     311.0,     317.0,       0.0);         ( 695550.4,
4232218.2,     309.0,     315.0,       0.0);
     ( 695550.4, 4232194.3,     307.3,     315.0,       0.0);         ( 695550.4,
4232170.4,     305.9,     311.0,       0.0);
     ( 695550.4, 4232146.6,     305.0,     311.0,       0.0);         ( 695550.4,
4232122.7,     306.2,     311.0,       0.0);
     ( 695550.4, 4232098.8,     308.6,     308.6,       0.0);         ( 695550.4,
4232075.0,     310.5,     310.5,       0.0);
     ( 695568.2, 4232402.8,     318.6,     318.6,       0.0);         ( 695536.4,
4232445.3,     319.0,     319.0,       0.0);
     ( 695575.4, 4232361.3,     317.9,     317.9,       0.0);         ( 695575.4,
4232337.5,     318.0,     318.0,       0.0);
     ( 695575.4, 4232313.6,     317.7,     317.7,       0.0);         ( 695575.4,
4232289.8,     316.7,     316.7,       0.0);
     ( 695575.4, 4232265.9,     315.1,     315.1,       0.0);         ( 695575.4,
4232242.0,     312.8,     312.8,       0.0);
     ( 695575.4, 4232218.2,     311.5,     311.5,       0.0);         ( 695575.4,
4232194.3,     310.7,     310.7,       0.0);
     ( 695575.4, 4232170.4,     309.8,     309.8,       0.0);         ( 695575.4,
4232146.6,     308.3,     308.3,       0.0);
     ( 695575.4, 4232122.7,     308.9,     308.9,       0.0);         ( 695575.4,
4232098.8,     310.2,     310.2,       0.0);
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
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*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(695575.4, 4232075.0, 311.0, 311.0, 0.0); (695593.2, 4232402.8, 318.2, 318.2, 0.0);
(695578.9, 4232437.8, 319.0, 319.0, 0.0); (695554.3, 4232462.8, 319.0, 402.0, 0.0);
(695600.4, 4232361.3, 317.3, 317.3, 0.0); (695600.4, 4232337.5, 317.6, 317.6, 0.0);
(695600.4, 4232313.6, 318.0, 318.0, 0.0); (695600.4, 4232289.8, 317.6, 317.6, 0.0);
(695600.4, 4232265.9, 316.0, 316.0, 0.0); (695600.4, 4232242.0, 314.3, 314.3, 0.0);
(695600.4, 4232218.2, 312.7, 312.7, 0.0); (695600.4, 4232194.3, 311.5, 311.5, 0.0);
(695600.4, 4232170.4, 310.9, 310.9, 0.0); (695600.4, 4232146.6, 310.7, 310.7, 0.0);
(695600.4, 4232122.7, 310.8, 310.8, 0.0); (695600.4, 4232098.8, 311.4, 311.4, 0.0);
(695600.4, 4232075.0, 311.6, 311.6, 0.0); (695641.8, 4232406.3, 316.7, 316.7, 0.0);
(695633.2, 4232427.3, 317.0, 317.0, 0.0); (695624.6, 4232448.4, 317.7, 402.0, 0.0);
(695615.9, 4232469.4, 318.5, 402.0, 0.0); (695586.4, 4232499.4, 319.0, 402.0, 0.0);
(695565.5, 4232508.4, 319.1, 402.0, 0.0); (695544.6, 4232517.3, 319.4, 402.0, 0.0);
(695523.6, 4232526.3, 318.1, 402.0, 0.0); (695650.4, 4232385.2, 316.4, 316.4, 0.0);
(695650.4, 4232361.3, 316.0, 316.0, 0.0); (695650.4, 4232337.5, 315.6, 315.6, 0.0);
(695650.4, 4232313.6, 314.9, 317.0, 0.0); (695650.4, 4232289.8, 314.2, 314.2, 0.0);
(695650.4, 4232265.9, 313.9, 313.9, 0.0); (695650.4, 4232242.0, 312.4, 312.4, 0.0);
(695650.4, 4232218.2, 311.6, 311.6, 0.0); (695650.4, 4232194.3, 311.3, 311.3, 0.0);
(695650.4, 4232170.4, 311.0, 311.0, 0.0); (695650.4, 4232146.6, 311.0, 311.0, 0.0);
(695650.4, 4232122.7, 311.0, 311.0, 0.0); (695650.4, 4232098.8, 310.7, 310.7, 0.0);
(695650.4, 4232075.0, 310.4, 310.4, 0.0); (695692.2,

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4232405.3,     315.7,     315.7,       0.0);
     ( 695675.8, 4232445.4,     316.6,     402.0,       0.0);         ( 695659.4,
4232485.5,     317.4,     402.0,       0.0);
     ( 695623.0, 4232534.1,     318.4,     402.0,       0.0);         ( 695583.2,
4232551.1,     318.2,     402.0,       0.0);
     ( 695543.3, 4232568.2,     315.2,     402.0,       0.0);         ( 695700.4,
4232361.3,     313.9,     313.9,       0.0);
     ( 695700.4, 4232337.5,     312.5,     312.5,       0.0);         ( 695700.4,
4232313.6,     311.5,     311.5,       0.0);
     ( 695700.4, 4232289.8,     311.0,     311.0,       0.0);         ( 695700.4,
4232265.9,     310.8,     310.8,       0.0);
     ( 695700.4, 4232242.0,     310.2,     310.2,       0.0);         ( 695700.4,
4232218.2,     310.0,     310.0,       0.0);
     ( 695700.4, 4232194.3,     310.0,     310.0,       0.0);         ( 695700.4,
4232170.4,     310.0,     310.0,       0.0);
     ( 695700.4, 4232146.6,     310.0,     310.0,       0.0);         ( 695700.4,
4232122.7,     309.8,     309.8,       0.0);
     ( 695700.4, 4232098.8,     309.8,     309.8,       0.0);         ( 695700.4,
4232075.0,     309.5,     309.5,       0.0);
     ( 695741.5, 4232407.1,     315.4,     315.4,       0.0);         ( 695732.5,
4232429.1,     315.8,     315.8,       0.0);
     ( 695723.5, 4232451.0,     316.2,     402.0,       0.0);         ( 695714.5,
4232472.9,     316.9,     402.0,       0.0);
     ( 695705.5, 4232494.9,     317.7,     402.0,       0.0);         ( 695696.5,
4232516.8,     318.0,     402.0,       0.0);
     ( 695687.5, 4232538.7,     317.9,     402.0,       0.0);         ( 695656.8,
4232570.0,     316.4,     402.0,       0.0);
     ( 695635.0, 4232579.3,     314.2,     402.0,       0.0);         ( 695613.2,
4232588.6,     312.4,     402.0,       0.0);
     ( 695591.4, 4232597.9,     310.1,     402.0,       0.0);         ( 695569.6,
4232607.2,     307.3,     402.0,       0.0);
     ( 695547.8, 4232616.6,     304.2,     402.0,       0.0);         ( 695526.0,
4232625.9,     301.3,     402.0,       0.0);
     ( 695750.4, 4232385.2,     315.0,     315.0,       0.0);         ( 695750.4,
4232361.3,     313.4,     313.4,       0.0);
     ( 695750.4, 4232337.5,     312.3,     312.3,       0.0);         ( 695750.4,
4232313.6,     311.6,     311.6,       0.0);
     ( 695750.4, 4232289.8,     310.8,     310.8,       0.0);         ( 695750.4,
4232265.9,     310.0,     310.0,       0.0);
     ( 695750.4, 4232242.0,     310.0,     310.0,       0.0);         ( 695750.4,
4232218.2,     310.0,     310.0,       0.0);
     ( 695750.4, 4232194.3,     309.7,     309.7,       0.0);         ( 695750.4,
4232170.4,     309.1,     309.1,       0.0);
     ( 695750.4, 4232146.6,     309.1,     309.1,       0.0);         ( 695750.4,
4232122.7,     309.0,     309.0,       0.0);
     ( 695750.4, 4232098.8,     308.5,     308.5,       0.0);         ( 695750.4,
4232075.0,     308.1,     308.1,       0.0);
     ( 695791.8, 4232406.3,     316.7,     316.7,       0.0);         ( 695783.2,
4232427.3,     317.4,     317.4,       0.0);
     ( 695774.6, 4232448.4,     317.8,     317.8,       0.0);         ( 695765.9,
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                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

     (695757.3, 4232490.5,   318.6,   402.0,   0.0);   (695748.7,
4232511.5,   319.1,   402.0,   0.0);
     (695740.1, 4232532.6,   319.5,   402.0,   0.0);   (695731.4,
4232553.6,   319.1,   402.0,   0.0);
     (695722.8, 4232574.7,   317.6,   402.0,   0.0);   (695693.3,
4232604.7,   315.7,   402.0,   0.0);
     (695672.3, 4232613.6,   313.8,   402.0,   0.0);   (695651.4,
4232622.6,   311.4,   402.0,   0.0);
     (695630.5, 4232631.5,   309.7,   402.0,   0.0);   (695609.6,
4232640.5,   307.6,   402.0,   0.0);
     (695588.7, 4232649.4,   305.5,   402.0,   0.0);   (695567.8,
4232658.3,   303.4,   402.0,   0.0);
     (695546.8, 4232667.3,   301.2,   402.0,   0.0);   (695525.9,
4232676.2,   300.2,   402.0,   0.0);
     (695800.4, 4232385.2,   315.6,   315.6,   0.0);   (695800.4,
4232361.3,   314.8,   314.8,   0.0);
     (695800.4, 4232337.5,   313.4,   313.4,   0.0);   (695800.4,
4232313.6,   312.4,   312.4,   0.0);
     (695800.4, 4232289.8,   311.9,   311.9,   0.0);   (695800.4,
4232265.9,   310.6,   310.6,   0.0);
     (695800.4, 4232242.0,   310.6,   310.6,   0.0);   (695800.4,
4232218.2,   310.2,   310.2,   0.0);
     (695800.4, 4232194.3,   309.7,   309.7,   0.0);   (695800.4,
4232170.4,   309.0,   309.0,   0.0);
     (695800.4, 4232146.6,   309.0,   309.0,   0.0);   (695800.4,
4232122.7,   308.3,   308.3,   0.0);
     (695800.4, 4232098.8,   307.7,   307.7,   0.0);   (695800.4,
4232075.0,   307.3,   307.3,   0.0);
     (695891.6, 4232406.8,   316.8,   316.8,   0.0);   (695882.8,
4232428.4,   317.3,   317.3,   0.0);
     (695873.9, 4232450.0,   318.0,   318.0,   0.0);   (695865.1,
4232471.6,   318.3,   318.3,   0.0);
     (695856.2, 4232493.2,   319.2,   319.2,   0.0);   (695847.4,
4232514.8,   320.2,   402.0,   0.0);
     (695838.5, 4232536.4,   321.2,   402.0,   0.0);   (695829.7,
4232558.0,   321.9,   402.0,   0.0);
     (695820.8, 4232579.5,   322.4,   402.0,   0.0);   (695812.0,

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4232601.1,     323.0,     402.0,       0.0);
     ( 695803.1, 4232622.7,     323.0,     402.0,       0.0);         ( 695794.3,
4232644.3,     321.3,     402.0,       0.0);
     ( 695764.0, 4232675.1,     317.8,     402.0,       0.0);         ( 695742.5,
4232684.2,     316.6,     402.0,       0.0);
     ( 695721.1, 4232693.4,     315.2,     402.0,       0.0);         ( 695699.6,
4232702.6,     313.4,     402.0,       0.0);
     ( 695678.2, 4232711.8,     312.5,     402.0,       0.0);         ( 695656.7,
4232721.0,     311.9,     402.0,       0.0);
     ( 695635.2, 4232730.1,     311.5,     402.0,       0.0);         ( 695613.8,
4232739.3,     309.4,     402.0,       0.0);
     ( 695592.3, 4232748.5,     306.2,     402.0,       0.0);         ( 695570.9,
4232757.6,     304.0,     402.0,       0.0);
     ( 695549.4, 4232766.8,     304.4,     402.0,       0.0);         ( 695528.0,
4232776.0,     305.1,     402.0,       0.0);
     ( 695900.4, 4232385.2,     316.1,     316.1,       0.0);         ( 695900.4,
4232361.3,     316.0,     316.0,       0.0);
     ( 695900.4, 4232337.5,     314.9,     314.9,       0.0);         ( 695900.4,
4232313.6,     313.7,     313.7,       0.0);
     ( 695900.4, 4232289.8,     312.9,     312.9,       0.0);         ( 695900.4,
4232265.9,     312.1,     312.1,       0.0);
     ( 695900.4, 4232242.0,     312.0,     312.0,       0.0);         ( 695900.4,
4232218.2,     311.4,     311.4,       0.0);
     ( 695900.4, 4232194.3,     310.7,     310.7,       0.0);         ( 695900.4,
4232170.4,     309.7,     309.7,       0.0);
     ( 695900.4, 4232146.6,     308.2,     308.2,       0.0);         ( 695900.4,
4232122.7,     307.3,     307.3,       0.0);
     ( 695900.4, 4232098.8,     306.5,     306.5,       0.0);         ( 695900.4,
4232075.0,     306.1,     306.1,       0.0);
     ( 695991.5, 4232407.1,     312.2,     312.2,       0.0);         ( 695982.5,
4232429.1,     312.9,     312.9,       0.0);
     ( 695973.5, 4232451.0,     314.2,     314.2,       0.0);         ( 695964.5,
4232472.9,     315.9,     315.9,       0.0);
     ( 695955.5, 4232494.9,     316.5,     316.5,       0.0);         ( 695946.5,
4232516.8,     317.1,     317.1,       0.0);
     ( 695937.5, 4232538.7,     317.6,     402.0,       0.0);         ( 695928.6,
4232560.6,     317.5,     402.0,       0.0);
     ( 695919.6, 4232582.6,     317.4,     402.0,       0.0);         ( 695910.6,
4232604.5,     317.5,     402.0,       0.0);
     ( 695901.6, 4232626.4,     318.1,     402.0,       0.0);         ( 695892.6,
4232648.4,     318.4,     402.0,       0.0);
     ( 695883.6, 4232670.3,     318.2,     402.0,       0.0);         ( 695874.6,
4232692.2,     317.7,     402.0,       0.0);
     ( 695865.7, 4232714.1,     317.0,     402.0,       0.0);         ( 695834.9,
4232745.4,     316.0,     402.0,       0.0);
     ( 695813.1, 4232754.7,     316.0,     402.0,       0.0);         ( 695791.3,
4232764.0,     314.8,     402.0,       0.0);
     ( 695769.5, 4232773.3,     313.6,     402.0,       0.0);         ( 695747.7,
4232782.7,     313.1,     402.0,       0.0);
     ( 695725.9, 4232792.0,     311.8,     402.0,       0.0);         ( 695704.2,
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4232801.3,   311.3,   402.0,   0.0);
     (695682.4, 4232810.6,   310.9,   402.0,   0.0);   (695660.6,
4232819.9,   309.9,   402.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695638.8, 4232829.2,   309.6,   402.0,   0.0);   (695617.0,
4232838.6,   310.9,   402.0,   0.0);
     (695595.2, 4232847.9,   312.7,   402.0,   0.0);   (695573.4,
4232857.2,   315.0,   402.0,   0.0);
     (695551.6, 4232866.5,   316.1,   402.0,   0.0);   (695529.8,
4232875.8,   316.0,   402.0,   0.0);
     (696000.4, 4232385.2,   311.8,   311.8,   0.0);   (696000.4,
4232361.3,   311.0,   311.0,   0.0);
     (696000.4, 4232337.5,   310.8,   310.8,   0.0);   (696000.4,
4232313.6,   310.7,   310.7,   0.0);
     (696000.4, 4232289.8,   310.4,   310.4,   0.0);   (696000.4,
4232265.9,   309.8,   309.8,   0.0);
     (696000.4, 4232242.0,   309.0,   309.0,   0.0);   (696000.4,
4232218.2,   308.2,   308.2,   0.0);
     (696000.4, 4232194.3,   307.1,   307.1,   0.0);   (696000.4,
4232170.4,   305.7,   305.7,   0.0);
     (696000.4, 4232146.6,   305.0,   305.0,   0.0);   (696000.4,
4232122.7,   305.0,   305.0,   0.0);
     (696000.4, 4232098.8,   305.0,   305.0,   0.0);   (696000.4,
4232075.0,   305.1,   305.1,   0.0);
     (696091.8, 4232406.3,   308.7,   308.7,   0.0);   (696083.2,
4232427.3,   309.0,   309.0,   0.0);
     (696074.6, 4232448.4,   309.4,   309.4,   0.0);   (696065.9,
4232469.4,   309.9,   309.9,   0.0);
     (696057.3, 4232490.5,   310.0,   310.0,   0.0);   (696048.7,
4232511.5,   310.2,   402.0,   0.0);
     (696040.1, 4232532.6,   310.9,   402.0,   0.0);   (696031.4,
4232553.6,   311.2,   402.0,   0.0);
     (696022.8, 4232574.7,   311.0,   402.0,   0.0);   (696014.2,
4232595.7,   311.3,   402.0,   0.0);
     (696005.6, 4232616.8,   312.3,   402.0,   0.0);   (695996.9,
4232637.8,   313.3,   402.0,   0.0);
     (695988.3, 4232658.9,   314.2,   402.0,   0.0);   (695979.7,
4232679.9,   314.5,   402.0,   0.0);
     (695971.1, 4232701.0,   314.9,   402.0,   0.0);   (695962.4,

4232722.0,   315.3,   402.0,   0.0);
     (695953.8, 4232743.1,   316.0,   402.0,   0.0);   (695945.2,
4232764.1,   316.4,   402.0,   0.0);
     (695936.5, 4232785.2,   316.9,   402.0,   0.0);   (695907.0,
4232815.2,   318.2,   402.0,   0.0);
     (695886.1, 4232824.1,   318.6,   402.0,   0.0);   (695865.2,
4232833.1,   318.9,   402.0,   0.0);
     (695844.2, 4232842.0,   319.2,   402.0,   0.0);   (695823.3,
4232851.0,   318.9,   402.0,   0.0);
     (695802.4, 4232859.9,   318.5,   402.0,   0.0);   (695781.5,
4232868.9,   318.3,   402.0,   0.0);
     (695760.6, 4232877.8,   317.8,   402.0,   0.0);   (695739.7,
4232886.8,   317.4,   402.0,   0.0);
     (695718.7, 4232895.7,   316.5,   402.0,   0.0);   (695697.8,
4232904.6,   315.0,   402.0,   0.0);
     (695676.9, 4232913.6,   315.0,   402.0,   0.0);   (695656.0,
4232922.5,   315.8,   402.0,   0.0);
     (695635.1, 4232931.5,   316.7,   402.0,   0.0);   (695614.2,
4232940.4,   318.9,   402.0,   0.0);
     (695593.2, 4232949.4,   321.5,   402.0,   0.0);   (695572.3,
4232958.3,   324.6,   402.0,   0.0);
     (695551.4, 4232967.3,   326.8,   402.0,   0.0);   (695530.5,
4232976.2,   327.8,   402.0,   0.0);
     (696100.4, 4232385.2,   308.0,   308.0,   0.0);   (696100.4,
4232361.3,   307.6,   307.6,   0.0);
     (696100.4, 4232337.5,   306.9,   306.9,   0.0);   (696100.4,
4232313.6,   306.1,   306.1,   0.0);
     (696100.4, 4232289.8,   305.4,   305.4,   0.0);   (696100.4,
4232265.9,   305.4,   305.4,   0.0);
     (696100.4, 4232242.0,   305.1,   305.1,   0.0);   (696100.4,
4232218.2,   305.0,   305.0,   0.0);
     (696100.4, 4232194.3,   305.0,   305.0,   0.0);   (696100.4,
4232170.4,   305.2,   305.2,   0.0);
     (696100.4, 4232146.6,   306.1,   306.1,   0.0);   (696100.4,
4232122.7,   307.2,   307.2,   0.0);
     (696100.4, 4232098.8,   308.4,   308.4,   0.0);   (696100.4,
4232075.0,   309.4,   309.4,   0.0);
     (696191.7, 4232406.6,   308.7,   308.7,   0.0);   (696182.9,
4232427.9,   309.1,   309.1,   0.0);
     (696174.2, 4232449.3,   309.2,   309.2,   0.0);   (696165.4,
4232470.6,   309.9,   309.9,   0.0);
     (696156.7, 4232492.0,   310.2,   310.2,   0.0);   (696147.9,
4232513.4,   310.4,   310.4,   0.0);
     (696139.2, 4232534.7,   311.0,   311.0,   0.0);   (696130.4,
4232556.1,   311.0,   311.0,   0.0);
     (696121.7, 4232577.4,   311.4,   402.0,   0.0);   (696112.9,
4232598.8,   312.1,   402.0,   0.0);
     (696104.2, 4232620.1,   312.6,   402.0,   0.0);   (696095.4,
4232641.5,   312.7,   402.0,   0.0);
     (696086.7, 4232662.8,   313.3,   402.0,   0.0);   (696077.9,

4232684.2,   314.0,   402.0,   0.0);
     (696069.2, 4232705.6,   314.0,   402.0,   0.0);   (696060.4,
4232726.9,   314.4,   402.0,   0.0);
     (696051.7, 4232748.3,   315.0,   402.0,   0.0);   (696042.9,
4232769.6,   315.3,   402.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696034.2, 4232791.0,   315.8,   402.0,   0.0);   (696025.4,
4232812.3,   316.0,   402.0,   0.0);
     (696016.7, 4232833.7,   316.2,   402.0,   0.0);   (696007.9,
4232855.1,   316.8,   402.0,   0.0);
     (695977.9, 4232885.5,   317.9,   402.0,   0.0);   (695956.7,
4232894.6,   319.4,   402.0,   0.0);
     (695935.5, 4232903.6,   321.2,   402.0,   0.0);   (695914.3,
4232912.7,   322.2,   402.0,   0.0);
     (695893.1, 4232921.8,   323.2,   402.0,   0.0);   (695871.8,
4232930.9,   325.0,   402.0,   0.0);
     (695850.6, 4232939.9,   326.9,   402.0,   0.0);   (695829.4,
4232949.0,   328.8,   402.0,   0.0);
     (695808.2, 4232958.1,   330.1,   402.0,   0.0);   (695787.0,
4232967.2,   330.2,   402.0,   0.0);
     (695765.7, 4232976.2,   329.8,   402.0,   0.0);   (695744.5,
4232985.3,   329.8,   402.0,   0.0);
     (695723.3, 4232994.4,   330.6,   402.0,   0.0);   (695702.1,
4233003.5,   330.4,   402.0,   0.0);
     (695680.9, 4233012.5,   331.5,   402.0,   0.0);   (695659.6,
4233021.6,   334.1,   402.0,   0.0);
     (695638.4, 4233030.7,   336.7,   402.0,   0.0);   (695617.2,
4233039.8,   338.8,   402.0,   0.0);
     (695596.0, 4233048.8,   341.3,   402.0,   0.0);   (695574.8,
4233057.9,   344.4,   402.0,   0.0);
     (695553.5, 4233067.0,   346.2,   402.0,   0.0);   (695532.3,
4233076.1,   347.2,   402.0,   0.0);
     (696200.4, 4232385.2,   308.0,   308.0,   0.0);   (696200.4,
4232361.3,   307.9,   307.9,   0.0);
     (696200.4, 4232337.5,   307.4,   307.4,   0.0);   (696200.4,
4232313.6,   306.6,   306.6,   0.0);
     (696200.4, 4232289.8,   305.8,   305.8,   0.0);   (696200.4,
4232265.9,   305.0,   305.0,   0.0);
     (696200.4, 4232242.0,   305.0,   305.0,   0.0);   (696200.4,

4232218.2,   306.1,   306.1,   0.0);
     (696200.4, 4232194.3,   307.6,   307.6,   0.0);   (696200.4,
4232170.4,   309.2,   316.0,   0.0);
     (696200.4, 4232146.6,   310.8,   318.0,   0.0);   (696200.4,
4232122.7,   313.0,   317.0,   0.0);
     (696200.4, 4232098.8,   315.3,   317.0,   0.0);   (696200.4,
4232075.0,   317.0,   317.0,   0.0);
     (696391.5, 4232407.0,   310.7,   310.7,   0.0);   (696382.6,
4232428.8,   311.0,   311.0,   0.0);
     (696373.7, 4232450.5,   311.1,   311.1,   0.0);   (696364.8,
4232472.3,   311.3,   349.0,   0.0);
     (696355.8, 4232494.1,   312.3,   349.0,   0.0);   (696346.9,
4232515.9,   313.1,   349.0,   0.0);
     (696338.0, 4232537.7,   313.6,   351.0,   0.0);   (696329.1,
4232559.4,   314.0,   351.0,   0.0);
     (696320.1, 4232581.2,   314.4,   354.0,   0.0);   (696311.2,
4232603.0,   314.9,   354.0,   0.0);
     (696302.3, 4232624.8,   315.3,   354.0,   0.0);   (696293.4,
4232646.5,   315.0,   354.0,   0.0);
     (696284.4, 4232668.3,   315.4,   356.0,   0.0);   (696275.5,
4232690.1,   316.2,   356.0,   0.0);
     (696266.6, 4232711.9,   316.9,   356.0,   0.0);   (696257.7,
4232733.6,   317.9,   357.0,   0.0);
     (696248.7, 4232755.4,   318.7,   359.0,   0.0);   (696239.8,
4232777.2,   319.7,   360.0,   0.0);
     (696230.9, 4232799.0,   321.2,   360.0,   0.0);   (696222.0,
4232820.8,   321.9,   402.0,   0.0);
     (696213.1, 4232842.5,   322.4,   402.0,   0.0);   (696204.1,
4232864.3,   323.0,   402.0,   0.0);
     (696195.2, 4232886.1,   323.8,   402.0,   0.0);   (696186.3,
4232907.9,   324.5,   402.0,   0.0);
     (696177.4, 4232929.6,   325.3,   402.0,   0.0);   (696168.4,
4232951.4,   325.5,   402.0,   0.0);
     (696159.5, 4232973.2,   325.7,   402.0,   0.0);   (696150.6,
4232995.0,   326.1,   402.0,   0.0);
     (696120.0, 4233026.0,   326.1,   402.0,   0.0);   (696098.4,
4233035.3,   325.3,   625.0,   0.0);
     (696076.7, 4233044.5,   324.5,   625.0,   0.0);   (696055.1,
4233053.8,   323.4,   625.0,   0.0);
     (696033.5, 4233063.0,   322.3,   625.0,   0.0);   (696011.8,
4233072.3,   321.9,   625.0,   0.0);
     (695990.2, 4233081.5,   322.1,   625.0,   0.0);   (695968.6,
4233090.8,   322.8,   625.0,   0.0);
     (695946.9, 4233100.0,   324.8,   624.0,   0.0);   (695925.3,
4233109.3,   326.7,   402.0,   0.0);
     (695903.6, 4233118.5,   328.6,   402.0,   0.0);   (695882.0,
4233127.8,   333.3,   402.0,   0.0);
     (695860.4, 4233137.1,   337.4,   402.0,   0.0);   (695838.7,
4233146.3,   341.3,   402.0,   0.0);
     (695817.1, 4233155.6,   345.6,   402.0,   0.0);   (695795.4,

4233164.8,   350.2,   402.0,   0.0);
     (695773.8, 4233174.1,   355.3,   402.0,   0.0);   (695752.2,
4233183.3,   360.3,   402.0,   0.0);
     (695730.5, 4233192.6,   365.3,   402.0,   0.0);   (695708.9,
4233201.8,   369.7,   402.0,   0.0);
     (695687.2, 4233211.1,   373.7,   402.0,   0.0);   (695665.6,
4233220.3,   378.3,   402.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695644.0, 4233229.6,   382.5,   402.0,   0.0);   (695622.3,
4233238.8,   387.6,   402.0,   0.0);
     (695600.7, 4233248.1,   393.5,   402.0,   0.0);   (695579.1,
4233257.3,   397.6,   402.0,   0.0);
     (695557.4, 4233266.6,   398.8,   402.0,   0.0);   (695535.8,
4233275.9,   396.7,   402.0,   0.0);
     (696400.4, 4232385.2,   310.0,   310.0,   0.0);   (696400.4,
4232361.3,   310.0,   310.0,   0.0);
     (696400.4, 4232337.5,   309.4,   309.4,   0.0);   (696400.4,
4232313.6,   309.0,   309.0,   0.0);
     (696400.4, 4232289.8,   308.8,   308.8,   0.0);   (696400.4,
4232265.9,   308.0,   308.0,   0.0);
     (696400.4, 4232242.0,   308.8,   308.8,   0.0);   (696400.4,
4232218.2,   309.3,   309.3,   0.0);
     (696400.4, 4232194.3,   310.3,   334.0,   0.0);   (696400.4,
4232170.4,   312.1,   334.0,   0.0);
     (696400.4, 4232146.6,   314.8,   314.8,   0.0);   (696400.4,
4232122.7,   317.2,   317.2,   0.0);
     (696400.4, 4232098.8,   319.4,   319.4,   0.0);   (696400.4,
4232075.0,   321.2,   321.2,   0.0);
     (696591.4, 4232407.3,   314.5,   442.0,   0.0);   (696582.4,
4232429.3,   316.3,   353.0,   0.0);
     (696573.3, 4232451.4,   317.8,   353.0,   0.0);   (696564.3,
4232473.4,   318.9,   354.0,   0.0);
     (696555.3, 4232495.5,   320.5,   354.0,   0.0);   (696546.2,
4232517.5,   321.9,   354.0,   0.0);
     (696537.2, 4232539.6,   323.4,   354.0,   0.0);   (696528.2,
4232561.6,   324.4,   355.0,   0.0);
     (696519.1, 4232583.7,   325.3,   355.0,   0.0);   (696510.1,
4232605.8,   326.2,   355.0,   0.0);
     (696501.0, 4232627.8,   326.9,   355.0,   0.0);   (696492.0,

4232649.9,   327.8,   355.0,   0.0);
     (696483.0, 4232671.9,   328.5,   355.0,   0.0);   (696473.9,
4232694.0,   328.6,   355.0,   0.0);
     (696464.9, 4232716.0,   329.2,   356.0,   0.0);   (696455.9,
4232738.1,   329.0,   360.0,   0.0);
     (696446.8, 4232760.1,   328.8,   361.0,   0.0);   (696437.8,
4232782.2,   329.3,   361.0,   0.0);
     (696428.7, 4232804.2,   330.5,   361.0,   0.0);   (696419.7,
4232826.3,   332.5,   361.0,   0.0);
     (696410.7, 4232848.3,   334.2,   360.0,   0.0);   (696401.6,
4232870.4,   335.9,   360.0,   0.0);
     (696392.6, 4232892.5,   338.3,   357.0,   0.0);   (696383.6,
4232914.5,   340.6,   355.0,   0.0);
     (696374.5, 4232936.6,   342.8,   352.0,   0.0);   (696365.5,
4232958.6,   344.2,   353.0,   0.0);
     (696356.5, 4232980.7,   345.8,   353.0,   0.0);   (696347.4,
4233002.7,   346.6,   355.0,   0.0);
     (696338.4, 4233024.8,   347.1,   355.0,   0.0);   (696329.3,
4233046.8,   347.8,   360.0,   0.0);
     (696320.3, 4233068.9,   349.1,   357.0,   0.0);   (696311.3,
4233090.9,   350.4,   357.0,   0.0);
     (696302.2, 4233113.0,   351.6,   355.0,   0.0);   (696293.2,
4233135.0,   352.9,   353.0,   0.0);
     (696262.2, 4233166.5,   349.9,   360.0,   0.0);   (696240.3,
4233175.8,   347.6,   364.0,   0.0);
     (696218.4, 4233185.2,   345.3,   365.0,   0.0);   (696196.5,
4233194.6,   343.3,   625.0,   0.0);
     (696174.6, 4233204.0,   341.4,   625.0,   0.0);   (696152.7,
4233213.3,   339.2,   625.0,   0.0);
     (696130.8, 4233222.7,   337.6,   625.0,   0.0);   (696108.8,
4233232.1,   335.8,   625.0,   0.0);
     (696086.9, 4233241.4,   334.4,   625.0,   0.0);   (696065.0,
4233250.8,   332.9,   625.0,   0.0);
     (696043.1, 4233260.2,   331.4,   625.0,   0.0);   (696021.2,
4233269.5,   329.8,   625.0,   0.0);
     (695999.3, 4233278.9,   328.4,   625.0,   0.0);   (695977.4,
4233288.3,   328.1,   625.0,   0.0);
     (695955.5, 4233297.7,   328.0,   625.0,   0.0);   (695933.5,
4233307.0,   328.0,   625.0,   0.0);
     (695911.6, 4233316.4,   328.7,   625.0,   0.0);   (695889.7,
4233325.8,   330.4,   625.0,   0.0);
     (695867.8, 4233335.1,   332.4,   625.0,   0.0);   (695845.9,
4233344.5,   333.9,   625.0,   0.0);
     (695824.0, 4233353.9,   337.1,   625.0,   0.0);   (695802.1,
4233363.3,   340.2,   624.0,   0.0);
     (695780.1, 4233372.6,   343.5,   402.0,   0.0);   (695758.2,
4233382.0,   346.2,   402.0,   0.0);
     (695736.3, 4233391.4,   351.1,   402.0,   0.0);   (695714.4,
4233400.8,   356.3,   402.0,   0.0);
     (695692.5, 4233410.1,   361.2,   402.0,   0.0);   (695670.6,

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                        (METERS)

     (696600.4, 4232337.5,   310.4,   445.0,   0.0);   (696600.4,
4232313.6,   309.6,   445.0,   0.0);
     (696600.4, 4232289.8,   309.0,   445.0,   0.0);   (696600.4,
4232265.9,   309.0,   443.0,   0.0);
     (696600.4, 4232242.0,   310.5,   442.0,   0.0);   (696600.4,
4232218.2,   313.2,   428.0,   0.0);
     (696600.4, 4232194.3,   316.1,   428.0,   0.0);   (696600.4,
4232170.4,   318.7,   335.0,   0.0);
     (696600.4, 4232146.6,   321.1,   335.0,   0.0);   (696600.4,
4232122.7,   323.4,   335.0,   0.0);
     (696600.4, 4232098.8,   325.8,   335.0,   0.0);   (696600.4,
4232075.0,   328.5,   335.0,   0.0);
     (696791.5, 4232406.9,   318.1,   445.0,   0.0);   (696782.6,
4232428.7,   319.6,   445.0,   0.0);
     (696773.7, 4232450.4,   321.6,   445.0,   0.0);   (696764.8,
4232472.1,   323.8,   445.0,   0.0);
     (696755.9, 4232493.8,   325.3,   445.0,   0.0);   (696747.0,
4232515.5,   326.7,   445.0,   0.0);
     (696738.1, 4232537.3,   328.2,   445.0,   0.0);   (696729.2,
4232559.0,   329.6,   445.0,   0.0);
     (696720.3, 4232580.7,   331.6,   442.0,   0.0);   (696711.4,
4232602.4,   333.4,   354.0,   0.0);
     (696702.5, 4232624.1,   334.6,   354.0,   0.0);   (696693.6,
4232645.8,   337.6,   354.0,   0.0);
     (696684.7, 4232667.6,   340.6,   353.0,   0.0);   (696675.8,
4232689.3,   344.2,   353.0,   0.0);
     (696666.9, 4232711.0,   347.4,   347.4,   0.0);   (696658.0,
4232732.7,   349.3,   349.3,   0.0);
     (696649.1, 4232754.5,   350.5,   350.5,   0.0);   (696640.2,

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4232776.2,     351.6,     351.6,       0.0);
     ( 696631.3, 4232797.9,     352.2,     352.2,       0.0);         ( 696622.4,
4232819.6,     352.9,     352.9,       0.0);
     ( 696613.5, 4232841.3,     353.1,     353.1,       0.0);         ( 696604.6,
4232863.0,     352.7,     352.7,       0.0);
     ( 696595.7, 4232884.8,     352.8,     352.8,       0.0);         ( 696586.8,
4232906.5,     353.3,     353.3,       0.0);
     ( 696577.9, 4232928.2,     354.1,     354.1,       0.0);         ( 696569.0,
4232949.9,     354.9,     354.9,       0.0);
     ( 696560.1, 4232971.6,     356.0,     356.0,       0.0);         ( 696551.2,
4232993.4,     357.0,     357.0,       0.0);
     ( 696542.3, 4233015.1,     357.6,     357.6,       0.0);         ( 696533.4,
4233036.8,     358.4,     358.4,       0.0);
     ( 696524.5, 4233058.5,     359.0,     359.0,       0.0);         ( 696515.6,
4233080.2,     359.6,     359.6,       0.0);
     ( 696506.7, 4233102.0,     360.0,     360.0,       0.0);         ( 696497.8,
4233123.7,     359.9,     359.9,       0.0);
     ( 696488.9, 4233145.4,     360.2,     360.2,       0.0);         ( 696480.0,
4233167.1,     360.3,     360.3,       0.0);
     ( 696471.1, 4233188.8,     360.9,     360.9,       0.0);         ( 696462.2,
4233210.6,     361.9,     361.9,       0.0);
     ( 696453.3, 4233232.3,     363.0,     363.0,       0.0);         ( 696444.4,
4233254.0,     364.9,     365.0,       0.0);
     ( 696435.5, 4233275.7,     364.6,     364.6,       0.0);         ( 696405.1,
4233306.7,     365.2,     365.2,       0.0);
     ( 696383.5, 4233315.9,     365.0,     365.0,       0.0);         ( 696361.9,
4233325.1,     364.3,     364.3,       0.0);
     ( 696340.3, 4233334.4,     362.7,     625.0,       0.0);         ( 696318.7,
4233343.6,     360.5,     625.0,       0.0);
     ( 696297.2, 4233352.8,     358.1,     625.0,       0.0);         ( 696275.6,
4233362.0,     355.6,     625.0,       0.0);
     ( 696254.0, 4233371.3,     353.1,     625.0,       0.0);         ( 696232.4,
4233380.5,     350.6,     625.0,       0.0);
     ( 696210.8, 4233389.7,     347.5,     625.0,       0.0);         ( 696189.2,
4233399.0,     344.7,     625.0,       0.0);
     ( 696167.7, 4233408.2,     342.4,     625.0,       0.0);         ( 696146.1,
4233417.4,     340.2,     625.0,       0.0);
     ( 696124.5, 4233426.6,     339.4,     625.0,       0.0);         ( 696102.9,
4233435.9,     338.3,     625.0,       0.0);
     ( 696081.3, 4233445.1,     336.9,     625.0,       0.0);         ( 696059.8,
4233454.3,     335.9,     625.0,       0.0);
     ( 696038.2, 4233463.6,     334.9,     625.0,       0.0);         ( 696016.6,
4233472.8,     334.0,     625.0,       0.0);
     ( 695995.0, 4233482.0,     333.6,     625.0,       0.0);         ( 695973.4,
4233491.3,     333.1,     625.0,       0.0);
     ( 695951.9, 4233500.5,     332.5,     625.0,       0.0);         ( 695930.3,
4233509.7,     332.2,     625.0,       0.0);
     ( 695908.7, 4233518.9,     333.6,     625.0,       0.0);         ( 695887.1,
4233528.2,     335.2,     625.0,       0.0);
     ( 695865.5, 4233537.4,     336.7,     625.0,       0.0);         ( 695843.9,
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4233546.6,   338.7,   625.0,   0.0);
     (695822.4, 4233555.9,   340.4,   625.0,   0.0);   (695800.8,
4233565.1,   342.3,   625.0,   0.0);
     (695779.2, 4233574.3,   344.7,   625.0,   0.0);   (695757.6,
4233583.5,   348.3,   625.0,   0.0);
     (695736.0, 4233592.8,   353.6,   625.0,   0.0);   (695714.5,
4233602.0,   358.6,   402.0,   0.0);
     (695692.9, 4233611.2,   363.4,   402.0,   0.0);   (695671.3,
4233620.5,   369.2,   402.0,   0.0);
     (695649.7, 4233629.7,   374.0,   402.0,   0.0);   (695628.1,
4233638.9,   378.8,   402.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695606.5, 4233648.1,   382.7,   402.0,   0.0);   (695585.0,
4233657.4,   384.4,   402.0,   0.0);
     (695563.4, 4233666.6,   384.0,   402.0,   0.0);   (695541.8,
4233675.8,   381.5,   402.0,   0.0);
     (696800.4, 4232385.2,   317.1,   445.0,   0.0);   (696800.4,
4232361.3,   315.5,   445.0,   0.0);
     (696800.4, 4232337.5,   312.8,   445.0,   0.0);   (696800.4,
4232313.6,   311.1,   445.0,   0.0);
     (696800.4, 4232289.8,   311.3,   445.0,   0.0);   (696800.4,
4232265.9,   312.8,   445.0,   0.0);
     (696800.4, 4232242.0,   313.0,   445.0,   0.0);   (696800.4,
4232218.2,   314.7,   445.0,   0.0);
     (696800.4, 4232194.3,   317.0,   445.0,   0.0);   (696800.4,
4232170.4,   319.4,   445.0,   0.0);
     (696800.4, 4232146.6,   321.8,   442.0,   0.0);   (696800.4,
4232122.7,   325.0,   428.0,   0.0);
     (696800.4, 4232098.8,   327.6,   428.0,   0.0);   (696800.4,
4232075.0,   329.9,   428.0,   0.0);
     (696991.5, 4232407.1,   319.5,   445.0,   0.0);   (696982.5,
4232429.1,   318.9,   445.0,   0.0);
     (696973.5, 4232451.0,   318.4,   445.0,   0.0);   (696964.5,
4232472.9,   318.3,   445.0,   0.0);
     (696955.5, 4232494.9,   318.0,   445.0,   0.0);   (696946.5,
4232516.8,   318.2,   445.0,   0.0);
     (696937.5, 4232538.7,   318.7,   445.0,   0.0);   (696928.6,
4232560.6,   319.7,   445.0,   0.0);
     (696919.6, 4232582.6,   320.7,   445.0,   0.0);   (696910.6,

4232604.5,   321.6,   445.0,   0.0);
     (696901.6, 4232626.4,   322.0,   445.0,   0.0);   (696892.6,
4232648.4,   322.8,   445.0,   0.0);
     (696883.6, 4232670.3,   322.5,   451.0,   0.0);   (696874.6,
4232692.2,   322.5,   452.0,   0.0);
     (696865.7, 4232714.1,   328.0,   445.0,   0.0);   (696856.7,
4232736.1,   330.2,   445.0,   0.0);
     (696847.7, 4232758.0,   332.2,   445.0,   0.0);   (696838.7,
4232779.9,   333.8,   445.0,   0.0);
     (696829.7, 4232801.9,   335.0,   445.0,   0.0);   (696820.7,
4232823.8,   337.7,   445.0,   0.0);
     (696811.7, 4232845.7,   340.5,   445.0,   0.0);   (696802.8,
4232867.6,   343.2,   354.0,   0.0);
     (696793.8, 4232889.6,   344.7,   354.0,   0.0);   (696784.8,
4232911.5,   346.2,   354.0,   0.0);
     (696775.8, 4232933.4,   347.4,   354.0,   0.0);   (696766.8,
4232955.4,   348.1,   354.0,   0.0);
     (696757.8, 4232977.3,   348.9,   354.0,   0.0);   (696748.9,
4232999.2,   349.0,   353.0,   0.0);
     (696739.9, 4233021.1,   349.2,   358.0,   0.0);   (696730.9,
4233043.1,   349.7,   358.0,   0.0);
     (696721.9, 4233065.0,   349.9,   360.0,   0.0);   (696712.9,
4233086.9,   349.7,   625.0,   0.0);
     (696703.9, 4233108.9,   349.7,   625.0,   0.0);   (696694.9,
4233130.8,   349.1,   625.0,   0.0);
     (696686.0, 4233152.7,   349.2,   625.0,   0.0);   (696677.0,
4233174.6,   349.6,   625.0,   0.0);
     (696668.0, 4233196.6,   350.0,   625.0,   0.0);   (696659.0,
4233218.5,   349.2,   625.0,   0.0);
     (696650.0, 4233240.4,   348.7,   625.0,   0.0);   (696641.0,
4233262.4,   348.3,   625.0,   0.0);
     (696632.0, 4233284.3,   347.9,   625.0,   0.0);   (696623.1,
4233306.2,   346.9,   625.0,   0.0);
     (696614.1, 4233328.1,   346.8,   625.0,   0.0);   (696605.1,
4233350.1,   347.5,   625.0,   0.0);
     (696596.1, 4233372.0,   348.7,   625.0,   0.0);   (696587.1,
4233393.9,   348.8,   625.0,   0.0);
     (696578.1, 4233415.8,   348.3,   625.0,   0.0);   (696547.4,
4233447.1,   350.2,   625.0,   0.0);
     (696525.6, 4233456.4,   351.8,   625.0,   0.0);   (696503.8,
4233465.7,   353.0,   625.0,   0.0);
     (696482.0, 4233475.0,   354.8,   625.0,   0.0);   (696460.2,
4233484.4,   356.8,   625.0,   0.0);
     (696438.4, 4233493.7,   359.3,   625.0,   0.0);   (696416.6,
4233503.0,   361.1,   625.0,   0.0);
     (696394.8, 4233512.3,   361.2,   625.0,   0.0);   (696373.0,
4233521.6,   360.7,   625.0,   0.0);
     (696351.2, 4233531.0,   359.6,   625.0,   0.0);   (696329.5,
4233540.3,   357.1,   625.0,   0.0);
     (696307.7, 4233549.6,   355.1,   625.0,   0.0);   (696285.9,

4233558.9,   353.1,   625.0,   0.0);
     (696264.1, 4233568.2,   350.6,   625.0,   0.0);   (696242.3,
4233577.5,   347.9,   625.0,   0.0);
     (696220.5, 4233586.9,   346.6,   625.0,   0.0);   (696198.7,
4233596.2,   346.2,   625.0,   0.0);
     (696176.9, 4233605.5,   345.8,   625.0,   0.0);   (696155.1,
4233614.8,   345.4,   625.0,   0.0);
     (696133.4, 4233624.1,   345.1,   625.0,   0.0);   (696111.6,
4233633.5,   345.2,   625.0,   0.0);
     (696089.8, 4233642.8,   345.1,   625.0,   0.0);   (696068.0,
4233652.1,   345.0,   625.0,   0.0);
     (696046.2, 4233661.4,   344.6,   625.0,   0.0);   (696024.4,
4233670.7,   343.8,   625.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696002.6, 4233680.0,   343.7,   625.0,   0.0);   (695980.8,
4233689.4,   343.5,   625.0,   0.0);
     (695959.0, 4233698.7,   343.3,   625.0,   0.0);   (695937.2,
4233708.0,   342.5,   625.0,   0.0);
     (695915.5, 4233717.3,   342.4,   625.0,   0.0);   (695893.7,
4233726.6,   341.9,   625.0,   0.0);
     (695871.9, 4233736.0,   341.0,   625.0,   0.0);   (695850.1,
4233745.3,   340.6,   625.0,   0.0);
     (695828.3, 4233754.6,   340.8,   625.0,   0.0);   (695806.5,
4233763.9,   341.7,   625.0,   0.0);
     (695784.7, 4233773.2,   343.9,   625.0,   0.0);   (695762.9,
4233782.5,   346.1,   625.0,   0.0);
     (695741.2, 4233791.9,   347.5,   625.0,   0.0);   (695719.4,
4233801.2,   347.6,   625.0,   0.0);
     (695697.6, 4233810.5,   347.7,   625.0,   0.0);   (695675.8,
4233819.8,   347.3,   625.0,   0.0);
     (695654.0, 4233829.1,   346.2,   625.0,   0.0);   (695632.2,
4233838.5,   345.2,   625.0,   0.0);
     (695610.4, 4233847.8,   345.4,   625.0,   0.0);   (695588.6,
4233857.1,   345.4,   625.0,   0.0);
     (695566.8, 4233866.4,   346.3,   625.0,   0.0);   (695545.1,
4233875.7,   347.6,   625.0,   0.0);
     (697000.4, 4232385.2,   320.4,   445.0,   0.0);   (697000.4,
4232361.3,   321.8,   445.0,   0.0);
     (697000.4, 4232337.5,   323.1,   445.0,   0.0);   (697000.4,

4232313.6,   323.9,   445.0,   0.0);
     (697000.4, 4232289.8,   324.5,   445.0,   0.0);   (697000.4,
4232265.9,   325.6,   445.0,   0.0);
     (697000.4, 4232242.0,   327.2,   445.0,   0.0);   (697000.4,
4232218.2,   329.0,   445.0,   0.0);
     (697000.4, 4232194.3,   331.0,   445.0,   0.0);   (697000.4,
4232170.4,   333.1,   445.0,   0.0);
     (697000.4, 4232146.6,   335.1,   445.0,   0.0);   (697000.4,
4232122.7,   336.3,   442.0,   0.0);
     (697000.4, 4232098.8,   336.9,   442.0,   0.0);   (697000.4,
4232075.0,   337.4,   428.0,   0.0);
     (697191.6, 4232406.9,   344.6,   445.0,   0.0);   (697182.7,
4232428.6,   342.6,   445.0,   0.0);
     (697173.8, 4232450.3,   340.7,   445.0,   0.0);   (697164.9,
4232472.0,   338.3,   445.0,   0.0);
     (697156.0, 4232493.7,   335.6,   445.0,   0.0);   (697147.1,
4232515.3,   332.5,   445.0,   0.0);
     (697138.2, 4232537.0,   329.9,   452.0,   0.0);   (697129.3,
4232558.7,   328.2,   452.0,   0.0);
     (697120.5, 4232580.4,   327.0,   453.0,   0.0);   (697111.6,
4232602.1,   326.0,   453.0,   0.0);
     (697102.7, 4232623.8,   325.0,   453.0,   0.0);   (697093.8,
4232645.5,   324.7,   454.0,   0.0);
     (697084.9, 4232667.2,   324.0,   454.0,   0.0);   (697076.0,
4232688.9,   323.1,   454.0,   0.0);
     (697067.1, 4232710.6,   322.8,   454.0,   0.0);   (697058.2,
4232732.2,   323.1,   455.0,   0.0);
     (697049.4, 4232753.9,   323.5,   625.0,   0.0);   (697040.5,
4232775.6,   323.8,   625.0,   0.0);
     (697031.6, 4232797.3,   323.9,   625.0,   0.0);   (697022.7,
4232819.0,   324.2,   625.0,   0.0);
     (697013.8, 4232840.7,   324.4,   625.0,   0.0);   (697004.9,
4232862.4,   325.2,   625.0,   0.0);
     (696996.0, 4232884.1,   325.1,   625.0,   0.0);   (696987.1,
4232905.8,   324.4,   625.0,   0.0);
     (696978.2, 4232927.5,   324.0,   625.0,   0.0);   (696969.4,
4232949.1,   324.4,   625.0,   0.0);
     (696960.5, 4232970.8,   323.7,   625.0,   0.0);   (696951.6,
4232992.5,   323.2,   625.0,   0.0);
     (696942.7, 4233014.2,   323.6,   625.0,   0.0);   (696933.8,
4233035.9,   323.8,   625.0,   0.0);
     (696924.9, 4233057.6,   324.4,   625.0,   0.0);   (696916.0,
4233079.3,   324.8,   625.0,   0.0);
     (696907.2, 4233101.0,   324.4,   625.0,   0.0);   (696898.3,
4233122.6,   324.2,   625.0,   0.0);
     (696889.4, 4233144.3,   324.6,   625.0,   0.0);   (696880.5,
4233166.0,   325.6,   625.0,   0.0);
     (696871.6, 4233187.7,   325.3,   625.0,   0.0);   (696862.7,
4233209.4,   325.0,   625.0,   0.0);
     (696853.8, 4233231.1,   325.8,   625.0,   0.0);   (696844.9,

4233252.8,   325.1,   625.0,   0.0);
     (696836.1, 4233274.5,   325.7,   625.0,   0.0);   (696827.2,
4233296.2,   326.2,   625.0,   0.0);
     (696818.3, 4233317.8,   326.6,   625.0,   0.0);   (696809.4,
4233339.5,   327.0,   625.0,   0.0);
     (696800.5, 4233361.2,   328.0,   625.0,   0.0);   (696791.6,
4233382.9,   329.1,   625.0,   0.0);
     (696782.7, 4233404.6,   330.3,   625.0,   0.0);   (696773.8,
4233426.3,   331.4,   625.0,   0.0);
     (696765.0, 4233448.0,   332.3,   625.0,   0.0);   (696756.1,
4233469.7,   333.2,   625.0,   0.0);
     (696747.2, 4233491.4,   334.0,   625.0,   0.0);   (696738.3,
4233513.1,   335.4,   625.0,   0.0);
     (696729.4, 4233534.8,   336.6,   625.0,   0.0);   (696720.5,
4233556.4,   337.9,   625.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (696690.1, 4233587.3,   337.5,   625.0,   0.0);   (696668.5,
4233596.6,   336.6,   625.0,   0.0);
     (696647.0, 4233605.8,   336.7,   625.0,   0.0);   (696625.4,
4233615.0,   338.9,   625.0,   0.0);
     (696603.9, 4233624.2,   343.0,   625.0,   0.0);   (696582.3,
4233633.4,   345.8,   625.0,   0.0);
     (696560.8, 4233642.6,   348.2,   625.0,   0.0);   (696539.2,
4233651.8,   349.6,   625.0,   0.0);
     (696517.7, 4233661.1,   351.6,   625.0,   0.0);   (696496.1,
4233670.3,   353.7,   625.0,   0.0);
     (696474.6, 4233679.5,   356.2,   625.0,   0.0);   (696453.0,
4233688.7,   359.4,   625.0,   0.0);
     (696431.5, 4233697.9,   360.8,   625.0,   0.0);   (696409.9,
4233707.1,   361.1,   625.0,   0.0);
     (696388.4, 4233716.4,   361.4,   625.0,   0.0);   (696366.8,
4233725.6,   361.1,   625.0,   0.0);
     (696345.2, 4233734.8,   360.7,   625.0,   0.0);   (696323.7,
4233744.0,   360.3,   625.0,   0.0);
     (696302.2, 4233753.2,   360.2,   625.0,   0.0);   (696280.6,
4233762.5,   359.5,   625.0,   0.0);
     (696259.1, 4233771.7,   359.5,   625.0,   0.0);   (696237.5,
4233780.9,   360.1,   625.0,   0.0);
     (696216.0, 4233790.1,   360.7,   625.0,   0.0);   (696194.4,

4233799.3,   361.3,   625.0,   0.0);
     (696172.8, 4233808.5,   361.9,   625.0,   0.0);   (696151.3,
4233817.8,   362.5,   625.0,   0.0);
     (696129.7, 4233827.0,   363.2,   625.0,   0.0);   (696108.2,
4233836.2,   363.6,   625.0,   0.0);
     (696086.6, 4233845.4,   363.5,   625.0,   0.0);   (696065.1,
4233854.6,   362.8,   625.0,   0.0);
     (696043.5, 4233863.8,   361.9,   625.0,   0.0);   (696022.0,
4233873.0,   361.1,   625.0,   0.0);
     (696000.4, 4233882.3,   360.2,   625.0,   0.0);   (695978.9,
4233891.5,   358.9,   625.0,   0.0);
     (695957.3, 4233900.7,   357.4,   625.0,   0.0);   (695935.8,
4233909.9,   355.9,   625.0,   0.0);
     (695914.2, 4233919.1,   354.9,   625.0,   0.0);   (695892.7,
4233928.3,   354.2,   625.0,   0.0);
     (695871.1, 4233937.6,   353.3,   625.0,   0.0);   (695849.6,
4233946.8,   351.5,   625.0,   0.0);
     (695828.0, 4233956.0,   348.4,   625.0,   0.0);   (695806.5,
4233965.2,   345.6,   625.0,   0.0);
     (695784.9, 4233974.4,   343.1,   625.0,   0.0);   (695763.4,
4233983.6,   340.8,   625.0,   0.0);
     (695741.8, 4233992.9,   338.4,   625.0,   0.0);   (695720.3,
4234002.1,   335.8,   625.0,   0.0);
     (695698.7, 4234011.3,   334.8,   625.0,   0.0);   (695677.2,
4234020.5,   333.4,   625.0,   0.0);
     (695655.6, 4234029.7,   331.7,   625.0,   0.0);   (695634.1,
4234038.9,   330.0,   625.0,   0.0);
     (695612.5, 4234048.2,   331.6,   625.0,   0.0);   (695591.0,
4234057.4,   330.8,   625.0,   0.0);
     (695569.4, 4234066.6,   329.2,   625.0,   0.0);   (695547.9,
4234075.8,   329.7,   625.0,   0.0);
     (697200.4, 4232385.2,   348.1,   445.0,   0.0);   (697200.4,
4232361.3,   348.5,   445.0,   0.0);
     (697200.4, 4232337.5,   346.2,   445.0,   0.0);   (697200.4,
4232313.6,   346.3,   445.0,   0.0);
     (697200.4, 4232289.8,   349.6,   445.0,   0.0);   (697200.4,
4232265.9,   351.6,   445.0,   0.0);
     (697200.4, 4232242.0,   353.6,   445.0,   0.0);   (697200.4,
4232218.2,   353.3,   445.0,   0.0);
     (697200.4, 4232194.3,   351.5,   445.0,   0.0);   (697200.4,
4232170.4,   349.1,   445.0,   0.0);
     (697200.4, 4232146.6,   346.9,   445.0,   0.0);   (697200.4,
4232122.7,   345.7,   445.0,   0.0);
     (697200.4, 4232098.8,   342.8,   445.0,   0.0);   (697200.4,
4232075.0,   338.5,   445.0,   0.0);
     (695518.2, 4232061.2,   309.6,   309.6,   0.0);   (695491.5,
4232051.6,   308.2,   312.0,   0.0);
     (695496.6, 4232007.7,   312.1,   312.1,   0.0);   (695519.8,
4232010.4,   311.9,   311.9,   0.0);
     (695546.5, 4232020.0,   311.2,   311.2,   0.0);   (695557.4,

4232040.6,   311.0,   311.0,   0.0);
     (695473.5, 4232005.0,   312.0,   312.0,   0.0);   (695472.2,
4231982.5,   312.4,   312.4,   0.0);
     (695571.5, 4232020.0,   311.0,   311.0,   0.0);   (695582.4,
4232040.6,   311.0,   311.0,   0.0);
     (695477.4, 4231938.6,   311.8,   311.8,   0.0);   (695589.0,
4231958.2,   310.6,   310.6,   0.0);
     (695599.8, 4231978.8,   310.5,   310.5,   0.0);   (695610.7,
4231999.4,   310.8,   310.8,   0.0);
     (695621.5, 4232020.0,   310.4,   310.4,   0.0);   (695632.4,
4232040.6,   310.5,   310.5,   0.0);
     (695509.1, 4231897.8,   312.0,   312.0,   0.0);   (695597.6,
4231908.2,   311.2,   311.2,   0.0);
     (695621.2, 4231924.4,   310.4,   310.4,   0.0);   (695632.5,
4231945.9,   310.0,   310.0,   0.0);
     (695643.9, 4231967.4,   309.7,   309.7,   0.0);   (695655.2,
4231988.9,   309.3,   309.3,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                       (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (695666.5, 4232010.5,   309.5,   309.5,   0.0);   (695677.8,
4232032.0,   309.5,   309.5,   0.0);
     (695689.1, 4232053.5,   309.2,   309.2,   0.0);   (695418.7,
4231842.6,   306.4,   311.0,   0.0);
     (695442.6, 4231845.4,   309.5,   311.0,   0.0);   (695466.5,
4231848.2,   311.4,   311.4,   0.0);
     (695490.5, 4231851.0,   312.0,   312.0,   0.0);   (695514.4,
4231853.8,   312.0,   312.0,   0.0);
     (695538.3, 4231856.7,   312.0,   312.0,   0.0);   (695562.2,
4231859.5,   312.0,   312.0,   0.0);
     (695586.2, 4231862.3,   311.6,   311.6,   0.0);   (695610.1,
4231865.1,   310.9,   310.9,   0.0);
     (695634.0, 4231867.9,   310.2,   310.2,   0.0);   (695653.2,
4231890.2,   309.4,   309.4,   0.0);
     (695664.4, 4231911.5,   309.0,   309.0,   0.0);   (695675.6,
4231932.8,   308.6,   308.6,   0.0);
     (695686.9, 4231954.2,   308.2,   308.2,   0.0);   (695698.1,
4231975.5,   308.3,   308.3,   0.0);
     (695709.3, 4231996.8,   308.5,   308.5,   0.0);   (695720.5,
4232018.1,   308.1,   308.1,   0.0);
     (695731.7, 4232039.4,   308.4,   308.4,   0.0);   (695472.0,

4231804.3,   312.0,   312.0,   0.0);
     (695511.7, 4231809.0,   312.9,   312.9,   0.0);   (695535.5,
4231811.8,   312.4,   312.4,   0.0);
     (695559.3, 4231814.6,   312.0,   312.0,   0.0);   (695583.1,
4231817.4,   311.7,   311.7,   0.0);
     (695614.8, 4231821.1,   310.7,   310.7,   0.0);   (695638.6,
4231823.9,   310.1,   310.1,   0.0);
     (695662.4, 4231826.7,   309.1,   309.1,   0.0);   (695681.4,
4231848.9,   308.4,   308.4,   0.0);
     (695692.6, 4231870.1,   308.0,   308.0,   0.0);   (695703.8,
4231891.3,   307.5,   307.5,   0.0);
     (695714.9, 4231912.5,   307.3,   307.3,   0.0);   (695726.1,
4231933.6,   306.9,   306.9,   0.0);
     (695737.2, 4231954.8,   307.2,   307.2,   0.0);   (695748.4,
4231976.0,   307.2,   307.2,   0.0);
     (695759.5, 4231997.2,   307.1,   307.1,   0.0);   (695770.7,
4232018.4,   307.3,   307.3,   0.0);
     (695781.9, 4232039.6,   307.1,   307.1,   0.0);   (695445.3,
4231712.0,   312.7,   312.7,   0.0);
     (695477.5, 4231715.8,   313.0,   313.0,   0.0);   (695501.7,
4231718.7,   313.0,   313.0,   0.0);
     (695525.8, 4231721.5,   313.0,   313.0,   0.0);   (695549.9,
4231724.4,   312.8,   312.8,   0.0);
     (695574.1, 4231727.2,   312.0,   312.0,   0.0);   (695598.2,
4231730.1,   311.9,   311.9,   0.0);
     (695622.3, 4231732.9,   311.3,   311.3,   0.0);   (695646.5,
4231735.8,   310.2,   310.2,   0.0);
     (695670.6, 4231738.6,   308.6,   308.6,   0.0);   (695694.7,
4231741.4,   307.5,   307.5,   0.0);
     (695718.9, 4231744.3,   306.3,   306.3,   0.0);   (695738.2,
4231766.7,   305.2,   305.2,   0.0);
     (695749.5, 4231788.2,   305.1,   305.1,   0.0);   (695760.9,
4231809.8,   304.8,   304.8,   0.0);
     (695772.2, 4231831.2,   304.4,   304.4,   0.0);   (695783.5,
4231852.8,   304.0,   304.0,   0.0);
     (695794.8, 4231874.3,   304.0,   304.0,   0.0);   (695806.1,
4231895.8,   304.7,   304.7,   0.0);
     (695817.4, 4231917.3,   304.9,   304.9,   0.0);   (695828.8,
4231938.8,   304.6,   304.6,   0.0);
     (695840.1, 4231960.3,   305.0,   305.0,   0.0);   (695851.4,
4231981.8,   304.9,   304.9,   0.0);
     (695862.7, 4232003.3,   305.1,   305.1,   0.0);   (695874.0,
4232024.8,   305.0,   305.0,   0.0);
     (695885.4, 4232046.3,   305.7,   305.7,   0.0);   (695369.6,
4231614.0,   304.4,   311.0,   0.0);
     (695410.2, 4231618.8,   306.4,   309.0,   0.0);   (695434.6,
4231621.7,   308.2,   308.2,   0.0);
     (695458.9, 4231624.5,   310.3,   310.3,   0.0);   (695483.2,
4231627.4,   311.5,   311.5,   0.0);
     (695507.6, 4231630.3,   311.9,   311.9,   0.0);   (695531.9,

4231633.1,   312.0,   312.0,   0.0);
     (695556.3, 4231636.0,   312.0,   312.0,   0.0);   (695580.6,
4231638.9,   312.0,   312.0,   0.0);
     (695605.0, 4231641.8,   312.0,   312.0,   0.0);   (695629.3,
4231644.6,   311.1,   311.1,   0.0);
     (695653.7, 4231647.5,   310.3,   310.3,   0.0);   (695678.0,
4231650.4,   309.3,   309.3,   0.0);
     (695702.4, 4231653.2,   308.0,   308.0,   0.0);   (695726.7,
4231656.1,   306.8,   306.8,   0.0);
     (695751.1, 4231659.0,   305.2,   305.2,   0.0);   (695775.4,
4231661.8,   301.4,   307.0,   0.0);
     (695794.9, 4231684.5,   301.9,   305.0,   0.0);   (695806.3,
4231706.2,   301.4,   305.0,   0.0);
     (695817.8, 4231727.9,   301.3,   301.3,   0.0);   (695829.2,
4231749.6,   303.2,   303.2,   0.0);
     (695840.6, 4231771.3,   303.9,   303.9,   0.0);   (695852.0,
4231793.0,   304.2,   304.2,   0.0);
     (695863.4, 4231814.6,   304.0,   304.0,   0.0);   (695874.9,
4231836.3,   304.0,   304.0,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (695886.3, 4231858.0,   304.4,   304.4,   0.0);   (695897.7,
4231879.7,   304.7,   304.7,   0.0);
     (695909.1, 4231901.4,   304.3,   304.3,   0.0);   (695920.5,
4231923.1,   304.2,   304.2,   0.0);
     (695931.9, 4231944.8,   304.0,   304.0,   0.0);   (695943.4,
4231966.5,   304.3,   304.3,   0.0);
     (695954.8, 4231988.2,   304.7,   304.7,   0.0);   (695966.2,
4232009.9,   305.0,   305.0,   0.0);
     (695977.6, 4232031.6,   305.0,   305.0,   0.0);   (695989.0,
4232053.3,   305.0,   305.0,   0.0);
     (695341.4, 4231521.6,   300.7,   312.0,   0.0);   (695373.5,
4231525.4,   304.0,   311.0,   0.0);
     (695397.7, 4231528.2,   306.4,   306.4,   0.0);   (695421.8,
4231531.1,   308.3,   308.3,   0.0);
     (695445.9, 4231533.9,   310.3,   310.3,   0.0);   (695470.1,
4231536.8,   311.0,   311.0,   0.0);
     (695494.2, 4231539.6,   311.3,   311.3,   0.0);   (695518.3,
4231542.5,   311.9,   311.9,   0.0);
     (695542.5, 4231545.3,   312.0,   312.0,   0.0);   (695566.6,

4231548.1,   311.3,   311.3,   0.0);
     (695590.7, 4231551.0,   311.2,   311.2,   0.0);   (695614.9,
4231553.8,   310.9,   310.9,   0.0);
     (695639.0, 4231556.7,   310.2,   310.2,   0.0);   (695663.1,
4231559.5,   309.5,   309.5,   0.0);
     (695687.3, 4231562.4,   308.0,   308.0,   0.0);   (695711.4,
4231565.2,   306.5,   306.5,   0.0);
     (695735.5, 4231568.0,   305.8,   305.8,   0.0);   (695759.7,
4231570.9,   305.6,   305.6,   0.0);
     (695783.8, 4231573.7,   304.8,   305.0,   0.0);   (695807.9,
4231576.6,   300.9,   305.0,   0.0);
     (695832.1, 4231579.4,   298.8,   305.0,   0.0);   (695851.4,
4231601.9,   298.0,   298.0,   0.0);
     (695862.8, 4231623.4,   298.0,   298.0,   0.0);   (695874.1,
4231644.9,   298.7,   305.0,   0.0);
     (695885.4, 4231666.4,   301.3,   301.3,   0.0);   (695896.7,
4231687.9,   303.4,   303.4,   0.0);
     (695908.0, 4231709.4,   304.6,   304.6,   0.0);   (695919.4,
4231730.9,   305.5,   305.5,   0.0);
     (695930.7, 4231752.4,   305.9,   305.9,   0.0);   (695942.0,
4231773.9,   306.5,   306.5,   0.0);
     (695953.3, 4231795.4,   307.3,   307.3,   0.0);   (695964.6,
4231816.9,   308.0,   308.0,   0.0);
     (695975.9, 4231838.4,   308.0,   308.0,   0.0);   (695987.3,
4231859.9,   308.6,   308.6,   0.0);
     (695998.6, 4231881.4,   308.9,   308.9,   0.0);   (696009.9,
4231902.9,   308.6,   308.6,   0.0);
     (696021.2, 4231924.4,   308.3,   308.3,   0.0);   (696032.5,
4231945.9,   308.3,   308.3,   0.0);
     (696043.9, 4231967.4,   308.7,   308.7,   0.0);   (696055.2,
4231988.9,   309.1,   309.1,   0.0);
     (696066.5, 4232010.5,   309.1,   309.1,   0.0);   (696077.8,
4232032.0,   309.4,   309.4,   0.0);
     (696089.1, 4232053.5,   309.4,   309.4,   0.0);   (695257.2,
4231422.6,   301.0,   301.0,   0.0);
     (695281.5, 4231425.4,   302.5,   302.5,   0.0);   (695305.8,
4231428.3,   304.2,   311.0,   0.0);
     (695330.1, 4231431.2,   305.4,   313.0,   0.0);   (695354.4,
4231434.0,   308.2,   310.0,   0.0);
     (695378.7, 4231436.9,   310.4,   310.4,   0.0);   (695403.0,
4231439.7,   311.7,   311.7,   0.0);
     (695427.2, 4231442.6,   312.0,   312.0,   0.0);   (695451.5,
4231445.5,   312.0,   312.0,   0.0);
     (695475.8, 4231448.3,   312.0,   312.0,   0.0);   (695500.1,
4231451.2,   312.0,   312.0,   0.0);
     (695524.4, 4231454.1,   311.6,   311.6,   0.0);   (695548.7,
4231456.9,   311.0,   311.0,   0.0);
     (695573.0, 4231459.8,   311.0,   311.0,   0.0);   (695597.2,
4231462.6,   310.2,   310.2,   0.0);
     (695621.5, 4231465.5,   309.4,   309.4,   0.0);   (695645.8,

4231468.4,   308.4,   308.4,   0.0);
     (695670.1, 4231471.2,   307.2,   307.2,   0.0);   (695694.4,
4231474.1,   306.0,   306.0,   0.0);
     (695718.7, 4231477.0,   305.2,   305.2,   0.0);   (695742.9,
4231479.8,   300.6,   306.0,   0.0);
     (695767.2, 4231482.7,   298.0,   306.0,   0.0);   (695791.5,
4231485.5,   298.3,   298.3,   0.0);
     (695815.8, 4231488.4,   298.9,   298.9,   0.0);   (695840.1,
4231491.3,   299.0,   299.0,   0.0);
     (695864.4, 4231494.1,   300.2,   300.2,   0.0);   (695888.6,
4231497.0,   301.3,   301.3,   0.0);
     (695908.1, 4231519.6,   301.9,   305.0,   0.0);   (695919.5,
4231541.2,   301.0,   306.0,   0.0);
     (695930.9, 4231562.9,   300.9,   306.0,   0.0);   (695942.3,
4231584.5,   301.2,   306.0,   0.0);
     (695953.7, 4231606.1,   303.1,   305.0,   0.0);   (695965.1,
4231627.8,   305.1,   305.1,   0.0);
     (695976.5, 4231649.4,   306.1,   306.1,   0.0);   (695987.9,
4231671.0,   307.0,   307.0,   0.0);
     (695999.2, 4231692.7,   308.1,   308.1,   0.0);   (696010.6,
4231714.3,   308.6,   308.6,   0.0);

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (696022.0, 4231736.0,   308.9,   308.9,   0.0);   (696033.4,
4231757.6,   309.4,   309.4,   0.0);
     (696044.8, 4231779.2,   310.5,   310.5,   0.0);   (696056.2,
4231800.9,   312.2,   312.2,   0.0);
     (696067.6, 4231822.5,   314.2,   317.0,   0.0);   (696079.0,
4231844.1,   316.3,   317.0,   0.0);
     (696090.4, 4231865.8,   316.0,   316.0,   0.0);   (696101.7,
4231887.4,   314.3,   317.0,   0.0);
     (696113.1, 4231909.1,   312.0,   318.0,   0.0);   (696124.5,
4231930.7,   313.1,   313.1,   0.0);
     (696135.9, 4231952.3,   313.6,   313.6,   0.0);   (696147.3,
4231974.0,   314.3,   314.3,   0.0);
     (696158.7, 4231995.6,   315.5,   315.5,   0.0);   (696170.1,
4232017.3,   316.6,   316.6,   0.0);
     (696181.5, 4232038.9,   316.9,   316.9,   0.0);   (695185.4,
4231235.9,   295.4,   295.4,   0.0);
     (695209.7, 4231238.8,   296.9,   296.9,   0.0);   (695233.9,

4231241.6,   298.5,   312.0,   0.0);
     (695258.2, 4231244.5,   300.5,   312.0,   0.0);   (695282.4,
4231247.3,   303.1,   312.0,   0.0);
     (695306.7, 4231250.2,   306.1,   309.0,   0.0);   (695331.0,
4231253.0,   308.5,   308.5,   0.0);
     (695355.2, 4231255.9,   310.3,   310.3,   0.0);   (695379.5,
4231258.8,   311.5,   311.5,   0.0);
     (695403.7, 4231261.6,   312.3,   312.3,   0.0);   (695428.0,
4231264.5,   313.0,   313.0,   0.0);
     (695452.2, 4231267.3,   313.0,   313.0,   0.0);   (695476.5,
4231270.2,   313.0,   313.0,   0.0);
     (695500.7, 4231273.1,   312.4,   312.4,   0.0);   (695525.0,
4231275.9,   312.0,   312.0,   0.0);
     (695549.2, 4231278.8,   311.7,   311.7,   0.0);   (695573.5,
4231281.6,   311.0,   311.0,   0.0);
     (695597.7, 4231284.5,   310.2,   310.2,   0.0);   (695622.0,
4231287.3,   308.8,   308.8,   0.0);
     (695646.2, 4231290.2,   307.4,   307.4,   0.0);   (695686.6,
4231295.0,   306.4,   306.4,   0.0);
     (695767.5, 4231304.5,   306.0,   306.0,   0.0);   (695791.7,
4231307.4,   305.7,   305.7,   0.0);
     (695816.0, 4231310.2,   304.4,   305.0,   0.0);   (695840.2,
4231313.1,   299.7,   306.0,   0.0);
     (695864.5, 4231315.9,   297.6,   306.0,   0.0);   (695888.7,
4231318.8,   297.0,   305.0,   0.0);
     (695913.0, 4231321.6,   298.2,   307.0,   0.0);   (695937.2,
4231324.5,   301.5,   305.0,   0.0);
     (695961.5, 4231327.4,   304.7,   304.7,   0.0);   (695985.7,
4231330.2,   306.5,   306.5,   0.0);
     (696013.8, 4231340.3,   308.3,   308.3,   0.0);   (696025.1,
4231361.9,   309.1,   309.1,   0.0);
     (696036.5, 4231383.5,   309.2,   309.2,   0.0);   (696047.9,
4231405.1,   309.3,   309.3,   0.0);
     (696059.2, 4231426.7,   308.9,   308.9,   0.0);   (696070.6,
4231448.3,   307.9,   307.9,   0.0);
     (696082.0, 4231469.9,   307.4,   307.4,   0.0);   (696093.4,
4231491.5,   308.0,   308.0,   0.0);
     (696104.7, 4231513.1,   309.6,   309.6,   0.0);   (696116.1,
4231534.8,   310.1,   310.1,   0.0);
     (696127.5, 4231556.4,   311.1,   317.0,   0.0);   (696138.9,
4231578.0,   312.6,   317.0,   0.0);
     (696150.2, 4231599.6,   314.5,   317.0,   0.0);   (696161.6,
4231621.2,   316.6,   316.6,   0.0);
     (696173.0, 4231642.8,   318.0,   318.0,   0.0);   (696184.4,
4231664.4,   318.4,   318.4,   0.0);
     (696195.7, 4231686.0,   319.1,   319.1,   0.0);   (696207.1,
4231707.6,   320.7,   320.7,   0.0);
     (696218.5, 4231729.2,   321.9,   321.9,   0.0);   (696229.8,
4231750.8,   322.6,   322.6,   0.0);
     (696241.2, 4231772.5,   322.4,   322.4,   0.0);   (696252.6,

4231794.0,   321.9,   321.9,   0.0);
     (696264.0, 4231815.7,   322.0,   322.0,   0.0);   (696275.3,
4231837.3,   322.4,   322.4,   0.0);
     (696286.7, 4231858.9,   322.8,   322.8,   0.0);   (696298.1,
4231880.5,   323.2,   323.2,   0.0);
     (696309.5, 4231902.1,   323.5,   323.5,   0.0);   (696320.8,
4231923.7,   323.9,   323.9,   0.0);
     (696332.2, 4231945.3,   324.3,   324.3,   0.0);   (696343.6,
4231966.9,   324.6,   324.6,   0.0);
     (696355.0, 4231988.5,   324.2,   324.2,   0.0);   (696366.3,
4232010.1,   323.9,   323.9,   0.0);
     (696377.7, 4232031.7,   323.4,   323.4,   0.0);   (696389.1,
4232053.3,   322.3,   322.3,   0.0);
     (695113.7, 4231049.2,   291.5,   318.0,   0.0);   (695138.1,
4231052.1,   292.2,   292.2,   0.0);
     (695162.6, 4231055.0,   293.9,   293.9,   0.0);   (695187.0,
4231057.9,   296.3,   296.3,   0.0);
     (695211.4, 4231060.8,   298.8,   298.8,   0.0);   (695235.8,
4231063.6,   300.5,   300.5,   0.0);
     (695260.2, 4231066.5,   302.1,   302.1,   0.0);   (695284.7,
4231069.4,   303.8,   303.8,   0.0);
     (695309.1, 4231072.3,   305.4,   305.4,   0.0);   (695333.5,
4231075.1,   306.3,   306.3,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                          (METERS)

     (695357.9, 4231078.0,   308.1,   308.1,   0.0);   (695382.4,
4231080.9,   309.2,   309.2,   0.0);
     (695406.8, 4231083.8,   309.5,   309.5,   0.0);   (695431.2,
4231086.7,   309.1,   309.1,   0.0);
     (695455.6, 4231089.5,   308.4,   309.0,   0.0);   (695480.1,
4231092.4,   307.9,   307.9,   0.0);
     (695504.5, 4231095.3,   307.3,   307.3,   0.0);   (695528.9,
4231098.2,   306.7,   306.7,   0.0);
     (695577.7, 4231103.9,   304.3,   304.3,   0.0);   (695838.2,
4231134.6,   296.3,   307.0,   0.0);
     (695862.7, 4231137.5,   294.1,   307.0,   0.0);   (695887.1,
4231140.4,   297.3,   307.0,   0.0);
     (695911.5, 4231143.3,   303.5,   307.0,   0.0);   (695936.0,
4231146.1,   306.7,   306.7,   0.0);
     (695960.4, 4231149.0,   307.0,   307.0,   0.0);   (695984.8,

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4231151.9,     307.0,     307.0,       0.0);
     ( 696009.2, 4231154.8,     307.0,     307.0,       0.0);         ( 696033.6,
4231157.7,     307.0,     307.0,       0.0);
     ( 696058.1, 4231160.5,     307.2,     307.2,       0.0);         ( 696082.5,
4231163.4,     307.3,     307.3,       0.0);
     ( 696106.9, 4231166.3,     306.9,     306.9,       0.0);         ( 696130.8,
4231182.7,     309.0,     309.0,       0.0);
     ( 696142.3, 4231204.5,     310.0,     310.0,       0.0);         ( 696153.7,
4231226.2,     311.1,     311.1,       0.0);
     ( 696165.2, 4231248.0,     312.6,     312.6,       0.0);         ( 696176.6,
4231269.8,     314.1,     314.1,       0.0);
     ( 696188.1, 4231291.5,     315.5,     315.5,       0.0);         ( 696199.6,
4231313.3,     316.7,     316.7,       0.0);
     ( 696211.0, 4231335.1,     317.2,     317.2,       0.0);         ( 696222.5,
4231356.8,     317.4,     317.4,       0.0);
     ( 696233.9, 4231378.6,     317.6,     317.6,       0.0);         ( 696245.4,
4231400.3,     317.3,     317.3,       0.0);
     ( 696256.8, 4231422.1,     317.6,     317.6,       0.0);         ( 696268.3,
4231443.9,     316.9,     316.9,       0.0);
     ( 696279.7, 4231465.6,     316.9,     316.9,       0.0);         ( 696291.2,
4231487.4,     317.0,     317.0,       0.0);
     ( 696302.6, 4231509.1,     318.1,     318.1,       0.0);         ( 696314.1,
4231530.9,     319.8,     319.8,       0.0);
     ( 696325.5, 4231552.7,     321.3,     321.3,       0.0);         ( 696337.0,
4231574.4,     322.4,     322.4,       0.0);
     ( 696348.5, 4231596.2,     322.9,     322.9,       0.0);         ( 696359.9,
4231618.0,     323.6,     323.6,       0.0);
     ( 696371.4, 4231639.7,     324.1,     324.1,       0.0);         ( 696382.8,
4231661.5,     324.9,     324.9,       0.0);
     ( 696394.3, 4231683.2,     325.2,     325.2,       0.0);         ( 696405.7,
4231705.0,     325.7,     325.7,       0.0);
     ( 696417.2, 4231726.8,     326.1,     326.1,       0.0);         ( 696428.6,
4231748.5,     326.5,     326.5,       0.0);
     ( 696440.1, 4231770.3,     327.4,     327.4,       0.0);         ( 696451.5,
4231792.1,     328.1,     328.1,       0.0);
     ( 696463.0, 4231813.8,     328.6,     328.6,       0.0);         ( 696474.5,
4231835.6,     329.0,     329.0,       0.0);
     ( 696485.9, 4231857.3,     329.6,     329.6,       0.0);         ( 696497.4,
4231879.1,     330.9,     330.9,       0.0);
     ( 696508.8, 4231900.9,     332.0,     332.0,       0.0);         ( 696520.3,
4231922.6,     333.7,     333.7,       0.0);
     ( 696531.7, 4231944.4,     334.6,     334.6,       0.0);         ( 696543.2,
4231966.1,     334.0,     334.0,       0.0);
     ( 696554.6, 4231987.9,     334.6,     336.0,       0.0);         ( 696566.1,
4232009.7,     335.0,     335.0,       0.0);
     ( 696577.5, 4232031.4,     333.6,     333.6,       0.0);         ( 696589.0,
4232053.2,     331.1,     335.0,       0.0);
     ( 695041.9, 4230862.6,     308.7,     310.0,       0.0);         ( 695066.3,
4230865.4,     306.4,     310.0,       0.0);
     ( 695090.7, 4230868.3,     303.4,     316.0,       0.0);         ( 695115.0,
```

4230871.2,   300.8,   318.0,   0.0);
     (695139.4, 4230874.1,   299.0,   310.0,   0.0);   (695163.8,
4230876.9,   298.2,   298.2,   0.0);
     (695188.2, 4230879.8,   298.0,   298.0,   0.0);   (695212.5,
4230882.7,   298.1,   298.1,   0.0);
     (695236.9, 4230885.5,   298.8,   298.8,   0.0);   (695261.3,
4230888.4,   299.6,   299.6,   0.0);
     (695285.7, 4230891.3,   301.4,   301.4,   0.0);   (695310.1,
4230894.2,   303.4,   303.4,   0.0);
     (695334.4, 4230897.0,   303.9,   303.9,   0.0);   (695358.8,
4230899.9,   305.3,   305.3,   0.0);
     (695383.2, 4230902.8,   305.6,   305.6,   0.0);   (695407.6,
4230905.7,   305.7,   305.7,   0.0);
     (695431.9, 4230908.5,   305.5,   305.5,   0.0);   (695472.6,
4230913.3,   304.9,   304.9,   0.0);
     (695724.5, 4230943.0,   293.3,   304.0,   0.0);   (695757.0,
4230946.8,   292.0,   305.0,   0.0);
     (695789.5, 4230950.7,   291.1,   307.0,   0.0);   (695813.9,
4230953.5,   290.0,   307.0,   0.0);
     (695838.2, 4230956.4,   292.2,   304.0,   0.0);   (695887.0,
4230962.2,   293.1,   298.0,   0.0);
     (695911.4, 4230965.0,   293.3,   295.0,   0.0);   (695935.8,
4230967.9,   293.3,   303.0,   0.0);
     (695960.1, 4230970.8,   293.1,   303.0,   0.0);   (695984.5,
4230973.7,   292.3,   305.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (696008.9, 4230976.5,   292.1,   307.0,   0.0);   (696033.3,
4230979.4,   293.2,   305.0,   0.0);
     (696057.7, 4230982.3,   295.8,   300.0,   0.0);   (696082.0,
4230985.2,   299.1,   299.1,   0.0);
     (696106.4, 4230988.0,   299.7,   304.0,   0.0);   (696130.8,
4230990.9,   301.2,   304.0,   0.0);
     (696155.2, 4230993.8,   302.9,   302.9,   0.0);   (696179.5,
4230996.6,   304.1,   304.1,   0.0);
     (696203.9, 4230999.5,   305.3,   306.0,   0.0);   (696228.3,
4231002.4,   305.6,   305.6,   0.0);
     (696247.9, 4231025.1,   306.7,   306.7,   0.0);   (696259.3,
4231046.8,   305.8,   305.8,   0.0);
     (696270.7, 4231068.5,   303.7,   305.0,   0.0);   (696282.2,

4231090.2,   301.1,   319.0,   0.0);
     (696293.6, 4231112.0,   300.7,   319.0,   0.0);   (696305.0,
4231133.7,   300.5,   323.0,   0.0);
     (696316.5, 4231155.4,   301.1,   323.0,   0.0);   (696327.9,
4231177.1,   304.3,   323.0,   0.0);
     (696339.3, 4231198.8,   308.0,   323.0,   0.0);   (696350.8,
4231220.6,   311.5,   320.0,   0.0);
     (696362.2, 4231242.3,   316.1,   316.1,   0.0);   (696373.6,
4231264.0,   317.4,   317.4,   0.0);
     (696385.0, 4231285.7,   318.8,   318.8,   0.0);   (696396.5,
4231307.5,   321.0,   321.0,   0.0);
     (696407.9, 4231329.2,   322.6,   322.6,   0.0);   (696419.3,
4231350.9,   323.1,   323.1,   0.0);
     (696430.8, 4231372.6,   323.6,   323.6,   0.0);   (696442.2,
4231394.3,   323.9,   323.9,   0.0);
     (696453.6, 4231416.1,   324.0,   324.0,   0.0);   (696465.1,
4231437.8,   323.9,   323.9,   0.0);
     (696476.5, 4231459.5,   324.1,   324.1,   0.0);   (696487.9,
4231481.2,   324.5,   324.5,   0.0);
     (696499.4, 4231503.0,   324.9,   324.9,   0.0);   (696510.8,
4231524.7,   325.5,   325.5,   0.0);
     (696522.2, 4231546.4,   326.2,   326.2,   0.0);   (696533.7,
4231568.1,   327.0,   327.0,   0.0);
     (696545.1, 4231589.8,   327.4,   327.4,   0.0);   (696556.5,
4231611.6,   327.8,   327.8,   0.0);
     (696568.0, 4231633.3,   328.1,   328.1,   0.0);   (696579.4,
4231655.0,   328.5,   328.5,   0.0);
     (696590.8, 4231676.7,   328.6,   328.6,   0.0);   (696602.3,
4231698.5,   328.0,   328.0,   0.0);
     (696613.7, 4231720.2,   328.0,   328.0,   0.0);   (696625.1,
4231741.9,   328.0,   328.0,   0.0);
     (696636.6, 4231763.6,   328.0,   328.0,   0.0);   (696648.0,
4231785.3,   328.0,   328.0,   0.0);
     (696659.4, 4231807.1,   328.2,   328.2,   0.0);   (696670.9,
4231828.8,   328.8,   328.8,   0.0);
     (696682.3, 4231850.5,   329.2,   329.2,   0.0);   (696693.7,
4231872.2,   329.9,   329.9,   0.0);
     (696705.2, 4231894.0,   330.6,   330.6,   0.0);   (696716.6,
4231915.7,   331.5,   331.5,   0.0);
     (696728.0, 4231937.4,   332.5,   332.5,   0.0);   (696739.5,
4231959.1,   333.0,   333.0,   0.0);
     (696750.9, 4231980.8,   333.1,   333.1,   0.0);   (696762.3,
4232002.5,   332.9,   332.9,   0.0);
     (696773.8, 4232024.3,   333.0,   333.0,   0.0);   (696785.2,
4232046.0,   332.0,   428.0,   0.0);
     (694970.1, 4230675.9,   313.4,   313.4,   0.0);   (694994.4,
4230678.8,   311.1,   311.1,   0.0);
     (695018.8, 4230681.6,   310.0,   310.0,   0.0);   (695043.1,
4230684.5,   310.0,   310.0,   0.0);
     (695067.5, 4230687.4,   310.7,   310.7,   0.0);   (695091.8,

4230690.2,   311.4,   311.4,   0.0);
     (695116.2, 4230693.1,   311.2,   311.2,   0.0);   (695140.5,
4230696.0,   311.5,   317.0,   0.0);
     (695164.9, 4230698.8,   312.0,   318.0,   0.0);   (695189.2,
4230701.7,   312.3,   312.3,   0.0);
     (695213.5, 4230704.6,   312.0,   312.0,   0.0);   (695237.9,
4230707.5,   311.8,   311.8,   0.0);
     (695262.2, 4230710.3,   310.3,   310.3,   0.0);   (695286.6,
4230713.2,   308.6,   308.6,   0.0);
     (695310.9, 4230716.1,   306.9,   306.9,   0.0);   (695335.3,
4230718.9,   305.4,   305.4,   0.0);
     (695359.6, 4230721.8,   304.2,   304.2,   0.0);   (695408.3,
4230727.5,   303.5,   303.5,   0.0);
     (695659.9, 4230757.2,   301.9,   301.9,   0.0);   (695692.3,
4230761.0,   303.0,   303.0,   0.0);
     (695716.7, 4230763.9,   303.8,   303.8,   0.0);   (695741.0,
4230766.8,   304.6,   304.6,   0.0);
     (695765.4, 4230769.6,   305.3,   305.3,   0.0);   (695789.7,
4230772.5,   305.7,   305.7,   0.0);
     (695814.1, 4230775.4,   305.7,   305.7,   0.0);   (695838.4,
4230778.2,   304.7,   304.7,   0.0);
     (695862.7, 4230781.1,   301.1,   307.0,   0.0);   (695887.1,
4230784.0,   295.4,   307.0,   0.0);
     (695911.4, 4230786.8,   288.5,   310.0,   0.0);   (695935.8,
4230789.7,   281.4,   314.0,   0.0);
     (695960.1, 4230792.6,   275.5,   317.0,   0.0);   (695984.5,
4230795.5,   268.8,   317.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     (696008.8, 4230798.3,   269.8,   317.0,   0.0);   (696033.2,
4230801.2,   279.2,   317.0,   0.0);
     (696057.5, 4230804.1,   291.1,   295.0,   0.0);   (696081.9,
4230806.9,   292.9,   292.9,   0.0);
     (696106.2, 4230809.8,   289.2,   317.0,   0.0);   (696130.5,
4230812.7,   282.7,   317.0,   0.0);
     (696154.9, 4230815.5,   275.2,   317.0,   0.0);   (696179.2,
4230818.4,   270.6,   319.0,   0.0);
     (696203.6, 4230821.3,   276.0,   317.0,   0.0);   (696227.9,
4230824.1,   284.2,   317.0,   0.0);
     (696252.3, 4230827.0,   292.2,   317.0,   0.0);   (696276.6,

4230829.9,   299.9,   317.0,   0.0);
     (696301.0, 4230832.8,   305.7,   317.0,   0.0);   (696325.3,
4230835.6,   308.4,   317.0,   0.0);
     (696353.5, 4230845.7,   314.5,   317.0,   0.0);   (696364.9,
4230867.4,   313.2,   317.0,   0.0);
     (696376.3, 4230889.1,   308.3,   317.0,   0.0);   (696387.7,
4230910.8,   301.6,   317.0,   0.0);
     (696399.1, 4230932.5,   293.3,   317.0,   0.0);   (696410.5,
4230954.2,   288.4,   317.0,   0.0);
     (696422.0, 4230975.9,   285.7,   324.0,   0.0);   (696433.4,
4230997.6,   285.1,   325.0,   0.0);
     (696444.8, 4231019.3,   285.1,   325.0,   0.0);   (696456.2,
4231041.0,   286.5,   325.0,   0.0);
     (696467.6, 4231062.6,   289.6,   325.0,   0.0);   (696479.0,
4231084.3,   290.9,   325.0,   0.0);
     (696490.5, 4231106.0,   292.4,   325.0,   0.0);   (696501.9,
4231127.7,   294.4,   325.0,   0.0);
     (696513.3, 4231149.4,   297.9,   325.0,   0.0);   (696524.7,
4231171.1,   300.1,   325.0,   0.0);
     (696536.1, 4231192.8,   302.1,   325.0,   0.0);   (696547.6,
4231214.5,   304.6,   325.0,   0.0);
     (696559.0, 4231236.2,   307.0,   325.0,   0.0);   (696570.4,
4231257.9,   310.3,   325.0,   0.0);
     (696581.8, 4231279.6,   314.1,   325.0,   0.0);   (696593.2,
4231301.3,   319.9,   325.0,   0.0);
     (696604.6, 4231323.0,   322.1,   325.0,   0.0);   (696616.1,
4231344.6,   324.1,   324.1,   0.0);
     (696627.5, 4231366.3,   322.2,   323.0,   0.0);   (696638.9,
4231388.0,   317.8,   326.0,   0.0);
     (696650.3, 4231409.7,   315.7,   329.0,   0.0);   (696661.7,
4231431.4,   315.5,   330.0,   0.0);
     (696673.1, 4231453.1,   317.7,   330.0,   0.0);   (696684.6,
4231474.8,   320.5,   329.0,   0.0);
     (696696.0, 4231496.5,   322.4,   329.0,   0.0);   (696707.4,
4231518.2,   324.7,   329.0,   0.0);
     (696718.8, 4231539.9,   326.7,   328.0,   0.0);   (696730.2,
4231561.6,   327.5,   330.0,   0.0);
     (696741.6, 4231583.3,   328.4,   328.4,   0.0);   (696753.1,
4231605.0,   327.4,   329.0,   0.0);
     (696764.5, 4231626.6,   325.3,   329.0,   0.0);   (696775.9,
4231648.3,   323.9,   329.0,   0.0);
     (696787.3, 4231670.0,   323.6,   329.0,   0.0);   (696798.7,
4231691.7,   325.9,   329.0,   0.0);
     (696810.2, 4231713.4,   327.0,   329.0,   0.0);   (696821.6,
4231735.1,   327.6,   327.6,   0.0);
     (696833.0, 4231756.8,   328.0,   428.0,   0.0);   (696844.4,
4231778.5,   326.1,   428.0,   0.0);
     (696855.8, 4231800.2,   326.5,   428.0,   0.0);   (696867.2,
4231821.9,   328.5,   428.0,   0.0);
     (696878.7, 4231843.6,   329.9,   428.0,   0.0);   (696890.1,

4231865.3,   331.4,   428.0,   0.0);
     (696901.5, 4231887.0,   333.5,   428.0,   0.0);   (696912.9,
4231908.6,   335.2,   428.0,   0.0);
     (696924.3, 4231930.3,   335.8,   428.0,   0.0);   (696935.7,
4231952.0,   336.2,   428.0,   0.0);
     (696947.2, 4231973.7,   336.2,   428.0,   0.0);   (696958.6,
4231995.4,   336.2,   428.0,   0.0);
     (696970.0, 4232017.1,   336.5,   428.0,   0.0);   (696981.4,
4232038.8,   336.9,   428.0,   0.0);
     (694898.3, 4230489.2,   323.5,   323.5,   0.0);   (694922.8,
4230492.1,   323.7,   323.7,   0.0);
     (694947.2, 4230495.0,   322.9,   322.9,   0.0);   (694971.7,
4230497.9,   321.9,   321.9,   0.0);
     (694996.1, 4230500.8,   320.9,   320.9,   0.0);   (695020.6,
4230503.6,   321.0,   321.0,   0.0);
     (695045.0, 4230506.5,   322.0,   322.0,   0.0);   (695069.5,
4230509.4,   323.3,   323.3,   0.0);
     (695093.9, 4230512.3,   324.4,   324.4,   0.0);   (695118.3,
4230515.2,   324.3,   324.3,   0.0);
     (695142.8, 4230518.0,   324.7,   324.7,   0.0);   (695167.2,
4230520.9,   324.6,   324.6,   0.0);
     (695191.7, 4230523.8,   323.8,   323.8,   0.0);   (695216.1,
4230526.7,   323.0,   323.0,   0.0);
     (695240.6, 4230529.6,   323.6,   323.6,   0.0);   (695265.0,
4230532.5,   322.8,   322.8,   0.0);
     (695305.8, 4230537.2,   321.0,   321.0,   0.0);   (695346.5,
4230542.1,   318.0,   318.0,   0.0);
     (695550.2, 4230566.1,   299.0,   311.0,   0.0);   (695591.0,
4230570.9,   298.0,   298.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

     (695615.4, 4230573.8,   298.0,   298.0,   0.0);   (695639.9,
4230576.6,   298.7,   306.0,   0.0);
     (695664.3, 4230579.5,   301.7,   305.0,   0.0);   (695688.8,
4230582.4,   304.4,   305.0,   0.0);
     (695713.2, 4230585.3,   305.7,   305.7,   0.0);   (695737.6,
4230588.1,   306.1,   306.1,   0.0);
     (695762.1, 4230591.0,   306.0,   306.0,   0.0);   (695786.5,
4230593.9,   305.7,   305.7,   0.0);
     (695811.0, 4230596.8,   306.9,   306.9,   0.0);   (695835.4,

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4230599.7,     307.7,     307.7,       0.0);
     ( 695859.9, 4230602.6,     308.4,     308.4,       0.0);         ( 695884.3,
4230605.4,     308.5,     308.5,       0.0);
     ( 695908.8, 4230608.3,     307.9,     307.9,       0.0);         ( 695933.2,
4230611.2,     306.2,     306.2,       0.0);
     ( 695957.7, 4230614.1,     300.5,     313.0,       0.0);         ( 695982.1,
4230617.0,     291.8,     314.0,       0.0);
     ( 696006.6, 4230619.8,     281.2,     314.0,       0.0);         ( 696031.0,
4230622.7,     268.2,     317.0,       0.0);
     ( 696055.4, 4230625.6,     254.6,     317.0,       0.0);         ( 696079.9,
4230628.5,     252.0,     319.0,       0.0);
     ( 696104.3, 4230631.4,     259.4,     317.0,       0.0);         ( 696128.8,
4230634.2,     269.2,     317.0,       0.0);
     ( 696153.2, 4230637.1,     277.6,     317.0,       0.0);         ( 696177.7,
4230640.0,     281.9,     317.0,       0.0);
     ( 696202.1, 4230642.9,     275.8,     317.0,       0.0);         ( 696226.6,
4230645.8,     267.1,     317.0,       0.0);
     ( 696251.0, 4230648.7,     258.4,     319.0,       0.0);         ( 696275.5,
4230651.5,     252.3,     324.0,       0.0);
     ( 696299.9, 4230654.4,     250.6,     324.0,       0.0);         ( 696324.3,
4230657.3,     253.2,     324.0,       0.0);
     ( 696348.8, 4230660.2,     262.9,     317.0,       0.0);         ( 696373.2,
4230663.1,     273.4,     317.0,       0.0);
     ( 696397.7, 4230666.0,     282.5,     317.0,       0.0);         ( 696422.1,
4230668.8,     289.5,     317.0,       0.0);
     ( 696446.6, 4230671.7,     294.7,     317.0,       0.0);         ( 696470.5,
4230688.1,     300.8,     307.0,       0.0);
     ( 696482.0, 4230709.9,     302.6,     305.0,       0.0);         ( 696493.4,
4230731.7,     298.8,     312.0,       0.0);
     ( 696504.9, 4230753.5,     293.9,     317.0,       0.0);         ( 696516.4,
4230775.3,     288.1,     317.0,       0.0);
     ( 696527.8, 4230797.1,     280.0,     317.0,       0.0);         ( 696539.3,
4230818.8,     273.8,     323.0,       0.0);
     ( 696550.8, 4230840.6,     279.0,     317.0,       0.0);         ( 696562.2,
4230862.4,     286.1,     317.0,       0.0);
     ( 696573.7, 4230884.2,     294.1,     317.0,       0.0);         ( 696585.2,
4230906.0,     299.2,     307.0,       0.0);
     ( 696596.6, 4230927.8,     303.2,     307.0,       0.0);         ( 696608.1,
4230949.5,     304.9,     304.9,       0.0);
     ( 696619.6, 4230971.3,     305.0,     305.0,       0.0);         ( 696631.0,
4230993.1,     302.8,     305.0,       0.0);
     ( 696642.5, 4231014.9,     299.9,     305.0,       0.0);         ( 696654.0,
4231036.7,     297.9,     305.0,       0.0);
     ( 696665.4, 4231058.5,     295.4,     325.0,       0.0);         ( 696676.9,
4231080.2,     293.4,     325.0,       0.0);
     ( 696688.4, 4231102.0,     291.9,     325.0,       0.0);         ( 696699.8,
4231123.8,     288.3,     329.0,       0.0);
     ( 696711.3, 4231145.6,     282.0,     330.0,       0.0);         ( 696722.7,
4231167.4,     281.1,     428.0,       0.0);
     ( 696734.2, 4231189.1,     283.4,     428.0,       0.0);         ( 696745.7,
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4231210.9,   287.1,   428.0,   0.0);
     (696757.1, 4231232.7,   289.5,   428.0,   0.0);   (696768.6,
4231254.5,   291.4,   428.0,   0.0);
     (696780.1, 4231276.3,   293.2,   428.0,   0.0);   (696791.5,
4231298.1,   296.2,   428.0,   0.0);
     (696803.0, 4231319.8,   296.1,   428.0,   0.0);   (696814.5,
4231341.6,   294.8,   428.0,   0.0);
     (696825.9, 4231363.4,   291.9,   428.0,   0.0);   (696837.4,
4231385.2,   286.6,   428.0,   0.0);
     (696848.9, 4231407.0,   282.2,   428.0,   0.0);   (696860.3,
4231428.8,   278.6,   442.0,   0.0);
     (696871.8, 4231450.5,   278.2,   442.0,   0.0);   (696883.2,
4231472.3,   278.2,   445.0,   0.0);
     (696894.7, 4231494.1,   277.9,   445.0,   0.0);   (696906.2,
4231515.9,   273.0,   445.0,   0.0);
     (696917.6, 4231537.7,   272.2,   445.0,   0.0);   (696929.1,
4231559.4,   273.9,   445.0,   0.0);
     (696940.6, 4231581.2,   276.2,   445.0,   0.0);   (696952.0,
4231603.0,   278.0,   445.0,   0.0);
     (696963.5, 4231624.8,   278.2,   445.0,   0.0);   (696975.0,
4231646.6,   278.2,   445.0,   0.0);
     (696986.4, 4231668.4,   278.6,   445.0,   0.0);   (696997.9,
4231690.1,   282.6,   445.0,   0.0);
     (697009.4, 4231711.9,   289.5,   445.0,   0.0);   (697020.8,
4231733.7,   296.8,   445.0,   0.0);
     (697032.3, 4231755.5,   302.7,   445.0,   0.0);   (697043.8,
4231777.3,   306.0,   445.0,   0.0);
     (697055.2, 4231799.0,   309.2,   445.0,   0.0);   (697066.7,
4231820.8,   311.7,   445.0,   0.0);
     (697078.2, 4231842.6,   312.7,   445.0,   0.0);   (697089.6,
4231864.4,   313.8,   445.0,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (697101.1, 4231886.2,   314.5,   445.0,   0.0);   (697112.5,
4231908.0,   315.2,   445.0,   0.0);
     (697124.0, 4231929.7,   317.3,   445.0,   0.0);   (697135.5,
4231951.5,   321.7,   445.0,   0.0);
     (697146.9, 4231973.3,   325.4,   445.0,   0.0);   (697158.4,
4231995.1,   329.9,   445.0,   0.0);
     (697169.9, 4232016.9,   331.9,   445.0,   0.0);   (697181.3,

4232038.7,   334.4,   445.0,   0.0);
     (695335.4, 4231395.8,   307.2,   311.0,   0.0);   (695290.4,
4231201.0,   304.2,   312.0,   0.0);
     (695245.4, 4231006.1,   300.2,   300.2,   0.0);   (695200.5,
4230811.2,   302.1,   310.0,   0.0);
     (695155.5, 4230616.3,   318.9,   318.9,   0.0);   (695110.5,
4230421.4,   326.9,   326.9,   0.0);
     (695441.6, 4232051.5,   306.0,   312.0,   0.0);   (695410.5,
4232058.2,   303.9,   312.0,   0.0);
     (695387.0, 4232069.3,   302.2,   311.0,   0.0);   (695426.8,
4232005.5,   310.1,   310.1,   0.0);
     (695341.1, 4232072.1,   300.1,   300.1,   0.0);   (695344.5,
4232022.7,   303.5,   303.5,   0.0);
     (695414.2, 4231957.8,   310.1,   310.1,   0.0);   (695297.8,
4232037.3,   300.1,   300.1,   0.0);
     (695321.5, 4231971.2,   304.2,   304.2,   0.0);   (695402.2,
4231909.7,   306.9,   306.9,   0.0);
     (695253.8, 4232014.4,   296.9,   303.0,   0.0);   (695255.5,
4231988.7,   298.2,   298.2,   0.0);
     (695277.8, 4231947.3,   300.3,   300.3,   0.0);   (695308.5,
4231923.9,   301.3,   301.3,   0.0);
     (695380.2, 4231869.1,   302.4,   311.0,   0.0);   (695201.6,
4232108.1,   284.9,   311.0,   0.0);
     (695296.1, 4231876.0,   292.7,   313.0,   0.0);   (695316.8,
4231860.2,   296.8,   313.0,   0.0);
     (695337.5, 4231844.4,   299.1,   313.0,   0.0);   (695358.2,
4231828.6,   301.7,   313.0,   0.0);
     (695378.9, 4231812.8,   304.8,   313.0,   0.0);   (695112.5,
4232076.2,   276.4,   312.0,   0.0);
     (695114.3, 4232049.8,   275.3,   313.0,   0.0);   (695118.9,
4231984.0,   277.9,   313.0,   0.0);
     (695120.7, 4231957.7,   278.8,   313.0,   0.0);   (695122.5,
4231931.3,   279.1,   313.0,   0.0);
     (695261.6, 4231787.8,   306.7,   313.0,   0.0);   (695282.6,
4231771.8,   309.9,   313.0,   0.0);
     (695303.6, 4231755.7,   312.9,   313.0,   0.0);   (695324.5,
4231739.7,   312.5,   312.5,   0.0);
     (695345.5, 4231723.7,   312.0,   312.0,   0.0);   (695009.8,
4232242.6,   294.3,   310.0,   0.0);
     (695011.6, 4232216.1,   292.1,   310.0,   0.0);   (695013.4,
4232189.5,   289.1,   310.0,   0.0);
     (695015.2, 4232163.0,   285.8,   310.0,   0.0);   (695017.1,
4232136.4,   282.8,   310.0,   0.0);
     (695018.9, 4232109.9,   280.3,   310.0,   0.0);   (695020.7,
4232083.3,   276.9,   310.0,   0.0);
     (695022.6, 4232056.8,   274.2,   310.0,   0.0);   (695024.4,
4232030.3,   272.9,   313.0,   0.0);
     (695026.2, 4232003.7,   272.8,   313.0,   0.0);   (695031.7,
4231924.1,   277.9,   313.0,   0.0);
     (695033.5, 4231897.5,   281.2,   313.0,   0.0);   (695035.3,

4231871.0,   285.5,   301.0,   0.0);
     (695153.5, 4231755.7,   301.0,   301.0,   0.0);   (695238.1,
4231691.1,   305.2,   309.0,   0.0);
     (695259.2, 4231675.0,   305.9,   311.0,   0.0);   (695280.4,
4231658.8,   306.4,   311.0,   0.0);
     (695301.6, 4231642.7,   306.7,   309.0,   0.0);   (695322.7,
4231626.5,   305.5,   310.0,   0.0);
     (695013.6, 4232268.6,   296.5,   310.0,   0.0);   (694916.0,
4232277.4,   302.3,   308.0,   0.0);
     (694917.9, 4232250.7,   300.0,   308.0,   0.0);   (694919.7,
4232224.0,   297.6,   299.0,   0.0);
     (694921.6, 4232197.4,   294.5,   308.0,   0.0);   (694923.4,
4232170.7,   291.1,   308.0,   0.0);
     (694925.2, 4232144.0,   287.1,   310.0,   0.0);   (694927.1,
4232117.3,   282.5,   310.0,   0.0);
     (694928.9, 4232090.6,   278.8,   310.0,   0.0);   (694930.7,
4232063.9,   275.2,   310.0,   0.0);
     (694932.6, 4232037.2,   273.0,   310.0,   0.0);   (694934.4,
4232010.5,   272.0,   310.0,   0.0);
     (694936.2, 4231983.9,   271.4,   310.0,   0.0);   (694939.0,
4231943.8,   270.7,   313.0,   0.0);
     (694943.6, 4231877.1,   274.8,   313.0,   0.0);   (694945.4,
4231850.4,   274.5,   313.0,   0.0);
     (694947.3, 4231823.7,   276.1,   313.0,   0.0);   (695066.1,
4231707.8,   297.6,   297.6,   0.0);
     (695204.3, 4231602.3,   292.4,   313.0,   0.0);   (695236.2,
4231578.0,   293.4,   313.0,   0.0);
     (695257.5, 4231561.7,   292.6,   313.0,   0.0);   (695278.7,
4231545.5,   292.9,   313.0,   0.0);
     (695300.0, 4231529.3,   293.4,   313.0,   0.0);   (694919.8,
4232303.4,   304.8,   304.8,   0.0);
     (694832.5, 4232164.9,   294.0,   299.0,   0.0);   (694834.3,
4232138.1,   289.7,   301.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                               (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

     (694836.2, 4232111.3,   286.2,   301.0,   0.0);   (694838.0,
4232084.5,   283.0,   302.0,   0.0);
     (694839.9, 4232057.7,   279.8,   302.0,   0.0);   (694841.7,
4232031.0,   277.0,   302.0,   0.0);
     (694843.5, 4232004.2,   274.5,   302.0,   0.0);   (694845.4,

4231977.4,   272.4,   302.0,   0.0);
     (694847.2, 4231950.6,   270.0,   302.0,   0.0);   (694849.1,
4231923.8,   267.2,   302.0,   0.0);
     (694852.8, 4231870.2,   264.6,   313.0,   0.0);   (694856.5,
4231816.6,   265.3,   313.0,   0.0);
     (694858.3, 4231789.8,   268.6,   311.0,   0.0);   (694860.1,
4231763.0,   267.5,   313.0,   0.0);
     (695202.6, 4231489.0,   292.1,   311.0,   0.0);   (695224.0,
4231472.7,   293.9,   313.0,   0.0);
     (695245.3, 4231456.4,   297.8,   305.0,   0.0);   (694821.4,
4232325.6,   298.7,   299.0,   0.0);
     (694655.3, 4232085.7,   281.1,   300.0,   0.0);   (694657.2,
4232058.8,   277.1,   300.0,   0.0);
     (694659.0, 4232031.9,   274.9,   300.0,   0.0);   (694660.9,
4232004.9,   274.2,   300.0,   0.0);
     (694662.7, 4231978.0,   274.4,   287.0,   0.0);   (694664.6,
4231951.1,   275.0,   287.0,   0.0);
     (694666.4, 4231924.1,   274.8,   287.0,   0.0);   (694668.3,
4231897.2,   273.4,   287.0,   0.0);
     (694670.1, 4231870.3,   271.1,   287.0,   0.0);   (694672.0,
4231843.4,   267.9,   305.0,   0.0);
     (694673.8, 4231816.4,   261.3,   305.0,   0.0);   (694675.7,
4231789.5,   256.9,   305.0,   0.0);
     (694677.5, 4231762.6,   255.5,   305.0,   0.0);   (694679.4,
4231735.6,   254.7,   305.0,   0.0);
     (694681.2, 4231708.7,   255.6,   305.0,   0.0);   (694683.1,
4231681.8,   257.9,   305.0,   0.0);
     (694695.7, 4231646.7,   264.6,   305.0,   0.0);   (694717.1,
4231630.3,   271.8,   302.0,   0.0);
     (694738.6, 4231613.9,   279.5,   302.0,   0.0);   (694760.1,
4231597.5,   286.5,   302.0,   0.0);
     (694781.5, 4231581.2,   292.8,   300.0,   0.0);   (694803.0,
4231564.8,   296.9,   296.9,   0.0);
     (694824.4, 4231548.4,   297.8,   297.8,   0.0);   (694845.9,
4231532.0,   297.7,   297.7,   0.0);
     (694878.1, 4231507.5,   297.0,   297.0,   0.0);   (694921.0,
4231474.7,   293.0,   300.0,   0.0);
     (694953.2, 4231450.1,   290.1,   299.0,   0.0);   (694985.4,
4231425.6,   291.3,   291.3,   0.0);
     (695039.0, 4231384.6,   293.6,   301.0,   0.0);   (695146.3,
4231302.8,   292.0,   299.0,   0.0);
     (695167.8, 4231286.4,   292.8,   292.8,   0.0);   (695189.2,
4231270.0,   294.5,   294.5,   0.0);
     (695253.6, 4231220.9,   300.8,   312.0,   0.0);   (694463.0,
4232225.6,   280.3,   280.3,   0.0);
     (694465.8, 4232185.7,   281.1,   281.1,   0.0);   (694472.2,
4232092.5,   278.1,   278.1,   0.0);
     (694474.9, 4232052.5,   280.8,   280.8,   0.0);   (694476.8,
4232025.9,   281.4,   281.4,   0.0);
     (694478.6, 4231999.3,   282.8,   282.8,   0.0);   (694480.4,

4231972.7,   284.2,   284.2,   0.0);
     (694482.3, 4231946.1,   285.9,   285.9,   0.0);   (694484.1,
4231919.5,   286.0,   286.0,   0.0);
     (694485.9, 4231892.8,   283.5,   303.0,   0.0);   (694487.8,
4231866.2,   278.6,   305.0,   0.0);
     (694489.6, 4231839.6,   272.4,   305.0,   0.0);   (694491.4,
4231813.0,   267.3,   305.0,   0.0);
     (694493.3, 4231786.3,   263.3,   305.0,   0.0);   (694495.1,
4231759.7,   266.1,   305.0,   0.0);
     (694496.9, 4231733.1,   266.9,   305.0,   0.0);   (694498.8,
4231706.5,   266.2,   305.0,   0.0);
     (694500.6, 4231679.8,   262.1,   305.0,   0.0);   (694502.4,
4231653.2,   255.7,   341.0,   0.0);
     (694504.3, 4231626.6,   249.1,   341.0,   0.0);   (694506.1,
4231600.0,   245.2,   341.0,   0.0);
     (694507.9, 4231573.4,   248.1,   341.0,   0.0);   (694519.5,
4231552.0,   252.5,   341.0,   0.0);
     (694540.7, 4231535.8,   257.4,   341.0,   0.0);   (694561.9,
4231519.6,   262.7,   341.0,   0.0);
     (694583.1, 4231503.4,   266.9,   341.0,   0.0);   (694604.3,
4231487.2,   272.2,   302.0,   0.0);
     (694625.5, 4231471.0,   277.9,   302.0,   0.0);   (694646.7,
4231454.8,   284.4,   302.0,   0.0);
     (694668.0, 4231438.6,   290.4,   301.0,   0.0);   (694689.2,
4231422.4,   295.4,   297.0,   0.0);
     (694710.4, 4231406.3,   295.5,   295.5,   0.0);   (694731.6,
4231390.1,   295.4,   296.0,   0.0);
     (694752.8, 4231373.9,   293.6,   301.0,   0.0);   (694774.0,
4231357.7,   290.8,   302.0,   0.0);
     (694795.2, 4231341.5,   288.7,   302.0,   0.0);   (694816.4,
4231325.3,   287.1,   302.0,   0.0);
     (694837.7, 4231309.1,   285.4,   302.0,   0.0);   (694858.9,
4231292.9,   285.0,   301.0,   0.0);
     (694880.1, 4231276.7,   285.0,   285.0,   0.0);   (694901.3,
4231260.5,   286.1,   286.1,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

     (694922.5, 4231244.4,   286.7,   286.7,   0.0);   (694943.7,
4231228.2,   287.1,   308.0,   0.0);
     (694964.9, 4231212.0,   287.4,   313.0,   0.0);   (694986.1,

4231195.8,   287.4,   318.0,   0.0);
     (695007.4, 4231179.6,   287.2,   318.0,   0.0);   (695113.4,
4231098.7,   291.0,   291.0,   0.0);
     (695134.6, 4231082.5,   292.3,   292.3,   0.0);   (695198.3,
4231033.9,   297.4,   299.0,   0.0);
     (695219.5, 4231017.7,   298.8,   298.8,   0.0);   (694446.5,
4232465.2,   273.4,   287.0,   0.0);
     (694456.0, 4232490.5,   274.0,   287.0,   0.0);   (694260.0,
4232521.6,   283.4,   287.0,   0.0);
     (694261.9, 4232494.8,   284.2,   287.0,   0.0);   (694265.5,
4232441.4,   281.6,   281.6,   0.0);
     (694268.3, 4232401.2,   276.2,   287.0,   0.0);   (694270.2,
4232374.5,   271.8,   287.0,   0.0);
     (694272.0, 4232347.8,   268.0,   288.0,   0.0);   (694273.8,
4232321.0,   265.3,   288.0,   0.0);
     (694275.7, 4232294.3,   265.7,   287.0,   0.0);   (694277.5,
4232267.5,   267.1,   268.0,   0.0);
     (694279.4, 4232240.8,   266.7,   266.7,   0.0);   (694281.2,
4232214.0,   266.8,   266.8,   0.0);
     (694283.0, 4232187.3,   267.0,   303.0,   0.0);   (694284.9,
4232160.6,   268.0,   303.0,   0.0);
     (694296.8, 4231986.7,   285.1,   303.0,   0.0);   (694298.7,
4231960.0,   288.7,   303.0,   0.0);
     (694300.5, 4231933.2,   292.7,   303.0,   0.0);   (694302.4,
4231906.5,   296.8,   296.8,   0.0);
     (694304.2, 4231879.8,   298.7,   303.0,   0.0);   (694306.1,
4231853.0,   301.6,   303.0,   0.0);
     (694307.9, 4231826.3,   302.6,   302.6,   0.0);   (694309.7,
4231799.5,   302.7,   302.7,   0.0);
     (694311.6, 4231772.8,   303.5,   303.5,   0.0);   (694313.4,
4231746.0,   303.2,   305.0,   0.0);
     (694315.2, 4231719.3,   297.8,   305.0,   0.0);   (694317.1,
4231692.6,   292.3,   305.0,   0.0);
     (694318.9, 4231665.8,   286.0,   305.0,   0.0);   (694320.8,
4231639.1,   276.3,   305.0,   0.0);
     (694322.6, 4231612.3,   265.9,   341.0,   0.0);   (694324.5,
4231585.6,   254.7,   341.0,   0.0);
     (694326.3, 4231558.8,   245.5,   341.0,   0.0);   (694328.1,
4231532.1,   241.5,   341.0,   0.0);
     (694330.0, 4231505.4,   242.2,   341.0,   0.0);   (694331.8,
4231478.6,   244.4,   341.0,   0.0);
     (694343.4, 4231457.1,   248.6,   341.0,   0.0);   (694364.7,
4231440.9,   252.2,   341.0,   0.0);
     (694386.0, 4231424.6,   256.0,   341.0,   0.0);   (694407.3,
4231408.3,   257.1,   341.0,   0.0);
     (694428.6, 4231392.1,   256.6,   341.0,   0.0);   (694450.0,
4231375.8,   255.4,   341.0,   0.0);
     (694471.3, 4231359.5,   255.9,   341.0,   0.0);   (694492.6,
4231343.3,   255.3,   341.0,   0.0);
     (694513.9, 4231327.0,   258.7,   341.0,   0.0);   (694535.2,

4231310.8,   263.4,   341.0,   0.0);
     (694556.5, 4231294.5,   267.4,   341.0,   0.0);   (694577.8,
4231278.2,   267.7,   341.0,   0.0);
     (694599.1, 4231262.0,   268.7,   341.0,   0.0);   (694620.4,
4231245.7,   272.1,   341.0,   0.0);
     (694641.7, 4231229.4,   277.2,   341.0,   0.0);   (694663.0,
4231213.2,   281.7,   337.0,   0.0);
     (694684.4, 4231196.9,   284.7,   319.0,   0.0);   (694705.7,
4231180.6,   286.9,   319.0,   0.0);
     (694727.0, 4231164.4,   288.2,   321.0,   0.0);   (694748.3,
4231148.1,   290.3,   321.0,   0.0);
     (694769.6, 4231131.9,   292.0,   321.0,   0.0);   (694790.9,
4231115.6,   294.4,   321.0,   0.0);
     (694812.2, 4231099.3,   298.8,   318.0,   0.0);   (694833.5,
4231083.1,   302.1,   311.0,   0.0);
     (694854.8, 4231066.8,   304.8,   304.8,   0.0);   (694876.1,
4231050.5,   306.3,   306.3,   0.0);
     (694897.4, 4231034.3,   307.6,   307.6,   0.0);   (694918.8,
4231018.0,   307.7,   307.7,   0.0);
     (694940.1, 4231001.8,   306.7,   318.0,   0.0);   (694961.4,
4230985.5,   307.0,   318.0,   0.0);
     (695057.3, 4230912.3,   304.6,   318.0,   0.0);   (695078.6,
4230896.1,   303.3,   318.0,   0.0);
     (695142.5, 4230847.3,   300.1,   300.1,   0.0);   (695163.8,
4230831.0,   299.7,   304.0,   0.0);
     (694263.8, 4232547.6,   283.4,   287.0,   0.0);   (694072.6,
4232591.3,   249.2,   379.0,   0.0);
     (694074.4, 4232564.5,   251.1,   376.0,   0.0);   (694077.2,
4232524.2,   254.4,   376.0,   0.0);
     (694082.8, 4232443.7,   267.0,   282.0,   0.0);   (694084.6,
4232416.9,   269.6,   269.6,   0.0);
     (694086.4, 4232390.1,   268.7,   268.7,   0.0);   (694088.3,
4232363.2,   263.1,   284.0,   0.0);
     (694090.1, 4232336.4,   257.9,   329.0,   0.0);   (694092.0,
4232309.6,   256.8,   329.0,   0.0);
     (694093.8, 4232282.8,   259.6,   281.0,   0.0);   (694095.7,
4232255.9,   263.1,   275.0,   0.0);

                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                              (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                           (METERS)

     (694097.5, 4232229.1,   265.1,   275.0,   0.0);   (694099.4,

4232202.2,   267.5,   275.0,   0.0);
     (694101.2, 4232175.4,   268.6,   275.0,   0.0);   (694103.1,
4232148.6,   268.0,   293.0,   0.0);
     (694104.9, 4232121.8,   266.7,   303.0,   0.0);   (694106.8,
4232094.9,   264.6,   305.0,   0.0);
     (694121.5, 4231880.3,   294.4,   294.4,   0.0);   (694123.4,
4231853.4,   294.1,   294.1,   0.0);
     (694125.2, 4231826.6,   290.6,   295.0,   0.0);   (694127.1,
4231799.8,   285.3,   305.0,   0.0);
     (694128.9, 4231772.9,   279.9,   305.0,   0.0);   (694130.8,
4231746.1,   274.5,   305.0,   0.0);
     (694132.6, 4231719.3,   267.6,   305.0,   0.0);   (694134.5,
4231692.4,   259.5,   341.0,   0.0);
     (694136.3, 4231665.6,   255.3,   341.0,   0.0);   (694138.2,
4231638.8,   250.7,   341.0,   0.0);
     (694140.0, 4231611.9,   248.8,   341.0,   0.0);   (694141.9,
4231585.1,   245.8,   341.0,   0.0);
     (694143.7, 4231558.3,   242.8,   341.0,   0.0);   (694145.6,
4231531.5,   240.5,   341.0,   0.0);
     (694147.4, 4231504.6,   239.0,   341.0,   0.0);   (694149.2,
4231477.8,   238.2,   341.0,   0.0);
     (694151.1, 4231451.0,   239.5,   341.0,   0.0);   (694153.0,
4231424.1,   242.7,   341.0,   0.0);
     (694154.8, 4231397.3,   244.6,   341.0,   0.0);   (694167.3,
4231362.3,   247.2,   341.0,   0.0);
     (694188.7, 4231346.0,   248.4,   341.0,   0.0);   (694210.1,
4231329.7,   249.0,   341.0,   0.0);
     (694231.5, 4231313.3,   249.2,   341.0,   0.0);   (694252.9,
4231297.0,   250.1,   341.0,   0.0);
     (694274.2, 4231280.7,   251.7,   341.0,   0.0);   (694295.6,
4231264.4,   253.2,   341.0,   0.0);
     (694317.0, 4231248.1,   256.2,   341.0,   0.0);   (694338.4,
4231231.8,   256.7,   341.0,   0.0);
     (694359.8, 4231215.4,   256.4,   341.0,   0.0);   (694381.1,
4231199.1,   256.8,   341.0,   0.0);
     (694402.5, 4231182.8,   256.3,   341.0,   0.0);   (694423.9,
4231166.5,   259.7,   341.0,   0.0);
     (694445.3, 4231150.2,   262.2,   341.0,   0.0);   (694466.7,
4231133.9,   264.4,   341.0,   0.0);
     (694488.0, 4231117.5,   267.0,   341.0,   0.0);   (694509.4,
4231101.2,   269.2,   341.0,   0.0);
     (694530.8, 4231084.9,   271.4,   341.0,   0.0);   (694552.2,
4231068.6,   273.9,   341.0,   0.0);
     (694573.6, 4231052.3,   277.6,   341.0,   0.0);   (694594.9,
4231036.0,   280.8,   341.0,   0.0);
     (694616.3, 4231019.6,   281.2,   341.0,   0.0);   (694637.7,
4231003.3,   286.2,   341.0,   0.0);
     (694659.1, 4230987.0,   289.9,   339.0,   0.0);   (694680.5,
4230970.7,   293.4,   339.0,   0.0);
     (694701.8, 4230954.4,   298.3,   324.0,   0.0);   (694723.2,

4230938.0,   302.1,   324.0,   0.0);
     (694744.6, 4230921.7,   307.2,   322.0,   0.0);   (694766.0,
4230905.4,   311.7,   321.0,   0.0);
     (694787.4, 4230889.1,   316.4,   318.0,   0.0);   (694808.7,
4230872.8,   318.9,   318.9,   0.0);
     (694830.1, 4230856.5,   320.9,   320.9,   0.0);   (694851.5,
4230840.1,   321.5,   321.5,   0.0);
     (694872.9, 4230823.8,   321.4,   321.4,   0.0);   (694894.3,
4230807.5,   321.6,   321.6,   0.0);
     (694915.7, 4230791.2,   320.9,   320.9,   0.0);   (695001.2,
4230725.9,   311.9,   311.9,   0.0);
     (695022.6, 4230709.6,   309.9,   309.9,   0.0);   (695086.7,
4230660.7,   313.1,   315.0,   0.0);
     (695108.1, 4230644.3,   315.5,   315.5,   0.0);   (695129.5,
4230628.0,   317.3,   317.3,   0.0);
     (694076.4, 4232617.4,   250.1,   382.0,   0.0);   (693885.2,
4232661.0,   243.8,   387.0,   0.0);
     (693887.0, 4232634.1,   242.7,   386.0,   0.0);   (693888.9,
4232607.2,   242.2,   386.0,   0.0);
     (693890.7, 4232580.3,   242.1,   385.0,   0.0);   (693896.3,
4232499.6,   242.4,   379.0,   0.0);
     (693898.1, 4232472.8,   243.7,   376.0,   0.0);   (693900.0,
4232445.8,   246.7,   376.0,   0.0);
     (693901.8, 4232418.9,   249.1,   376.0,   0.0);   (693903.7,
4232392.0,   251.2,   376.0,   0.0);
     (693905.5, 4232365.1,   252.0,   376.0,   0.0);   (693907.4,
4232338.2,   251.5,   329.0,   0.0);
     (693909.2, 4232311.3,   249.9,   329.0,   0.0);   (693911.1,
4232284.4,   247.3,   336.0,   0.0);
     (693912.9, 4232257.5,   244.4,   336.0,   0.0);   (693914.8,
4232230.6,   242.4,   336.0,   0.0);
     (693916.6, 4232203.7,   242.9,   336.0,   0.0);   (693918.5,
4232176.8,   246.2,   336.0,   0.0);
     (693920.3, 4232149.9,   250.8,   336.0,   0.0);   (693922.2,
4232123.0,   255.5,   329.0,   0.0);
     (693924.1, 4232096.1,   257.6,   329.0,   0.0);   (693925.9,
4232069.2,   257.4,   329.0,   0.0);
     (693927.8, 4232042.3,   255.5,   336.0,   0.0);   (693930.5,
4232002.0,   248.1,   336.0,   0.0);

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

```
     ( 693940.7, 4231854.0,     269.7,     296.0,       0.0);         ( 693942.6,
4231827.1,     273.9,     296.0,       0.0);
     ( 693944.4, 4231800.2,     276.7,     296.0,       0.0);         ( 693946.3,
4231773.3,     278.0,     296.0,       0.0);
     ( 693948.1, 4231746.4,     278.5,     296.0,       0.0);         ( 693950.0,
4231719.5,     278.7,     294.0,       0.0);
     ( 693951.8, 4231692.6,     277.4,     294.0,       0.0);         ( 693953.7,
4231665.7,     275.1,     294.0,       0.0);
     ( 693955.5, 4231638.8,     269.0,     296.0,       0.0);         ( 693957.4,
4231611.9,     262.7,     341.0,       0.0);
     ( 693959.2, 4231585.0,     254.4,     341.0,       0.0);         ( 693961.1,
4231558.1,     246.5,     341.0,       0.0);
     ( 693962.9, 4231531.2,     240.0,     341.0,       0.0);         ( 693964.8,
4231504.3,     236.2,     341.0,       0.0);
     ( 693966.6, 4231477.4,     236.0,     341.0,       0.0);         ( 693968.5,
4231450.5,     236.2,     341.0,       0.0);
     ( 693970.4, 4231423.6,     237.7,     341.0,       0.0);         ( 693972.2,
4231396.7,     241.4,     341.0,       0.0);
     ( 693974.1, 4231369.8,     244.5,     341.0,       0.0);         ( 693975.9,
4231342.9,     247.0,     341.0,       0.0);
     ( 693977.8, 4231316.0,     250.2,     341.0,       0.0);         ( 693979.6,
4231289.1,     255.9,     341.0,       0.0);
     ( 693991.2, 4231267.5,     262.2,     341.0,       0.0);         ( 694012.7,
4231251.1,     266.9,     341.0,       0.0);
     ( 694034.1, 4231234.8,     272.3,     341.0,       0.0);         ( 694055.6,
4231218.4,     276.7,     341.0,       0.0);
     ( 694077.0, 4231202.0,     280.7,     341.0,       0.0);         ( 694098.4,
4231185.7,     283.3,     341.0,       0.0);
     ( 694119.9, 4231169.3,     285.5,     341.0,       0.0);         ( 694141.3,
4231153.0,     287.4,     341.0,       0.0);
     ( 694162.7, 4231136.6,     288.4,     341.0,       0.0);         ( 694184.2,
4231120.2,     288.4,     341.0,       0.0);
     ( 694205.6, 4231103.9,     287.7,     341.0,       0.0);         ( 694227.0,
4231087.5,     287.2,     341.0,       0.0);
     ( 694248.5, 4231071.2,     285.5,     341.0,       0.0);         ( 694269.9,
4231054.8,     283.7,     341.0,       0.0);
     ( 694291.4, 4231038.5,     282.9,     341.0,       0.0);         ( 694312.8,
4231022.1,     282.3,     341.0,       0.0);
     ( 694334.2, 4231005.7,     281.5,     341.0,       0.0);         ( 694355.7,
4230989.4,     281.4,     341.0,       0.0);
     ( 694377.1, 4230973.0,     281.3,     341.0,       0.0);         ( 694398.5,
4230956.6,     283.2,     341.0,       0.0);
     ( 694420.0, 4230940.3,     285.9,     341.0,       0.0);         ( 694441.4,
4230923.9,     289.3,     341.0,       0.0);
     ( 694462.8, 4230907.6,     292.2,     341.0,       0.0);         ( 694484.3,
4230891.2,     294.3,     341.0,       0.0);
     ( 694505.7, 4230874.9,     295.1,     341.0,       0.0);         ( 694527.1,
4230858.5,     295.1,     341.0,       0.0);
     ( 694548.6, 4230842.1,     294.9,     341.0,       0.0);         ( 694570.0,
```

4230825.8,   294.2,   341.0,   0.0);
     (694591.4, 4230809.4,   295.3,   339.0,   0.0);   (694612.9,
4230793.1,   297.0,   339.0,   0.0);
     (694634.3, 4230776.7,   298.9,   339.0,   0.0);   (694655.8,
4230760.3,   300.3,   339.0,   0.0);
     (694677.2, 4230744.0,   301.5,   339.0,   0.0);   (694698.6,
4230727.6,   303.5,   324.0,   0.0);
     (694720.1, 4230711.3,   305.4,   324.0,   0.0);   (694741.5,
4230694.9,   307.3,   324.0,   0.0);
     (694762.9, 4230678.5,   309.2,   324.0,   0.0);   (694784.4,
4230662.2,   310.4,   324.0,   0.0);
     (694805.8, 4230645.8,   312.1,   324.0,   0.0);   (694827.2,
4230629.5,   314.4,   323.0,   0.0);
     (694848.7, 4230613.1,   316.3,   317.0,   0.0);   (694870.1,
4230596.8,   317.8,   317.8,   0.0);
     (694955.8, 4230531.3,   320.6,   320.6,   0.0);   (695030.9,
4230474.1,   322.6,   322.6,   0.0);
     (695052.3, 4230457.7,   323.8,   323.8,   0.0);   (695073.7,
4230441.3,   325.1,   325.1,   0.0);
     (693889.0, 4232687.2,   246.2,   387.0,   0.0);   (695492.8,
4232077.9,   305.6,   312.0,   0.0);
     (695500.4, 4232075.0,   306.7,   312.0,   0.0);   (695500.4,
4232385.2,   317.6,   317.6,   0.0);
     (695345.3, 4232387.6,   296.7,   402.0,   0.0);   (695341.2,
4232202.4,   288.4,   402.0,   0.0);
     (695439.1, 4232169.3,   292.1,   319.0,   0.0);   (695482.7,
4232182.9,   298.7,   318.0,   0.0);
     (695486.9, 4232106.8,   302.8,   312.0,   0.0);   (695477.4,
4232081.5,   304.1,   313.0,   0.0);

                                                *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1

1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

                NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.

                                    *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                                  1.54,   3.09,   5.14,   8.23,
10.80,

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                      *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

   Surface file: ..\stockton-metropolit-23237\Stockton_18-22.SFC
                Met Version: 21112
   Profile file: ..\stockton-metropolit-23237\Stockton_18-22.PFL

   Surface format: FREE

   Profile format: FREE

   Surface station no.:   23237   Upper air station no.:   23230
                  Name: UNKNOWN   Name:
OAKLAND/WSO_AP
                  Year: 2018   Year: 2018

 First 24 hours of scalar data
 YR MO DY JDY HR   H0   U*   W* DT/DZ ZICNV ZIMCH M-O LEN   Z0 BOWEN
ALBEDO REF WS   WD   HT REF TA   HT
- -
- - - - - - - - - - - - - - - - - - -
 18 01 01   1 01   -4.8 0.090 -9.000 -9.000 -999.   65.   13.7 0.04   0.91
1.00   1.42   14.   10.0 278.8   2.0
 18 01 01   1 02   -5.2 0.093 -9.000 -9.000 -999.   68.   14.2 0.04   0.91

```
1.00    1.47    7.   10.0  279.2    2.0
 18 01 01   1 03   -2.7  0.069 -9.000 -9.000 -999.   43.     11.2  0.03   0.91
1.00    1.04   44.   10.0  278.8    2.0
 18 01 01   1 04   -2.1  0.065 -9.000 -9.000 -999.   40.     11.8  0.03   0.91
1.00    0.86   79.   10.0  278.1    2.0
 18 01 01   1 05   -5.8  0.100 -9.000 -9.000 -999.   76.     15.6  0.05   0.91
1.00    1.48  186.   10.0  277.5    2.0
 18 01 01   1 06   -1.8  0.063 -9.000 -9.000 -999.   38.     12.8  0.04   0.91
1.00    0.74  221.   10.0  276.4    2.0
 18 01 01   1 07   -2.3  0.067 -9.000 -9.000 -999.   41.     11.9  0.04   0.91
1.00    0.89  116.   10.0  275.9    2.0
 18 01 01   1 08   -2.0  0.065 -9.000 -9.000 -999.   40.     12.5  0.04   0.91
0.73    0.79  144.   10.0  274.9    2.0
 18 01 01   1 09   -1.1  0.052 -9.000 -9.000 -999.   29.     12.4  0.04   0.91
0.39    0.80  107.   10.0  277.5    2.0
 18 01 01   1 10   43.4  0.095  0.542  0.006  133.   70.     -1.8  0.03   0.91
0.27    0.86   66.   10.0  283.1    2.0
 18 01 01   1 11   78.0  0.102  0.984  0.015  445.   78.     -1.2  0.03   0.91
0.23    0.91   58.   10.0  286.4    2.0
 18 01 01   1 12   97.1  0.128  1.130  0.017  542.  110.     -2.0  0.03   0.91
0.22    1.21  317.   10.0  288.1    2.0
 18 01 01   1 13   99.8  0.180  1.195  0.018  623.  183.     -5.3  0.18   0.91
0.21    1.21  273.   10.0  289.2    2.0
 18 01 01   1 14   86.4  0.206  1.182  0.019  696.  225.     -9.2  0.18   0.91
0.22    1.52  277.   10.0  290.9    2.0
 18 01 01   1 15   57.0  0.162  1.042  0.019  723.  157.     -6.8  0.03   0.91
0.26    1.82  307.   10.0  291.4    2.0
 18 01 01   1 16   14.4  0.269  0.661  0.019  726.  334.   -122.2  0.18   0.91
0.35    2.55  299.   10.0  290.9    2.0
 18 01 01   1 17  -15.6  0.177 -9.000 -9.000 -999.  183.     34.6  0.03   0.91
0.60    2.74  306.   10.0  287.5    2.0
 18 01 01   1 18  -11.1  0.138 -9.000 -9.000 -999.  123.     21.5  0.03   0.91
1.00    2.18  307.   10.0  285.4    2.0
 18 01 01   1 19  -15.0  0.173 -9.000 -9.000 -999.  173.     33.0  0.20   0.91
1.00    1.81  252.   10.0  283.8    2.0
 18 01 01   1 20   -4.2  0.091 -9.000 -9.000 -999.   68.     16.4  0.20   0.91
1.00    0.96  266.   10.0  283.8    2.0
 18 01 01   1 21   -2.6  0.071 -9.000 -9.000 -999.   45.     12.1  0.04   0.91
1.00    0.97  168.   10.0  281.4    2.0
 18 01 01   1 22  -11.3  0.141 -9.000 -9.000 -999.  127.     22.5  0.04   0.91
1.00    2.08  169.   10.0  281.4    2.0
 18 01 01   1 23  -13.3  0.152 -9.000 -9.000 -999.  142.     25.4  0.04   0.91
1.00    2.30  114.   10.0  280.4    2.0
 18 01 01   1 24  -13.7  0.154 -9.000 -9.000 -999.  145.     26.1  0.04   0.91
1.00    2.33   97.   10.0  280.9    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 18 01 01 01   10.0 1   14.    1.42   278.8   99.0  -99.00  -99.00
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695661.08	4232679.32	210.71466	(20031801)	696389.86	4231902.08	79.55309	(21012118)
696375.82	4231858.45	86.52834	(19062903)	696400.89	4231827.36	83.19199	(19062903)
696433.99	4231825.36	77.18129	(21061706)	696463.07	4231820.34	72.92779	(21061706)
696483.63	4231820.34	70.06917	(21061706)	694911.06	4231854.69	142.35760	(21122104)
694872.29	4231812.30	132.13220	(21122104)	694882.07	4231877.87	139.55813	(22121305)
695461.91	4232105.46	554.18964	(18013017)	695459.84	4232143.50	543.04131	(20121116)
695436.94	4232104.10	562.79737	(21120416)	695434.88	4232142.15	533.26090	(21021720)
695411.98	4232102.75	600.80740	(20090507)	695409.92	4232140.79	509.80117	(20041207)
695407.85	4232178.84	808.05165	(19122524)	695387.02	4232101.39	556.00818	(20090307)
695384.95	4232139.44	460.47067	(18010909)	695382.89	4232177.48	623.83891	(18122503)
695337.09	4232098.68	380.25864	(19122520)	695335.03	4232136.73	393.97862	(22062524)
695332.96	4232174.77	458.33210	(19120217)	695287.16	4232095.97	329.32497	(20010409)
695285.10	4232134.02	333.42806	(18120323)	695283.03	4232172.06	396.60905	(20040618)

695237.24 4232093.26 297.15580 (18010709) 695235.17 4232131.31 311.14852 (20040618)
695233.11 4232169.35 329.19346 (20012209) 695187.31 4232090.55 250.37716 (20100318)
695185.25 4232128.60 277.00641 (20012209) 695183.18 4232166.64 255.93895 (20121819)
695087.46 4232085.13 204.45111 (20012209) 695085.39 4232123.18 209.16160 (19013021)
695083.33 4232161.22 210.17742 (20120823) 694987.60 4232079.71 180.63642 (18032919)
694985.54 4232117.76 179.49453 (21010609) 694983.47 4232155.80 181.82413 (22120423)
694887.75 4232074.29 155.12635 (18011504) 694885.69 4232112.34 155.09686 (20100307)
694883.62 4232150.38 158.72269 (22120423) 694787.90 4232068.87 135.21222 (22011406)
694785.83 4232106.92 135.64462 (22021201) 694783.77 4232144.96 141.57505 (21120124)
694588.19 4232058.03 107.09477 (18121906) 694586.13 4232096.08 108.91350 (18010423)
694584.06 4232134.12 109.12118 (18020424) 694388.49 4232047.19 88.53595 (18010423)
694386.42 4232085.24 88.33376 (18020824) 694384.36 4232123.28 88.54192 (22120607)
694188.78 4232036.35 75.04130 (18020824) 694186.72 4232074.40 75.13532 (20022802)
694184.65 4232112.44 75.07155 (19121401) 693989.07 4232025.51 65.21201 (19011907)
693987.01 4232063.56 65.24412 (22122306) 693984.94 4232101.60 65.44011 (22021902)
693789.37 4232014.67 58.29514 (22011903) 693787.30 4232052.72 58.50559 (22021902)
693785.24 4232090.76 57.97929 (22021902) 695504.99 4232111.28 543.75291 (18120916)
695512.41 4232087.40 505.51819 (18120916) 695468.76 4232073.84 487.42887 (22120916)
695527.24 4232039.65 453.92029 (22010519) 695505.42 4232032.87 449.27554 (18010622)
695483.59 4232026.09 461.11978 (22120916) 695542.07 4231991.90 376.07969 (19020703)
695520.25 4231985.12 374.67872 (18010622) 695498.42 4231978.34 381.82735 (22022721)
695556.91 4231944.15 316.67929 (21010501) 695535.08 4231937.37 321.60775 (19013102)
695513.26 4231930.59 328.81827 (22022721) 695571.74 4231896.41 282.13009 (18011208)
695549.92 4231889.63 283.44565 (19013102) 695528.09 4231882.85 290.85024 (22022721)
695601.41 4231800.91 235.44212 (18011208) 695579.58 4231794.13 229.23133 (19013102)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695660.74	4231609.91	174.02222	(19013102)	695638.92	4231603.13	173.32558	(20100322)
695617.09	4231596.35	174.82570	(22022721)	695690.41	4231514.41	157.59134	(19013102)
695668.58	4231507.63	156.30412	(20100322)	695646.76	4231500.85	156.43486	(22022721)
695749.74	4231323.42	129.74831	(19013102)	695727.92	4231316.64	129.48530	(20100322)
695706.09	4231309.86	127.79373	(22022721)	695809.07	4231132.42	102.99686	(19042705)
695787.25	4231125.64	104.09767	(22043005)	695765.42	4231118.86	107.10870	(18122704)
695868.41	4230941.42	73.31355	(19042705)	695846.58	4230934.64	71.79905	(19020621)
695824.76	4230927.86	71.78215	(18122704)	695927.74	4230750.43	62.75346	(18011101)
695905.92	4230743.65	65.31855	(19020621)	695884.09	4230736.87	71.38070	(18122704)
695987.07	4230559.43	73.81642	(18011101)	695965.25	4230552.65	74.11805	(21120303)
695943.42	4230545.87	74.69199	(21120303)	695356.37	4232118.09	423.17201	(20102508)
695427.67	4232074.34	460.34906	(22021618)	695367.96	4232087.80	500.76809	(18010909)

695309.21 4232107.62 369.66158 (20010409) 695409.63 4232026.99 414.55458 (20090507)
695446.61 4232026.54 442.58415 (19102417) 695371.56 4232033.82 403.18969 (20090307)
695332.40 4232047.03 454.37165 (20102508) 695293.23 4232060.24 334.55423 (18031918)
695395.70 4231979.58 347.07699 (22120421) 695436.79 4231979.09 398.04933 (18010420)
695355.58 4231986.44 333.15801 (18020518) 695316.41 4231999.65 355.83147 (20102508)
695277.25 4232012.86 344.90012 (18031918) 695378.44 4231932.22 313.22822 (19011817)
695416.96 4231931.76 315.31940 (19022420) 695455.48 4231931.29 335.39693 (22121418)
695339.60 4231939.06 291.63241 (20082405) 695300.43 4231952.27 294.48419 (19011818)
695261.27 4231965.49 288.81769 (19092707) 695363.74 4231884.83 284.92382 (19011817)
695404.83 4231884.33 298.99084 (21120616) 695445.91 4231883.84 299.22618 (18010420)
695487.00 4231883.34 301.23889 (22022821) 695323.61 4231891.69 247.81451 (22091102)
695284.45 4231904.90 232.47885 (19011818) 695245.28 4231918.11 219.63090 (19092707)
695331.77 4231790.08 228.90120 (21072401) 695372.86 4231789.58 234.25573 (22120422)
695413.95 4231789.08 237.67181 (19022420) 695455.04 4231788.59 248.87630 (18010420)
695496.13 4231788.09 243.40684 (19122717) 695291.65 4231796.93 224.55838 (22091102)
695252.48 4231810.14 230.17825 (20012206) 695213.32 4231823.36 202.82039 (20091707)
695299.81 4231695.32 197.62684 (22012308) 695340.90 4231694.83 204.70303 (22021819)
695381.98 4231694.33 203.07734 (21021102) 695423.07 4231693.84 207.67841 (21010524)
695464.16 4231693.34 206.94707 (18010420) 695505.25 4231692.84 206.21241 (20012007)
695546.34 4231692.35 202.61004 (22011319) 695259.68 4231702.18 192.47743 (22030201)
695220.52 4231715.39 202.32433 (20012206) 695181.35 4231728.60 199.81065 (22011519)
695267.84 4231600.57 172.88975 (19010803) 695308.93 4231600.07 183.88241 (21120319)
695350.02 4231599.58 182.61401 (19022807) 695391.11 4231599.08 178.69433 (22010506)
695432.19 4231598.59 180.69272 (19071103) 695473.28 4231598.09 178.66463 (18010420)
695514.37 4231597.59 180.64633 (20012007) 695555.46 4231597.10 177.73810 (19033120)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695359.14	4231504.33	160.66255	(21021102)	695400.23	4231503.83	157.90021	(22091202)
695441.32	4231503.34	158.49478	(19071103)	695482.41	4231502.84	158.12954	(21020620)
695523.49	4231502.34	159.63232	(20012007)	695564.58	4231501.85	158.60467	(19033120)
695605.67	4231501.35	158.16600	(18100403)	695195.75	4231512.67	117.96244	(20042701)
695156.59	4231525.88	121.49128	(20012206)	695117.42	4231539.10	118.58373	(20021103)
695171.95	4231316.31	105.64607	(21022818)	695213.04	4231315.81	112.45701	(19111101)
695254.12	4231315.32	124.11916	(21120319)	695295.21	4231314.82	133.15993	(19121301)
695336.30	4231314.32	130.85927	(21021102)	695377.39	4231313.83	129.04347	(21122002)
695418.48	4231313.33	130.72408	(19022506)	695459.56	4231312.84	128.58144	(18010420)
695500.65	4231312.34	130.06437	(21020620)	695541.74	4231311.84	129.28014	(18031003)
695582.83	4231311.35	129.84406	(22120401)	695623.91	4231310.85	130.33521	(22011319)

695665.00 4231310.35 129.08027 (18100403) 695131.82
4231323.16 103.76783 (20042701)
695092.66 4231336.38 105.62818 (19121224) 695053.49
4231349.59 104.71554 (22120522)
695108.02 4231126.80 86.44932 (21022818) 695149.11
4231126.31 91.20519 (22021019)
695190.19 4231125.81 98.37279 (19110823) 695231.28
4231125.31 107.11716 (22122819)
695272.37 4231124.82 110.40147 (20012219) 695313.46
4231124.32 110.17334 (21120322)
695354.54 4231123.82 108.24310 (18010505) 695395.63
4231123.33 108.60070 (22012019)
695436.72 4231122.83 111.40062 (19022506) 695477.81
4231122.34 112.07384 (18010420)
695518.90 4231121.84 111.54998 (21020620) 695559.98
4231121.34 112.84536 (18011102)
695601.07 4231120.85 111.62237 (19011807) 695642.16
4231120.35 111.15961 (22012504)
695683.25 4231119.85 111.58617 (19013101) 695724.34
4231119.36 107.54206 (20011808)
695067.89 4231133.66 81.09656 (21120202) 695028.73
4231146.87 82.24873 (19121224)
694989.56 4231160.08 82.59918 (22120522) 695044.09
4230937.30 93.05019 (21022818)
695085.17 4230936.80 87.72256 (22021019) 695126.26
4230936.30 78.79681 (22021019)
695167.35 4230935.81 83.58983 (22010607) 695208.44
4230935.31 85.39196 (22122819)
695249.53 4230934.81 91.82619 (20012219) 695290.61
4230934.32 95.26654 (19012922)
695331.70 4230933.82 95.16285 (22010620) 695372.79
4230933.33 95.78716 (18120922)
695413.88 4230932.83 97.51603 (19022506) 695454.97
4230932.33 97.25818 (19042503)
695496.05 4230931.84 96.64681 (21020620) 695537.14
4230931.34 96.63487 (21020620)
695578.23 4230930.84 97.93289 (18011102) 695619.32
4230930.35 97.01185 (19121302)
695660.41 4230929.85 93.93310 (19011205) 695701.49
4230929.35 88.56129 (19013101)
695742.58 4230928.86 83.29851 (19013101) 695783.67
4230928.36 76.24462 (20021408)
695003.96 4230944.15 91.98220 (21120202) 694964.80
4230957.36 92.20396 (21022819)
694925.63 4230970.57 90.11523 (20121520) 694980.16
4230747.79 81.45331 (22121721)
695021.24 4230747.29 80.61264 (18102406) 695062.33
4230746.80 82.62374 (22021019)
695103.42 4230746.30 83.41425 (21100307) 695144.51
4230745.80 84.39181 (20022008)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695514.30	4230741.34	85.14650	(22010604)	695555.39	4230740.84	82.12814	(18020601)
695596.48	4230740.34	83.33336	(18121418)	695637.56	4230739.85	85.79873	(19121302)
695678.65	4230739.35	85.01925	(19011205)	695719.74	4230738.85	84.34342	(20121105)
695760.83	4230738.36	85.15153	(19013101)	695801.92	4230737.86	84.11288	(20011808)
695843.00	4230737.37	83.04771	(21120203)	694940.03	4230754.64	78.85868	(21053103)
694900.87	4230767.86	75.87036	(21020707)	694861.70	4230781.07	73.76126	(18032905)
694916.23	4230558.28	70.31043	(22121721)	694957.31	4230557.79	71.84146	(20101722)
694998.40	4230557.29	73.13947	(22120521)	695039.49	4230556.79	72.41765	(21100307)
695080.58	4230556.30	73.73207	(20022008)	695121.67	4230555.80	73.80909	(22112008)
695162.75	4230555.30	71.32158	(22112008)	695203.84	4230554.81	69.41255	(21091305)

695244.93 4230554.31 71.90167 (22092907) 695286.02
4230553.81 72.23124 (19072504)
695327.11 4230553.32 73.23155 (20100604) 695368.19
4230552.82 79.10781 (21010309)
695409.28 4230552.33 81.82328 (21010309) 695450.37
4230551.83 77.61112 (18013103)
695491.46 4230551.33 78.75283 (21021821) 695532.55
4230550.84 78.02930 (22010604)
695573.63 4230550.34 72.66441 (18020601) 695614.72
4230549.84 71.61233 (21092207)
695655.81 4230549.35 74.68674 (21011206) 695696.90
4230548.85 75.67124 (21011206)
695737.99 4230548.35 76.70283 (20121105) 695779.07
4230547.86 75.86007 (20121105)
695820.16 4230547.36 75.79742 (19013101) 695861.25
4230546.87 74.58038 (20052506)
695902.34 4230546.37 75.17415 (20052506) 694876.10
4230565.14 70.41858 (21053103)
694836.94 4230578.35 72.14384 (19013022) 694797.77
4230591.56 74.12981 (21120104)
695316.19 4232202.93 445.57410 (19030508) 695316.70
4232226.08 457.84081 (19121317)
695317.22 4232249.23 487.41150 (19013117) 695317.73
4232272.38 511.31111 (20010309)
695318.25 4232295.53 514.83484 (20013009) 695318.77
4232318.68 539.62462 (19121309)
695319.28 4232341.83 475.33312 (19121209) 695319.80
4232364.99 405.64529 (20040807)
695320.32 4232388.14 358.57780 (20020109) 695312.72
4232164.33 421.84107 (21011509)
695291.19 4232203.48 408.58406 (22012309) 695291.71
4232226.64 416.45324 (21090907)
695292.22 4232249.79 426.74617 (19013117) 695292.74
4232272.94 447.02287 (18010609)
695293.26 4232296.09 434.58966 (21030408) 695293.77
4232319.24 394.48007 (19121309)
695294.29 4232342.39 414.60695 (21013009) 695294.81
4232365.54 354.61227 (18012817)
695295.32 4232388.69 321.05026 (22122116) 695266.20
4232204.04 345.95944 (22020623)
695266.71 4232227.19 396.44361 (21090907) 695267.23
4232250.34 370.58674 (18011409)
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4232296.65 363.49460 (21030408)
695268.78 4232319.80 395.87638 (20013009) 695269.30
4232342.95 332.06073 (21013009)
695269.81 4232366.10 339.69326 (19010209) 695270.33
4232389.25 303.06518 (18012817)
695241.20 4232204.60 313.66724 (18121923) 695241.72
4232227.75 362.37349 (21090907)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695191.73	4232228.87	297.85840	(18040907)	695192.25	4232252.02	299.05448	(19121009)
695192.77	4232275.17	270.82219	(20122709)	695193.28	4232298.32	308.03218	(18010609)
695193.80	4232321.47	264.87160	(20011009)	695194.31	4232344.62	268.35189	(22062206)
695194.83	4232367.77	249.65909	(19012417)	695195.35	4232390.92	240.25253	(22022808)
695147.26	4232186.95	242.76417	(18010904)	695159.33	4232147.18	254.07409	(20012209)
695171.40	4232107.42	247.94877	(20040618)	695210.70	4232062.65	271.11751	(20110308)
695243.98	4232037.76	283.12717	(19020617)	695141.75	4232229.98	268.45824	(18040907)
695142.26	4232253.13	255.07949	(19121009)	695142.78	4232276.28	238.64903	(19012217)
695143.29	4232299.43	242.65278	(18010609)	695143.81	4232322.58	230.63126	(18010609)

695144.33 4232345.74 227.55259 (21092019) 695144.84 4232368.89 231.11440 (22062206)
695145.36 4232392.04 218.50583 (20020721) 695097.71 4232186.64 218.80139 (18020802)
695110.64 4232144.04 226.02712 (21010609) 695123.56 4232101.44 229.07615 (20012209)
695154.32 4232045.50 221.83425 (18020901) 695189.97 4232018.83 244.90102 (19010409)
695225.62 4231992.16 234.19241 (21120317) 695091.76 4232231.09 237.63878 (18040907)
695092.27 4232254.25 218.83754 (19121009) 695092.79 4232277.40 220.55553 (19012217)
695093.31 4232300.55 215.45061 (22061606) 695093.82 4232323.70 231.50267 (18010609)
695094.34 4232346.85 221.01770 (18103108) 695094.86 4232370.00 215.75397 (19022320)
695095.37 4232393.15 228.26129 (22062206) 695047.29 4232189.18 200.00119 (21100423)
695059.35 4232149.41 201.47808 (21122620) 695089.52 4232050.01 199.13807 (18013109)
695112.19 4232017.68 203.44856 (18011021) 695145.47 4231992.79 215.25247 (19010409)
695178.74 4231967.89 210.99172 (19111408) 695212.01 4231943.00 219.73883 (20091607)
695041.77 4232232.21 213.84016 (18040907) 695042.29 4232255.36 201.69771 (19121009)
695042.80 4232278.51 208.24298 (19012217) 695043.32 4232301.66 214.81538 (20092823)
695043.84 4232324.81 236.53257 (19040107) 695044.35 4232347.97 252.69578 (18101620)
695044.87 4232371.12 243.26787 (18011703) 695045.38 4232394.27 241.27602 (19011906)
694947.86 4232189.60 178.15337 (18020322) 694961.03 4232146.22 173.87150 (22021201)
694993.94 4232037.78 174.03959 (22120919) 695000.52 4232016.09 172.81717 (18121519)
695031.83 4231959.13 175.96893 (19011401) 695049.98 4231945.55 178.08436 (18121518)
695068.13 4231931.98 178.56951 (19071306) 695086.28 4231918.40 180.94411 (20012207)
695104.43 4231904.82 180.41475 (19111408) 695122.57 4231891.24 179.61845 (18101824)
695140.72 4231877.67 183.69750 (19011824) 695158.87 4231864.09 183.46227 (18120404)
695177.02 4231850.51 186.43927 (20122809) 695195.17 4231836.93 183.88531 (22041422)
694941.28 4232211.29 187.70810 (18040907) 694941.80 4232234.44 202.33284 (18040907)
694942.31 4232257.59 221.61146 (19012904) 694942.83 4232280.74 219.93001 (21010719)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695020.93	4231848.62	158.33118	(20012207)	695056.58	4231821.95	160.52940	(18102605)
695092.23	4231795.28	178.16306	(18100101)	695127.88	4231768.61	211.13843	(21120318)
694841.82	4232236.67	199.26746	(21012302)	694842.34	4232259.82	196.25006	(18020107)
694842.85	4232282.97	196.40176	(18121118)	694843.37	4232306.12	195.47442	(18121706)
694843.89	4232329.27	192.57916	(18021708)	694844.40	4232352.42	194.55997	(22011121)
694844.92	4232375.58	193.46087	(19120504)	694845.43	4232398.73	189.99512	(18020402)
694747.72	4232194.70	153.09066	(22100102)	694760.49	4232152.59	138.81324	(21120124)
694798.82	4232026.29	134.28091	(18010607)	694811.60	4231984.18	134.45323	(20010619)

694824.38 4231942.08 135.48935 (22120919) 694837.15 4231899.98 132.10670 (22121603)
694867.55 4231844.70 134.17943 (19011401) 694902.78 4231818.34 136.32668 (19120407)
694938.01 4231791.99 140.07149 (20012207) 694973.24 4231765.63 141.64342 (21012919)
695008.47 4231739.27 143.04565 (22012008) 695043.70 4231712.92 155.50862 (18120404)
695078.93 4231686.56 167.67377 (18012822) 695114.16 4231660.21 152.87086 (20081903)
694741.85 4232238.90 164.09598 (21012302) 694742.36 4232262.05 157.42162 (18020107)
694742.88 4232285.20 141.28759 (20100407) 694743.39 4232308.35 134.88474 (18121706)
694743.91 4232331.50 131.64111 (18020102) 694744.43 4232354.65 134.19019 (20022803)
694744.94 4232377.80 139.67691 (18120722) 694745.46 4232400.96 140.90608 (19120504)
694648.02 4232196.00 124.02450 (22100102) 694654.69 4232174.03 121.41133 (18020322)
694661.36 4232152.05 120.27638 (19011403) 694668.03 4232130.08 120.53652 (21120124)
694674.70 4232108.10 120.05062 (18010423) 694681.37 4232086.13 118.77298 (22020401)
694688.03 4232064.15 119.98322 (19011324) 694694.70 4232042.18 119.49997 (22011406)
694701.37 4232020.21 118.84258 (18011504) 694708.04 4231998.23 120.44033 (18010607)
694721.38 4231954.28 120.32328 (18121424) 694728.05 4231932.31 118.27362 (18022105)
694734.71 4231910.33 119.11188 (22120919) 694741.38 4231888.36 118.47118 (22020901)
694748.05 4231866.39 115.57736 (22040201) 694754.72 4231844.41 118.17855 (22121603)
694761.39 4231822.44 120.78433 (20120419) 694786.44 4231786.71 119.13536 (19012902)
694804.83 4231772.95 121.00869 (21122104) 694823.22 4231759.19 119.35790 (21010505)
694841.61 4231745.44 121.33049 (19011221) 694860.00 4231731.68 124.31772 (22010524)
694878.38 4231717.93 124.29858 (20012207) 694896.77 4231704.17 124.99067 (22010523)
694915.16 4231690.41 123.74284 (19012821) 694933.55 4231676.66 122.65728 (19040804)
694951.93 4231662.90 124.10535 (22012008) 694970.32 4231649.14 124.39551 (21022601)
694988.71 4231635.39 124.81299 (18120404) 695007.10 4231621.63 124.86950 (21120401)
695025.49 4231607.88 125.73829 (21120318) 695043.87 4231594.12 124.12677 (21120323)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694473.98	4232115.07	96.82300	(18020424)	694487.02	4232072.13	98.28656	(18010423)
694500.05	4232029.19	97.82422	(22122722)	694513.08	4231986.24	98.04989	(21020703)
694526.11	4231943.30	99.61377	(20120220)	694539.15	4231900.35	99.06698	(22020924)
694552.18	4231857.41	96.70397	(21011503)	694565.21	4231814.46	95.20109	(19010306)
694578.24	4231771.52	95.54585	(22011801)	694591.27	4231728.58	96.26766	(20120419)
694622.27	4231672.19	96.02131	(18121708)	694640.24	4231658.75	97.53548	(18121708)
694676.18	4231631.87	98.22836	(22010222)	694712.11	4231604.98	99.27451	(22010524)

694748.05 4231578.10 101.09929 (22010523) 694783.98
4231551.21 117.79052 (19012821)
694819.92 4231524.33 129.43020 (22122302) 694855.85
4231497.45 130.27402 (21022601)
694891.79 4231470.56 124.03606 (21120401) 694927.72
4231443.68 111.94578 (22021120)
694963.66 4231416.80 104.72008 (22011819) 694999.59
4231389.91 103.24105 (18010422)
695017.56 4231376.47 103.68398 (18010422) 694441.92
4232245.59 91.74998 (20012805)
694442.44 4232268.74 91.81832 (18020105) 694442.95
4232291.89 91.28145 (18021701)
694443.47 4232315.04 91.96243 (22021124) 694443.98
4232338.19 91.28972 (18121706)
694444.50 4232361.34 91.79501 (18121907) 694445.02
4232384.49 91.71543 (19011018)
694445.53 4232407.64 91.05876 (20022803) 694248.09
4232205.02 79.11869 (22021901)
694254.73 4232183.15 78.91174 (18123018) 694268.00
4232139.41 81.29599 (19121401)
694274.64 4232117.54 80.58178 (22120607) 694281.27
4232095.67 81.45855 (20022802)
694287.91 4232073.80 81.02281 (22022807) 694294.55
4232051.94 81.82073 (18020824)
694301.18 4232030.07 81.59379 (18010423) 694307.82
4232008.20 82.14070 (18121906)
694321.09 4231964.46 83.53480 (22021205) 694327.73
4231942.59 86.39116 (21020703)
694334.37 4231920.72 89.83638 (18011124) 694347.64
4231876.98 103.09933 (18010607)
694354.28 4231855.11 104.78645 (18010607) 694360.92
4231833.24 103.27156 (21021008)
694374.19 4231789.50 89.14718 (21011503) 694380.83
4231767.63 89.47975 (18020708)
694394.10 4231723.89 85.30120 (22020901) 694400.74
4231702.02 83.33139 (20010817)
694407.37 4231680.15 81.00840 (22021021) 694420.65
4231636.41 80.60264 (18102018)
694427.28 4231614.54 80.48618 (18011520) 694433.92
4231592.67 81.74851 (18011520)
694458.86 4231557.11 80.90226 (18121708) 694477.16
4231543.42 82.46210 (18121708)
694495.46 4231529.73 81.83394 (21122024) 694513.76
4231516.04 82.45896 (19012624)
694532.06 4231502.35 82.44904 (21011223) 694550.36
4231488.66 82.54289 (19011221)
694568.66 4231474.97 83.29723 (19121621) 694586.96
4231461.28 84.48065 (18120719)
694605.26 4231447.59 83.84860 (19010408) 694623.56
4231433.89 85.40848 (21120101)

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        694641.86   4231420.20       87.28383  (19012821)                694660.16
4231406.51       89.76570  (22101224)
        694678.46   4231392.82       93.51756  (18022103)                694696.76
4231379.13       92.68497  (18021003)
        694715.06   4231365.44       91.14963  (18021003)                694733.36
4231351.75       90.37644  (21022601)
        694751.66   4231338.06       87.53835  (18011521)                694769.96
4231324.37       87.43023  (18011521)
        694788.26   4231310.68       86.31124  (20121519)                694806.56
4231296.99       85.67738  (20121519)
        694824.86   4231283.30       86.35528  (22021120)                694843.16
4231269.61       85.85473  (21120323)
        694861.46   4231255.92       86.33599  (22011819)                694879.76
4231242.23       83.67180  (22011819)
        694898.06   4231228.53       83.29250  (21022119)                694916.36
4231214.84       84.64362  (18010422)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE  48
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                            *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                         ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        694934.66   4231201.15       84.42415  (18010422)                694952.96
4231187.46       83.29353  (20021103)
        694971.26   4231173.77       82.24404  (20031203)                694241.45
4232226.89       78.89149  (22011122)
        694241.97   4232250.04       76.88488  (20012805)                694242.49
4232273.20       76.83415  (18012603)
        694243.00   4232296.35       76.14469  (19102522)                694243.52
4232319.50       77.27955  (19011220)
        694244.03   4232342.65       77.27676  (20022723)                694244.55
4232365.80       76.02870  (22012904)
        694245.07   4232388.95       76.14682  (20020206)                694245.58
4232412.10       76.71528  (20020206)
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694048.23 4232209.20 68.53165 (22020724) 694054.95 4232187.04 68.58714 (22021901)
694061.67 4232164.89 68.12883 (22021206) 694068.40 4232142.74 69.29880 (21122007)
694075.12 4232120.58 70.07065 (19121401) 694081.84 4232098.43 69.60046 (22021902)
694088.56 4232076.28 70.24553 (20022802) 694095.29 4232054.12 70.04341 (22022807)
694102.01 4232031.97 70.55864 (19011907) 694108.73 4232009.81 70.39559 (19021118)
694115.46 4231987.66 69.70233 (19021118) 694122.18 4231965.51 70.78729 (20020204)
694128.90 4231943.35 72.53754 (21021907) 694135.62 4231921.20 74.84204 (22021205)
694142.35 4231899.05 79.94871 (18120424) 694149.07 4231876.89 80.95455 (18011124)
694155.79 4231854.74 75.40155 (18011124) 694162.52 4231832.58 71.54744 (20120220)
694169.24 4231810.43 70.47900 (18122702) 694175.96 4231788.28 71.03156 (22120524)
694182.69 4231766.12 70.31711 (19012702) 694189.41 4231743.97 71.07197 (19012621)
694196.13 4231721.82 70.12563 (18020905) 694202.85 4231699.66 70.35834 (18020708)
694209.58 4231677.51 70.18601 (20120206) 694216.30 4231655.35 70.21798 (22020321)
694223.02 4231633.20 69.94333 (18121823) 694229.75 4231611.05 69.76170 (21122101)
694236.47 4231588.89 69.97939 (22021021) 694243.19 4231566.74 69.41025 (22021021)
694249.92 4231544.59 70.56564 (22021820) 694256.64 4231522.43 70.28343 (22021820)
694263.36 4231500.28 70.05837 (18011520) 694270.08 4231478.12 70.08611 (18011520)
694295.35 4231442.10 69.38162 (20021508) 694313.88 4231428.23 70.53279 (18121708)
694332.42 4231414.37 70.88213 (22013021) 694350.96 4231400.50 70.71675 (19012624)
694369.50 4231386.63 71.63491 (21011704) 694388.03 4231372.76 70.94914 (18012806)
694406.57 4231358.89 70.95529 (22120206) 694425.11 4231345.02 72.27699 (19121621)
694443.65 4231331.15 72.65257 (18120719) 694462.19 4231317.29 72.35562 (21121824)
694480.72 4231303.42 72.71948 (21121823) 694499.26 4231289.55 72.35797 (22010618)
694517.80 4231275.68 73.36742 (21021106) 694536.34 4231261.81 72.97001 (21021106)
694554.88 4231247.94 72.87879 (22020807) 694573.41 4231234.08 73.49592 (18021003)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694041.50	4232231.35	67.78886	(22020724)	694042.02	4232254.50	67.20412	(20121817)
694042.54	4232277.65	66.29803	(22120501)	694043.05	4232300.81	66.04300	(22120501)
694043.57	4232323.96	66.99605	(20020124)	694044.08	4232347.11	66.93015	(20020124)
694044.60	4232370.26	66.75920	(21120120)	694045.12	4232393.41	66.85142	(21120120)
694045.63	4232416.56	66.81203	(19020720)	693848.17	4232213.99	61.44216	(22020724)

693854.80 4232192.17 61.16453 (20120506) 693868.04
4232148.53 61.27308 (22021206)
693874.66 4232126.70 60.90226 (18011121) 693887.91
4232083.06 62.18656 (22021902)
693894.53 4232061.24 61.95759 (22021902) 693907.77
4232017.60 61.97070 (22011903)
693921.02 4231973.96 63.31179 (19021118) 693927.64
4231952.13 62.63052 (19021118)
693940.88 4231908.49 64.58644 (20011217) 693947.51
4231886.67 64.71191 (20011217)
693960.75 4231843.03 63.31073 (21121903) 693967.37
4231821.21 63.29009 (21121805)
693980.62 4231777.56 63.63034 (20121906) 693987.24
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694000.48 4231712.10 63.98772 (22021207) 694013.73
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  50
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)             X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  52
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE  53
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                           *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
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694762.12 4233052.04 87.11142 (18020618) 694712.08
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694516.61 4232569.75 92.20696 (19013006) 694498.84
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4233463.17       44.32100  (18111509)
        695259.43   4233446.98       82.33153  (20033007)               695218.39
4233430.79      111.33748  (19111108)
        695177.35   4233414.60      105.76037  (19111108)               695136.30
4233398.41       98.76548  (19110318)
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4233366.03       98.85651  (18120703)
        695013.17   4233349.84      100.39015  (18013022)               694972.13
4233333.65      100.77268  (20013122)
        694931.09   4233317.46      100.02281  (21100222)               694890.04
4233301.27       97.66714  (20121601)
        694849.00   4233285.08       97.62499  (22021123)               694807.95
4233268.89       89.61121  (19122421)
        694766.91   4233252.70       81.25926  (22011106)               694725.87
4233236.51       77.95409  (19013001)
        694684.82   4233220.32       76.21265  (18122405)               694643.78
4233204.13       75.43537  (18020618)
        694602.74   4233187.94       72.91553  (19020106)               694573.36
4233159.64       72.41930  (18101718)
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4233078.83       73.39987  (20011802)
        694520.20   4233038.42       74.98465  (20012804)               694502.49
4232998.01       77.40017  (21012923)
        694484.77   4232957.61       82.67846  (18010224)               694467.05
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  54
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
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        694134.04   4232618.19       68.63711  (21021905)                694116.36
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        694063.31   4232456.89       67.36123  (21111708)                695387.25
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4233750.27       69.63542  (20092907)
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4233653.48       59.39111  (18032407)
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  55
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
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4233869.83       55.76858  (19110421)
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        694697.08   4233821.49       54.91030  (18032407)                694656.23
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4233773.14       54.32351  (20121609)
        694533.67   4233757.03       54.92314  (20121609)                694492.81
4233740.91       52.50142  (22121708)
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4233708.68       52.71138  (21042806)
        694370.25   4233692.57       52.36373  (18021707)                694329.40
4233676.45       52.24469  (22012503)
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4233644.22       53.65226  (18011105)
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4233511.44       53.06627  (22020508)
        694104.26   4233471.22       52.21167  (19050206)                694086.62
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4233350.56       59.52661  (22011708)
        694033.72   4233310.34       62.12382  (19112108)                694016.08
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4233189.67       54.82580  (18013023)
        693963.17   4233149.45       54.32220  (21122103)                693945.54
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 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  56
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                          ** CONC OF VARIOUS  IN MICROGRAMS/M**3
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X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
693927.90	4233069.01	55.66075	(22120419)	693910.27	4233028.79	55.11597	(20032823)
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693857.36	4232908.13	55.72576	(22011923)	693839.72	4232867.91	57.10036	(21021908)
693822.09	4232827.69	56.72105	(21021908)	693804.45	4232787.47	56.61349	(18021608)
693786.82	4232747.25	56.93896	(20100207)	693769.18	4232707.02	55.95434	(22120708)
693751.55	4232666.80	55.52528	(20111208)	693733.91	4232626.58	57.05451	(20111208)
693716.27	4232586.36	54.65685	(20111208)	693698.64	4232546.14	54.92195	(21111708)
693681.00	4232505.92	55.69746	(21111708)	693663.37	4232465.70	54.06114	(19020720)
695393.33	4234087.05	56.54703	(19122323)	695437.65	4234086.37	46.10166	(18021322)
695481.98	4234085.70	42.07802	(20071103)	695526.30	4234085.02	48.46021	(20071103)
695525.44	4232385.22	621.08285	(19110908)	695525.44	4232361.35	650.16800	(19110908)
695525.44	4232337.49	699.19170	(21022524)	695525.44	4232313.62	803.68930	(20100921)
695525.44	4232289.76	936.00226	(19012324)	695525.44	4232265.89	932.74619	(20122017)
695525.44	4232242.02	793.34829	(22022618)	695525.44	4232218.16	682.46121	(19110617)
695525.44	4232194.29	679.17160	(19012909)	695525.44	4232170.42	673.29354	(18120516)
695525.44	4232146.56	538.94805	(18091007)	695525.44	4232122.69	479.94062	(18102317)
695543.25	4232402.76	574.21215	(19110908)	695550.44	4232361.35	547.17791	(21102921)
695550.44	4232337.49	605.65321	(20121603)	695550.44	4232313.62	666.50219	(20111520)
695550.44	4232289.76	747.04340	(22011024)	695550.44	4232265.89	819.78282	(20021219)
695550.44	4232242.02	741.05025	(19091323)	695550.44	4232218.16	682.08705	(19013017)
695550.44	4232194.29	612.62743	(19010309)	695550.44	4232170.42	522.36673	(19092218)
695550.44	4232146.56	510.33177	(18120516)	695550.44	4232122.69	458.96033	(18102520)
695550.44	4232098.83	475.11357	(18091107)	695550.44	4232074.96	464.76856	(18010321)

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4232337.49      537.36449  (22020503)
        695575.44   4232313.62      596.07029  (19040307)                695575.44
4232289.76      626.68744  (20022722)
        695575.44   4232265.89      641.94999  (22112522)                695575.44
4232242.02      660.64724  (22122020)
        695575.44   4232218.16      652.77841  (19010723)                695575.44
4232194.29      589.76177  (19010503)
        695575.44   4232170.42      531.07126  (19011009)                695575.44
4232146.56      467.39736  (18102521)
        695575.44   4232122.69      461.80818  (18033019)                695575.44
4232098.83      449.39074  (18033123)
        695575.44   4232074.96      441.80336  (18091107)                695593.25
4232402.76      408.10219  (21102921)
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4232462.85      500.57601  (19110908)
        695600.44   4232361.35      452.81006  (22010922)                695600.44
4232337.49      522.14726  (19040307)
        695600.44   4232313.62      502.33482  (19121620)                695600.44
4232289.76      529.23399  (22070806)
        695600.44   4232265.89      536.22627  (19110907)                695600.44
4232242.02      567.50485  (22122020)
        695600.44   4232218.16      562.93009  (19010723)                695600.44
4232194.29      524.63587  (19011308)
        695600.44   4232170.42      490.76252  (19031419)                695600.44
4232146.56      468.82445  (19011903)
        695600.44   4232122.69      470.72690  (18121721)                695600.44
4232098.83      421.68493  (18031021)
        695600.44   4232074.96      412.04395  (18041506)                695641.81
4232406.27      351.99779  (18020222)
        695633.19   4232427.32      345.86659  (20012222)                695624.56
4232448.37      440.75398  (19100807)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  57
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
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**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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695523.64	4232526.26	400.88972	(20021308)	695650.44	4232385.22	358.24074	(20012305)
695650.44	4232361.35	377.17349	(22121923)	695650.44	4232337.49	387.45096	(20030421)
695650.44	4232313.62	410.26243	(19012619)	695650.44	4232289.76	425.94767	(20021923)
695650.44	4232265.89	437.23246	(20021522)	695650.44	4232242.02	431.22523	(22112118)
695650.44	4232218.16	429.06866	(19100720)	695650.44	4232194.29	414.03448	(19110920)
695650.44	4232170.42	403.91693	(19010503)	695650.44	4232146.56	395.90724	(19011005)
695650.44	4232122.69	385.82860	(19011903)	695650.44	4232098.83	371.79768	(18021802)
695650.44	4232074.96	353.97917	(18010719)	695692.22	4232405.27	306.15814	(19111117)
695675.79	4232445.37	372.12656	(20121603)	695659.36	4232485.46	368.73796	(19100807)
695623.01	4232534.08	489.34883	(19110908)	695583.17	4232551.12	346.36771	(19103021)
695543.33	4232568.16	298.34450	(20021308)	695700.44	4232361.35	331.66439	(19012818)
695700.44	4232337.49	336.84356	(20021423)	695700.44	4232313.62	351.49418	(20122017)
695700.44	4232289.76	344.82527	(19110520)	695700.44	4232265.89	356.33222	(20030418)
695700.44	4232242.02	340.06758	(19012708)	695700.44	4232218.16	351.05746	(19100720)
695700.44	4232194.29	340.68132	(19100721)	695700.44	4232170.42	335.84119	(19061202)
695700.44	4232146.56	314.22876	(19042423)	695700.44	4232122.69	320.61401	(19011005)
695700.44	4232098.83	318.09416	(19011009)	695700.44	4232074.96	317.89679	(18020519)
695741.45	4232407.15	273.20609	(22100506)	695732.47	4232429.08	271.54256	(19100621)
695723.48	4232451.01	323.55079	(22100807)	695714.50	4232472.93	329.44644	(20121603)
695705.51	4232494.86	333.42965	(22021401)	695696.53	4232516.79	324.78833	(18101622)

695687.54 4232538.72 344.57169 (19110908) 695656.77
4232569.97 389.49967 (19110908)
695634.98 4232579.28 266.68642 (20012517) 695613.19
4232588.60 258.58027 (20031801)
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4232607.24 243.63121 (20060306)
695547.82 4232616.56 235.66296 (20060306) 695526.03
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695750.44 4232385.22 279.43043 (20031018) 695750.44
4232361.35 291.07368 (22020721)
695750.44 4232337.49 302.58251 (20122017) 695750.44
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4232265.89 309.84313 (20030418)
695750.44 4232242.02 295.93723 (19012708) 695750.44
4232218.16 308.44411 (19100720)
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4232122.69 274.64775 (19031419)
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4232427.32 270.16657 (19040307)
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4232469.42 240.88724 (22020503)
695757.31 4232490.48 318.45178 (22100807) 695748.68
4232511.53 303.20103 (20013119)
695740.06 4232532.58 298.97976 (22021401) 695731.43
4232553.63 289.30896 (18101622)
695722.81 4232574.68 293.74472 (19100807) 695693.26
4232604.68 329.15746 (19110908)
695672.34 4232613.62 238.49986 (22020905) 695651.43
4232622.57 236.61546 (19110221)
695630.51 4232631.51 230.57959 (21012117) 695609.59
4232640.46 223.35592 (20101519)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695588.67	4232649.40	221.26726	(21052406)	695567.76	4232658.35	223.34850	(20060306)
695546.84	4232667.29	230.20749	(20092720)	695525.92	4232676.24	223.88634	(18121909)
695800.44	4232385.22	248.76084	(19010218)	695800.44	4232361.35	260.55298	(20120117)
695800.44	4232337.49	267.43005	(19123118)	695800.44	4232313.62	274.58993	(20021219)
695800.44	4232289.76	271.71061	(22011909)	695800.44	4232265.89	278.00334	(20101621)
695800.44	4232242.02	267.34591	(22112118)	695800.44	4232218.16	274.45920	(19100720)
695800.44	4232194.29	261.84258	(19040601)	695800.44	4232170.42	260.31082	(19121220)
695800.44	4232146.56	258.84835	(19061202)	695800.44	4232122.69	250.87322	(19072806)
695800.44	4232098.83	248.54664	(19031419)	695800.44	4232074.96	249.34429	(19081424)
695891.59	4232406.81	202.98136	(22010504)	695882.75	4232428.40	205.57522	(19121620)
695873.90	4232449.99	199.54227	(19040307)	695865.05	4232471.58	229.55331	(19040307)
695856.20	4232493.18	226.59417	(19040307)	695847.36	4232514.77	277.16038	(19040307)
695838.51	4232536.36	276.37947	(22100807)	695829.66	4232557.95	243.93348	(22100807)
695820.81	4232579.54	227.34375	(22021401)	695811.97	4232601.13	216.16712	(22021401)
695803.12	4232622.72	206.46549	(18101622)	695794.27	4232644.31	229.36715	(19100807)
695763.97	4232675.08	317.23277	(19110908)	695742.52	4232684.25	305.37142	(19110908)
695721.06	4232693.43	238.88635	(19110908)	695699.61	4232702.60	202.82177	(19110221)
695678.16	4232711.78	198.70576	(20031801)	695656.70	4232720.95	203.76479	(20101519)
695635.25	4232730.13	195.81940	(21102422)	695613.79	4232739.30	197.08751	(21010302)
695592.34	4232748.48	194.77483	(20121221)	695570.89	4232757.65	195.11498	(20092720)
695549.43	4232766.82	192.40971	(18032006)	695527.98	4232776.00	197.87100	(19092519)

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        695900.44   4232385.22      205.72657  (19121508)                695900.44
4232361.35      209.65132  (19123118)
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4232313.62      223.20253  (20100321)
        695900.44   4232289.76      223.12019  (19103019)                695900.44
4232265.89      228.03192  (20101621)
        695900.44   4232242.02      222.72199  (22112118)                695900.44
4232218.16      226.81032  (19100723)
        695900.44   4232194.29      222.25195  (19100720)                695900.44
4232170.42      225.94616  (19010723)
        695900.44   4232146.56      215.28314  (19110920)                695900.44
4232122.69      214.59788  (19011308)
        695900.44   4232098.83      215.62489  (19072806)                695900.44
4232074.96      197.60175  (19031419)
        695991.45   4232407.15      190.33278  (20122017)                695982.47
4232429.08      186.76387  (19100523)
        695973.48   4232451.01      185.37993  (19010218)                695964.50
4232472.93      183.85214  (19012818)
        695955.51   4232494.86      180.57823  (19011017)                695946.53
4232516.79      190.54091  (19040307)
        695937.54   4232538.72      262.67312  (19040307)                695928.56
4232560.65      226.48951  (19040307)
        695919.57   4232582.58      211.90182  (22100807)                695910.59
4232604.50      204.11741  (18020222)
        695901.60   4232626.43      202.01423  (20121603)                695892.61
4232648.36      203.07780  (20013119)
        695883.63   4232670.29      194.71450  (22021401)                695874.64
4232692.22      191.89442  (18101622)
        695865.66   4232714.15      190.25800  (19100807)                695834.88
4232745.39      219.57715  (19110908)
        695813.09   4232754.71      244.86322  (19110908)                695791.30
4232764.03      215.21289  (19110908)
        695769.52   4232773.35      175.04452  (22020905)                695747.73
4232782.66      175.45991  (19011004)
        695725.94   4232791.98      173.05112  (22011919)                695704.15
4232801.30      177.14306  (20101519)
        695682.36   4232810.62      173.51971  (21102422)                695660.57
4232819.94      168.85615  (21121922)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE  59
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,
```

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695638.78	4232829.25	174.09322	(21010302)	695616.99	4232838.57	171.39591	(20121221)
695595.20	4232847.89	169.91326	(20022003)	695573.41	4232857.21	173.45560	(21100120)
695551.62	4232866.53	186.46618	(19112208)	695529.83	4232875.84	195.15621	(19112208)
696000.44	4232385.22	185.16994	(19123118)	696000.44	4232361.35	192.88021	(20021219)
696000.44	4232337.49	189.41404	(20100321)	696000.44	4232313.62	190.44306	(20021522)
696000.44	4232289.76	194.82015	(20030418)	696000.44	4232265.89	189.65494	(20101621)
696000.44	4232242.02	188.77291	(22112118)	696000.44	4232218.16	193.03506	(19100723)
696000.44	4232194.29	196.62181	(19100720)	696000.44	4232170.42	189.38589	(19010723)
696000.44	4232146.56	190.21902	(19010723)	696000.44	4232122.69	190.08637	(19110920)
696000.44	4232098.83	188.61134	(19011308)	696000.44	4232074.96	189.67943	(19010503)
696091.81	4232406.27	162.85127	(19123118)	696083.19	4232427.32	170.75861	(20122017)
696074.56	4232448.37	168.08247	(20101222)	696065.94	4232469.42	163.50847	(20122018)
696057.31	4232490.48	168.69328	(19010218)	696048.68	4232511.53	170.48821	(19012818)
696040.06	4232532.58	169.27606	(19011017)	696031.43	4232553.63	165.36783	(19012324)
696022.81	4232574.68	166.83999	(22100806)	696014.18	4232595.73	165.15724	(19122222)
696005.55	4232616.78	167.14304	(20022720)	695996.93	4232637.83	160.50810	(19110705)
695988.30	4232658.89	161.46346	(18020222)	695979.68	4232679.94	160.62171	(20121603)
695971.05	4232700.99	162.35522	(19022324)	695962.42	4232722.04	161.05844	(19022324)
695953.80	4232743.09	162.41188	(21102921)	695945.17	4232764.14	160.89382	(18101622)
695936.54	4232785.19	161.20215	(19100807)	695907.00	4232815.19	197.92142	(19110908)

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        695886.08   4232824.14      236.31644  (19110908)                695865.17
4232833.08      257.06114  (19110908)
        695844.25   4232842.03      254.60968  (19110908)                695823.33
4232850.97      226.37379  (19110908)
        695802.41   4232859.92      182.34111  (19110908)                695781.50
4232868.86      162.81133  (19062305)
        695760.58   4232877.81      162.90233  (19103021)                695739.66
4232886.75      163.88478  (22012906)
        695718.74   4232895.70      160.99945  (18060206)                695697.83
4232904.64      154.61326  (18060206)
        695676.91   4232913.59      153.97743  (19040103)                695655.99
4232922.53      160.46255  (20021308)
        695635.07   4232931.48      170.09141  (20021308)                695614.15
4232940.42      163.95521  (18102622)
        695593.24   4232949.37      153.07360  (20112023)                695572.32
4232958.31      150.14962  (19112208)
        695551.40   4232967.26      130.41953  (19112208)                695530.48
4232976.21      125.20887  (19020618)
        696100.44   4232385.22      169.24275  (20021219)                696100.44
4232361.35      166.05827  (19012402)
        696100.44   4232337.49      168.20826  (20100321)                696100.44
4232313.62      167.72887  (19103019)
        696100.44   4232289.76      173.05936  (20101621)                696100.44
4232265.89      167.07667  (19091323)
        696100.44   4232242.02      167.55236  (22112118)                696100.44
4232218.16      172.34371  (19100723)
        696100.44   4232194.29      174.28475  (19100720)                696100.44
4232170.42      164.61573  (19121603)
        696100.44   4232146.56      173.03863  (19010723)                696100.44
4232122.69      161.93085  (19040203)
        696100.44   4232098.83      165.95768  (19110920)                696100.44
4232074.96      163.83276  (19011308)
        696191.69   4232406.58      151.73741  (20021219)                696182.94
4232427.93      146.51975  (19123118)
        696174.19   4232449.29      152.43277  (20122017)                696165.44
4232470.65      149.54094  (20120117)
        696156.68   4232492.00      149.04888  (19100523)                696147.93
4232513.36      146.75468  (22020721)
        696139.18   4232534.71      152.68293  (19012818)                696130.43
4232556.07      148.25263  (20122206)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                  PAGE  60
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
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INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696121.68	4232577.43	151.17301	(19011017)	696112.93	4232598.78	147.01003	(19012324)
696104.18	4232620.14	147.30098	(22100806)	696095.43	4232641.50	147.69556	(19122222)
696086.68	4232662.85	147.35395	(20022720)	696077.92	4232684.21	144.88398	(20012601)
696069.17	4232705.57	143.12320	(20121922)	696060.42	4232726.92	144.41471	(18020222)
696051.67	4232748.28	145.57945	(20121603)	696042.92	4232769.63	146.68866	(19022324)
696034.17	4232790.99	143.98926	(20011921)	696025.42	4232812.35	144.13141	(21102921)
696016.67	4232833.70	141.66774	(21022524)	696007.92	4232855.06	142.04305	(18101622)
695977.94	4232885.49	155.15507	(19110908)	695956.72	4232894.57	195.82732	(19110908)
695935.50	4232903.64	216.99874	(19110908)	695914.28	4232912.72	216.22858	(19110908)
695893.06	4232921.79	193.09275	(19110908)	695871.84	4232930.87	137.31224	(19110908)
695850.62	4232939.94	106.37321	(19062305)	695829.40	4232949.02	88.72789	(19103021)
695808.18	4232958.09	81.04357	(19040807)	695786.96	4232967.16	83.53161	(18111601)
695765.74	4232976.24	90.56238	(18111601)	695744.52	4232985.31	91.95031	(22020618)
695723.30	4232994.39	88.93153	(22020618)	695702.07	4233003.46	89.30774	(22020618)
695680.85	4233012.54	71.07376	(22020618)	695659.63	4233021.61	53.52594	(18121909)
695638.41	4233030.69	57.41270	(18121909)	695617.19	4233039.76	52.97845	(18121909)
695595.97	4233048.84	44.43677	(19040507)	695574.75	4233057.91	42.88037	(22052506)
695553.53	4233066.99	40.89577	(19030308)	695532.31	4233076.06	39.64804	(19030308)
696200.44	4232385.22	147.19968	(20112819)	696200.44	4232361.35	149.02033	(20100321)

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        696200.44   4232337.49      151.08251  (20021522)                696200.44
4232313.62      149.55107  (20030418)
        696200.44   4232289.76      153.21032  (20101621)                696200.44
4232265.89      147.90282  (19091323)
        696200.44   4232242.02      149.37886  (19010319)                696200.44
4232218.16      153.06318  (19100723)
        696200.44   4232194.29      151.54148  (19100720)                696200.44
4232170.42      148.11635  (19100720)
        696200.44   4232146.56      146.76379  (19010723)                696200.44
4232122.69      148.80249  (19010723)
        696200.44   4232098.83      140.08747  (19111220)                696200.44
4232074.96      140.27604  (19011319)
        696391.52   4232407.00      120.93010  (22011905)                696382.59
4232428.77      121.66395  (20021219)
        696373.67   4232450.55      122.74734  (20021219)                696364.75
4232472.33      122.74158  (22020722)
        696355.82   4232494.11      122.27368  (19123118)                696346.90
4232515.88      121.49820  (19121508)
        696337.98   4232537.66      122.96236  (20120117)                696329.05
4232559.44      122.60898  (20022722)
        696320.13   4232581.21      125.26114  (22010504)                696311.20
4232602.99      125.48943  (19121620)
        696302.28   4232624.77      120.92348  (22021324)                696293.36
4232646.55      120.52534  (22021223)
        696284.43   4232668.32      134.67314  (19040307)                696275.51
4232690.10      150.02971  (19040307)
        696266.59   4232711.88      157.08053  (19040307)                696257.66
4232733.65      155.68661  (19040307)
        696248.74   4232755.43      142.39698  (19040307)                696239.82
4232777.21      131.59605  (22100807)
        696230.89   4232798.99      136.24177  (22100807)                696221.97
4232820.76      132.49068  (22100807)
        696213.05   4232842.54      122.29280  (22100807)                696204.12
4232864.32      116.57438  (22112120)
        696195.20   4232886.09      111.54595  (20111601)                696186.28
4232907.87      110.09946  (22021401)
        696177.35   4232929.65      105.41816  (22021401)                696168.43
4232951.43       97.75165  (22021401)
        696159.51   4232973.20       97.51561  (18101622)                696150.58
4232994.98       96.10278  (18101622)
        696120.02   4233026.01      101.74400  (18031822)                696098.38
4233035.26      104.84046  (18031822)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                  PAGE  61
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*
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*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696076.74	4233044.52	123.77413	(19110908)	696055.10	4233053.77	155.36003	(19110908)
696033.46	4233063.03	176.61272	(19110908)	696011.82	4233072.28	177.56187	(19110908)
695990.19	4233081.53	163.51077	(19110908)	695968.55	4233090.79	135.93410	(19110908)
695946.91	4233100.04	106.23920	(19062305)	695925.27	4233109.29	91.83817	(19062305)
695903.63	4233118.55	84.04501	(19103021)	695881.99	4233127.80	63.10033	(19040807)
695860.35	4233137.06	48.61490	(19040807)	695838.71	4233146.31	35.38793	(19122218)
695817.07	4233155.56	35.09131	(18102608)	695795.44	4233164.82	37.60761	(18102608)
695773.80	4233174.07	37.60161	(18102608)	695752.16	4233183.32	35.06914	(18102608)
695730.52	4233192.58	36.25061	(20012709)	695708.88	4233201.83	39.36510	(20012709)
695687.24	4233211.09	27.28187	(19040507)	695665.60	4233220.34	26.78656	(19040507)
695643.96	4233229.59	23.88569	(19040507)	695622.32	4233238.85	20.86826	(19021702)
695600.69	4233248.10	19.35950	(22122606)	695579.05	4233257.35	20.76475	(20081319)
695557.41	4233266.61	20.46090	(20081319)	695535.77	4233275.86	21.25445	(19122409)
696400.44	4232385.22	119.11242	(19111223)	696400.44	4232361.35	123.00764	(20021522)
696400.44	4232337.49	120.88905	(19121602)	696400.44	4232313.62	121.39838	(20101621)
696400.44	4232289.76	121.53194	(20042203)	696400.44	4232265.89	121.74094	(22122020)
696400.44	4232242.02	120.60919	(22122020)	696400.44	4232218.16	124.42335	(19010319)
696400.44	4232194.29	121.72490	(19100723)	696400.44	4232170.42	119.64038	(19100720)

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        696400.44   4232146.56      118.09155  (19110317)                696400.44
4232122.69      114.94264  (19120817)
        696400.44   4232098.83      111.56750  (19010321)                696400.44
4232074.96      102.43032  (19110904)
        696591.40   4232407.27      113.77218  (19091107)                696582.37
4232429.33      129.89898  (19091107)
        696573.33   4232451.38      135.40320  (19091107)                696564.29
4232473.43      128.01792  (19091107)
        696555.26   4232495.49      111.74111  (19091107)                696546.22
4232517.54      102.09245  (19112118)
        696537.18   4232539.60       99.67827  (19102223)                696528.15
4232561.65       92.47636  (19102223)
        696519.11   4232583.70       90.55402  (19012423)                696510.07
4232605.76       90.24696  (19012423)
        696501.03   4232627.81       84.64558  (19012423)                696492.00
4232649.86       78.61723  (22021324)
        696482.96   4232671.92       79.00995  (22021324)                696473.92
4232693.97       78.74504  (22021324)
        696464.89   4232716.03       71.55209  (22021324)                696455.85
4232738.08       73.36265  (19101220)
        696446.81   4232760.13       76.27713  (19101220)                696437.78
4232782.19       72.09700  (19040307)
        696428.74   4232804.24       63.65715  (19081405)                696419.70
4232826.29       53.06284  (19081405)
        696410.67   4232848.35       46.66023  (20092007)                696401.63
4232870.40       45.19600  (20092007)
        696392.59   4232892.45       44.08419  (21102017)                696383.56
4232914.51       46.26574  (21102017)
        696374.52   4232936.56       44.96527  (21102017)                696365.48
4232958.62       42.81108  (21120110)
        696356.45   4232980.67       48.94637  (21120110)                696347.41
4233002.72       53.21497  (21120110)
        696338.37   4233024.78       54.96720  (21120110)                696329.34
4233046.83       53.94595  (21120110)
        696320.30   4233068.88       50.27692  (21120110)                696311.26
4233090.94       44.65330  (21120110)
        696302.22   4233112.99       39.22033  (21120209)                696293.19
4233135.05       41.56137  (21120209)
        696262.24   4233166.47       42.79615  (21120209)                696240.32
4233175.84       40.86846  (21120209)
        696218.41   4233185.21       42.25430  (18120509)                696196.50
4233194.58       44.97951  (18120509)
        696174.58   4233203.96       45.83079  (21020709)                696152.67
4233213.33       46.48995  (21020709)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                PAGE  62
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696130.76	4233222.70	44.96719	(21020709)	696108.84	4233232.07	44.89623	(20061906)
696086.93	4233241.44	43.03573	(20061906)	696065.01	4233250.81	50.98837	(20012517)
696043.10	4233260.18	54.62794	(19062305)	696021.19	4233269.55	63.24101	(19062305)
695999.27	4233278.93	74.98546	(19103021)	695977.36	4233288.30	77.72710	(19103021)
695955.45	4233297.67	77.18481	(18111601)	695933.53	4233307.04	80.44309	(18111601)
695911.62	4233316.41	77.18027	(21033124)	695889.70	4233325.78	67.22212	(21033124)
695867.79	4233335.15	59.13821	(22020618)	695845.88	4233344.52	51.38365	(22020618)
695823.96	4233353.90	44.22566	(20060306)	695802.05	4233363.27	35.17201	(20060306)
695780.14	4233372.64	34.01138	(20012709)	695758.22	4233382.01	36.37554	(20012709)
695736.31	4233391.38	37.15579	(20012709)	695714.40	4233400.75	36.28208	(20012709)
695692.48	4233410.12	33.88624	(20012709)	695670.57	4233419.49	30.27066	(20012709)
695648.65	4233428.87	19.47442	(20121322)	695626.74	4233438.24	18.56436	(22122124)
695604.83	4233447.61	18.81405	(20081319)	695582.91	4233456.98	18.51467	(20081319)
695561.00	4233466.35	19.70962	(19122409)	695539.09	4233475.72	20.98004	(19122409)
696600.44	4232385.22	101.05067	(19122223)	696600.44	4232361.35	101.45434	(19121602)
696600.44	4232337.49	103.26979	(19010217)	696600.44	4232313.62	102.59026	(22020720)
696600.44	4232289.76	102.40992	(22011908)	696600.44	4232265.89	103.19451	(22122020)

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        696600.44   4232242.02      100.68321  (19110620)                696600.44
4232218.16      102.03778  (19011404)
        696600.44   4232194.29       98.23276  (19011408)                696600.44
4232170.42      103.67232  (19012503)
        696600.44   4232146.56      101.69756  (19110906)                696600.44
4232122.69       94.76716  (19110906)
        696600.44   4232098.83       79.52058  (19110906)                696600.44
4232074.96       71.01511  (18012217)
        696791.54   4232406.94      111.81282  (19091107)                696782.64
4232428.66      124.08495  (19091107)
        696773.74   4232450.38      127.79628  (19091107)                696764.84
4232472.10      116.53750  (19091107)
        696755.94   4232493.82       98.97360  (19091107)                696747.04
4232515.54       77.12877  (19091107)
        696738.14   4232537.26       70.08518  (19112118)                696729.24
4232558.98       62.23777  (19112118)
        696720.34   4232580.70       52.67148  (20010809)                696711.44
4232602.42       49.47298  (18111607)
        696702.54   4232624.13       46.44763  (18041706)                696693.64
4232645.85       41.46136  (18041706)
        696684.74   4232667.57       34.40787  (18041706)                696675.84
4232689.29       31.80240  (19030408)
        696666.94   4232711.01       34.05625  (19030408)                696658.04
4232732.73       33.89726  (20040707)
        696649.14   4232754.45       35.04064  (20040707)                696640.24
4232776.17       33.47860  (20040707)
        696631.34   4232797.89       32.83853  (22090107)                696622.44
4232819.61       37.99536  (22090107)
        696613.54   4232841.33       41.55857  (22090107)                696604.64
4232863.05       42.97099  (22090107)
        696595.74   4232884.77       41.93836  (22090107)                696586.84
4232906.49       38.65683  (22090107)
        696577.94   4232928.21       33.68201  (22090107)                696569.04
4232949.93       27.78643  (22090107)
        696560.14   4232971.65       25.43009  (20102817)                696551.24
4232993.37       26.64423  (20102817)
        696542.34   4233015.09       28.65484  (21102017)                696533.44
4233036.81       30.09751  (21102017)
        696524.54   4233058.53       28.83951  (21102017)                696515.64
4233080.25       26.14662  (21120409)
        696506.74   4233101.96       28.47680  (21120409)                696497.84
4233123.68       29.87756  (21120409)
        696488.94   4233145.40       29.58956  (21120409)                696480.04
4233167.12       28.03564  (21120409)
        696471.14   4233188.84       25.68169  (21120110)                696462.24
4233210.56       25.77198  (18122109)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696453.34	4233232.28	26.68924	(19102317)	696444.44	4233254.00	27.87422	(21120209)
696435.54	4233275.72	30.18488	(21120209)	696405.06	4233306.67	30.94375	(21120209)
696383.48	4233315.90	29.76618	(21120209)	696361.90	4233325.13	27.62621	(21120209)
696340.32	4233334.36	28.91058	(19012109)	696318.74	4233343.59	38.68471	(21020709)
696297.15	4233352.82	41.25344	(21020709)	696275.57	4233362.05	42.37097	(21020709)
696253.99	4233371.27	41.89285	(21020709)	696232.41	4233380.50	39.85125	(21020709)
696210.83	4233389.73	36.48217	(21020709)	696189.25	4233398.96	32.13095	(21020709)
696167.66	4233408.19	28.35471	(20012517)	696146.08	4233417.42	31.48484	(20012517)
696124.50	4233426.65	32.20494	(18052906)	696102.92	4233435.88	36.74266	(18052906)
696081.34	4233445.11	40.71029	(19040807)	696059.76	4233454.34	45.84174	(19040807)
696038.17	4233463.57	47.85457	(19040807)	696016.59	4233472.80	46.12443	(19040807)
695995.01	4233482.03	47.24327	(18111601)	695973.43	4233491.26	49.18592	(21033124)
695951.85	4233500.48	52.90039	(22020618)	695930.27	4233509.71	56.55050	(22020618)
695908.68	4233518.94	49.93990	(22020618)	695887.10	4233528.17	43.47210	(20060306)
695865.52	4233537.40	38.31092	(20060306)	695843.94	4233546.63	30.46095	(22121517)
695822.36	4233555.86	32.49333	(20012709)	695800.78	4233565.09	33.95892	(20012709)

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        695779.19   4233574.32       34.23936  (20012709)                695757.61
4233583.55       33.29806  (20012709)
        695736.03   4233592.78       31.23451  (20012709)                695714.45
4233602.01       28.29306  (20012709)
        695692.87   4233611.24       24.76376  (20012709)                695671.29
4233620.46       20.94886  (20012709)
        695649.70   4233629.69       16.60168  (22122124)                695628.12
4233638.92       15.77978  (20081319)
        695606.54   4233648.15       15.22454  (20081319)                695584.96
4233657.38       15.80251  (19122409)
        695563.38   4233666.61       16.75896  (19122409)                695541.80
4233675.84       17.08251  (19122409)
        696800.44   4232385.22       96.87794  (19091107)                696800.44
4232361.35       91.65600  (19022419)
        696800.44   4232337.49       88.51844  (19022419)                696800.44
4232313.62       88.41322  (22011908)
        696800.44   4232289.76       88.89593  (19013023)                696800.44
4232265.89       90.02775  (22121308)
        696800.44   4232242.02       89.39648  (19103020)                696800.44
4232218.16       88.64054  (19100306)
        696800.44   4232194.29       85.82478  (19011408)                696800.44
4232170.42       86.07376  (19012503)
        696800.44   4232146.56       84.87907  (19012503)                696800.44
4232122.69       79.75601  (19110906)
        696800.44   4232098.83       68.40583  (19110906)                696800.44
4232074.96       59.97162  (18012217)
        696991.45   4232407.15       90.02524  (19091107)                696982.47
4232429.08       99.00442  (19091107)
        696973.48   4232451.01      104.76377  (19091107)                696964.50
4232472.93      108.24349  (19091107)
        696955.51   4232494.86      107.26199  (19091107)                696946.53
4232516.79      104.24910  (19091107)
        696937.54   4232538.72       98.17930  (19091107)                696928.56
4232560.65       89.53421  (19091107)
        696919.57   4232582.58       79.20236  (19112118)                696910.59
4232604.50       77.40001  (19112118)
        696901.60   4232626.43       78.43648  (19102223)                696892.61
4232648.36       76.87891  (19102223)
        696883.63   4232670.29       76.31244  (22022224)                696874.64
4232692.22       76.62461  (22022224)
        696865.66   4232714.15       63.95873  (19012423)                696856.67
4232736.07       55.86611  (19012423)
        696847.69   4232758.00       48.74163  (18041706)                696838.70
4232779.93       43.96328  (18041706)
        696829.72   4232801.86       38.74779  (18041706)                696820.73
4232823.79       35.61090  (20040707)
        696811.74   4232845.72       34.00234  (20040707)                696802.76
4232867.64       30.42887  (20040707)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
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                             *** THE   1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL   ***
                                INCLUDING SOURCE(S):   STCK1   ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                       ** CONC OF VARIOUS IN MICROGRAMS/M**3
                  **

      X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)   X-COORD (M) Y-COORD (M)   CONC   (YYMMDDHH)
 - - -

696438.40 4233493.69 35.74643 (21020709) 696416.61
4233503.01 37.91528 (21020709)
696394.82 4233512.33 39.00086 (21020709) 696373.03
4233521.64 38.85841 (21020709)
696351.25 4233530.96 37.47813 (21020709) 696329.46
4233540.28 35.00049 (21020709)
696307.67 4233549.60 31.60058 (21020709) 696285.88
4233558.92 27.59407 (21020709)
696264.09 4233568.23 23.31535 (21020709) 696242.30
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696176.93 4233605.51 30.09608 (18121910) 696155.14
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4233633.46 28.18949 (19040807)
696089.78 4233642.78 25.55721 (19040807) 696067.99
4233652.10 23.28926 (18102608)
696046.20 4233661.41 26.54022 (18102608) 696024.41
4233670.73 29.11904 (18102608)
696002.62 4233680.05 30.73109 (18102608) 695980.83
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695959.04 4233698.69 30.51870 (18102608) 695937.25
4233708.00 29.31969 (20060306)
695915.46 4233717.32 26.40729 (20060306) 695893.67
4233726.64 28.22006 (20012709)
695871.88 4233735.96 30.29087 (20012709) 695850.09
4233745.28 31.51880 (20012709)
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4233763.91 33.59257 (18121909)
695784.73 4233773.23 29.78180 (18121909) 695762.94
4233782.55 27.17335 (20012709)
695741.15 4233791.87 24.30524 (20012709) 695719.36
4233801.18 22.40150 (22052506)
695697.57 4233810.50 22.63577 (22052506) 695675.78
4233819.82 24.58943 (19030308)
695653.99 4233829.14 26.42429 (19030308) 695632.20
4233838.46 26.56193 (19030308)
695610.41 4233847.77 24.21006 (19030308) 695588.62
4233857.09 21.11260 (19122018)
695566.84 4233866.41 21.02571 (19122018) 695545.05
4233875.73 20.40455 (19092518)
697000.44 4232385.22 79.27869 (19022419) 697000.44
4232361.35 77.16540 (19022419)
697000.44 4232337.49 71.64297 (19022419) 697000.44
4232313.62 67.72401 (19013023)
697000.44 4232289.76 67.36095 (19013023) 697000.44
4232265.89 65.34505 (19100306)
697000.44 4232242.02 62.17271 (19100306) 697000.44
4232218.16 56.45793 (19110801)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
697000.44	4232194.29	49.79727	(19110801)	697000.44	4232170.42	42.36147	(22021907)
697000.44	4232146.56	37.49399	(21120406)	697000.44	4232122.69	35.10021	(21120406)
697000.44	4232098.83	33.66275	(22032407)	697000.44	4232074.96	33.20536	(22021906)
697191.55	4232406.91	28.79896	(20120909)	697182.67	4232428.60	27.67816	(20120909)
697173.78	4232450.29	28.89871	(22011909)	697164.89	4232471.98	34.09860	(21120403)
697156.00	4232493.67	38.96190	(21120403)	697147.12	4232515.35	42.81504	(21120403)
697138.23	4232537.04	52.21628	(19091107)	697129.34	4232558.73	61.65441	(19091107)
697120.45	4232580.42	64.40166	(19091107)	697111.57	4232602.11	62.66645	(19091107)
697102.68	4232623.80	65.27898	(19112118)	697093.79	4232645.49	65.18992	(19112118)
697084.90	4232667.18	66.79221	(19102223)	697076.02	4232688.87	68.71011	(22070806)
697067.13	4232710.56	67.38202	(19102223)	697058.24	4232732.25	67.74425	(22022224)
697049.35	4232753.94	66.42660	(22022224)	697040.47	4232775.62	67.90623	(19012423)
697031.58	4232797.31	68.29208	(19012423)	697022.69	4232819.00	66.35949	(19012423)
697013.80	4232840.69	66.30669	(22010504)	697004.92	4232862.38	63.96250	(22021324)

696996.03 4232884.07 66.74194 (22021324) 696987.14 4232905.76 68.60780 (22021324)
696978.25 4232927.45 67.86352 (22021324) 696969.37 4232949.14 64.09308 (22021324)
696960.48 4232970.83 66.91941 (19040307) 696951.59 4232992.52 76.12852 (19040307)
696942.70 4233014.21 81.94412 (19040307) 696933.82 4233035.89 86.12973 (19040307)
696924.93 4233057.58 86.37466 (19040307) 696916.04 4233079.27 84.97776 (19040307)
696907.15 4233100.96 83.30080 (19040307) 696898.27 4233122.65 78.96756 (19040307)
696889.38 4233144.34 71.06788 (19040307) 696880.49 4233166.03 62.86587 (20112424)
696871.60 4233187.72 66.68889 (22100807) 696862.72 4233209.41 69.72655 (22100807)
696853.83 4233231.10 69.35340 (22100807) 696844.94 4233252.79 70.03648 (22100807)
696836.05 4233274.48 66.86546 (22100807) 696827.17 4233296.16 62.40589 (21120405)
696818.28 4233317.85 60.99438 (22112120) 696809.39 4233339.54 59.58971 (22112120)
696800.50 4233361.23 55.11281 (22112120) 696791.62 4233382.92 52.21402 (20111601)
696782.73 4233404.61 50.13647 (20111601) 696773.84 4233426.30 46.43801 (20111601)
696764.95 4233447.99 43.59510 (22021401) 696756.07 4233469.68 40.73419 (22030308)
696747.18 4233491.37 37.51362 (22030308) 696738.29 4233513.06 33.35308 (18122109)
696729.40 4233534.75 33.56956 (19102317) 696720.52 4233556.43 32.38959 (19102317)
696690.08 4233587.34 34.11619 (21120209) 696668.53 4233596.56 34.24201 (21120209)
696646.98 4233605.77 33.14924 (21120209) 696625.42 4233614.99 30.68255 (21120209)
696603.87 4233624.21 27.39714 (18120509) 696582.32 4233633.42 30.41110 (21020709)
696560.77 4233642.64 33.11635 (21020709) 696539.22 4233651.85 35.15888 (21020709)
696517.67 4233661.07 36.34929 (21020709) 696496.12 4233670.29 36.57566 (21020709)
696474.56 4233679.50 35.79762 (21020709) 696453.01 4233688.72 34.05466 (21020709)
696431.46 4233697.94 31.53032 (21020709) 696409.91 4233707.15 28.40360 (21020709)
696388.36 4233716.37 24.87253 (21020709) 696366.81 4233725.59 21.18609 (21020709)
696345.25 4233734.80 19.42968 (18121910) 696323.70 4233744.02 22.47421 (18121910)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696259.05	4233771.67	28.31112	(18121910)	696237.50	4233780.88	28.49283	(18121910)
696215.95	4233790.10	27.67618	(18121910)	696194.39	4233799.32	25.94261	(18121910)
696172.84	4233808.53	23.47055	(18121910)	696151.29	4233817.75	20.49829	(18121910)
696129.74	4233826.97	23.20246	(18102608)	696108.19	4233836.18	25.76636	(18102608)
696086.64	4233845.40	27.70833	(18102608)	696065.09	4233854.61	28.85236	(18102608)
696043.53	4233863.83	29.08461	(18102608)	696021.98	4233873.05	28.38389	(18102608)
696000.43	4233882.26	26.82188	(18102608)	695978.88	4233891.48	24.55373	(18102608)
695957.33	4233900.70	25.08949	(20012709)	695935.78	4233909.91	27.16563	(20012709)
695914.23	4233919.13	28.64701	(20012709)	695892.67	4233928.35	29.42950	(20012709)
695871.12	4233937.56	29.45978	(20012709)	695849.57	4233946.78	28.75179	(20012709)
695828.02	4233955.99	27.37432	(20012709)	695806.47	4233965.21	25.42230	(20012709)
695784.92	4233974.43	23.04325	(20012709)	695763.37	4233983.64	27.27972	(22030208)
695741.81	4233992.86	32.85387	(22030208)	695720.26	4234002.08	37.72564	(22030208)

695698.71 4234011.29 37.56311 (22030208) 695677.16
4234020.51 40.09304 (19112207)
695655.61 4234029.73 46.25517 (19020618) 695634.06
4234038.94 51.22018 (19020618)
695612.51 4234048.16 49.70646 (19020618) 695590.95
4234057.37 51.66635 (19020618)
695569.40 4234066.59 53.75578 (19020618) 695547.85
4234075.81 51.89924 (19020618)
697200.44 4232385.22 28.80505 (20120909) 697200.44
4232361.35 27.76061 (20120909)
697200.44 4232337.49 25.66288 (20120909) 697200.44
4232313.62 24.79360 (22062306)
697200.44 4232289.76 22.63420 (22062306) 697200.44
4232265.89 20.13726 (22062306)
697200.44 4232242.02 19.76673 (22020317) 697200.44
4232218.16 21.69049 (22020317)
697200.44 4232194.29 23.96067 (22020317) 697200.44
4232170.42 25.81784 (22020317)
697200.44 4232146.56 26.63104 (22020317) 697200.44
4232122.69 25.83646 (22020317)
697200.44 4232098.83 25.20117 (22020317) 697200.44
4232074.96 28.97469 (22032407)
695518.21 4232061.22 461.84856 (18013018) 695491.47
4232051.63 494.28245 (21010909)
695496.64 4232007.68 423.99030 (18010603) 695519.77
4232010.41 412.37681 (18011208)
695546.52 4232020.01 394.47270 (18031001) 695557.36
4232040.61 400.67315 (18122223)
695473.52 4232004.96 427.33488 (18120506) 695472.25
4231982.53 399.92334 (22022821)
695571.52 4232020.01 366.15017 (18122223) 695582.36
4232040.61 382.44781 (18022423)
695477.43 4231938.59 348.06263 (22022821) 695588.98
4231958.18 319.20085 (20030808)
695599.82 4231978.79 313.29313 (18122223) 695610.67
4231999.40 332.68182 (18010321)
695621.52 4232020.01 347.27392 (18091107) 695632.36
4232040.61 344.58936 (18041506)
695509.09 4231897.77 305.53218 (22010602) 695597.58
4231908.20 292.56708 (22010519)
695621.21 4231924.43 281.63607 (18012621) 695632.53
4231945.94 283.22864 (18012309)
695643.85 4231967.44 285.45074 (18081103) 695655.17
4231988.94 305.29021 (18091107)
695666.49 4232010.45 295.79021 (18010619) 695677.80
4232031.95 294.70012 (18100806)
695689.12 4232053.46 311.93013 (18103117) 695418.67
4231842.56 257.28603 (18062206)
695442.60 4231845.38 272.35078 (18010420) 695466.52
4231848.20 272.87724 (18011820)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695586.15	4231862.30	259.77203	(18011208)	695610.07	4231865.12	263.64310	(22010519)
695634.00	4231867.94	251.24634	(18031002)	695653.19	4231890.20	246.80967	(18122223)
695664.42	4231911.52	254.83636	(18010321)	695675.64	4231932.84	254.98310	(18081103)
695686.86	4231954.16	273.21297	(18091107)	695698.08	4231975.47	265.89765	(18100303)
695709.30	4231996.79	267.77616	(18112504)	695720.52	4232018.11	269.78306	(18010719)
695731.74	4232039.43	274.79304	(18021802)	695472.04	4231804.30	249.18852	(18011820)
695511.69	4231808.97	250.70685	(19033120)	695535.48	4231811.78	251.12218	(18100403)
695559.27	4231814.58	248.18718	(18010603)	695583.06	4231817.39	241.94082	(18010622)
695614.77	4231821.12	237.41843	(21010501)	695638.56	4231823.93	242.26987	(22010519)
695662.35	4231826.73	230.35748	(18031002)	695681.44	4231848.86	223.79601	(18122223)
695692.59	4231870.06	229.66252	(18012309)	695703.75	4231891.26	232.11434	(18081103)
695714.91	4231912.45	245.67312	(18091107)	695726.06	4231933.65	244.14267	(18100303)

695737.22 4231954.85 240.24698 (18040324) 695748.38 4231976.04 239.54167 (18100806)
695759.53 4231997.24 252.03791 (18103117) 695770.69 4232018.44 249.65055 (18021802)
695781.85 4232039.63 255.70732 (18020519) 695445.34 4231712.05 214.95545 (18010420)
695477.52 4231715.84 211.57479 (22121418) 695501.65 4231718.69 215.03306 (20012007)
695525.78 4231721.53 214.35441 (19033120) 695549.92 4231724.38 213.89557 (18100403)
695574.05 4231727.22 214.37143 (22022721) 695598.18 4231730.07 207.25896 (20100322)
695622.32 4231732.91 207.41694 (18011208) 695646.45 4231735.75 200.68941 (22122004)
695670.58 4231738.60 205.30315 (22010519) 695694.72 4231741.44 198.18808 (22010519)
695718.85 4231744.29 199.45696 (18012621) 695738.21 4231766.74 192.12841 (18070105)
695749.53 4231788.24 196.25710 (18010321) 695760.85 4231809.75 202.49889 (18010321)
695772.17 4231831.25 201.20301 (18081103) 695783.49 4231852.75 207.75909 (18010803)
695794.80 4231874.26 216.93136 (18100303) 695806.12 4231895.76 208.66381 (18103103)
695817.44 4231917.27 205.98288 (18100806) 695828.76 4231938.77 213.81420 (18010719)
695840.08 4231960.27 223.35233 (18121721) 695851.39 4231981.78 221.74711 (18020519)
695862.71 4232003.28 215.69642 (18020519) 695874.03 4232024.78 211.37670 (19011009)
695885.35 4232046.29 213.59071 (19011005) 695369.64 4231614.03 182.78433 (22012821)
695410.22 4231618.81 184.69665 (22021821) 695434.56 4231621.68 185.97235 (19071103)
695458.91 4231624.55 193.75783 (18010420) 695483.25 4231627.42 187.74696 (22121418)
695507.60 4231630.29 188.87762 (20012007) 695531.94 4231633.15 190.26566 (22022821)
695556.29 4231636.02 187.71641 (22011319) 695580.63 4231638.89 187.27975 (18100403)
695604.98 4231641.76 185.41857 (22022721) 695629.32 4231644.63 180.81739 (20100322)
695653.67 4231647.50 181.73532 (18010622) 695678.01 4231650.37 178.62667 (18092403)
695702.36 4231653.24 180.29690 (19020703) 695726.70 4231656.11 184.54454 (22010519)
695751.05 4231658.98 177.93777 (22012020) 695775.39 4231661.85 180.56674 (18012621)
695794.93 4231684.50 175.06287 (18080402) 695806.34 4231706.19 171.98852 (18080402)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695886.27	4231858.04	181.85536	(18112504)	695897.68	4231879.73	182.94758	(18031021)
695909.10	4231901.42	197.31354	(18121721)	695920.52	4231923.11	198.61209	(18021802)
695931.94	4231944.81	202.68430	(18020519)	695943.35	4231966.50	193.33790	(19011903)
695954.77	4231988.19	187.00274	(19100707)	695966.19	4232009.88	193.55016	(19011005)
695977.61	4232031.58	185.36292	(19031419)	695989.02	4232053.27	177.99902	(19011208)
695341.36	4231521.59	166.99588	(19022807)	695373.54	4231525.38	163.49146	(21021102)
695397.68	4231528.23	162.56603	(22091202)	695421.81	4231531.07	167.44619	(21010524)
695445.94	4231533.92	163.84828	(18010420)	695470.08	4231536.76	170.66284	(18010420)
695494.21	4231539.60	165.79123	(22121418)	695518.34	4231542.45	167.19240	(20012007)
695542.48	4231545.29	167.60536	(22022821)	695566.61	4231548.14	166.73758	(19033120)
695590.74	4231550.98	166.94786	(18100403)	695614.88	4231553.83	166.69996	(22022721)

695639.01 4231556.67 165.36690 (18010603) 695663.14
4231559.51 163.02718 (19013102)
695687.28 4231562.36 163.29751 (18011208) 695711.41
4231565.20 162.49087 (18011208)
695735.54 4231568.05 163.68401 (19020703) 695759.68
4231570.89 166.32483 (22010519)
695783.81 4231573.74 159.95985 (22010519) 695807.94
4231576.58 162.98491 (22012020)
695832.08 4231579.42 149.26982 (18012621) 695851.44
4231601.88 143.40260 (18080402)
695862.76 4231623.38 141.03959 (18080402) 695874.08
4231644.88 146.42505 (18010321)
695885.39 4231666.39 164.67926 (18022423) 695896.71
4231687.89 162.93691 (18101905)
695908.03 4231709.40 158.76069 (18101905) 695919.35
4231730.90 169.26617 (18010803)
695930.67 4231752.40 169.85963 (18041506) 695941.99
4231773.91 165.39064 (18103103)
695953.30 4231795.41 161.84206 (18112504) 695964.62
4231816.91 165.65053 (18062203)
695975.94 4231838.42 163.69884 (18010719) 695987.26
4231859.92 177.75281 (18121721)
695998.58 4231881.43 172.48493 (18021802) 696009.89
4231902.93 178.03773 (18020519)
696021.21 4231924.43 171.58512 (19011903) 696032.53
4231945.94 168.26138 (19011903)
696043.85 4231967.44 171.44816 (19011005) 696055.17
4231988.94 169.07892 (19041819)
696066.49 4232010.45 156.74280 (19041322) 696077.80
4232031.95 164.96534 (19011208)
696089.12 4232053.46 168.94394 (19011902) 695257.25
4231422.57 142.96927 (19110823)
695281.53 4231425.43 148.05430 (21120319) 695305.82
4231428.30 149.16071 (19121301)
695330.10 4231431.16 149.61934 (19022807) 695354.39
4231434.02 148.31097 (21021102)
695378.67 4231436.88 145.45218 (21122002) 695402.96
4231439.74 146.25316 (22021821)
695427.24 4231442.61 150.66690 (21010524) 695451.52
4231445.47 147.50035 (18010420)
695475.81 4231448.33 152.19281 (18010420) 695500.09
4231451.19 148.53449 (22121418)
695524.38 4231454.06 148.49269 (18031003) 695548.66
4231456.92 152.24780 (19122717)
695572.95 4231459.78 150.98965 (19033120) 695597.23
4231462.64 151.00374 (22011319)
695621.51 4231465.50 152.38432 (18100403) 695645.80
4231468.37 153.12507 (22022721)
695670.08 4231471.23 151.00887 (20100322) 695694.37
4231474.09 150.30943 (19013102)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
695908.12	4231519.58	140.54807	(18010320)	695919.51	4231541.22	137.17338	(18080402)
695930.90	4231562.86	136.67573	(18081804)	695942.29	4231584.49	145.36304	(18022423)
695953.68	4231606.13	146.73684	(18022423)	695965.07	4231627.77	147.46354	(18101905)
695976.46	4231649.41	147.76793	(18010803)	695987.85	4231671.05	151.19335	(18100303)
695999.24	4231692.69	151.57723	(18041506)	696010.62	4231714.32	146.56957	(18103103)
696022.01	4231735.96	143.58674	(18112504)	696033.40	4231757.60	149.49417	(18062203)
696044.79	4231779.24	143.31540	(18062203)	696056.18	4231800.88	153.73253	(18121721)
696067.57	4231822.51	153.40610	(18021802)	696078.96	4231844.15	144.55352	(18092019)
696090.35	4231865.79	146.82152	(18121004)	696101.74	4231887.43	151.13037	(19011903)
696113.12	4231909.07	147.45110	(19011903)	696124.51	4231930.71	150.58211	(19011005)

696135.90 4231952.34 151.00793 (19041819) 696147.29 4231973.98 140.48534 (19101904)
696158.68 4231995.62 138.85618 (19011208) 696170.07 4232017.26 142.18057 (19011902)
696181.46 4232038.90 139.04530 (19111619) 695185.44 4231235.90 102.82376 (20012006)
695209.69 4231238.76 107.27369 (19110823) 695233.94 4231241.62 111.97902 (22010607)
695258.19 4231244.48 120.09039 (22021819) 695282.44 4231247.33 123.91413 (19121301)
695306.70 4231250.19 124.86669 (19022807) 695330.95 4231253.05 123.61204 (21021102)
695355.20 4231255.91 121.33806 (21021102) 695379.45 4231258.77 122.09753 (21122002)
695403.70 4231261.63 121.94847 (22021821) 695427.95 4231264.48 125.26469 (19022506)
695452.20 4231267.34 122.15921 (19042503) 695476.45 4231270.20 126.05029 (18010420)
695500.70 4231273.06 125.62878 (21020620) 695524.95 4231275.92 123.14578 (22011008)
695549.20 4231278.77 125.15842 (18011102) 695573.45 4231281.63 126.64643 (21122808)
695597.70 4231284.49 126.97385 (22120401) 695621.95 4231287.35 126.90841 (22011319)
695646.20 4231290.21 128.98315 (22011517) 695686.62 4231294.97 127.68613 (22022721)
695767.46 4231304.50 127.89584 (19013102) 695791.71 4231307.36 125.61903 (18011208)
695815.96 4231310.21 124.04555 (18011208) 695840.21 4231313.07 121.77046 (19011006)
695864.46 4231315.93 113.69362 (22011820) 695888.71 4231318.79 111.08358 (19012419)
695912.96 4231321.65 114.27457 (19011007) 695937.21 4231324.51 118.50950 (22012020)
695961.46 4231327.36 120.31363 (22012020) 695985.71 4231330.22 116.40410 (18012621)
696013.75 4231340.28 116.34887 (18010320) 696025.13 4231361.89 114.63346 (18080402)
696036.50 4231383.50 110.11869 (18122103) 696047.87 4231405.11 112.37933 (18101203)
696059.25 4231426.71 116.65833 (18081804) 696070.62 4231448.32 121.23827 (18022423)
696081.99 4231469.93 120.84362 (18101905) 696093.37 4231491.54 120.56625 (18101905)
696104.74 4231513.15 121.13872 (18122308) 696116.11 4231534.76 123.89055 (18122308)
696127.49 4231556.36 123.07605 (18041506) 696138.86 4231577.97 120.68233 (18103103)
696150.23 4231599.58 118.92027 (18012703) 696161.60 4231621.19 121.39837 (18020522)

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        696172.98   4231642.80      115.44568  (18041805)                696184.35
4231664.40      121.47810  (18041805)
        696195.72   4231686.01      121.86864  (18022108)                696207.10
4231707.62      116.02817  (18022108)
        696218.47   4231729.23      110.61895  (18120708)                696229.84
4231750.84      102.24017  (18111508)
        696241.22   4231772.45      106.04906  (19022418)                696252.59
4231794.05      109.13055  (19022418)
        696263.96   4231815.66      123.69837  (19091307)                696275.34
4231837.27      128.43687  (19091307)
1 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE  70
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):     STCK1       ,

                                        *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                     ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        696286.71   4231858.88      121.98998  (19091307)                696298.08
4231880.49      106.22155  (19062903)
        696309.46   4231902.09      106.74266  (19062406)                696320.83
4231923.70       97.87913  (19062406)
        696332.20   4231945.31       93.21511  (19102907)                696343.57
4231966.92       94.42938  (19062306)
        696354.95   4231988.53       95.48764  (18111108)                696366.32
4232010.14       98.44371  (19111619)
        696377.69   4232031.74      103.34114  (19011319)                696389.07
4232053.35      105.32330  (19011319)
        695113.70   4231049.24       81.40837  (22021019)                695138.13
4231052.12       83.69573  (22021019)
        695162.55   4231055.00       85.16140  (19111101)                695186.97
4231057.87       91.90481  (22010607)
        695211.40   4231060.75       98.09980  (22010607)                695235.82
4231063.63      102.16395  (22122819)
        695260.24   4231066.51      105.48856  (20012219)                695284.67
4231069.39      106.88032  (19012920)
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696188.10 4231291.53 96.40950 (18022423) 696199.55 4231313.30 97.70930 (18120807)
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696233.91 4231378.58 99.88505 (18121820) 696245.37 4231400.34 98.80672 (18122308)
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696417.18 4231726.77 79.31542 (22120208) 696428.63 4231748.53 77.48544 (22120208)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696577.53	4232031.44	59.75604	(22021906)	696588.99	4232053.20	66.35396	(22021906)
695041.89	4230862.57	88.56177	(21022818)	695066.27	4230865.44	88.46490	(22021019)
695090.65	4230868.31	89.48522	(22021019)	695115.03	4230871.19	89.09411	(21100307)
695139.41	4230874.06	85.66218	(21100307)	695163.78	4230876.93	85.17903	(22010607)
695188.16	4230879.81	85.14421	(22122819)	695212.54	4230882.68	84.34637	(20012219)
695236.92	4230885.55	87.72233	(20012219)	695261.30	4230888.43	88.55352	(19012920)
695285.67	4230891.30	91.35961	(19012922)	695310.05	4230894.17	93.75227	(22010620)
695334.43	4230897.05	92.03424	(18010505)	695358.81	4230899.92	94.36472	(18010505)

695383.19 4230902.79 94.04151 (18120922) 695407.56
4230905.67 94.51333 (19022506)
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695724.48 4230943.02 81.38288 (19013101) 695756.98
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695789.49 4230950.68 76.13033 (20021408) 695813.86
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695911.38 4230965.05 77.49980 (22020903) 695935.75
4230967.92 79.04341 (19011008)
695960.13 4230970.79 77.50359 (22020506) 695984.51
4230973.67 76.88412 (19011006)
696008.89 4230976.54 76.35068 (21120220) 696033.27
4230979.41 76.81199 (21120220)
696057.65 4230982.28 80.99099 (21011718) 696082.02
4230985.16 87.29128 (21011718)
696106.40 4230988.03 87.65933 (21011119) 696130.78
4230990.90 89.29777 (21011119)
696155.16 4230993.78 88.36286 (22121303) 696179.54
4230996.65 86.81815 (18020520)
696203.91 4230999.52 87.03445 (18020520) 696228.29
4231002.40 86.10332 (18010320)
696247.85 4231025.08 84.68367 (18091904) 696259.28
4231046.80 85.62998 (18122103)
696270.72 4231068.52 84.92395 (18110307) 696282.15
4231090.24 86.66774 (18101203)
696293.58 4231111.96 86.83157 (18101203) 696305.01
4231133.69 85.86028 (18081804)
696316.45 4231155.41 89.20841 (18120807) 696327.88
4231177.13 89.92139 (18120807)
696339.31 4231198.85 89.53771 (18042305) 696350.75
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696362.18 4231242.29 87.93669 (18121820) 696373.61
4231264.02 86.23965 (18122308)
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696407.91 4231329.18 82.98425 (18101007) 696419.34
4231350.90 78.17241 (18012703)
696430.78 4231372.62 78.44605 (18012703) 696442.21
4231394.35 75.43951 (18020522)
696453.64 4231416.07 77.01511 (18031824) 696465.08
4231437.79 82.53003 (18031824)
696476.51 4231459.51 82.46494 (18031824) 696487.94
4231481.23 79.05829 (18022108)
696499.37 4231502.95 77.20994 (18022108) 696510.81
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4231568.12 68.73478 (18111508)

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        696545.11   4231589.84       65.27675  (19101219)                696556.54
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        696567.97   4231633.28       65.64868  (22120208)                696579.40
4231655.01       65.94757  (22120208)
        696590.84   4231676.73       64.17717  (20112405)                696602.27
4231698.45       65.46543  (19041906)
        696613.70   4231720.17       68.02384  (19062903)                696625.14
4231741.89       68.13517  (19062903)
        696636.57   4231763.62       64.78127  (19121223)                696648.00
4231785.34       64.27673  (19121223)
        696659.43   4231807.06       61.54736  (21012118)                696670.87
4231828.78       62.52282  (21012118)
        696682.30   4231850.50       60.58444  (21012118)                696693.73
4231872.22       61.54727  (18111108)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  72
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                               *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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4231915.67       57.60636  (18111108)
        696728.03   4231937.39       53.06798  (21120218)                696739.46
4231959.11       49.55165  (22021906)
        696750.90   4231980.83       52.78298  (22021906)                696762.33
4232002.55       55.26873  (22021906)
        696773.76   4232024.28       55.66899  (22021906)                696785.20
4232046.00       54.86207  (22021906)
        694970.09   4230675.90       78.18216  (21120204)                694994.43
4230678.77       78.41576  (21120204)
        695018.78   4230681.64       78.61581  (22120521)                695043.12
4230684.51       79.77048  (22120521)
        695067.47   4230687.38       78.48985  (21100307)                695091.81
4230690.24       80.83351  (21100307)
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4230818.41 60.30452 (20013118)
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4230997.57 59.76380 (18120807)
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4231040.96 61.63380 (18042305)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696650.30	4231409.73	88.21602	(18022108)	696661.72	4231431.42	86.98327	(18120708)
696673.14	4231453.11	85.05167	(18120708)	696684.56	4231474.80	76.32760	(18120708)
696695.97	4231496.50	75.35675	(19022418)	696707.39	4231518.19	72.54650	(19022418)
696718.81	4231539.88	64.77609	(19022418)	696730.23	4231561.57	60.42509	(22120208)
696741.64	4231583.27	59.22428	(22120208)	696753.06	4231604.96	63.21700	(19041906)
696764.48	4231626.65	79.35725	(19091307)	696775.90	4231648.34	85.55270	(19091307)

696787.31 4231670.04 79.78775 (19091307) 696798.73
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696832.98 4231756.80 56.67547 (19062406) 696844.40
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696901.49 4231886.96 44.37308 (21111106) 696912.91
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696924.32 4231930.34 38.76374 (22021906) 696935.74
4231952.04 40.36724 (22021906)
696947.16 4231973.73 41.77795 (22021906) 696958.58
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4230593.92 77.35642 (19013101)
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4230599.68 77.21028 (20011808)
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4230605.44 77.32450 (21120203)

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
696348.79	4230660.18	54.02361	(22121303)	696373.24	4230663.07	52.98577	(18020520)
696397.68	4230665.95	54.28519	(18020520)	696422.13	4230668.83	56.63105	(18020520)
696446.57	4230671.71	60.12672	(18020520)	696470.52	4230688.15	65.43135	(18020520)
696481.98	4230709.93	66.13828	(18122103)	696493.44	4230731.72	64.26182	(18110307)
696504.91	4230753.50	58.71958	(18110307)	696516.37	4230775.28	54.34714	(18101203)

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4231864.40 74.11966 (19011319)

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        697124.01   4231929.74       68.13236  (19011319)                697135.47
4231951.53       63.18329  (19110904)
        697146.94   4231973.31       56.82791  (19010321)                697158.40
4231995.09       48.12728  (18012217)
        697169.87   4232016.87       45.14373  (18012217)                697181.33
4232038.66       39.26220  (18012217)
        695335.37   4231395.84      142.13079  (22012821)                695290.40
4231200.96      118.91577  (19012920)
        695245.42   4231006.08       98.94251  (20012219)                695200.45
4230811.20       87.25015  (21120402)
        695155.48   4230616.32       80.52904  (22112008)                695110.51
4230421.44       60.02581  (22112008)
        695441.60   4232051.50      452.83857  (20051819)                695410.54
4232058.24      488.29074  (20090507)
        695386.95   4232069.32      494.29303  (20090307)                695426.84
4232005.46      409.51936  (18062206)
        695341.10   4232072.06      491.18624  (20102508)                695344.50
4232022.69      375.89271  (21011709)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  75
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        695414.20   4231957.81      351.74668  (21120616)                695297.84
4232037.29      375.58926  (18031918)
        695321.50   4231971.25      311.18568  (21011709)                695402.20
4231909.67      317.29621  (21120616)
        695253.76   4232014.38      266.44806  (21020124)                695255.53
4231988.66      297.31552  (18031918)
        695277.79   4231947.31      297.05386  (20091707)                695308.52
4231923.86      284.45276  (21011709)
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M) Y-COORD (M) CONC (YYMMDDHH) X-COORD (M)
Y-COORD (M) CONC (YYMMDDHH)
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
694922.50	4231244.36	84.68534	(21022119)	694943.71	4231228.17	84.87623	(18010422)
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*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): STCK1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS
***

** CONC OF VARIOUS IN MICROGRAMS/M**3
**

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
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4231638.78 67.08842 (20120206)
694140.01 4231611.94 66.49873 (22011802) 694141.86
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        694701.84   4230954.37       82.27226  (22011819)               694723.22
4230938.05       85.48637  (19012701)
        694744.60   4230921.73       85.07189  (21022119)               694765.98
4230905.41       84.04420  (21011224)
        694787.36   4230889.10       83.63977  (18121104)               694808.74
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        694830.12   4230856.46       80.53154  (22010608)               694851.50
4230840.15       79.36177  (22010605)
        694872.89   4230823.83       78.49190  (22010605)               694894.27
4230807.51       77.47156  (19101601)
        694915.65   4230791.19       78.45431  (21020707)               695001.17
4230725.93       80.57303  (21120204)
        695022.55   4230709.61       79.34548  (22120521)               695086.69
4230660.66       79.85119  (21100307)
        695108.07   4230644.34       81.40246  (20022008)               695129.45
4230628.02       81.35739  (22112008)
        694076.38   4232617.41       66.14675  (22120708)               693885.16
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        693887.01   4232634.15       59.37162  (18010424)               693888.86
4232607.25       61.18321  (20111208)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  79
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                             *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                        ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
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693940.72 4231854.02 62.49652 (21121903) 693942.57
4231827.12 62.31471 (21121903)
693944.42 4231800.22 62.04783 (20121906) 693946.27
4231773.32 61.94169 (20121906)
693948.12 4231746.42 61.81100 (19010504) 693949.98
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693955.53 4231638.82 61.06381 (22020802) 693957.38
4231611.92 61.17463 (18111708)
693959.24 4231585.02 60.47740 (19122221) 693961.09
4231558.11 60.19897 (20120206)
693962.94 4231531.21 59.82130 (22011802) 693964.79
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693970.35 4231423.61 59.76398 (18020808) 693972.20
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693974.05 4231369.81 59.09803 (18121508) 693975.90
4231342.91 58.39325 (22021020)
693977.76 4231316.01 57.82119 (22021020) 693979.61
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4231251.12 59.17428 (20021508)
694034.12 4231234.76 60.63021 (20021508) 694055.56
4231218.40 60.38746 (20021508)
694076.99 4231202.04 58.80687 (22012606) 694098.43
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4231152.96 61.12516 (18012806)

```
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4230956.65       61.27365  (19010420)
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4230891.22       68.43352  (20021908)
        694505.70   4230874.86       70.09759  (20121519)                694527.13
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        694591.44   4230809.42       69.51465  (22010619)                694612.88
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        694634.31   4230776.70       73.88824  (19012701)                694655.75
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4230727.63       77.27971  (21011224)
        694720.05   4230711.27       77.11744  (18121104)                694741.49
4230694.91       76.01762  (18011024)
        694762.92   4230678.55       76.30292  (18011023)                694784.36
4230662.19       75.07671  (22010605)
 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                      ***        13:59:05

                                 PAGE  80
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP:  ALL      ***
                                 INCLUDING SOURCE(S):     STCK1       ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                       ** CONC OF VARIOUS  IN MICROGRAMS/M**3
                  **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)              X-COORD (M)
Y-COORD (M)        CONC     (YYMMDDHH)
```

```
 - - -
```

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of   0 Fatal Error Message(s)
 A Total of   1 Warning Message(s)
 A Total of   1399 Informational Message(s)

 A Total of   43824 Hours Were Processed

 A Total of   723 Calm Hours Identified

 A Total of   676 Missing Hours Identified (1.54 Percent)

    ******** FATAL ERROR MESSAGES ********
               *** NONE ***

    ********   WARNING MESSAGES   ********
 ME W187   61   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

    ****
    *** AERMOD Finishes Successfully ***
    ****

 *** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

                                          ***   MODEL SETUP OPTIONS SUMMARY
 ***
 - - -

```
 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  21112

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    10.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                    ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   Double Springs AERMOD.err

 **File for Summary of Results:   Double Springs AERMOD.sum

 *** AERMOD - VERSION 24142  ***   *** C:\Users\apoll\OneDrive -
Dudek\Desktop\HARP2\HARP\Double Springs BE ***        10/10/25
 *** AERMET - VERSION  21112 ***   ***
                       ***        13:59:05

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  RURAL  ADJ_U*

                                          *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

```
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\stockton-metropolit-23237\Stockton_18-22.SFC
Met Version: 21112
Profile file: ..\stockton-metropolit-23237\Stockton_18-22.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 23237 Upper air station no.: 23230
Name: UNKNOWN Name: OAKLAND/WSO_AP
Year: 2018 Year: 2018

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT

- - - -

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF VARIOUS IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE	CONC	DATE (YYMMDDHH)	NETWORK TYPE	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	936.00226	ON 19012324:	AT (695525.44, 4232289.76, 313.28, 313.28, 0.00)	DC

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)

```
A Total of            1 Warning Message(s)
A Total of         1399 Informational Message(s)

A Total of        43824 Hours Were Processed

A Total of          723 Calm Hours Identified

A Total of          676 Missing Hours Identified (  1.54 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W187      61       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

Appendix I

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

Double Springs BESS
Calaveras County, California

JULY 2024

Prepared for:

NOVIS RENEWABLES, LLC
One Bridge Street, Suite 11
Irvington, New York 10533

Prepared by:

DUDEK
Corporate Office:
605 Third Street
Encinitas, California 92024

Susan Smith, PG
Geologist

Clarissa Smith, GIT
Geologist

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

1 Executive Summary 1

2 Introduction 3
2.1 Assessment Procedure and Scope of Investigation 3
2.2 Qualifications of Environmental Professionals 4

3 Site Location 5

4 Environmental Setting 6
4.1 Topography and Geology 6
4.2 Groundwater 6
4.3 Agricultural Use 6

5 Public Agency Records Search 7
5.1 Subject Property 8
5.2 Adjoining Properties 8
5.3 Nearby Properties 8
5.4 Unmapped Sites 9

6 Interviews 10
6.1 Site Representative Interview 10
6.2 User-Provided Information 10
6.3 Local Agency Records 11
6.3.1 Calaveras County 11
6.3.2 CalRecycle Solid Waste Information System 12
6.3.3 State Water Resources Control Board 12
6.3.4 Department of Toxic Substances Control 13
6.3.5 California Environmental Protection Agency Regulated Site Portal 13
6.3.6 California Geologic Energy Management Division 15
6.3.7 National Pipeline Mapping System 15

7 Site Reconnaissance 16
7.1 Description of Subject Property and Surroundings 16
7.2 Summary of Observations 16

8 Site History 18
8.1 Historical Aerial Photographs 18
8.2 Historical Topographic Maps 20

8.3 Fire Insurance Maps 22
8.4 City Directory 22
8.5 Title Information/Environmental Liens 22
9 Previous Environmental Site Assessments 25
10 Vapor Encroachment 26
11 Non-ASTM Considerations 27
12 Findings and Conclusions 29
13 Limitations 30
13.1 Data Gaps and Data Failures 30
13.2 Report Limitations 30
14 References 32

FIGURE

1 Subject Property Location 2

TABLES

1 Regulatory Database Search Summary 7
2 Summary of Aerial Photographs 18
3 Summary of Topographic Maps 20
4a Parcel Title Information Summary for APN 40002017 23
4b Parcel Title Information Summary for APN 40002018 23
4c Parcel Title Information Summary for APN 40002019 24

APPENDICES

A Qualifications of Environmental Professionals
B Historical Topographic Maps
C EDR Radius Map Report
D Owner-Provided Information
E Local Agency Records
F Site Reconnaissance Report and Photographs
G Historical Aerial Photographs
H Certified Sanborn Map Report
I City Directory Report
J Environmental Lien Search Report

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APN	Assessor's Parcel Number
AUL	activity and use limitation
BESS	battery energy storage system
bgs	below ground surface
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CREC	controlled recognized environmental condition
EDR	Environmental Data Resources
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
GAMA	Groundwater Ambient Monitoring and Assessment
HREC	historical recognized environmental condition
LUST	leaking underground storage tank
pCi/L	picocuries per liter
REC	recognized environmental condition
TPH	total petroleum hydrocarbons
UST	underground storage tank
VEC	vapor encroachment condition

1 Executive Summary

Dudek conducted a Phase I Environmental Site Assessment (ESA) for the Double Springs Battery Energy Storage System (BESS) project (subject property; see Figure 1, Subject Property Location). The subject property consists of approximately 18.75 acres on three contiguous parcels of land (Assessor's Parcel Numbers [APNs] 40002017, 40002018, and 40002019) located in the census designated place of Valley Springs in Calaveras County, California, near the community of Double Springs, California.

The findings of this investigation are based on historical sources, information contained in regulatory agency databases, interviews, and a site reconnaissance.

Information gathered for this report indicated the following:

- The subject property has been undeveloped land from at least 1889 to the present.
- The perimeter of the subject property is fenced with barbed wire.
- Adjoining properties include undeveloped land to the north and west, Double Springs Road followed by a waste transfer facility to the south, and an electrical substation to the east.

This assessment revealed no evidence of recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), controlled recognized environmental conditions (CRECs), or vapor encroachment conditions (VECs) in connection with the subject property. Data gaps, which were determined not to be significant, are discussed in Section 13, Limitations.

Dudek performed this Phase I ESA of the subject property in conformance with the scope and limitations of ASTM Standard E2247-16 (ASTM 2016).



SOURCE: Bing, ESRI, Calaveras County

DUDEK

0 200 400 Feet

FIGURE 1

Subject Property Location

Double Springs Phase I ESA

2 Introduction

This Phase I Environmental Site Assessment (ESA) was performed according to the guidelines stipulated in ASTM Standard E2247-16, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property (ASTM 2016). This Phase I ESA was conducted for Novis Renewables, LLC (user) as part of environmental due diligence for the Double Springs Battery Energy Storage System (BESS) project. As defined in Section 3.2.106 of ASTM Standard E2247-16, the "user" is defined as the party seeking to complete the Phase I ESA on the subject property. User obligations, as defined in ASTM Standard E2247-16, are discussed further in Section 6.2, User-Provided Information.

2.1 Assessment Procedure and Scope of Investigation

Phase I ESAs assist in identifying past and present land use, including identification of possible releases or disposal of manufacturing or other wastes if such information is contained within regulatory reports or files and/or is currently visible on site. The assessment reviews federal (U.S. Environmental Protection Agency [EPA]), state, county, and local lists of known or potentially hazardous waste sites, landfills, and sites currently under investigation for environmental violations that may be of concern to a site.

The scope of this environmental investigation consisted of (1) a reconnaissance of the subject property; (2) a search of regulatory agency records; (3) a review of available historical aerial photographs, topographic maps, Sanborn fire insurance maps, city directory listings, and building department records; (4) an environmental lien search; (5) interviews with the owner of the subject property and user of this report; and (6) preparation of this Phase I ESA report detailing the findings of the investigation.

These activities were conducted to identify RECs. The term *recognized environmental condition* (REC) means the presence or likely presence of any hazardous substances or petroleum products in, on, or at the subject property due to a release, likely release, past release, or material threat of a future release to the environment.

The term *controlled recognized environmental condition* (CREC) is an environmental condition that would have been considered a REC in the past but that has been remediated and received risk-based closure by a regulatory agency (i.e., received a "No Further Action" letter) where residual contamination remains in place. Furthermore, the term *CREC* is used if the property is subject to a control or use restriction (i.e., property use restrictions, activity and use limitations, institutional controls, or engineering controls) due to residual on-site contamination.

The term *historical recognized environmental condition* (HREC) is an environmental condition that would have been considered a REC in the past but that has been remediated and received unrestricted residential use closure by the regulatory agency. Therefore, no controls or use restrictions have been applied to the property.

The term *REC* is not intended to include de minimis conditions. De minimis conditions are conditions that generally do not present a material risk of harm to public health or the environment and thus would not be subject to an enforcement action if brought to the attention of governmental agencies.

2.2 Qualifications of Environmental Professionals

This Phase I ESA was prepared by Clarissa Smith, geologist; Susan Smith, geologist; and Jesse Cottrell of Omesa Group. Qualifications for Ms. C. Smith, Ms. S. Smith, and Ms. Cottrell are included in Appendix A.

I, Susan Smith, declare that, to the best of our professional knowledge and belief, I meet the definition of environmental professional as defined in Section 312.10 of Title 40 of the Code of Federal Regulations, Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in Title 40 of the Code of Federal Regulations, Part 312.

3 Site Location

The subject property consists of three contiguous parcels of land (Assessor's Parcel Numbers [APNs] 40002017, 40002018, and 40002019) comprising approximately 18.75 acres located in the census designated place of Valley Springs in Calaveras County, California, near the community of Double Springs, California.

The subject property has no address and is located approximately 0.3 miles north of Highway 12 and approximately 0.25 miles west of Highway 26. The southern boundary of the subject property abuts Double Springs Road. The subject property is currently undeveloped land.

The subject property is adjoined by undeveloped land to the north, vacant land and an outdoor electrical substation to the east, the Cal-Waste Toyon Medium Volume Transfer Station and an auto and shipping container yard to the south, and undeveloped land with a reservoir to the west. The surrounding properties consist of primarily vacant land as well as schools, industrial and manufacturing businesses, a cemetery, and rural residential properties.

4 Environmental Setting

4.1 Topography and Geology

The subject property is located in the census designated place of Valley Springs in Calaveras County, California, near the community of Double Springs, California. The subject property is located approximately 0.3 miles north of Highway 12 and 0.25 miles west of Highway 26.

General topographic information for the subject property and the surrounding area was obtained from a review of topographic maps (Appendix B), the Environmental Data Resources (EDR) Radius Map Report (Appendix C), and a site visit. The subject property lies within the Great Valley Geomorphic Province, in the western foothills of the Sierra Nevada Mountain Range. The subject property is located between the Mokelumne River Valley to the north and the Calaveras River Valley to the south. The natural topography of the subject property consists of two gently sloping dry stream valleys with an overall western downward gradient. The subject property sits at an average elevation of 1,000 feet above mean sea level.

No subsurface geologic investigations were performed as part of this Phase I ESA. According to the EDR Radius Map Report (Appendix C), the subject property is underlain by stony, silty, or clayey sand soils. These soils are characterized as somewhat excessively drained with very slow infiltration rates.

4.2 Groundwater

According to the EDR Radius Map Report, there are eight water wells located within 1 mile of the subject property and the nearest water well is located approximately 0.26 miles southeast of the subject property. No groundwater elevation data are available for the nearest well identified in the EDR Radius Map Report. Dudek reviewed the California State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment (GAMA) Groundwater Information System database and confirmed that there are no water wells or geotechnical boreholes located on the subject property. Dudek consulted the GeoTracker and GAMA databases to identify the nearest and most recent groundwater elevation data available from the adjacent and surrounding properties. Static groundwater elevation in a domestic water supply well located approximately 0.25 miles south of the subject property was measured at 92 feet below ground surface (bgs) in March 2023 (DWR 2023; SWRCB 2024a). Depth to groundwater in a domestic water supply well identified on the north-adjoining parcel (APN 40002021) was most recently measured at 30 feet bgs in September 2001 (DWR 2001; SWRCB 2024a). Depth to groundwater in a domestic water supply well located approximately 1 mile northwest of the subject property was measured at 85 feet bgs in October 2003 (DWR 2023; SWRCB 2024a). No groundwater gradient information was obtained during this Phase I ESA.

4.3 Agricultural Use

The subject property is not currently used for agricultural purposes. Historical resources (see Section 8, Site History) indicate the subject property was never used for agricultural purposes. No evidence was identified indicating orchards, pesticide storage or mixing, cattle operations or dairies, or other potential sources of elevated concentrations of contaminants of concern typically associated with farming operations.

5 Public Agency Records Search

The regulatory database search gives a listing of sites within a 1-mile radius of a subject property ("target property" is the term used by EDR) that are known to be chemical handlers or hazardous waste generators or have reported releases of hazardous substances or petroleum products. Information in these listings include the location of the site relative to the subject property, type of potential environmental concern present, and the status of the site. On May 28, 2024, EDR provided the database search results for this Phase I ESA (Appendix C).

Table 1 summarizes the databases that were searched, search distances from the subject property, whether the subject property was listed, and the number of listings identified.

Table 1. Regulatory Database Search Summary

Acronym	Database	Search Distance	Subject Property Listed?	Number of Surrounding Listings
NPL	National Priorities List (including proposed NPL sites and NPL Liens [target property only])	1 mile	No	0
Proposed NPL	Sites proposed for NPL	1 mile	No	0
Delisted NPL	NPL Deletions	1 mile	No	0
CERCLIS – Federal Facility	Comprehensive Environmental Response, Compensation, and Liability Information System for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) with U.S. Environmental Protection Agency Federal Restoration and Reuse Office involvement	0.5 miles	No	0
CERCLIS – SEMS	CERCLA Superfund Enterprise Management System	0.5 miles	No	0
CERCLIS NFRAP (SEMS ARCHIVE)	No Further Remedial Action Planned – CERCLA SEMS Archive	0.5 miles	No	0
CORRACTS	Resource Conservation and Recovery Act (RCRA) Corrective Action	1 mile	No	0
RCRA TSDF	RCRA – Transportation, Storage, and Disposal Facilities	0.5 miles	No	0
RCRA-LQG	RCRA Large Quantity Generators	0.25 miles	No	0
RCRA-SQG	RCRA Small Quantity Generators	0.25 miles	No	0
RCRA-VSQG	RCRA Very Small Quantity Generators	0.25 miles	No	0
ERNS	Emergency Response Notification System	Target property	No	0
LUCIS	Land Use Control Information System – Institutional Control/Engineering Control	0.5 miles	No	0
US ENG CONTROLS	Federal sites with Engineering Controls	0.5 miles	No	0
US INST CONTROLS	Federal sites with Institutional Controls	0.5 miles	No	0

Table 1. Regulatory Database Search Summary

Acronym	Database	Search Distance	Subject Property Listed?	Number of Surrounding Listings
RESPONSE	State- and Tribal-Equivalent CERCLIS – Confirmed Release List	1 mile	No	0
SWF/LF	State and Tribal Landfill and/or Solid Waste Disposal Site	0.5 miles	No	1
LUST	State Leaking Underground Storage Tank	0.5 miles	No	0
Indian LUST	Tribal LUST	0.5 miles	No	0
AST	State and Tribal Registered Aboveground Storage Tank	0.25 miles	No	0
UST	State and Tribal Registered Underground Storage Tank	0.25 miles	No	0
Indian UST	Registered Underground Storage Tank on Tribal Land	0.25 miles	No	0
FEMA UST	Federal Emergency Management Agency (FEMA) owned Registered UST	0.25 miles	No	0
Indian VCP	Voluntary Cleanup on Tribal Land	0.5 miles	No	0
VCP	State and Tribal Voluntary Cleanup	0.5 miles	No	0
Brownfields	State and Tribal Brownfields	0.5 miles	No	0
Additional environmental records, including local lists		Varies	No	2

Note: The search distances in the EDR Radius Map Report and listed in this table are equal to or greater than the search distances required by ASTM E2247-16.

5.1 Subject Property

The subject property was not identified in any of the databases searched by EDR.

5.2 Adjoining Properties

No listings associated with the release of hazardous substances or petroleum products were identified on the adjoining properties. Two listings from the south-adjoining properties were identified by EDR and are discussed below.

Hangill J R Gilliam. This site has no address and adjoins subject property to the south. This site is listed in the Mineral Resources Database System (MINES MRDS) database as a body of gold ore. The MINES MRDS database contains listings of sites with mineral resource commodities and is not related to uncontrolled environmental releases of hazardous substances. Thus, it is unlikely that this site has impacted the subject property.

California Waste Recovery Systems. This site, located at 3524 Double Springs Road, adjoins the property to the south-southeast and is listed the CERS HAZ WASTE and CERS databases. No violations or documented releases of hazardous substances are reported in this listing; thus, it is unlikely that this site has impacted the subject property.

5.3 Nearby Properties

One listing within 1 mile of the subject property was identified in the databases searched by EDR and is described below.

White Pines BD/DS. The EDR Radius Map Report presented an address of "T5N,R15ESEC'S 16,21 (MDM)." This site is listed in the SWF/LF database, which contains an inventory of active and inactive solid waste disposal facilities or landfills. According to the EDR Radius Map Report, this site is a solid waste disposal site that is no longer in operation. Dudek was able to locate this site and determined that it is actually located more than 24 miles from the subject property. Given the distance from the subject property, is unlikely that this site has impacted the environmental conditions of the subject property.

5.4 Unmapped Sites

Unmapped sites are flagged by EDR but not mapped due to insufficient address information. They are usually included in the database search report because they are in the same zip code as the subject property. The EDR Radius Map Report did not identify any unmapped sites.

6 Interviews

6.1 Site Representative Interview

Dudek sent a site background questionnaire to the user of this report for dissemination to the subject property owners. A response was received from the owner of APN 40002017, Daniel Souza, on June 1, 2024, and from the owner of APNs 40002018 and 40002019, Annette Castagna, on June 18, 2024. A copy of each response to the questionnaire is presented in Appendix D. Below is the summary of responses to the questionnaire.

APN 40002017

- Mr. Souza has owned the western parcel of the subject property (APN 40002017) for approximately 20 years. The property has not had a designated use or purpose the entire time.
- No past uses of the property are known.
- Information regarding the previous owners or operators of the property is unknown.
- No buildings have been constructed on the subject property.
- The subject property and adjoining properties have not been used for industrial purposes.
- The subject property has not been used for agricultural purposes.
- Mr. Souza was unaware of any previous hazardous materials use, storage, or other activities on the subject property that could indicate a release of hazardous materials or petroleum products.

APNs 40002018 and APN 40002019

- Ms. Castagna has owned the central and eastern parcels of the subject property (APNs 40002018 and 40002019) since November 14, 2006. The current use of the property is reported to be vacant land since at least the date of purchase (November 14, 2006).
- No past uses of the property are known.
- The names of previous owners or operators of the property are Robert Leaf, Jeffrey Lindall, Monique Bjorndal, Curtis Maxwell, and Intercorp Financial Development. The address 40 Supreme Court, Walnut Creek, California 94596 was provided as contact information for the previous owners.
- No other responses were provided to Dudek regarding buildings constructed on the property, use of the subject property or adjoining properties for industrial or agricultural purposes, or any previous hazardous materials use, storage, or other activities on the subject property that could indicate a release of hazardous materials or petroleum product.

6.2 User-Provided Information

In accordance with ASTM E2247-16, to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the tasks outlined in Section 6.2 through 6.6 of ASTM E2247-16 must be completed, including a search for environmental liens and activity and use limitations (AULs). To facilitate this requirement, Dudek sent the following questions to the user of this report. Answers to these questions fulfill the requirement of Sections 6.2 through 6.6 of the ASTM Standard. Thomas Leahy, authorized representative of the user of this report, provided responses on June 24, 2024; Mr. Leahy's responses were based

on knowledge from Paul Gascoigne, Senior Manager, Site Acquisition & Strategy for Novis Renewables. In addition, the user requested Dudek complete a search for environmental liens and AULs as part of this Phase I ESA. The results of this search are provided in Section 8.5, Title Information/Environmental Liens.

1. **Question:** Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?

   Response: No

2. **Question:** Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

   Response: No

3. **Question:** As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

   Response: No

4. **Question:** Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

   Response: Yes

5. **Question:** Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? (a) Do you know the past uses of the property, (b) do you know of specific chemicals that are present or once were present at the property, (c) do you know of spills or other chemical releases that have taken place at the property, or (d) do you know of any environmental cleanups that have taken place at the property?

   Response: No (a) No (b) No (c) No (d) No

6. **Question:** As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

   Response: No

6.3 Local Agency Records

6.3.1 Calaveras County

6.3.1.1 Department of Public Works

Dudek contacted the Calaveras County Department of Public Works on June 21, 2024, to obtain files relating to any permits, underground storage tank (UST) removals, or hazardous waste discharge. Dudek received a response on June 24, 2024, stating that the Public Works department has no permitting records for the subject property and that the information requested may be found with the Environmental Health or Building Departments (Appendix E).

See Section 6.3.1.2, Building Department, and Section 6.3.1.3, Environmental Health Department, for information regarding these requests.

6.3.1.2 Building Department

Dudek contacted the Calaveras County Building Department on June 10, 2024, to obtain records regarding any building permits or plans for the subject property. As of the date of this report, a response has not been received.

6.3.1.3 Environmental Health Department

On June 10, 2024, Dudek submitted a public records request to the Calaveras County Environmental Health Department, which acts as the County's Certified Unified Program Agency, to obtain information about potential spills, cleanups, tanks, or chemical use that may have impacted the environmental conditions of the subject property. Dudek received a response the same day, stating no records are on file for the subject property (Appendix E).

6.3.1.4 GIS (Geographic Information Systems) Department

Zoning information for the subject property was obtained from the Calaveras County Tax Parcel Lookup Application created by the Calaveras County GIS Department. The subject property is zoned as M4 (Calaveras County 2024). According to the Calaveras County Code of Ordinances, Title 17, Article 4, Chapter 17.44, the M4 Zone is identified as the Business Park Zone. The east-adjoining and the south-southwest-adjoining properties are also zoned M4, Business Park. The north-adjoining and the west-adjoining properties are zoned AP, Agriculture Preserve. The south-southeast-adjoining property is zoned M2, General Industrial. The south-adjoining property is zoned ROW, Right of Way.

6.3.2 CalRecycle Solid Waste Information System

Dudek reviewed the California Department of Resources Recycling and Recovery (CalRecycle) Solid Waste Information System online database (CalRecycle 2024). The database has information for all solid waste facilities, operation, and disposal sites in California.

No sites were identified on the subject property. Two sites were listed within 1 mile of the subject property and are described below.

CalWaste Toyon Medium Volume T/S is located at 3524 Double Springs Road, on the southeast-adjoining property. This site is an active solid waste transfer and processing facility. This site has been inspected monthly since August 2017. No violations or areas of concern are noted. Based on the type of facility (transfer, no waste disposal) and the absence of violations, it is unlikely that this site has impacted the environmental conditions of the subject property.

White Pines BD/DS is mapped approximately 0.19 miles south of the subject property in the SWIS database; however, the actual location of the site is approximately 24 miles northeast of the subject property. This solid waste disposal site closed in 1962. Given the distance to the subject property, it is unlikely that this site impacted the subject property.

6.3.3 State Water Resources Control Board

Dudek searched GeoTracker, the State Water Resources Control Board's data management system, for sites that impact, or have the potential to impact, water quality in California. Records include sites that require cleanup,

various unregulated projects, and permitted facilities (SWRCB 2024b). No leaking underground storage tank (LUST) cases or other case listings were identified on the subject property in the GeoTracker database. One GeoTracker listing was identified within 0.5 miles of the subject property and is described below. This site was not identified in the EDR Radius Map Report, but it was depicted on topographic maps (see Section 8).

Toyon Sawmill is located at 3304 Highway 12, approximately 0.57 miles south of the subject property. In 1990, two 970-gallon USTs were removed from this property (GRD 1990). During the tank removal, water mixed with fuel was observed leaking from holes in the bottom of the USTs; this water was sampled and analyzed for total petroleum hydrocarbons (TPH) and associated contaminants. The analytical results revealed the presence of 160 milligrams per liter TPH in the water, though it could not be determined if the fuel mixed with water in the USTs was diesel or gasoline. Ethylbenzene, toluene, and xylene were detected in the water samples at concentrations of 170, 550, and 1,200 micrograms per liter, respectively. Soil from the UST excavation was determined to be contaminated by petroleum products based on a visual inspection and obvious odor. Depth to groundwater from a well located 100 feet from this site was reportedly 80 feet bgs. According to a 1991 No Further Action letter issued by the Central Valley Regional Water Quality Control Board, oil from the excavation pit, standing water from the excavation pit, and a nearby groundwater supply well were sampled in 1991 and analyzed for TPH and associated contaminants by Groundwater Technology, Inc. TPH and associated contaminants were not detected above the laboratory reporting limits in any of the samples analyzed in 1991; for this reason, Central Valley Regional Water Quality Control Board issued the No Further Action letter granting case closure in 1991. Based on the absence of detectable contamination, it is unlikely that this site has impacted the environmental conditions of the subject property.

6.3.4 Department of Toxic Substances Control

Dudek searched the EnviroStor database management system used for tracking cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination (DTSC 2024). No sites were identified on or within 1 mile of the subject property.

6.3.5 California Environmental Protection Agency Regulated Site Portal

Dudek reviewed the California Environmental Protection Agency (CalEPA) Regulated Site Portal, which contains data about environmentally regulated sites and facilities in California (CalEPA 2024). Data sources for the portal include California Environmental Reporting System, the Department of Toxic Substances Control EnviroStor, the State Water Resources Control Board GeoTracker, California Integrated Water Quality System, and the federal Toxics Release Inventory.

CalEPA sites are generally administrative in nature, identifying sites that have environmental permits or that handle hazardous materials or generate hazardous waste, but that do not necessarily have an uncontrolled release of hazardous substances to the environment.

No listings were identified on the subject property in the CalEPA Regulated Site Portal.

Ten sites were identified within 1 mile of the subject property and are discussed below.

Double Springs Transfer Station: This site is located on Double Springs Road, approximately 0.1 miles southeast of the subject property. The site is listed in the Industrial Facility Storm Water and the Construction Storm Water regulatory

programs. No violations are listed for this site in the CalEPA database. Based on the type of listing (stormwater) and absence of violations, this site is unlikely to impact the environmental conditions of the subject property.

California Waste Recovery Systems: This site is located at 3524 Double Springs Road, on the south-adjoining subject property. The site is listed as a chemical storage facility and hazardous waste generator. No violations are listed for this site in the CalEPA database. Chemicals stored at this site include used antifreeze, recycled waste motor oil, recycled used drained oil filters, oxygen, and motor oil. Based on the administrative nature of the listings and the lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

Toyon: This site is located at 3405 East Highway 12, approximately 0.3 miles south of the subject property. The site is listed as a chemical storage facility. No violations were reported for the site. Chemicals stored at the site include propane. Based on the lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

RJ Marshall: This site is located at 3466 Toyon Lane, approximately 0.3 miles south-southeast of the subject property. The site is listed as a chemical storage facility and hazardous waste generator; the site is also listed in the Toxics Release Inventory regulatory program. Nine violations were reported for the site. Two violations were issued in June 2014 for "failure to properly close hazardous waste containers when not in active use" and "failure to properly handle, manage, label, and recycle used oil and fuel filters" and were returned to compliance in August 2014. One violation was issued in November 2017 for an unlabeled waste oil container and was resolved the same day. The rest of the violations are administrative in nature, regarding the submission of hazardous materials release response plans. Chemicals stored at the site include used lubricating oils, microspheres, and limestone. Based on the lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

Toyon Sawmill: This site is located at 3304 Highway 12, approximately 0.57 miles south of the subject property. This site is listed in the LUST Cleanup Site regulatory program. Information about this LUST site is presented in Section 6.3.3, State Water Resources Control Board. Given the regulatory status (case closed), it is unlikely that this site has impacted the environmental conditions of the subject property.

ALL CHEM AKA The Toyon Project: This site is located at 3474 Toyon Circle, approximately 0.45 miles south-southeast of the subject property. This site is listed in the EPA Air Emissions Inventory System regulatory program; this regulatory program is administrative in nature and does not document releases. Given the administrative nature of the regulatory program, it is unlikely that this site has impacted the environmental conditions of the subject property.

Toyon Middle School: This site is located at 3412 Double Springs Road, approximately 0.55 miles east-southeast of the subject property. This site is listed in the Chemical Storage Facilities and Waste Discharge Requirements regulatory programs. Four violations are reported for this site. A violation was issued in March 2024 regarding accurate documentation of all hazardous materials stored on site. Chemicals stored at the site include sodium hypochlorite, propane, and Propac 2810. The other violations listed are related to the hazardous materials release response plans and are primarily administrative in nature. Two informal notice of water violation letters were issued to this site in 2000 and 2012, respectively. No additional information regarding the informal water violation letters is presented. Based on the administrative nature of these violations and a lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

Archimedes Hydraulic Service Inc.: This site is located at 3474 Toyon Circle, Suite 560. This site is listed as a chemical storage facility and hazardous waste generator. No violations were reported for this site. The CalEPA

database listing includes two routine hazardous waste generator inspections from 2018 and 2021, respectively. No additional information is presented. Based on the administrative nature of these violations and a lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

Sunset Foundry Inc.: This site is located at 3474 Toyon Circle #255. The site is listed in the Industrial Facility Storm Water regulatory program. Two violations are reported for this listing for failure to re-certify the No Exposure Certification permit registration documents before the fiscal year deadline in 2018 and 2020, respectively. Based on the administrative nature of these violations and a lack of a documented release, this site is unlikely to impact the environmental conditions of the subject property.

AmeriGas – Toyon: This site is located at 3474 Toyon Circle. This site is listed as a chemical storage facility. The chemicals stored on this site include propane. No additional information is presented for this site in the CalEPA database. Given the administrative nature of the regulatory program, it is unlikely that this site has impacted the environmental conditions of the subject property.

6.3.6 California Geologic Energy Management Division

Dudek reviewed the California Geologic Energy Management Division database on June 21, 2024 (CalGEM 2024). No oil and gas wells were mapped on or within 1 mile of the subject property (Appendix E).

6.3.7 National Pipeline Mapping System

Dudek searched the National Pipeline Mapping System online database, which provides a public map viewer application that displays data related to gas transmission and hazardous liquid pipelines, liquefied natural gas plants, and breakout tanks under the Department of Transportation Pipeline and Hazardous Material Safety Administration jurisdiction (DOT 2024).

No pipelines were identified on the subject property. One active gas transmission pipeline, operated by Pacific Gas and Electric Company, is located 1 mile south of the subject property. No accidents or incidents were reported within 1 mile of the subject property.

7 Site Reconnaissance

A site reconnaissance was conducted on June 11, 2024, by Chad Prevatte of Omesa Group. The site reconnaissance consisted of walking the subject property, taking notes on observations, and taking photographs. A copy of the full report is presented in Appendix F; select photographs are also presented in Appendix F.

7.1 Description of Subject Property and Surroundings

The subject property consists of vegetated, undeveloped land. The subject property was accessed via foot from Double Springs Road to the south. The subject property is surrounded by a barbed wire fence.

As observed during the site reconnaissance, the subject property is adjoined by the following:

- To the north by vegetated, undeveloped land
- To the south by Double Springs Road followed by a waste transfer center and vegetated, undeveloped land
- To the east by vegetated, undeveloped land and an electrical substation
- To the west by vegetated, undeveloped land

The main areas of interest noted during the site reconnaissance are described in the following section.

7.2 Summary of Observations

Potable Water Supply or Source

None observed within the subject property.

Sewage Disposal System

No evidence of sewage disposal systems was observed.

Surface Water Discharge

Surface water, if present, likely flows toward the west.

Distressed Vegetation

No distressed vegetation was observed on the subject property.

Indications of Solid Debris Storage

No indications of solid debris storage were observed on the subject property.

Hazardous Material and Petroleum Product Use and Storage

No hazardous material or petroleum product use/storage was observed on the subject property.

Unnaturally Discolored Ponds or Flowing Waters

No unnaturally discolored ponds or flowing waters were observed on the subject property.

Groundwater Wells, Cisterns, Cesspools, or Septic Tanks

No groundwater wells, cisterns, cesspools, or septic tanks were observed on the subject property.

Polychlorinated Biphenyl-Containing Items

No transformers or other potential polychlorinated biphenyl-containing items were observed on the subject property.

Sumps or Ponds

No sumps or ponds were observed on the subject property.

Abnormal Odor

No abnormal odors were noted on the subject property.

Surface Staining, Corrosion, and Soil Disturbances

No staining was observed during the site reconnaissance.

Tanks, Drums, Totes, and Intermediate Bulk Containers

No tanks, drums, totes, or intermediate bulk containers were observed during the sire reconnaissance.

Agricultural Use

No evidence of agricultural use was observed during the site reconnaissance.

Off-Site Sources

No off-site sources were observed at the time of site reconnaissance.

Fill Material

No evidence of fill material was observed during the site reconnaissance.

Unidentified Substance Containers

No unidentified substance containers were observed on the subject property.

Pipelines

No evidence of hazardous material pipelines was observed on the subject property.

8 Site History

Based on a review of the historical aerial photographs, historical topographic maps, agency records, and the city directory report, the subject property has not been commercially or residentially developed. The subject property has been undeveloped land from at least 1889 to the present.

A power transmission line was observed parallel to the eastern subject property boundary from as early as 2006 to present. There are gaps in site history greater than 5 years. This constitutes a data failure and is discussed further in Section 13.

The adjoining properties have primarily been vacant land from 1889 to the present. A reservoir has existed on the west-adjoining property from at least 1954 to present. In 1984, a graded lot was observed on the east-adjoining property. An electrical substation has existed on the east-adjacent property from at least 2016 to present. The south-adjacent property has been used as a solid waste facility (Cal-Waste Recovery System) from 2020 to present.

8.1 Historical Aerial Photographs

Dudek reviewed historical aerial photographs obtained from EDR for 1944, 1954, 1959, 1962, 1984, 1998, 2006, 2009, 2012, 2016, and 2020 (Appendix G). Dudek also reviewed aerial photographs from Google Earth for 2021 (Google Earth 2024). The photographs provided background information to assess the possibility of past activities that could present environmental concerns. The aerial photographs are described in Table 2.

Table 2. Summary of Aerial Photographs

Date	Subject Property	Adjoining and Surrounding Properties
1944	The subject property appears to be undeveloped land. East–west-trending stream channels appear on the north and the south portions of the subject property. An east–west-trending road (present-day Double Springs Road) is observed parallel to the southern boundary of the subject property.	Land on the adjoining properties appears undeveloped. An east–west-trending road (present-day Double Springs Road) is observed parallel to the southern boundary of the subject property. Dirt roads and a few scattered structures are observed in the surrounding areas east, southeast, and southwest of the subject property. Several rows of long rectangular structures are observed in the surrounding area south-southeast of the subject property. A square shaped field, located at the present-day Double Springs cemetery, appears in the surrounding area south-southwest of the subject property. The rest of the surrounding areas appear undeveloped.
1954	The subject property appears to be similar to the 1944 aerial photograph.	Some dirt roads and structures previously observed in the surrounding area east of the subject property are no longer observed. A reservoir is observed on the west-adjoining property; some land southwest of this reservoir appears inundated. The rest of the adjacent and surrounding areas appear similar to the 1944 photograph.
1959	The subject property appears to be similar to the 1954 aerial photograph.	A small rectangular field or graded area is observed in the surrounding area southeast of the subject property. Some additional structures are observed in the surrounding area south and southwest of the subject property. The square-shaped field previously observed south-southwest of the subject property appears to now be a flat graded area. The inundated area

Table 2. Summary of Aerial Photographs

Date	Subject Property	Adjoining and Surrounding Properties
		southwest of the reservoir is no longer observed. The rest of the adjoining and surrounding areas appear similar to the 1954 aerial photograph.
1962	The subject property appears similar to the 1959 aerial photograph.	A few additional graded areas and structures are observed in the surrounding areas east and south of the subject property. The flat graded area at the present-day Double Springs cemetery now appears to be a cemetery. The rest of the adjoining and surrounding areas appear similar to the 1959 aerial photograph.
1984	The subject property appears similar to the 1962 aerial photograph.	A large, graded area (present-day electrical substation) appears on the east-adjoining property. The rows of rectangular structures previously observed south-southeast of the subject property no longer appear; graded areas, unimproved roads, and structures now appear in this area. The remaining adjoining and surrounding areas appear similar to the 1962 aerial photograph.
1998	A north–south-oriented dirt trail is observed parallel to the northern portion of the eastern subject property boundary. The rest of the subject property appears similar to the 1984 aerial photograph.	A vacant lot is observed in the surrounding area south of the subject property. Some additional structures are observed southeast of the subject property. The remaining adjoining and surrounding areas appear similar to the 1984 aerial photograph.
2006	The dirt trail previously observed in the 1998 aerial photograph appears more defined. A linear feature (later identified as a power transmission line) is observed parallel to the eastern boundary of the subject property. The rest of the subject property appears similar to the 1998 aerial photograph.	A few small structures, possibly residential, are observed on a graded lot in the surrounding area northeast of the subject property. A small, graded lot containing several rectangular structures, possibly shipping containers, is observed in the surrounding area southeast of the subject property. The remaining adjoining and surrounding areas appear similar to the 1998 aerial photograph.
2009	The subject property appears similar to the 2006 aerial photograph.	Additional dirt roads are observed surrounding the lot with possible shipping containers located southeast of the subject property. The remaining adjoining and surrounding areas appear similar to the 2006 aerial photograph.
2012	The subject property appears similar to the 2009 aerial photograph.	Additional graded areas, structures, and possible earth-moving equipment are observed on the eastern-adjoining property. A field developed for agricultural use and a very large flat graded, or possibly paved, lot are observed in the surrounding area east-southeast of the subject property. The remaining adjoining and surrounding areas appear similar to the 2009 aerial photograph.
2016	The subject property appears similar to the 2012 aerial photograph.	The earth-moving equipment is no longer observed on the east-adjacent property and the graded areas previously observed now appear concrete-paved; this east-adjacent property appears to be an electrical substation. A large area on the south-southeast adjoining property appears to be graded flat.

Table 2. Summary of Aerial Photographs

Date	Subject Property	Adjoining and Surrounding Properties
2020	The subject property appears similar to the 2016 aerial photograph.	The large graded lot on the south-southeast surrounding property now appears to be paved and a large structure and vehicles, including semi-trucks, are observed on this paved lot. Large structures and vehicles are observed on the graded lot on the south-southeast-adjoining property. A north-south road is observed between the southern boundary of the subject property and a large flat graded area south of the subject property. The rest of the adjacent and surrounding areas appear similar to the 2016 photograph.
2021	The dry grass vegetation in the southwestern corner of the subject property appears to be flattened; possible tire marks are observed. The rest of the subject property appears similar to the 2020 aerial photograph.	A storage facility consisting of four long rectangular structures is observed on the flat graded area previously observed in the surrounding area south of the subject property.

Note: See Appendix G for corresponding photographs for 1944 through 2020. The 2021 Google Earth photo is available online and therefore is not included in Appendix G.

8.2 Historical Topographic Maps

Dudek reviewed historical topographic maps from 1889, 1892, 1897, 1902, 1944, 1956, 1962, 2012, 2015, 2018, and 2021. (Appendix B). The topographic maps are a historical source that can be used to document the prior use of the subject property and surrounding area. The topographic maps are described in Table 3.

Table 3. Summary of Topographic Maps

Date	Subject Property	Adjoining and Surrounding Properties
1889	The subject property is depicted approximately 1 mile west of land labeled “Cottage Spring” and 1 mile east of land labeled “Wheats.” A northeast–southwest-trending road is depicted in the central portion of the subject property. The rest of the subject property is depicted as undeveloped land with a very gentle downward slope toward the south.	The adjoining properties are depicted as undeveloped land. A road with a general north–south orientation is depicted on the east-adjoining property; a road with a general east–west orientation is depicted on the south-adjoining property. The surrounding area is depicted as undeveloped land with several streams and a small network of roads. Three structures are depicted in the surrounding areas southeast and southwest of the subject property. The southwest-flowing Calaveras River is depicted approximately 2 miles southeast of the subject property.
1892	The subject property is similar to its appearance on the 1889 topographic map.	The adjoining and surrounding properties are similar to their appearance on the 1889 topographic map.
1897	The subject property is similar to its appearance on the 1892 topographic map.	The adjoining and surrounding properties are similar to their appearance on the 1892 topographic map.

Table 3. Summary of Topographic Maps

Date	Subject Property	Adjoining and Surrounding Properties
1902	The subject property is similar to its appearance on the 1897 topographic map.	The adjoining and surrounding properties are similar to their appearance on the 1897 topographic map.
1944, 1945	The northeast–southwest-oriented road is no longer depicted on the subject property. The road previously depicted on the southern boundary of the subject property is now depicted as a secondary highway. The rest of the subject property is depicted as undeveloped land. More-detailed elevation data are depicted on this map. Two gently sloping valleys, likely dry stream valleys, with an overall western downward gradient are depicted on the subject property.	Undeveloped land with a southwest-flowing intermittent stream is depicted on the north-adjoining and west-adjoining properties. The road previously depicted on the east-adjacent property (present-day Highway 26) is now depicted as a secondary highway. A road (present-day Double Springs Road) is depicted as a secondary highway on the south-adjoining property, abutting the subject property. A highway (present-day Highway 12) and a railroad (labeled Southern Pacific) with a general east–west orientation are depicted in the surrounding areas south of the subject property. A cemetery and vegetated land labeled "Double Springs Ranch" is depicted in the surrounding area southwest of the subject site is. A quarry or open pit mine is depicted in the surrounding area west-southwest of the subject property. A northeast–southwest-oriented power transmission line and a prospecting location are depicted in the surrounding area northwest of the subject property. The rest of the surrounding properties are depicted as undeveloped land with a few roads and scattered structures.
1956	The road previously depicted as a secondary highway on the southern boundary of the subject property is now depicted as a light duty road. The rest of the subject property is similar to its appearance on the 1944 topographic map.	A portion of the surrounding area east of the subject property is unmapped. The secondary highway abutting the southern end of the subject property (present-day Double Springs Road) is now depicted as a light duty road. The secondary highway previously depicted east of the subject property (present-day Highway 26) is now depicted as a highway. A sawmill, water tower, and several large structures are depicted in the surrounding area south of the subject property. The previously depicted quarry or open pit mine is now depicted as a mine shaft; an additional mineshaft is also depicted in this area east-southeast of the subject property. The rest of the adjacent and surrounding areas are depicted similar to the 1944 topographic map.
1962	The subject property is similar to its appearance on the 1956 topographic map.	A reservoir is depicted on the west-adjoining property; this reservoir is depicted along the southwest-flowing Spring Valley Creek, which is fed by a spring located approximately 0.18 miles north of the subject property. Additional structures and a reservoir are depicted near the sawmill and railroad previously in the surrounding area south of the subject property. Dredge tailings are depicted in the intermittent stream valley located between the two mine shafts previously depicted west-southwest of the subject property; the stream is labeled as Youngs Creek. A water tank is depicted adjacent to one of these mine shafts in the surrounding area west-southwest of the subject property. A cluster of six mine shafts is depicted in the surrounding area northwest of the subject property. The rest of the

Table 3. Summary of Topographic Maps

Date	Subject Property	Adjoining and Surrounding Properties
		subject property is depicted similar to the 1956 topographic map.
2012	The road previously depicted on the southern boundary of the subject property is labeled as Double Springs Road. The subject property is similar to its appearance on the 1962 topographic map.	Individual structures, including the sawmill buildings, the railroad tracks, power transmission line, dredge tailings, and mineshafts, are not depicted in this topographic map. The rest of the adjacent and surrounding areas are depicted similar to the 1962 map.
2015	The subject property is similar to its appearance on the 2012 topographic map.	A school is depicted in the east-southeast surrounding area. The reservoir previously depicted in the surrounding area south-southeast of the subject property is no longer depicted; a small ring road is now depicted in this area.
2018	The subject property is similar to its appearance on the 2015 topographic map.	A few intermittent ponds are depicted in the surrounding areas north, east, and northwest of the subject property. Wetland marsh is depicted northeast, southeast, and southwest of the subject property.
2021	The subject property is similar to its appearance on the 2018 topographic map.	The adjoining and surrounding properties are similar to their appearance on the 2018 topographic map.

Note: See Appendix B for corresponding maps.

8.3 Fire Insurance Maps

Historical Sanborn fire insurance maps were requested from EDR. Sanborn maps provide information regarding the historical uses of the subject property and surrounding properties. Sanborn maps typically exist for cities with populations of 2,000 or more; the coverage is dependent on the location of the subject site within the city limits. The Sanborn Map Report lists the subject property as an unmapped property; no additional information was included in the report. The Sanborn Map Report is provided in Appendix H.

8.4 City Directory

City directory listings were requested from EDR (Appendix I). No addresses were identified for the subject property so the streets Double Springs Road and North Highway 26 were used to conduct the search. Listings for Double Springs Road included a school, contracting company, and individuals from 2005 to 2020; listings from 1977 to 2000 included individuals only. Lists for North Highway 26 included individuals from 2014 to 2020; listings from 1977 to 2000 included a self-storage facility, horse ranch, realtor, and individuals.

8.5 Title Information/Environmental Liens

As discussed in Section 6.2, the user is required to complete a search for environmental liens and AULs to satisfy the requirements of the All Appropriate Inquiries Rule for CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) liability protection. An environmental lien search including available records from 1980 to the present was conducted for the subject property parcels (APNs 40002017, 40002018, and 40002019) (Appendix J).

The current legal owner of APN 40002017 is listed as Daniel N. Souza and Eneida G. Souza. No environmental liens or AULs were identified through the parcel search (Appendix J). A summary of the title information is provided in Table 4a.

Table 4a. Parcel Title Information Summary for APN 40002017

Grantee	Grantor	Date	Notes
Daniel N. Souza and Eneida G. Souza	Tax Collector of Calaveras County, Lynette Norfolk	November 2006	Tax Deed
Robert Leaf, Jeffrey Tindall, Curtis Maxwell, Michail Leydiker, Monique Mjorndal, Victor Maloratsky, and Intercorp Financial Development	Business Condominiums, Inc.	November 2001	Grant Deed
Lawrence Kilgore and Patricia Kilgore	Double Springs Partners – a Limited Partnership	December 1997	Grant Deed. Limited records access; research conducted back to 1993. This is the oldest pertinent deed of record accessible at this time.

Note: APN = Assessor's Parcel Number.

The current legal owner of APN 40002018 is listed as James A. Rainboldt and Annette Castagna. No environmental liens or AULs were identified through the parcel search (Appendix J). A summary of the title information is provided in Table 4b.

Table 4b. Parcel Title Information Summary for APN 40002018

Grantee	Grantor	Date	Notes
James A. Rainboldt and Annette Castagna	Tax Collector of Calaveras County, Lynette Norfolk	November 2006	Tax Deed
Robert Leaf, Jeffrey Tindall, Monique Mjorndal, Curtis Maxwell, and Intercorp Financial Development	Business Condominiums, Inc.	November 2001	Grant Deed
Business Condominiums, Inc.	Double Springs Partners – a Limited Partnership	December 1997	Grant Deed. Limited records access; research conducted back to 1993. This is the oldest pertinent deed of record accessible at this time.

Note: APN = Assessor's Parcel Number.

The current legal owner of APN 40002019 is listed as James A. Rainboldt and Annette Castagna. No environmental liens or AULs were identified through the parcel search (Appendix J). A summary of the title information is provided in Table 4c.

Table 4c. Parcel Title Information Summary for APN 40002019

Grantee	Grantor	Date	Notes
James A. Rainboldt and Annette Castagna	Tax Collector of Calaveras County, Lynette Norfolk	November 2006	Tax Deed
Robert Leaf, Jeffrey Tindall, Monique Mjorndal, Agnes Girard, and Intercorp Financial Development	Business Condominiums, Inc.	November 2001	Grant Deed
Business Condominiums, Inc.	Double Springs Partners – a Limited Partnership	December 1997	Grant Deed. Limited records access; research conducted back to 1993. This is the oldest pertinent deed of record accessible at this time.

Note: APN = Assessor's Parcel Number.

9 Previous Environmental Site Assessments

No previous environmental assessments were provided to Dudek during this Phase I ESA.

10 Vapor Encroachment

Dudek evaluated vapor encroachment to determine whether there is a potential for vapors originating from contaminated soil and/or groundwater to occur in the subsurface below the existing and potential future on-site structures. Information obtained from other sources (geologic and hydrogeological information, site reconnaissance, local regulatory agency responses), as discussed in this report, was also considered. The vapor encroachment condition (VEC) assessment was conducted in accordance with ASTM E2600-22 guidance (ASTM 2022). The EDR Radius Map Report (Appendix C) was used to evaluate listed contaminated sites as identified in federal, state, and local databases.

No sites were identified as having groundwater contamination or soil vapor contamination that could impact the subject property; as such, no VEC was identified.

11 Non-ASTM Considerations

This section discusses non-ASTM scope considerations that were included in this Phase I ESA based on the conditions at the subject property. These items are not required to be evaluated per the ASTM Standard, but may still pose environmental health and safety risks.

Asbestos

Asbestos has been specifically designated a hazardous substance pursuant to CERCLA Section 102, but abatement costs are generally not recoverable under CERCLA. Many building materials commonly contained asbestos until the late 1970s, and a smaller list of building materials contained asbestos in the 1980s, such as drywall, joint compounds, vinyl flooring, roofing, asbestos-cement products, and stucco. Under the Toxic Substances Control Act, EPA banned the use of asbestos in many products, with partial bans occurring in 1989 and 1993. However, a full ban of asbestos products did not occur until 2019. Therefore, if a building was constructed prior to 1989, it is likely it contains asbestos. If it was constructed between 1989 and 2019, it is less likely asbestos is present, but there is still a chance that asbestos was used.

No structures were identified on the subject property historically or as part of the site reconnaissance; therefore, asbestos is not of concern for the subject property.

Lead-Based Paint

Paint manufacturers frequently used lead as a primary paint ingredient through the 1940s and gradually decreased its use in the 1950s and 1960s. The federal department of Housing and Urban Development estimates 30% of homes built in the United States before 1978 contain some lead-based paint (HUD 1996). The Consumer Product Safety Commission prohibited the use of lead-based paints in residential buildings in 1978; however, the use of lead-based paints in commercial, industrial, and military buildings is not prohibited. California Code of Regulations Title 17, Section 35043, defines presumed lead-based paint as “paint or surface coating affixed to a component in or on a structure, excluding paint or surface coating affixed to a … residential dwelling constructed on or after January 1, 1979, or a school constructed on or after January 1, 1993.” Commercial, industrial, and military structures may have lead-based paint in surface coatings, regardless of construction date.

No structures were identified on the subject property historically or as part of the site reconnaissance; therefore, lead-based paint is not of concern for the subject property.

Termiticides

Organochlorine pesticides were used through the 1980s for a variety of applications, including termite control on wooden structures. Soils surrounding wooden structures were often treated with these termiticides, resulting in likely impacts to shallow soils surrounding the structure (DTSC 2006). As such, if wooden structures are present on the subject property that were constructed before 1989, there is a potential for elevated concentrations of organochlorine pesticide residues in surrounding soils.

No structures were identified on the subject property historically or as part of the site reconnaissance; therefore, termiticides are not of concern for the subject property.

Radon

Radon is a radioactive gas that is produced from the natural decay of uranium, radium, and thorium in soil, rock, and groundwater (WHO 2023). When radon becomes trapped in buildings and concentrations accumulate, exposure to radon can be a concern.

The EDR Radius Map Report presents radon test results for the vicinity of the subject property. A total of three sites within zip code 95252 were evaluated (Appendix C). The radon concentration at these sites averaged 0.533 picocuries per liter (pCi/L) in the first floor living area. The EPA radon zone for Calaveras County is 2, which corresponds with average expected indoor radon levels between 2 and 4 pCi/L. The federal radon action level is 4 pCi/L.

12 Findings and Conclusions

Information gathered for this report indicated the following:

- The subject property has been undeveloped land from at least 1889 to the present.
- The perimeter of the subject property is fenced with barbed wire.
- Adjoining properties include undeveloped land to the north and west, Double Springs Road followed by a waste transfer facility to the south, and an electrical substation to the east.

This assessment revealed no evidence of RECs, HRECs, CRECs, or VECs in connection with the subject property. Data gaps, which were determined not to be significant, are discussed in Section 13.

Dudek performed this Phase I ESA of the subject property in conformance with the scope and limitations of ASTM Standard E2247-16 (ASTM 2016).

13 Limitations

13.1 Data Gaps and Data Failures

As defined in ASTM E2247-16, a data failure is a failure to achieve the historical research objective required by the ASTM Standard even after reviewing the standard historical resources that are reasonably ascertainable and likely to be useful. A data failure is a type of data gap.

The following data failure was identified for this Phase I ESA:

- Historical resources were not available to satisfy the 5-year interval required by the ASTM Standard. This constitutes a data failure.

As defined in ASTM E2247-16, a data gap is the lack of or inability to obtain information required by this practice despite good faith efforts. A data gap is considered significant when it affects the ability of the environmental professional to identify RECs.

The following data gaps were identified for this Phase I ESA:

- The data failure regarding the 5-year historical data interval is considered a type of data gap. However, because the subject property has been undeveloped since at least 1889, this data gap does not limit the ability to determine RECs and is therefore not considered significant.
- Dudek did not receive a response from the Calaveras County Building Department. Although this is a data gap, based on the site history, available historical and regulatory information, and present-day use, Dudek has determined this data gap is less than significant as it did not limit the ability to identify a REC.
- Lien searches were conducted back to 1993 due to limited records access for Calaveras County. Based on the site history, absence of listings identified for the subject property, and interviews, this data gap does not limit the ability to determine RECs and is therefore not considered significant.

Should Dudek receive information following submission of this Phase I ESA report that completes one of these data gaps and changes the findings of the Phase I ESA report, Dudek will submit the findings to the user in an addendum.

13.2 Report Limitations

The findings and conclusions presented in this report are professional opinions based solely on the indicated data described in this report, as reflected in the discussion in this report of the visual observations of the subject property and vicinity and documentation reviewed and, based on the foregoing, our interpretation of this information and these documents. Dudek makes no warranty, guarantee, or representation, express or implied, as to statements made by others or information included in documentation reviewed or otherwise provided to Dudek, as described in this report. This report does not purport to identify or describe all potential contamination or other issues related to the environment respecting the subject property and/or the vicinity. Likewise, it is understood that it is possible that conditions or contamination exist at the subject property or in the vicinity that are not identified in this Phase I ESA.

No warranties or guarantees or representations, expressed or implied, are made by Dudek, except for the representation that this report has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professionals performing the same or similar services in the same or similar geographical locality. This report, including its conclusions and/or recommendations, are intended exclusively and solely for the purpose outlined herein and for the client identified hereunder. This report may not be relied upon by any other person or entity without the express advance written consent of Dudek specifically identifying such person or entity. Dudek reserves the right to further condition any such third-party use based on matters it deems appropriate under the circumstances, in its sole discretion.

This report is subject to the conditions and restrictions and limitations described in ASTM E2247-16.

In accordance with Section 4.6.1 of ASTM E2247-16, this Phase I ESA is valid as a general matter for not longer than 180 days from the date of the first interview, first review of government records, or first visual inspection. If this Phase I ESA has been prepared for the purposes of a transaction, the report must have been completed no more than 180 days prior to the transaction date to be considered viable. Otherwise, the report must be updated or revised in accordance with ASTM E2247-16.

14 References

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Appendix A

Qualifications of Environmental Professionals

Environmental Professional	Professional License	Degree(s)	Years' Relevant Experience	Task Performed
Susan Smith	Professional Geologist, State of California	BS, Geological Sciences, California State University Fullerton	22	Report Preparation/ Review, QA/QC
Clarissa Smith	Geologist in Training, State of California	BA, Geology, Carleton College	2	Report Preparation
Jesse Cottrell, Omesa Group	—	BS, Anthropology, Middle Tennessee State University	15	Site Reconnaissance

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Appendix B
Historical Topographic Maps

Double Springs BESS
No Address
Valley Springs, CA 95252

Inquiry Number: 7664944.4
May 28, 2024

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/28/24

Site Name:	Client Name:
Double Springs BESS	DUDEK
No Address	605 Third Street
Valley Springs, CA 95252	Encinitas, CA 92024
EDR Inquiry # 7664944.4	Contact: Susie Smith

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by DUDEK were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 13762.01 Ph 06

Project: Double Springs BESS

Coordinates:

Latitude:	38.217126 38° 13' 2" North
Longitude:	-120.76796 -120° 46' 5" West
UTM Zone:	Zone 10 North
UTM X Meters:	695399.66
UTM Y Meters:	4232261.30
Elevation:	993.29' above sea level

Maps Provided:

2021	1897
2018	1892
2015	1889
2012	
1962	
1956	
1944, 1945	
1902	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2021 Source Sheets



Valley Springs
2021
7.5-minute, 24000



San Andreas
2021
7.5-minute, 24000

2018 Source Sheets



Valley Springs
2018
7.5-minute, 24000



San Andreas
2018
7.5-minute, 24000

2015 Source Sheets



Valley Springs
2015
7.5-minute, 24000



San Andreas
2015
7.5-minute, 24000

2012 Source Sheets



Valley Springs
2012
7.5-minute, 24000



San Andreas
2012
7.5-minute, 24000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1962 Source Sheets



Valley Springs
1962
7.5-minute, 24000
Aerial Photo Revised 1959



San Andreas
1962
7.5-minute, 24000
Aerial Photo Revised 1959

1956 Source Sheets



Valley Springs
1956
15-minute, 62500

1944, 1945 Source Sheets

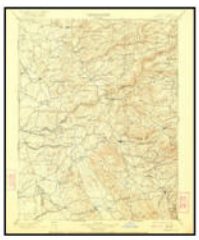


Valley Springs
1944
15-minute, 62500



San Andreas
1945
15-minute, 62500

1902 Source Sheets



Jackson
1902
30-minute, 125000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1897 Source Sheets



Jackson
1897
30-minute, 125000

1892 Source Sheets



Jackson
1892
30-minute, 125000

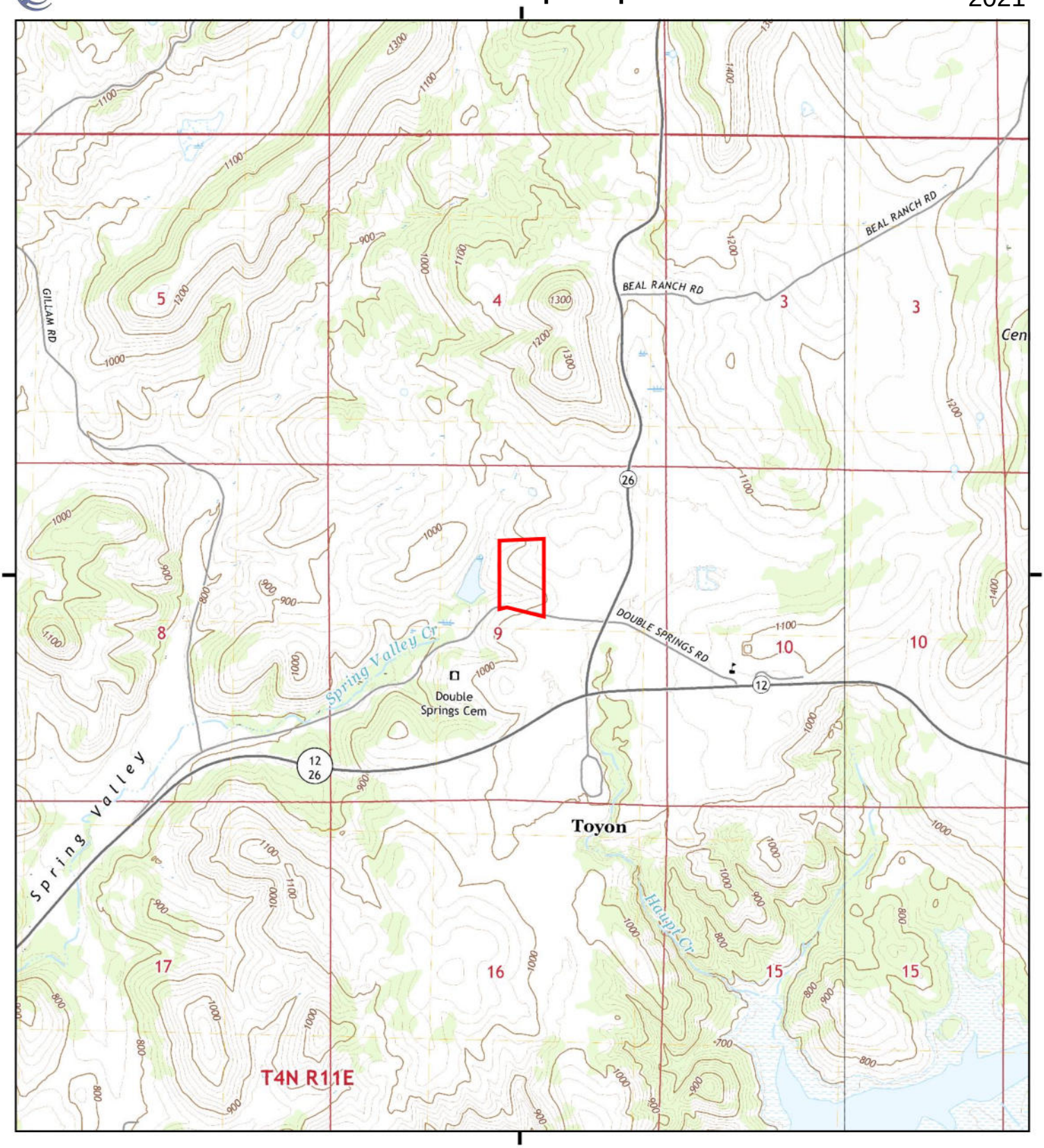
1889 Source Sheets



Jackson
1889
30-minute, 125000

Historical Topo Map

2021



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

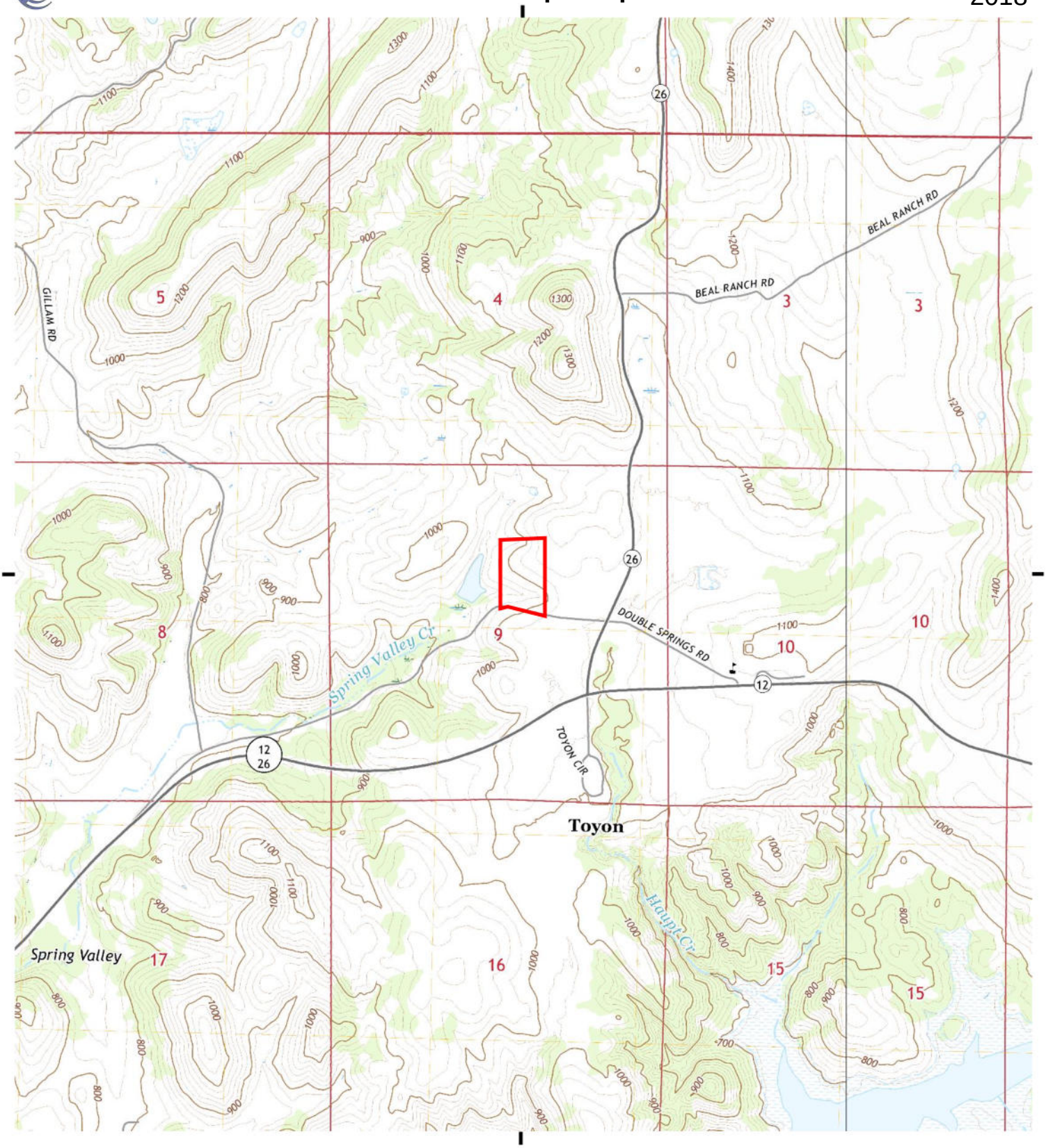
TP, Valley Springs, 2021, 7.5-minute
SE, San Andreas, 2021, 7.5-minute

SITE NAME: Double Springs BESS
ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

N

Historical Topo Map

2018



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W E
SW S SE

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SE, San Andreas, 2018, 7.5-minute

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ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

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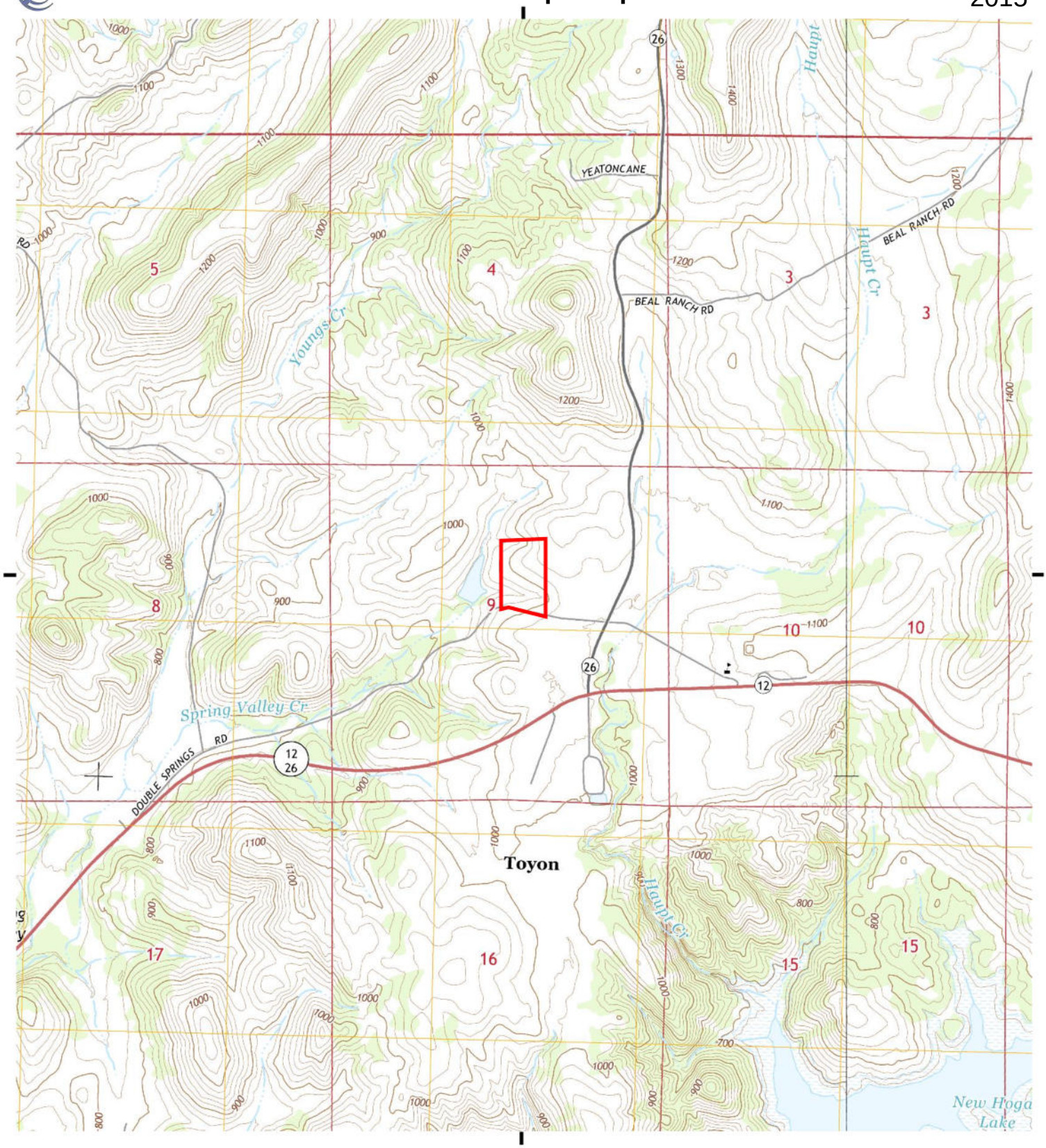

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W E
SW S SE

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SE, San Andreas, 2015, 7.5-minute

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ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

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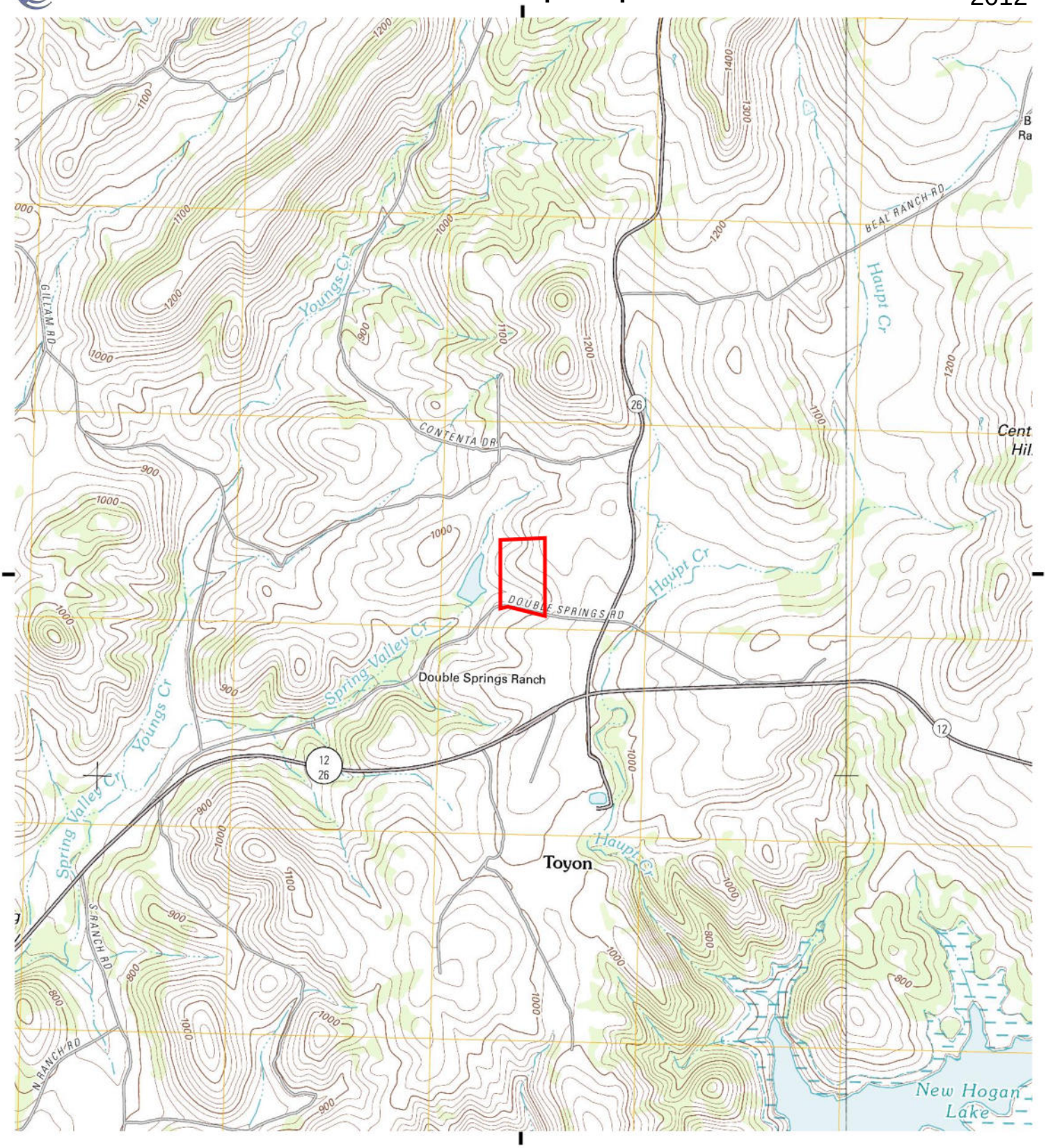

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W E
SW S SE

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SE, San Andreas, 2012, 7.5-minute

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ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

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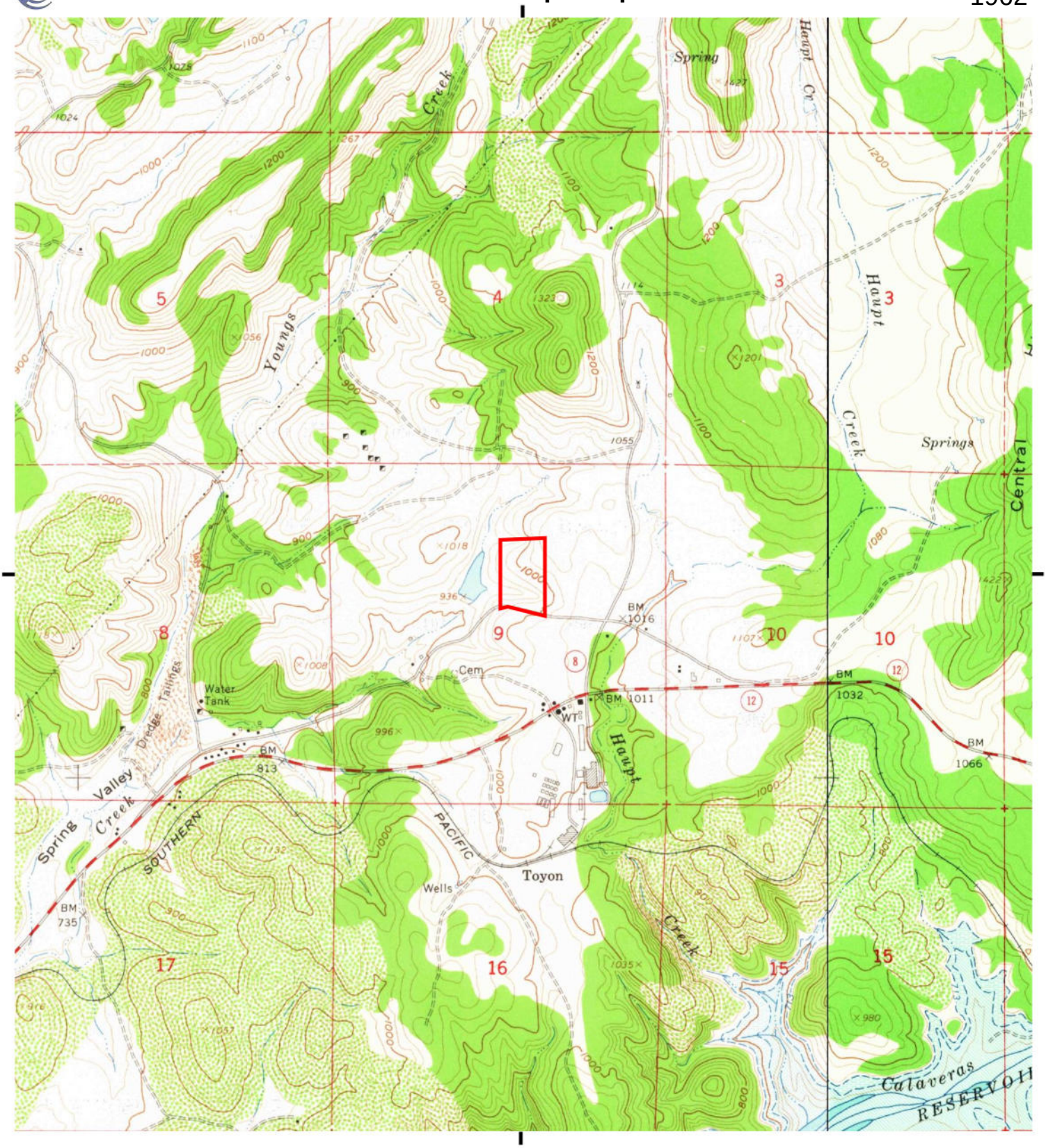

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W E
SW S SE

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Valley Springs, CA 95252
CLIENT: DUDEK

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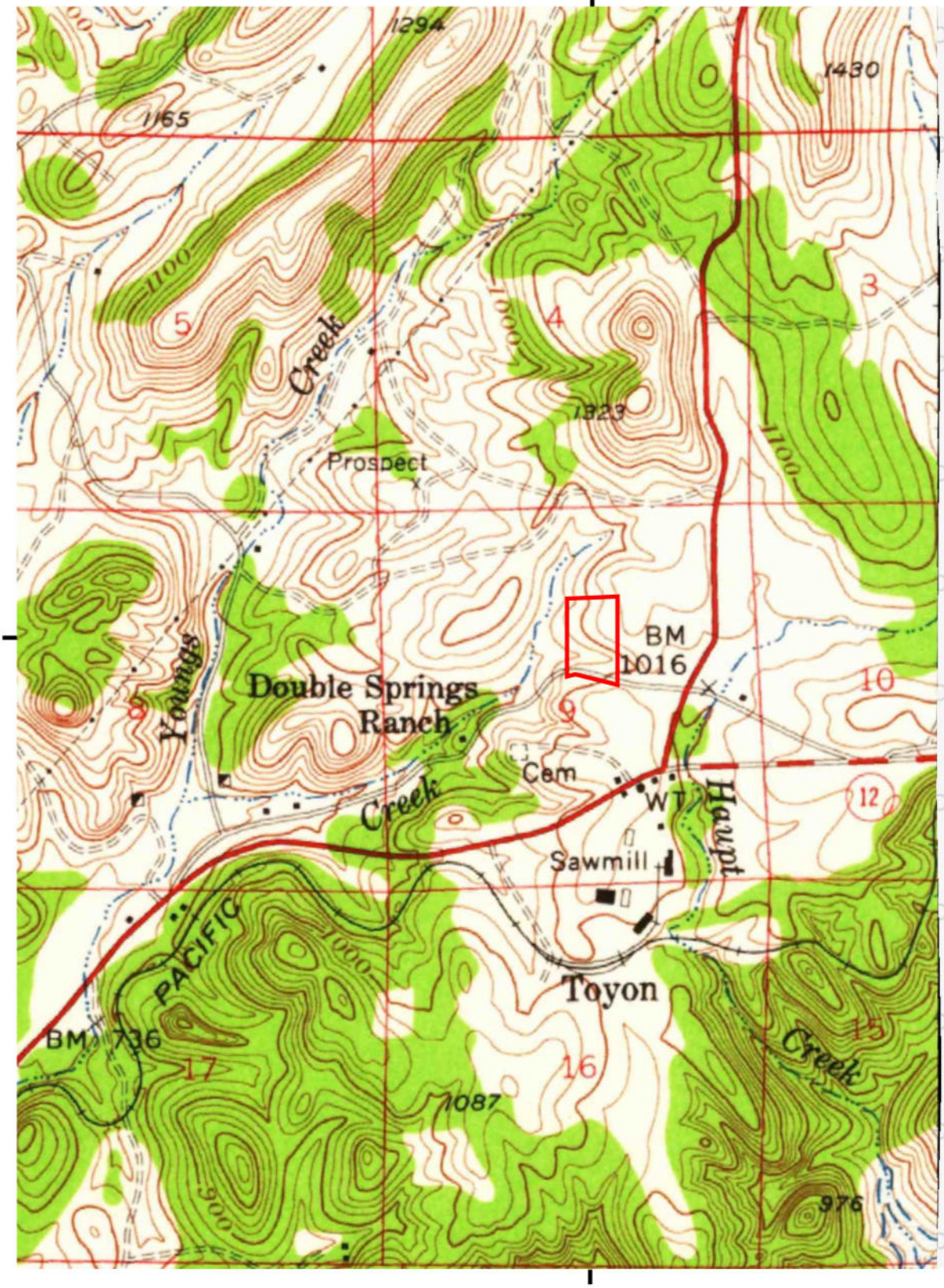

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SW S SE

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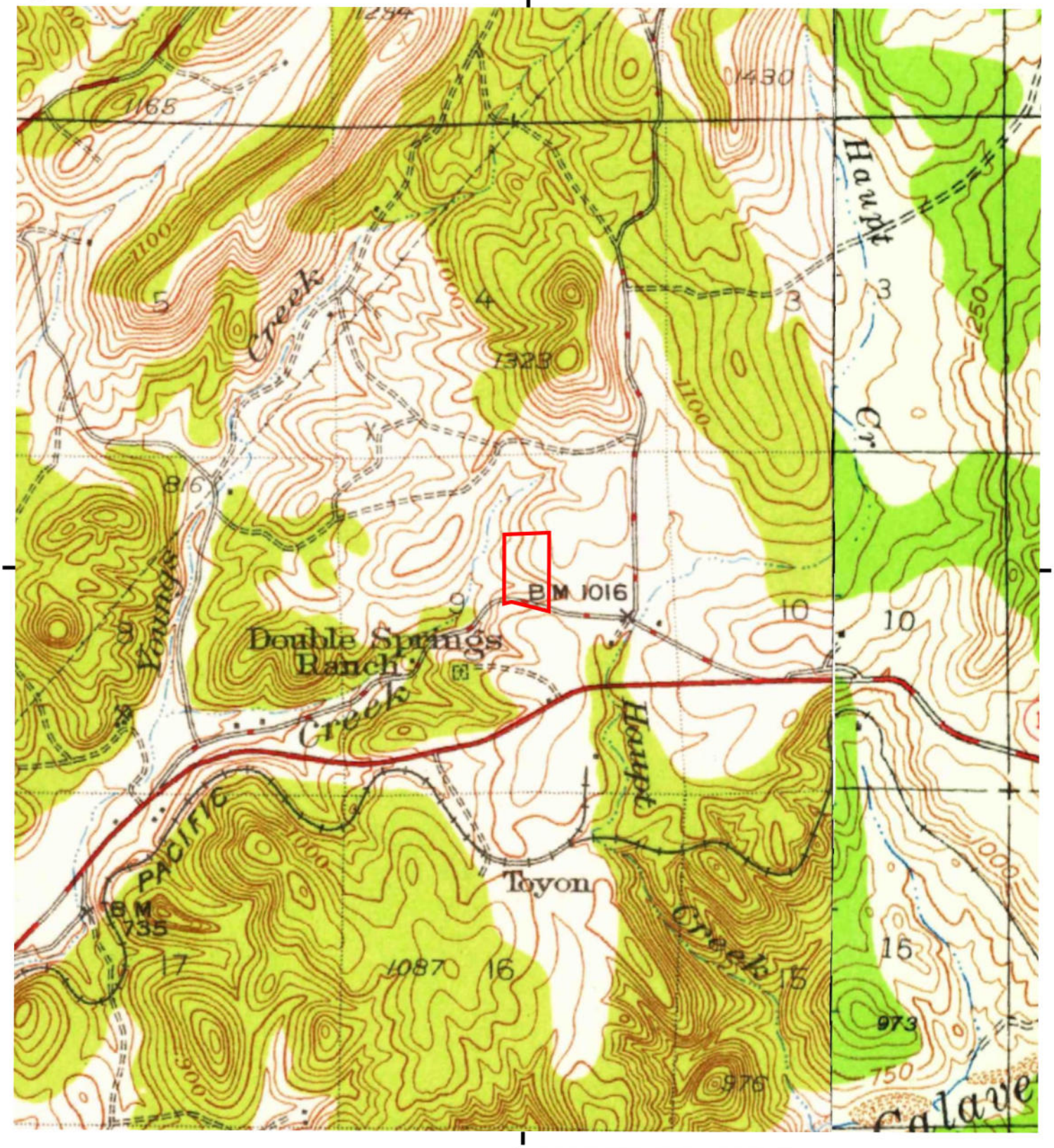
ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

N



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SW S SE

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SE, San Andreas, 1945, 15-minute

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Valley Springs, CA 95252
CLIENT: DUDEK

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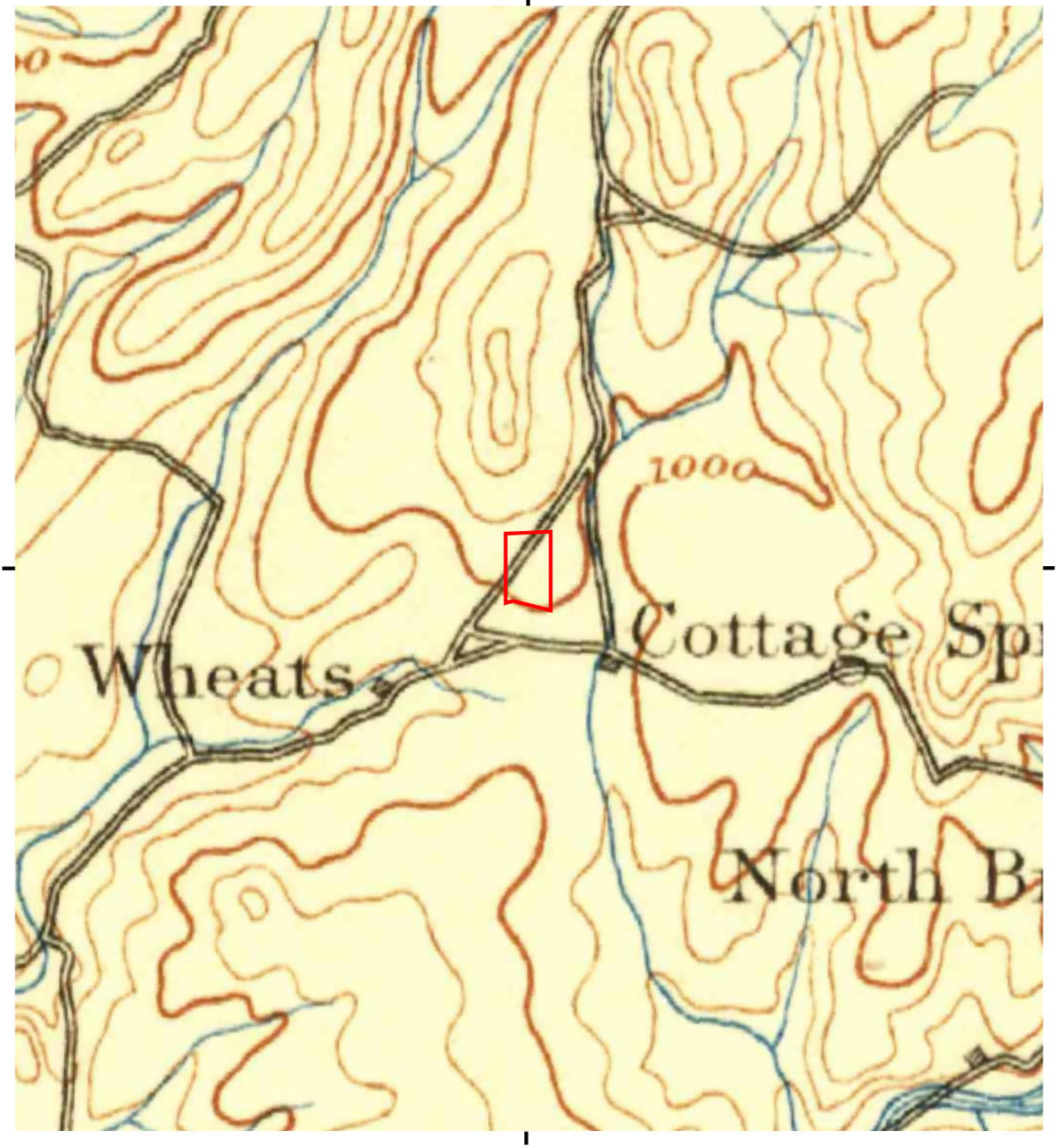

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SW S SE

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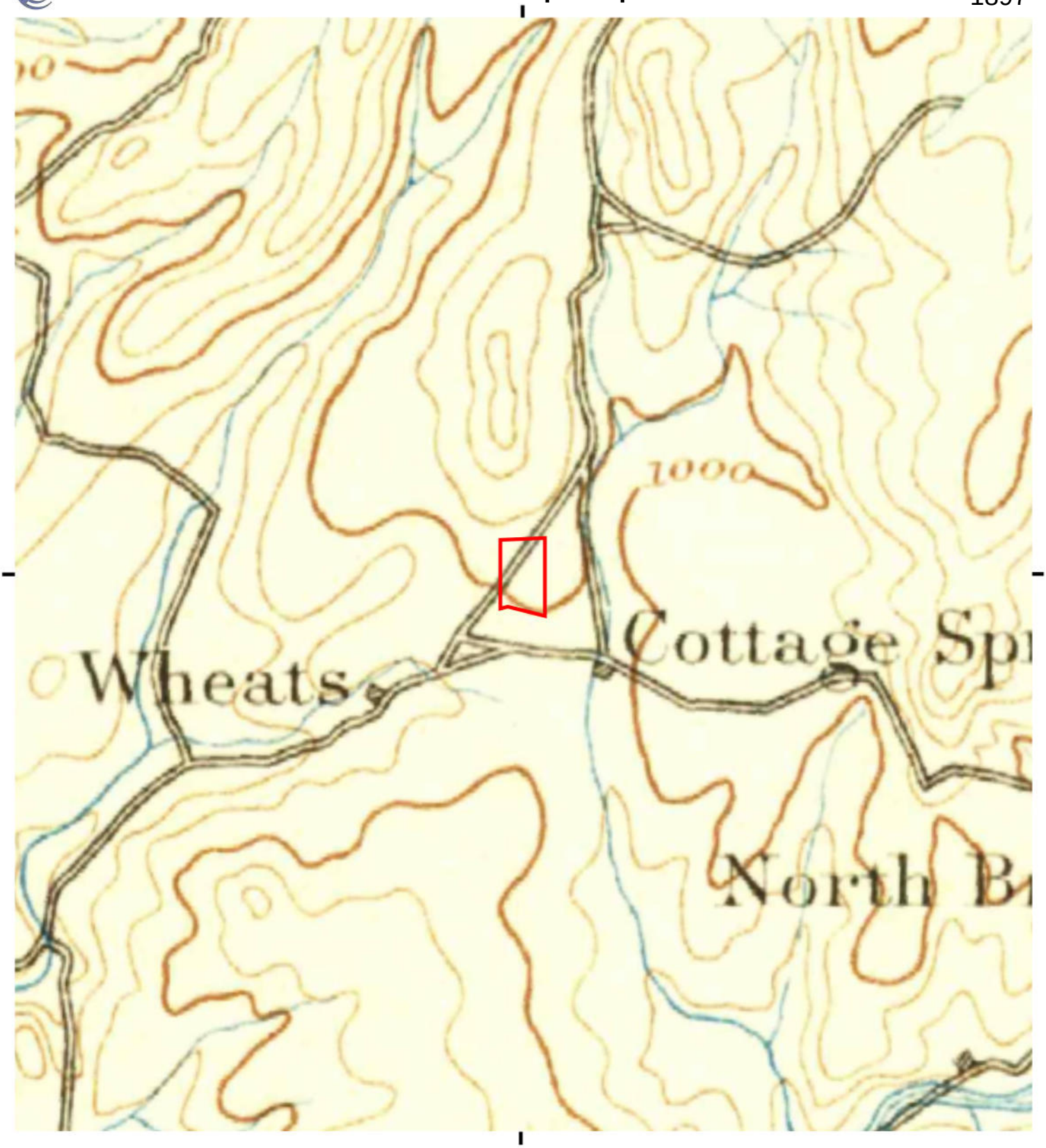
ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

N



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SW S SE

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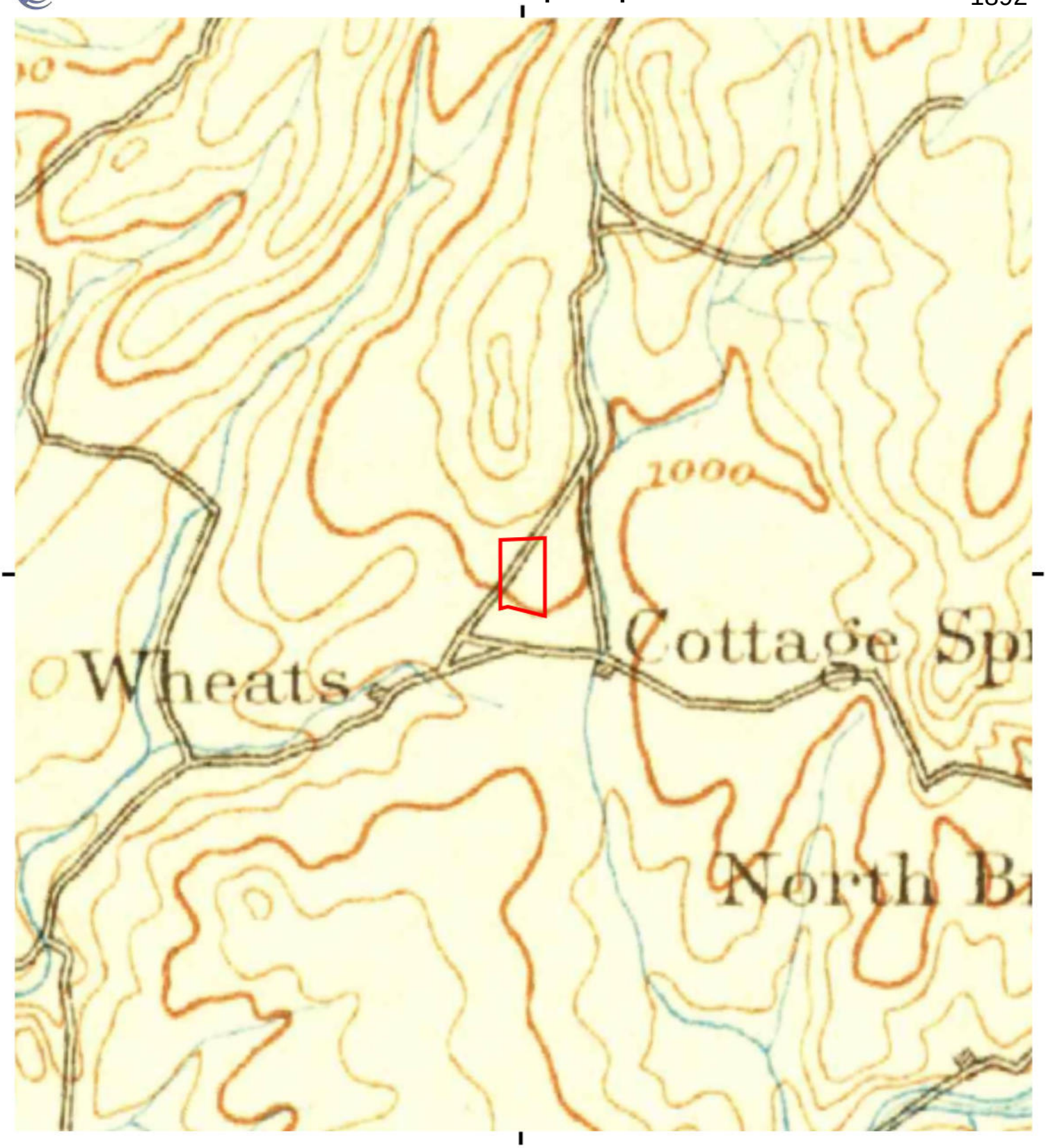
Valley Springs, CA 95252
CLIENT: DUDEK

N



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SW S SE

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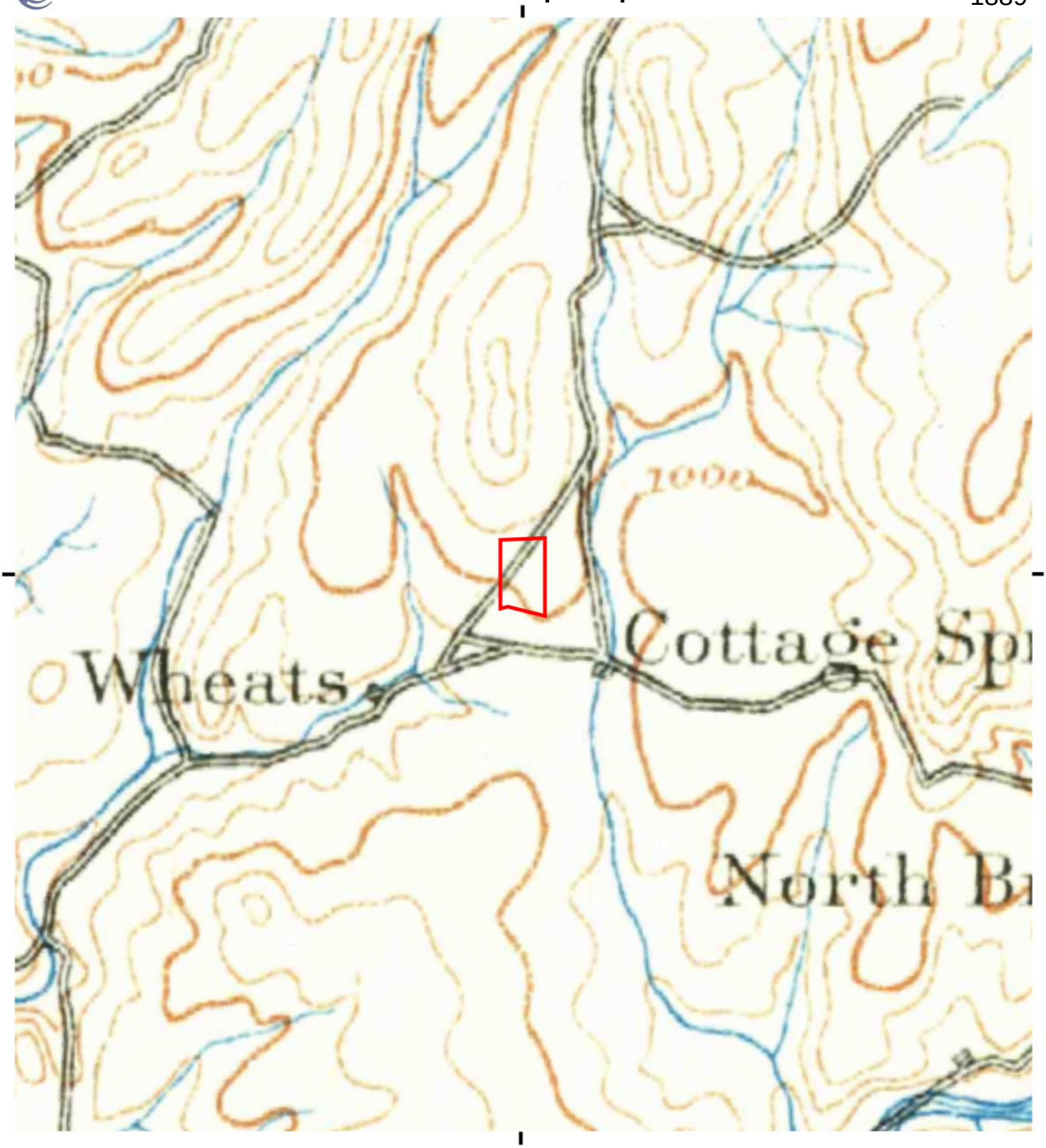
ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

N



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NW N NE
W E
SW S SE

TP, Jackson, 1889, 30-minute

SITE NAME: Double Springs BESS
ADDRESS: No Address
Valley Springs, CA 95252
CLIENT: DUDEK

N

Appendix C
EDR Radius Map Report

Double Springs BESS
No Address
Valley Springs, CA 95252

Inquiry Number: 7664944.2s
May 28, 2024

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	14
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NO ADDRESS
VALLEY SPRINGS, CA 95252

COORDINATES

Latitude (North):	38.2171260 - 38° 13' 1.65''
Longitude (West):	120.7679600 - 120° 46' 4.65''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	695404.6
UTM Y (Meters):	4232055.0
Elevation:	1000 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	50003893 VALLEY SPRINGS, CA
Version Date:	2021
Southeast Map:	50005658 SAN ANDREAS, CA
Version Date:	2021

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20200622
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NO ADDRESS
VALLEY SPRINGS, CA 95252

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	HANGILL J R GILLAM		MINES MRDS	Higher	106, 0.020, South
2	CALIFORNIA WASTE REC	3524 DOUBLE SPRINGS	CERS HAZ WASTE, CERS	Higher	335, 0.063, SSE
3	WHITE PINES BD/DS	T5N,R15ESEC'S 16,21	SWF/LF	Higher	2587, 0.490, SSE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROLS Institutional Controls Sites List

Federal ERNS list

ERNS Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE State Response Sites

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR EnviroStor Database

Lists of state and tribal leaking storage tanks

LUST Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
CPS-SLIC Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST Underground Storage Tank Listing
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing
VCP Voluntary Cleanup Program Properties

Lists of state and tribal brownfield sites

BROWNFIELDS Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees

EXECUTIVE SUMMARY

INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TRIS	List of PFAS Added to the TRI
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
BIOSOLIDS	ICIS-NPDES Biosolids Facility Data
PFAS	PFAS Investigation Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CHROME PLATING	Chrome Plating Facilities Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	Inspection, Compliance and Enforcement
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HWTS	Hazardous Waste Tracking System
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)

WDR Waste Discharge Requirements Listing
CIWQS California Integrated Water Quality System
CERS CERS
NON-CASE INFO NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ Well Stimulation Project (GEOTRACKER)
UST FINDER RELEASE UST Finder Releases Database
UST FINDER UST Finder Database

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WHITE PINES BD/DS	T5N,R15ESEC'S 16,21	SSE 1/4 - 1/2 (0.490 mi.)	3	12
Database: SWF/LF (SWIS), Date of Government Version: 02/05/2024				

EXECUTIVE SUMMARY

Facility ID: 05-CR-0024
Operational Status: Closed
Regulation Status: Pre-regulation

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 01/16/2024 has revealed that there is 1 CERS HAZ WASTE site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CALIFORNIA WASTE REC	***3524 DOUBLE SPRINGS***	***SSE 0 - 1/8 (0.063 mi.)***	***2***	***10***

Other Ascertainable Records

MINES MRDS: Mineral Resources Data System

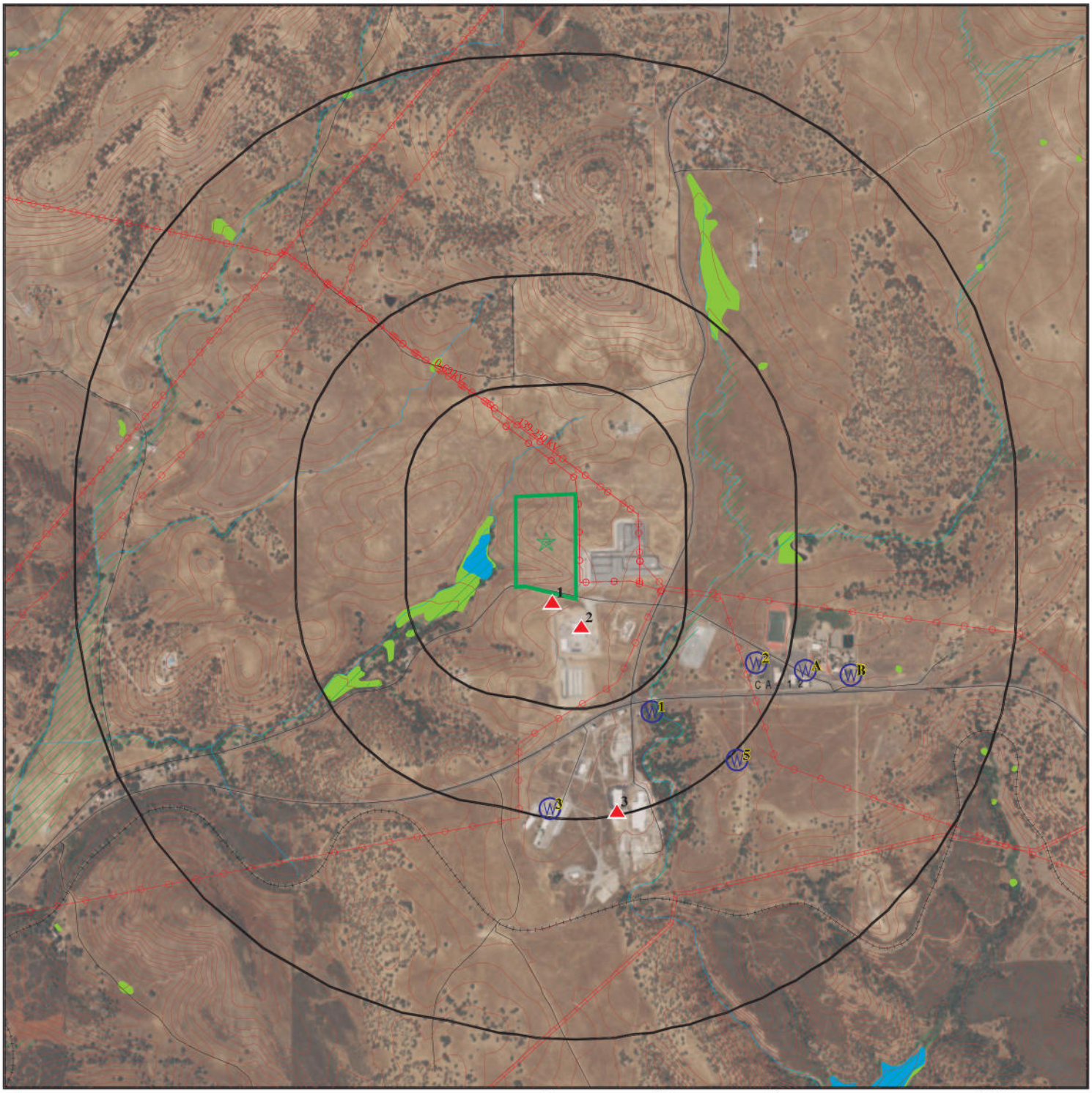
A review of the MINES MRDS list, as provided by EDR, and dated 08/23/2022 has revealed that there is 1 MINES MRDS site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HANGILL J R GILLAM		S 0 - 1/8 (0.020 mi.)	1	9

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7664944.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Pipelines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Double Springs BESS	CLIENT: DUDEK
ADDRESS: No Address Valley Springs CA 95252	CONTACT: Susie Smith
LAT/LONG: 38.217126 / 120.76796	INQUIRY #: 7664944.2s DATE: May 28, 2024 8:03 pm

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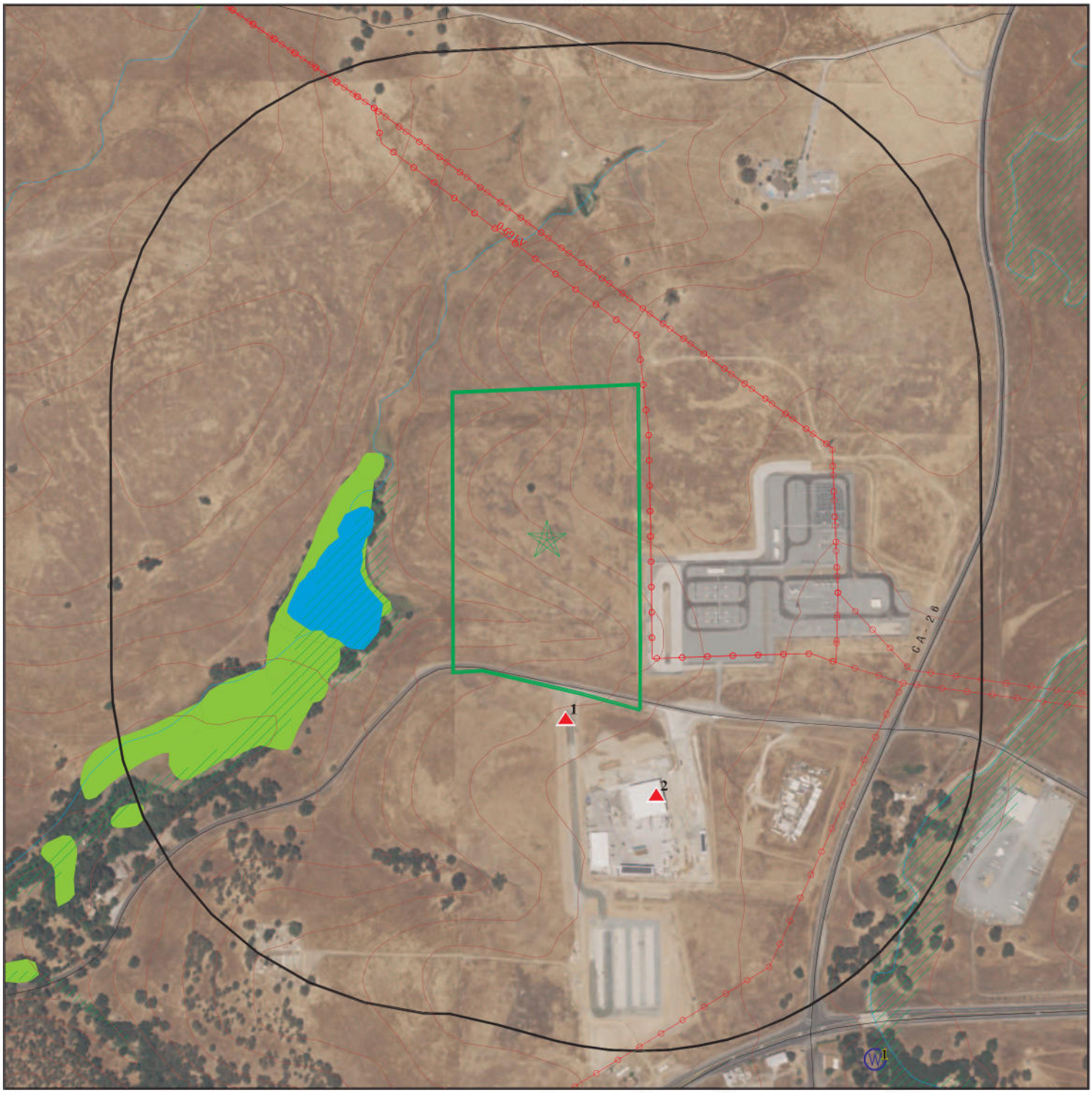
DETAIL MAP - 7664944.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Double Springs BESS	CLIENT: DUDEK
ADDRESS: No Address Valley Springs CA 95252	CONTACT: Susie Smith
LAT/LONG: 38.217126 / 120.76796	INQUIRY #: 7664944.2s DATE: May 28, 2024 8:04 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		1	0	NR	NR	NR	1
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
MINES MRDS	0.250		1	0	NR	NR	NR	1
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TRIS	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
BIOSOLIDS	0.001		0	NR	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
CHROME PLATING	0.500		0	0	0	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWTS	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
UST FINDER RELEASE	0.500		0	0	0	NR	NR	0
UST FINDER	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	2	0	1	0	0	3

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
South
< 1/8
0.020 mi.
106 ft.

HANGILL J R GILLAM
CALAVERAS (County), CA

MINES MRDS **1025621554**
N/A

Relative:
Higher

Actual:
1004 ft.

MINES MRDS:

Name:	HANGILL J R GILLAM
Address:	Not reported
Deposit identification Number:	10138276
City,State,Zip:	CALIFORNIA
URL:	https://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10138276
MRDS Identification Number:	M005807
MAS/MILS Identification Number:	0060091393
Region:	NA
Country:	United States
Primary Commodities:	Gold
Secondary Commodities:	Not reported
Tertiary Commodities:	Not reported
Operation Type:	Unknown
Deposit Type:	Not reported
Production Size:	Not reported
Development Status:	Occurrence
Ore Minerals or Materials:	Not reported
Gangue Minerals or Materials:	Not reported
Other Minerals or Materials:	Not reported
Ore Body Form:	Not reported
Workings Type:	Not reported
Mineral Deposit Model:	Not reported
Alteration Processes:	Not reported
Concentration Processes:	Not reported
Previous Names:	Not reported
Ore Controls:	Not reported
Reporter:	Western Field Operations Center (WFOC)
Host Rock Unit Name:	Not reported
Host Rock Type:	Not reported
Associated Rock Unit Name:	Not reported
Associated Rock Type Code:	Not reported
Structural Characteristics:	Not reported
Tectonic Setting:	Not reported
References:	Not reported
First Production Year:	Not reported
Began Before/After FPY:	Not reported
Last Production Year:	Not reported
Ended Before/After LPY:	Not reported
Year Discovered:	Not reported
Found Before/After YD:	Not reported
Production History:	Not reported
Discovery Information:	Not reported
Latitude:	38.21521
Longitude:	-120.76771

2
SSE
< 1/8
0.063 mi.
335 ft.

CALIFORNIA WASTE RECOVERY SYSTEMS
3524 DOUBLE SPRINGS RD
SAN ANDREAS, CA 95249

CERS HAZ WASTE
CERS

S129057977
N/A

Relative:
Higher

Actual:
1025 ft.

CERS HAZ WASTE:
Name: CALIFORNIA WASTE RECOVERY SYSTEMS
Address: 3524 DOUBLE SPRINGS RD
City,State,Zip: SAN ANDREAS, CA 95249
Site ID: 617303
CERS ID: 10909582
CERS Description: Hazardous Waste Generator

CERS:
Name: CALIFORNIA WASTE RECOVERY SYSTEMS
Address: 3524 DOUBLE SPRINGS RD
City,State,Zip: SAN ANDREAS, CA 95249
Site ID: 617303
CERS ID: 10909582
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-08-2023
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Calaveras County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-08-2023
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Calaveras County Environmental Health
Eval Program: HW
Eval Source: CERS,

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Calaveras County Environmental Health
Entity Title: Not reported
Affiliation Address: 891 Mountain Ranch RoadEnvironmental Health, BLDG E
Affiliation City: San Andreas
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 95249
Affiliation Phone: (209) 754-6399,

Affiliation Type Desc: Identification Signer
Entity Name: Ken Kimmel
Entity Title: Director Of Operations
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported

CALIFORNIA WASTE RECOVERY SYSTEMS (Continued) **S129057977**

Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Parent Corporation
Entity Name:	CALIFORNIA WASTE RECOVERY SYSTEMS
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Jerry Van Zant
Entity Title:	Not reported
Affiliation Address:	175 Enterprise Ct Ste A
Affiliation City:	Galt
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95632
Affiliation Phone:	,
Affiliation Type Desc:	Document Preparer
Entity Name:	Jerry Van Zant
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	175 Enterprise Ct Ste A..
Affiliation City:	Galt
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95632
Affiliation Phone:	,
Affiliation Type Desc:	Legal Owner
Entity Name:	CAL WASTE
Entity Title:	Not reported
Affiliation Address:	175 Enterprise Ct Ste A
Affiliation City:	Galt
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95632
Affiliation Phone:	(209) 369-6887,
Affiliation Type Desc:	Operator
Entity Name:	Dave Vaccarezza
Entity Title:	Not reported
Affiliation Address:	Not reported

CALIFORNIA WASTE RECOVERY SYSTEMS (Continued) **S129057977**

Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(209) 369-6887,

3
SSE
1/4-1/2
0.490 mi.
2587 ft.

WHITE PINES BD/DS **SWF/LF** **S105678085**
T5N,R15ESEC'S 16,21 (MDM) **N/A**
WHITE PINES, CA 95252

Relative:
Higher

Actual:
1008 ft.

SWF/LF (SWIS):

Name:	WHITE PINES BD/DS
Address:	T5N,R15ESEC'S 16,21 (MDM)
City,State,Zip:	WHITE PINES, CA 95252
Region:	STATE
Facility ID:	05-CR-0024
SWIS Number:	05-CR-0024
Point of Contact:	Sabra Ambrose
Is Archived:	No
Is Closed Illegal Abandoned:	Yes
Is Site Inert Debris Engineered Fill:	No
Is Financial Assurances Responsible:	No
Absorbed On:	Not reported
Operational Status:	Closed
Absorbed By:	Not reported
Closed Illegal Abandoned Category:	C1
EPA Federal Registry ID:	Not reported
ARB District:	Calaveras
SWRCB Region:	Central Valley
Local Government:	Calaveras County (Unincorporated)
Reporting Agency Legal Name:	County of Calaveras
Reporting Agency Department:	Environmental Management Agency, Environmental Health Department
Enforcing Agency Legal Name:	County of Calaveras
Enforcing Agency Department:	Environmental Management Agency, Environmental Health Department
Regulation Status:	Pre-regulation

Activity:

SWIS Number:	05-CR-0024
Site Name:	White Pines BD/DS
Activity:	Solid Waste Disposal Site
Activity Is Archived:	No
Category:	Disposal
Activity Classification:	Solid Waste Disposal Site
WDR Number:	Not reported
WDR Landfill Class:	Not reported
Cease Operation:	12/31/1962
Cease Operation Type:	Estimated
Inspection Frequency:	Annual
Throughput:	0
Throughput Units:	Not reported
Remaining Capacity:	0
Remaining Capacity Date:	Not reported
Capacity:	0
Capacity Units:	Not reported
Total Acreage:	0

WHITE PINES BD/DS (Continued) **S105678085**

Disposal Acreage:	0
Permitted Elevation:	0
Permitted Elevation Type:	Not reported
Permitted Depth:	0
Permitted Depth Type:	Not reported
Point of Contact:	Sabra Ambrose
Site Operational Status:	Closed
Site Regulatory Status:	Pre-regulation
Site Is Archived:	No
Is Closed Illegal Abandoned:	Yes
Is Site Inert Debris Engineered Fill:	No
Is Financial Assurances Responsible:	No
Absorbed On:	Not reported
Absorbed By:	Not reported
Closed Illegal Abandoned Category:	C1
EPA Federal Registry ID:	Not reported
County:	Calaveras
ARB District:	Calaveras
SWRCB Region:	Central Valley
Local Government:	Calaveras County (Unincorporated)
Street Address:	T5n,r15esec‘s 16,21 (Mdm)
City:	White Pines
State:	CA
ZIP Code:	95252
Reporting Agency Legal Name:	County of Calaveras
Reporting Agency Department:	Environmental Management Agency, Environmental Health Department
Enforcing Agency Legal Name:	County of Calaveras
Enforcing Agency Department:	Environmental Management Agency, Environmental Health Department

Owner:

SWIS Number:	05-CR-0024
Owner:	Georgia Pacific West, Inc. - Martell
Owner Address:	PO Box 496028
Owner City:	Redding
Owner State:	CA
Owner Zip:	96049
Site Name:	White Pines BD/DS
Site Operational Status:	Closed
Site Type:	Disposal Only
Site Regulatory Status:	Pre-regulation
Latitude:	38.20833
Longitude:	-120.765
Is Archived:	No
Started On:	Not reported
Contact Name:	Glendol Thomason
Contact Title:	Plant Manager
Contact Email:	Not reported
Contact Phone:	(209) 223-1660

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2023
Date Data Arrived at EDR: 12/20/2023
Date Made Active in Reports: 01/24/2024
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/26/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/22/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/22/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/16/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 80

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/04/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 11/16/2023
Date Data Arrived at EDR: 11/16/2023
Date Made Active in Reports: 02/13/2024
Number of Days to Update: 89
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/05/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 85
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 11/28/2023
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 02/27/2024
Number of Days to Update: 89
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/08/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/17/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/18/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/13/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 03/07/2024
Number of Days to Update: 85

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/11/2024
Date Data Arrived at EDR: 03/12/2024
Date Made Active in Reports: 05/10/2024
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/12/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 11/29/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/23/2024
Number of Days to Update: 86

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 04/04/2024
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 04/15/2024
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/22/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/04/2024
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 09/28/2023
Date Made Active in Reports: 12/18/2023
Number of Days to Update: 81

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

CERS HAZ WASTE: California Environmental Reporting System Hazardous Waste

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78
Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18
Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83
Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/14/2024
Number of Days to Update: 77

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 02/27/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/12/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/20/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 77

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/30/2024
Date Data Arrived at EDR: 02/13/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 51

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/11/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/11/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/13/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA Watch List

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/29/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/14/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 11/13/2023
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 86

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/16/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 70

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 09/19/2023
Date Data Arrived at EDR: 10/03/2023
Date Made Active in Reports: 10/19/2023
Number of Days to Update: 16

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2023
Date Data Arrived at EDR: 04/04/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 66

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 57

Source: Nuclear Regulatory Commission
Telephone: 301-415-0717
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 11/27/2023
Date Made Active in Reports: 02/22/2024
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 02/23/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/23/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/11/2024
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 5

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 03/03/2023
Date Data Arrived at EDR: 03/03/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 98

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/26/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/16/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/01/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 1

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 82

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/23/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 11/28/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 12/11/2023
Number of Days to Update: 12

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/09/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 87

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/27/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/06/2023
Date Data Arrived at EDR: 09/13/2023
Date Made Active in Reports: 12/11/2023
Number of Days to Update: 89

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 12/17/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/12/2024
Date Data Arrived at EDR: 02/13/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 51

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI

Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 04/22/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits. Caveats and Limitations: Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-267-2675
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 03/10/2017
Number of Days to Update: 63

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: No Update Planned

BIOSOLIDS: ICIS-NPDES Biosolids Facility Data
The data reflects compliance information about facilities in the biosolids program.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-4700
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing
A listing of PFAS sites included in the Envirostor and GeoTracker databases. Locations of potential sources of per - and polyfluoroalkyl substances (PFAS). This does not mean that PFAS has been produced, used, or discharged at these sites.

Date of Government Version: 11/30/2023
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 02/26/2024
Number of Days to Update: 88

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/06/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing
Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 11/30/2023
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 02/23/2024
Number of Days to Update: 85

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHROME PLATING: Chrome Plating Facilities Listing

This listing represents chrome plating facilities the California State Water Resources Control Board staff identified as possibly being a source of Per- and polyfluoroalkyl substance (PFAS) contamination. Sites and locations were identified by staff with the Division of Water Quality in the California State Water Board. Data was collected from the CA Air Resources Board 2013 and 2018 - Cr VI emission survey, CA Emission Inventory, CA HAZ Waste discharge database and by reviewing storm water permits. Former chrome plating sites are also included that are open site investigation or remediation cases with the Regional Water Quality Control Boards and the Department of Toxic Substances Control.

Date of Government Version: 11/30/2023
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 02/23/2024
Number of Days to Update: 85

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/13/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 03/07/2024
Number of Days to Update: 85

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 77

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

DRYCLEAN FEATHER RIVER DIST: Feather River Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Feather River Air Quality Management District.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 06/05/2023
Number of Days to Update: 88

Source: Feather River Air Quality Management District
Telephone: 530-634-7659
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE CO DIST: Butte County Air Quality Management DistrictDrycleaner Facility Listing

Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 10/18/2023
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 90

Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MOJAVE DESERT DIST: Mojave Desert Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/15/2024
Date Data Arrived at EDR: 04/17/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 7

Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/20/2024
Date Data Arrived at EDR: 02/22/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 76
Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

DRYCLEAN AMADOR: Amador Air District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Amador Air Quality Management District

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77
Source: Amador Air Quality Management District
Telephone: 209-257-0112
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN VENTURA CO DIST: Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 02/08/2024
Number of Days to Update: 23
Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO METO DIST: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing
A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SONOMA CO DIST: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 01/05/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN GLENN CO DIST: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 01/08/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA CO DIST: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SANTA BARB CO DIST: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO SIERRA DIST: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN NO COAST UNIFIED DIST: North Coast Unified Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS CO DIST: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412
Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN BAY AREA DIST: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432
Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQ VAL DIST: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 77
Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN PLACER CO DIST: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 89
Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB CO DIST: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 76
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MONTEREY BAY DIST: Monterey Bay Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/05/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 75
Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA CO DIST: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78
Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO DIST: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/05/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 75
Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL CO DIST: Imperial County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79
Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN EAST KERN DIST: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 01/12/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79
Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MENDO CO DIST: Mendocino County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 77
Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN LAKE CO DIST: Lake County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 02/15/2024
Date Data Arrived at EDR: 02/16/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 76
Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 78
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

DRYCLEAN GRANT: Grant Recipients List
Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/26/2024
Date Made Active in Reports: 04/16/2024
Number of Days to Update: 81
Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/02/2024
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 04/15/2024
Number of Days to Update: 10
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Annually

DRYCLEAN SAN DIEGO CO DIST: San Diego County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 03/19/2024
Date Data Arrived at EDR: 03/21/2024
Date Made Active in Reports: 04/12/2024
Number of Days to Update: 22
Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 06/09/2023
Date Made Active in Reports: 08/30/2023
Number of Days to Update: 82
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/14/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

FIN ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/11/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

FIN ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 77

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

ICE: Inspection, Compliance and Enforcement

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/07/2024
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 0

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/07/2024
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 0

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 01/26/2024
Date Data Arrived at EDR: 01/30/2024
Date Made Active in Reports: 04/17/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 11/29/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/23/2024
Number of Days to Update: 86

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 01/23/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/16/2024
Number of Days to Update: 79

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 02/27/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/25/2024
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/17/2024
Number of Days to Update: 80

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 02/27/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 11/29/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/23/2024
Number of Days to Update: 86

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/06/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 02/29/2024
Number of Days to Update: 85

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/08/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Annually

SANTA CRUZ CO SITE MITI: Site Mitigation Listing

Sites may become contaminated with toxic chemicals through illegal dumping or disposal, from leaking underground storage tanks, or through industrial or commercial activities.The goal of the site mitigation program is to protect the public health and the environment while facilitating completion of contaminated site clean-up projects in a timely manner.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 20

Source: Santa Cruz Environmental Health Services
Telephone: 831-454-2761
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 11/29/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/27/2024
Number of Days to Update: 90

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 11/29/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/22/2024
Number of Days to Update: 85
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/14/2024
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 02/27/2024
Next Scheduled EDR Contact: 06/10/2024
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Varies

UST FINDER RELEASE: UST Finder Releases Database

US EPA's UST Finder data is a national composite of leaking underground storage tanks. This data contains information about, and locations of, leaking underground storage tanks. Data was collected from state sources and standardized into a national profile by EPA's Office of Underground Storage Tanks, Office of Research and Development, and the Association of State and Territorial Solid Waste Management Officials.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 10/31/2023
Date Made Active in Reports: 01/18/2024
Number of Days to Update: 79

Source: Environmental Protecton Agency
Telephone: 202-564-0394
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Semi-Annually

UST FINDER: UST Finder Database

EPA developed UST Finder, a web map application containing a comprehensive, state-sourced national map of underground storage tank (UST) and leaking UST (LUST) data. It provides the attributes and locations of active and closed USTs, UST facilities, and LUST sites from states and from Tribal lands and US territories . UST Finder contains information about proximity of UST facilities and LUST sites to: surface and groundwater public drinking water protection areas; estimated number of private domestic wells and number of people living nearby; and flooding and wildfires.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 10/04/2023
Date Made Active in Reports: 01/18/2024
Number of Days to Update: 106

Source: Environmental Protection Agency
Telephone: 202-564-0394
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 12/26/2023
Date Made Active in Reports: 03/19/2024
Number of Days to Update: 84

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/18/2023
Date Data Arrived at EDR: 12/18/2023
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 86

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 01/19/2024
Date Data Arrived at EDR: 01/24/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 76

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 78

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 76

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/30/2023
Date Data Arrived at EDR: 11/01/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 83

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 04/25/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 78

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/08/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 03/26/2024
Number of Days to Update: 68

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/09/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/09/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 07/13/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 76

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/11/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 12/01/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 12/14/2023
Number of Days to Update: 1

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 12/01/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 03/07/2024
Number of Days to Update: 85
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 10/17/2023
Date Made Active in Reports: 01/09/2024
Number of Days to Update: 84
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/18/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/12/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 42
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72
Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/15/2023
Date Data Arrived at EDR: 11/20/2023
Date Made Active in Reports: 02/15/2024
Number of Days to Update: 87

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/31/2023
Date Data Arrived at EDR: 11/03/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 81

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 10/10/2023
Date Data Arrived at EDR: 11/01/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 10/10/2023
Date Data Arrived at EDR: 11/01/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 10/10/2023
Date Data Arrived at EDR: 11/01/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 02/28/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/16/2024
Number of Days to Update: 78
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64
Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/29/2024
Number of Days to Update: 85
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/05/2023
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 77
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/08/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 01/26/2024
Number of Days to Update: 8

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/14/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 78

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2024
Date Data Arrived at EDR: 05/22/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 2

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2023
Date Data Arrived at EDR: 01/31/2024
Date Made Active in Reports: 04/17/2024
Number of Days to Update: 77

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/15/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/05/2024
Number of Days to Update: 78
Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/08/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/14/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/07/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/01/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/21/2024
Date Data Arrived at EDR: 02/22/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 76

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/24/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 19

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 12/05/2023
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 27

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 01/24/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 75

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 77

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2023
Date Data Arrived at EDR: 11/29/2023
Date Made Active in Reports: 02/26/2024
Number of Days to Update: 89
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/05/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/18/2023
Date Data Arrived at EDR: 12/26/2023
Date Made Active in Reports: 03/19/2024
Number of Days to Update: 84
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/25/2024
Number of Days to Update: 79
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36
Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 12/01/2023
Number of Days to Update: 1

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/13/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/01/2024
Next Scheduled EDR Contact: 06/17/2024
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

DOUBLE SPRINGS BESS
NO ADDRESS
VALLEY SPRINGS, CA 95252

TARGET PROPERTY COORDINATES

Latitude (North):	38.217126 - 38° 13' 1.65''
Longitude (West):	120.76796 - 120° 46' 4.66''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	695404.6
UTM Y (Meters):	4232055.0
Elevation:	1000 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	50003893 VALLEY SPRINGS, CA
Version Date:	2021
Southeast Map:	50005658 SAN ANDREAS, CA
Version Date:	2021

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

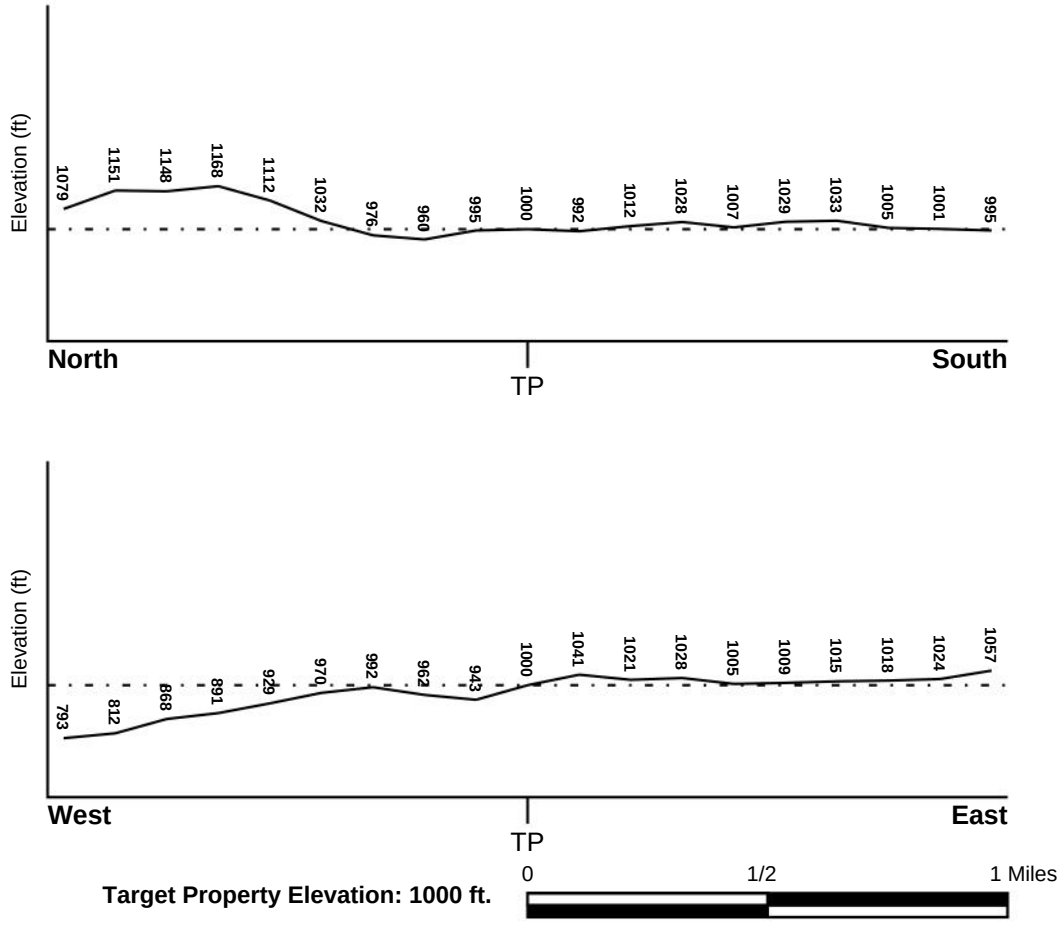
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1000 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06005C0700F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06009C0400E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
VALLEY SPRINGS	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Permian
Series:	Ultramafic rocks
Code:	uM *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	IRON MOUNTAIN
Soil Surface Texture:	stony - loam
Hydrologic Group:	Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	MODERATE
Depth to Bedrock Min:	> 5 inches
Depth to Bedrock Max:	> 20 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	9 inches	stony - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.50 Min: 5.60
2	9 inches	13 inches	unweathered bedrock	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: cobbly - loam
very cobbly - loam
unweathered bedrock

Surficial Soil Types: cobbly - loam
very cobbly - loam
unweathered bedrock

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: No Other Soil Types

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

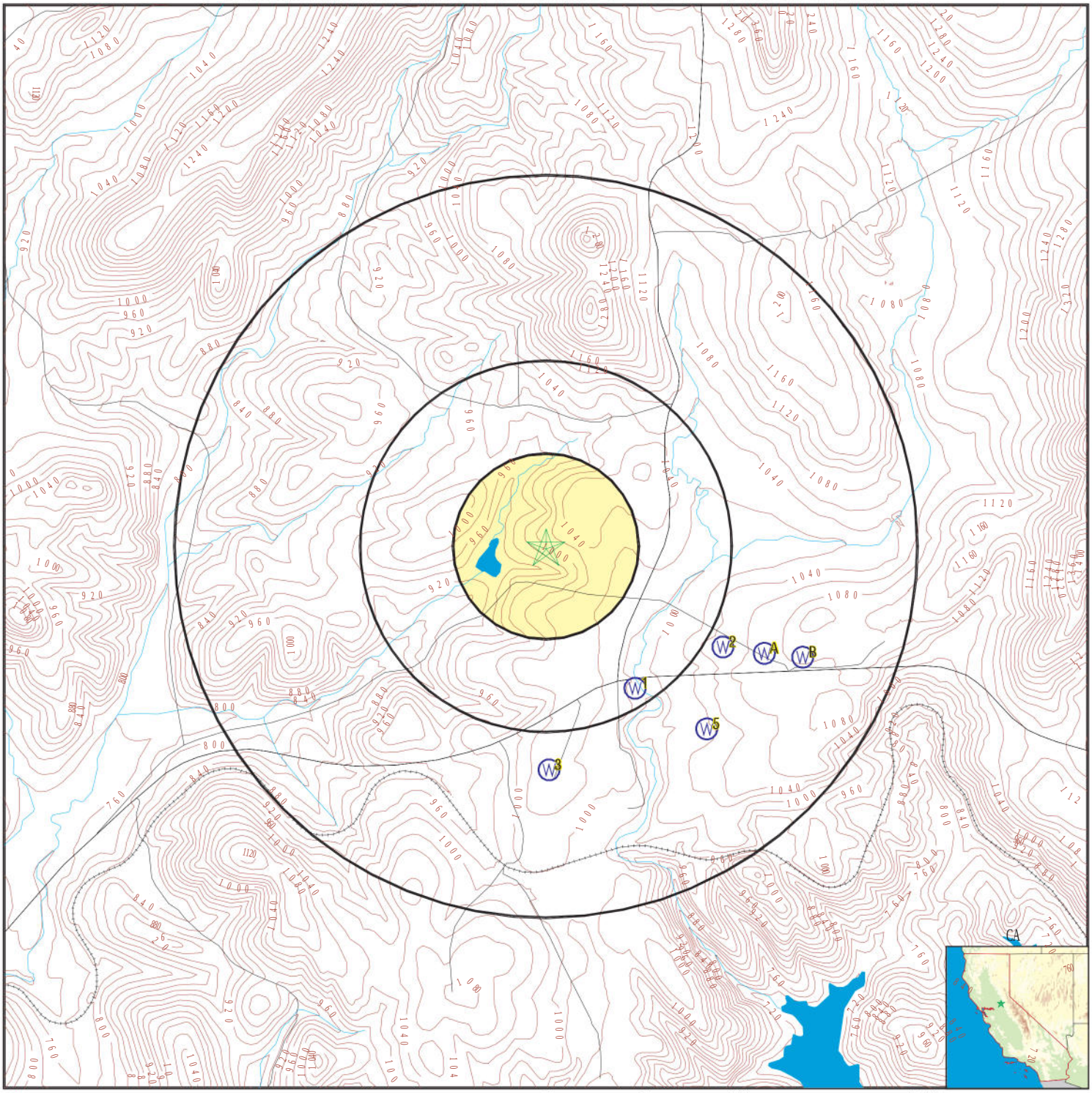
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	4482	1/4 - 1/2 Mile SSE
2	CADDW2000020442	1/2 - 1 Mile ESE
3	CADDW2000016155	1/2 - 1 Mile South
A4	CADDW2000009351	1/2 - 1 Mile ESE
5	CADDW2000023412	1/2 - 1 Mile SE
A6	CADDW2000008382	1/2 - 1 Mile ESE
B7	CADDW2000019439	1/2 - 1 Mile ESE
B8	CADDW2000010398	1/2 - 1 Mile ESE

PHYSICAL SETTING SOURCE MAP - 7664944.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Double Springs BESS	CLIENT:	DUDEK
ADDRESS:	No Address Valley Springs CA 95252	CONTACT:	Susie Smith
		INQUIRY #:	7664944.2s
LAT/LONG:	38.217126 / 120.76796	DATE:	May 28, 2024 8:04 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SSE
1/4 - 1/2 Mile
Lower

CA WELLS **4482**

Seq:	4482	Prim sta c:	04N/11E-09K01 M
Frds no:	0500039001	County:	05
District:	35	User id:	05C
System no:	0500039	Water type:	G
Source nam:	WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	381242.0	Longitude:	1204545.0
Precision:	3	Status:	AR
Comment 1:	WELL IS 640' W OF INTERSECTION OF HWY 12 & HWY 26 AND 55' S OF CENTER		
Comment 2:	OF HWY 12. WELL IS 20' E OF THE WATER TOWER. NEAREST HWY PADDLE MAR-		
Comment 3:	KER IS HWY 12-14.00.	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	0500039	System nam:	Toyon Park Ws
Hqname:	Not Reported	Address:	Not Reported
City:	Not Reported	State:	Not Reported
Zip:	Not Reported	Zip ext:	Not Reported
Pop serv:	0	Connection:	0
Area serve:	Not Reported		

Sample date:	12-FEB-18	Finding:	0.84
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	14-MAR-17	Finding:	0.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	11-MAY-16	Finding:	210.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		

Sample date:	29-FEB-16	Finding:	0.65
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	29-FEB-16	Finding:	0.65
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	17-FEB-15	Finding:	1.23
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	17-FEB-15	Finding:	1.74
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	11-FEB-15	Finding:	3.6
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	22-JAN-14	Finding:	3.8
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	22-JAN-14	Finding:	850.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	26-DEC-13	Finding:	2.
Chemical:	CHLOROFORM (THM)	Report units:	UG/L
Dlr:	1.		
Sample date:	26-DEC-13	Finding:	1.4
Chemical:	DIBROMOCHLOROMETHANE (THM)	Report units:	UG/L
Dlr:	1.		
Sample date:	26-DEC-13	Finding:	1.9
Chemical:	BROMODICHLOROMETHANE (THM)	Report units:	UG/L
Dlr:	1.		
Sample date:	26-DEC-13	Finding:	5.9
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	15-MAY-13	Finding:	220.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	20-FEB-13	Finding:	3.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	20-FEB-13	Finding:	770.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-FEB-12	Finding:	3.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	08-FEB-12	Finding:	770.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		

2
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000020442**

GAMA:

Well ID:	CA0500039_002_002	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500039-002
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500039_002_002&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

3
South
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000016155**

GAMA:

Well ID:	CA0500097_001_001	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500097-001
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500097_001_001&store_num=		
GeoTracker Data:	Not Reported		

A4
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000009351**

GAMA:

Well ID:	CA0500085_001_001	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500085-001
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500085_001_001&store_num=		
GeoTracker Data:	Not Reported		

5
SE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000023412**

GAMA:

Well ID:	CA0500094_002_002	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500094-002
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500094_002_002&store_num=		
GeoTracker Data:	Not Reported		

A6
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000008382**

GAMA:

Well ID:	CA0500039_003_003	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500039-003
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500039_003_003&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B7
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000019439**

GAMA:

Well ID:	CA0500085_004_004	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500085-004
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500085_004_004&store_num=		
GeoTracker Data:	Not Reported		

B8
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADDW2000010398**

GAMA:

Well ID:	CA0500085_003_003	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	0500085-003
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA0500085_003_003&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95252	195	45

Federal EPA Radon Zone for CALAVERAS County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95252

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.533 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

Geothermal Wells Listing
Department of Conservation
Telephone: 916-445-9686
Geothermal well means a well constructed to extract or return water to the ground after it has been used for heating or cooling purposes. Geothermal wells in California (except for wells on federal leases which are administered by the Bureau of Land Management) are permitted, drilled, operated, and permanently sealed and closed (plugged and abandoned) under requirements and procedures administered by the Geothermal Section of the Department of Conservations Geologic Energy Management Division (CalGEM, formerly DOGGR).

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Appendix D
Owner-Provided Information

The ASTM Standard (E 1527-21, Section 10) for Phase I Environmental Site Assessments requires interviews with past and present owners and occupants of the property in order to obtain information on the history and uses of the property. Please answer the questions below to the best of your knowledge. Please provide additional information for all YES answers.

1. **Current Property Uses and Buildings:**

How long have you owned or occupied the property?

Since November 14, 2006

Describe the current uses of the property.

Vacant land.

How long has the property been used for these purposes?

At least since November 14, 2006. Property was vacant land when we purchased it.

Describe any buildings on the property and indicate the years they were constructed.

None that we are aware of.

2. **Past Uses:** Describe the past use(s) of the property and indicate the time period for each use, if known.

The land was vacant when we purchased it in November 2006. I do not know of any uses prior to that.

3. **Previous Owners/Operators:** Please identify previous owners and operators and provide their contact information (if available).

Robert Leaf, Jeffrey Lindall, Monique Bjorndal, Curtis Maxwell, Intercorp Financial Development, 40 Supreme Ct. Walnut Creek, CA 94596

4. **Industrial Uses:** Please indicate whether the property or adjoining properties have been used for the following industrial uses. **Adjoining properties** include properties that are across the street from yours.

Industrial Use	Yes (Property)	Yes (Adjoining Property)	No
Gasoline Station	☐	☐	☐
Printing Facility	☐	☐	☐
Metal Plating Manufacturing	☐	☐	☐
Landfill	☐	☐	☐
Auto Repair/Service Facility	☐	☐	☐
Dry Cleaners	☐	☐	☐
Junkyard/Auto Dismantling	☐	☐	☐
Waste Treatment	☐	☐	☐
Other Industrial Use (please describe below):	☐	☐	☐
We are unaware of the property being used for any purpose.			

5. **Agricultural Uses:** Has the subject property ever been used for agricultural purposes?
☐ Yes ☐ No ☐ Unknown

If yes, please indicate whether any of the following have been present on the subject property.

Agricultural Use	Yes	No	Location
Cattle Hoof Wash	☐	☐	
Wheel Wash, Copper Solution or Other	☐	☐	
Orchards	☐	☐	Location, type, duration:
Orchard Heaters/Smudge Pots	☐	☐	
Pesticide/Herbicide/Fungicide Storage	☐	☐	Location, type, duration:
Pesticide/Herbicide/Fungicide Application	☐	☐	Location, type, duration:

6. **Dump/Burn Areas:** Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped above ground, buried, or burned on the property?
☐ Yes ☐ No ☐ Unknown

If yes, please describe:

7. **Hazardous Substances Storage:** Have any of the following items been stored on the property in containers *greater than 5 gallons*? If yes, please describe.

Substance	Yes	No	Substance and Container Size (e.g., waste oil in 55-gallon drum)
Paint	☐	☐	
Chemicals	☐	☐	
Solvents	☐	☐	
Pesticides	☐	☐	
Fuel	☐	☐	
Oil	☐	☐	
Other (please identify):	☐	☐	

8. **Hazardous Substances Spills:** Have there been spills of the substances in Question 6?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

9. **Pipelines:** Have hazardous substances or petroleum products been transferred across the property in pipelines, either above or below ground?

☐ Yes ☐ No ☐ Unknown

If yes, please provide the type of hazardous substance:

Have any spills occurred?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

10. Fill Dirt: Has fill dirt been brought onto the property from an off-site source?

☐ Yes ☐ No ☐ Unknown

If yes, what was the source of fill dirt?

If yes, was/is there evidence that the fill dirt in may be contaminated?

☐ Yes ☐ No ☐ Unknown

If yes, please provide soil sampling data, if available, or describe other evidence:

11. Pits, Ponds, and Lagoons: Are there currently any pits, ponds, or lagoons on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

Have any pits, ponds, or lagoons previously existed on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

12. **Stained Soil:** Are there currently any areas on the property with stained soil?

☐ Yes ☐ No ☐ Unknown

If yes, please describe where, the size of stain, if there were odors, etc.:

Has stained soil previously existed on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe where, size of stain, if there were odors, etc.:

13. **Storage Tanks:** Do underground or aboveground storage tanks exist or have they existed previously on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please provide details below. If tanks previously existed on the property, please describe how they were closed (e.g., removed, abandoned in place).

Tank Size	Year Installed	Contents	Closure Method (if applicable)	Year Closed (if applicable)

14. **Fill Pipes/Vent Pipes/Access Ways:** Do fill pipes, vent pipes, or access ways indicating the presence of underground storage tanks currently exist on the property?

☐ Yes ☐ No ☐ Unknown

Have fill pipes or vent pipes, which may indicate the presence of an underground storage tank, been removed from the property?

☐ Yes ☐ No ☐ Unknown

15. **Floor Drains:** Are floor drains stained with anything other than water or do they emit foul odors on the property?

☐ Yes ☐ No ☐ Unknown

16. **Private Well/Non-Public Water Source:** Is the property served by a private well or other non-public water source?

☐ Yes ☐ No ☐ Unknown

If yes, please describe source

Are contaminants known to exist in any private well or non-public water system serving the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe

17. **Wastewater:** Does the property discharge wastewater, other than domestic wastewater or stormwater, into the sewer?

☐ Yes ☐ No ☐ Unknown

If yes, please describe

Does a neighboring property discharge wastewater, other than stormwater, onto the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe

Other than permission for domestic hookup, has any type of permit(s) for wastewater discharge been issued to the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe

18. **Septic Tank:** Does a septic tank exist, or has one existed previously at the property?

☐ Yes (currently exists) ☐ Yes (previously existed, was removed) ☐ No ☐ Unknown

19. Cesspools/Cisterns: Do cesspools or cisterns currently exist on the property?

☐ Yes (cesspool) ☐ Yes (cistern) ☐ No ☐ Unknown

Have cesspools or cisterns previously existed on the property?

☐ Yes (cesspool) ☐ Yes (cistern) ☐ No ☐ Unknown

20. Transformer/Capacitor: Is there a transformer or capacitor on the property?

☐ Yes ☐ No ☐ Unknown

If yes, is it known to contain PCBs?

☐ Yes ☐ No ☐ Unknown _____

21. Hydraulic Equipment: Is there any hydraulic equipment such as automobile lifts or elevators on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe type and number of equipment:

If yes, is the hydraulic oil known to contain PCBs?

☐ Yes ☐ No ☐ Unknown

22. Surveys: Has an asbestos and/or lead based paint survey been conducted at the property?

☐ Yes ☐ No ☐ Unknown

If yes, when was the survey(s) conducted? Please provide copies of the reports if available.

23. **Pesticides:** Have pesticides, herbicides, or insecticides been applied on the property?

☐ Yes ☐ No ☐ Unknown

If yes, describe type and when they were used:

24. **Environmental Cleanups:** Are you aware of any environmental cleanups/remediation that have occurred on the property?

☐ Yes ☐ No ☐ Unknown

25. **Notice of Violation:** Have notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products associated with activities conducted on the property been issued?

☐ Yes ☐ No ☐ Unknown

26. **Documents:** Has the property been included in any of the following documents? (Please provide any of the available documents.)

Document	Yes	No	Unknown
Phase I or II Environmental Assessment Reports	☐	☐	☐
Environmental Compliance Audits	☐	☐	☑
Environmental Permits	☐	☐	☐
Underground or Aboveground Tank Registrations	☐	☐	☐
Underground Injection System Registrations	☐	☐	☐
Health & Safety Plan / Safety Data Sheets	☐	☐	☐
Community Right-to-Know Plan	☐	☐	☐
Spill Prevention, Control, and Countermeasure Plan	☐	☐	☐
Hazardous Materials Business Plan	☐	☐	☐
Sampling, Remediation, or Risk Assessment Reports	☐	☐	☐
Hazardous Waste Generator Manifests	☐	☐	☐
Geotechnical Reports	☐	☐	☐

27. **Environmental** Assessments**:** Are there any other environmental assessments that identified hazardous substances or petroleum products on the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

28. **Litigation/Administrative Proceedings:** Is there any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products associated with the property?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

29. **Additional Knowledge:** Are you aware of any other information (not provided above) about the property related to a releases or potential release of hazardous substances or petroleum products?

☐ Yes ☐ No ☐ Unknown

If yes, please describe:

Annette Castagna — Signature

06/18/2024 — Date

Annette Castagna — Name (Printed)

☐ Owner ☐ Occupant ☐ Owner Representative

Property Address: Parcel No. 040000018, 040000019

The ASTM Standard (E 1527-21, Section 10) for Phase I Environmental Site Assessments requires interviews with past and present owners and occupants of the property in order to obtain information on the history and uses of the property. Please answer the questions below to the best of your knowledge. Please provide additional information for all YES answers.

1. **Current Property Uses and Buildings:**

How long have you owned or occupied the property?

approx. 20 years

Describe the current uses of the property.

none

How long has the property been used for these purposes?

20 years

Describe any buildings on the property and indicate the years they were constructed.

none

2. **Past Uses:** Describe the past use(s) of the property and indicate the time period for each use, if known.

none, unknown

3. **Previous Owners/Operators:** Please identify previous owners and operators and provide their contact information (if available).

unknown

4. **Industrial Uses:** Please indicate whether the property or adjoining properties have been used for the following industrial uses. **Adjoining properties** include properties that are across the street from yours.

Industrial Use	Yes (Property)	Yes (Adjoining Property)	No
Gasoline Station	☐	☐	☑
Printing Facility	☐	☐	☑
Metal Plating Manufacturing	☐	☐	☑
Landfill	☐	☐	☑
Auto Repair/Service Facility	☐	☐	☑
Dry Cleaners	☐	☐	☑
Junkyard/Auto Dismantling	☐	☐	☑
Waste Treatment	☐	☐	☑
Other Industrial Use (please describe below):	☐	☐	☑

5. **Agricultural Uses:** Has the subject property ever been used for agricultural purposes?
☐ Yes ☑ No ☐ Unknown

If yes, please indicate whether any of the following have been present on the subject property.

Agricultural Use	Yes	No	Location
Cattle Hoof Wash	☐	☐	
Wheel Wash, Copper Solution or Other	☐	☐	
Orchards	☐	☐	Location, type, duration:
Orchard Heaters/Smudge Pots	☐	☐	
Pesticide/Herbicide/Fungicide Storage	☐	☐	Location, type, duration:
Pesticide/Herbicide/Fungicide Application	☐	☐	Location, type, duration:

6. **Dump/Burn Areas:** Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped above ground, buried, or burned on the property?
☐ Yes ☑ No ☑ Unknown

If yes, please describe:

7. **Hazardous Substances Storage:** Have any of the following items been stored on the property in containers *greater than 5 gallons*? If yes, please describe.

Substance	Yes	No	Substance and Container Size (e.g., waste oil in 55-gallon drum)
Paint	☐	☑	
Chemicals	☐	☑	
Solvents	☐	☑	
Pesticides	☐	☑	
Fuel	☐	☑	
Oil	☐	☑	
Other (please identify):	☐	☐	

8. **Hazardous Substances Spills:** Have there been spills of the substances in Question 6?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

9. **Pipelines:** Have hazardous substances or petroleum products been transferred across the property in pipelines, either above or below ground?

☐ Yes ☑ No ☐ Unknown

If yes, please provide the type of hazardous substance:

Have any spills occurred?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

10. Fill Dirt: Has fill dirt been brought onto the property from an off-site source?

☐ Yes ☑ No ☐ Unknown

If yes, what was the source of fill dirt?

If yes, was/is there evidence that the fill dirt in may be contaminated?

☐ Yes ☐ No ☐ Unknown

If yes, please provide soil sampling data, if available, or describe other evidence:

11. Pits, Ponds, and Lagoons: Are there currently any pits, ponds, or lagoons on the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

Have any pits, ponds, or lagoons previously existed on the property?

☐ Yes ☐ No ☑ Unknown

If yes, please describe:

12. Stained Soil: Are there currently any areas on the property with stained soil?

☐ Yes ☑ No ☑ Unknown

If yes, please describe where, the size of stain, if there were odors, etc.:

Has stained soil previously existed on the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe where, size of stain, if there were odors, etc.:

13. **Storage Tanks:** Do underground or aboveground storage tanks exist or have they existed previously on the property?

☐ Yes ☑ No ☐ Unknown

If yes, please provide details below. If tanks previously existed on the property, please describe how they were closed (e.g., removed, abandoned in place).

Tank Size	**Year Installed**	**Contents**	**Closure Method** (if applicable)	**Year Closed** (if applicable)

14. **Fill Pipes/Vent Pipes/Access Ways:** Do fill pipes, vent pipes, or access ways indicating the presence of underground storage tanks currently exist on the property?

☐ Yes ☑ No ☐ Unknown

Have fill pipes or vent pipes, which may indicate the presence of an underground storage tank, been removed from the property?

☐ Yes ☑ No ☐ Unknown

15. **Floor Drains:** Are floor drains stained with anything other than water or do they emit foul odors on the property?

☐ Yes ☑ No ☐ Unknown

16. **Private Well/Non-Public Water Source:** Is the property served by a private well or other non-public water source?

☐ Yes ☑ No ☐ Unknown

If yes, please describe source

Are contaminants known to exist in any private well or non-public water system serving the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe

17. **Wastewater:** Does the property discharge wastewater, other than domestic wastewater or stormwater, into the sewer?

☐ Yes ☑ No ☐ Unknown

If yes, please describe

Does a neighboring property discharge wastewater, other than stormwater, onto the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe

Other than permission for domestic hookup, has any type of permit(s) for wastewater discharge been issued to the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe

18. **Septic Tank:** Does a septic tank exist, or has one existed previously at the property?

☐ Yes (currently exists) ☐ Yes (previously existed, was removed) ☑ No ☐ Unknown

19. Cesspools/Cisterns: Do cesspools or cisterns currently exist on the property?

☐ Yes (cesspool) ☐ Yes (cistern) ☑ No ☐ Unknown

Have cesspools or cisterns previously existed on the property?

☐ Yes (cesspool) ☐ Yes (cistern) ☑ No ☐ Unknown

20. Transformer/Capacitor: Is there a transformer or capacitor on the property?

☐ Yes ☑ No ☐ Unknown

If yes, is it known to contain PCBs?

☐ Yes ☐ No ☐ Unknown _____

21. Hydraulic Equipment: Is there any hydraulic equipment such as automobile lifts or elevators on the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe type and number of equipment:

If yes, is the hydraulic oil known to contain PCBs?

☐ Yes ☐ No ☐ Unknown

22. Surveys: Has an asbestos and/or lead based paint survey been conducted at the property?

☐ Yes ☐ No ☑ Unknown

If yes, when was the survey(s) conducted? Please provide copies of the reports if available.

23. Pesticides: Have pesticides, herbicides, or insecticides been applied on the property?

☐ Yes ☑ No ☐ Unknown

If yes, describe type and when they were used:

24. Environmental Cleanups: Are you aware of any environmental cleanups/remediation that have occurred on the property?

☐ Yes ☑ No ☐ Unknown

25. Notice of Violation: Have notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products associated with activities conducted on the property been issued?

☐ Yes ☑ No ☐ Unknown

26. Documents: Has the property been included in any of the following documents? (Please provide any of the available documents.)

Document	Yes	No	Unknown
Phase I or II Environmental Assessment Reports	☐	☑	☐
Environmental Compliance Audits	☐	☑	☐
Environmental Permits	☐	☑	☐
Underground or Aboveground Tank Registrations	☐	☑	☐
Underground Injection System Registrations	☐	☑	☐
Health & Safety Plan / Safety Data Sheets	☐	☑	☐
Community Right-to-Know Plan	☐	☐	☑
Spill Prevention, Control, and Countermeasure Plan	☐	☑	☐
Hazardous Materials Business Plan	☐	☑	☐
Sampling, Remediation, or Risk Assessment Reports	☐	☑	☐
Hazardous Waste Generator Manifests	☐	☑	☐
Geotechnical Reports	☐	☐	☑

27. **Environmental** Assessments: Are there any other environmental assessments that identified hazardous substances or petroleum products on the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

28. **Litigation/Administrative Proceedings:** Is there any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products associated with the property?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

29. **Additional Knowledge:** Are you aware of any other information (not provided above) about the property related to a releases or potential release of hazardous substances or petroleum products?

☐ Yes ☑ No ☐ Unknown

If yes, please describe:

Signature

06-01-24

Date

Daniel Souza

Name (Printed)

☑ Owner ☐ Occupant ☐ Owner Representative

Property Address: 040-002-017-000

Double Springs Road, Double Srings ca

Appendix E
Local Agency Records

Calaveras County
Environmental Management Agency

891 Mountain Ranch Rd, San Andreas, CA 95249
Phone (209) 754-6399 Fax (209) 754-6722

RECEIVED
Calaveras County
JUN 10 2024
Environmental
Management Agency
ENR - PW - APCD

PUBLIC RECORDS REQUEST FORM

The Agency's records are open to inspection at all times during our office hours and any person has a right to inspect any public record except those public records exempt from disclosure under the Public Record Act (Government Code 6250 et. seq). Any reasonable segregable portion of a record shall be available for inspection by any person requesting the record after deletion of the portions that are exempted by law. The County's Public Records Fee Ordinance #2909 is available on the county website as well as the County Public Records Resolution #10-019 which contains the County's Policy covering Public Records Request.

Your request must reasonably describe an identifiable record or records. If you want physical copies of the documents requested, if in existence and disclosable, check the box here ☐ you will be charged at .50 cents per copy.

NO Records on file - RH - 6/10/24

Please provide the following information:

Name: Clarissa Smith Phone: 626-204-9813

Company Name: Dudek

Email Address: csmith@dudek.com

Mailing Address: 225 S Lake Ave Suite M210, Pasadena, CA 91101

Address of Property: This property has no address.

Business Name (if applicable): N/A

Assessor's Parcel Number (APN): APNs: 40002017, 40002018, and 40002019

Documents Being Requested: I am requesting building permits, plans and environmental records (including chemical/hazardous materials use, information about potential spills, tanks (USTs & ASTs), cleanups, or environmental investigations) for the following 3 parcels in unincorporated Calaveras County: APNs 40002017, 40002018, and 40002019.

Signature: Clarissa Smith Date: 6/10/2024

We are dedicated to protecting our environment and local community through collaboration, education, and regulation.

RE: Public Records Request Form - APNs 40002017, 40002018, and 40002019

EHMA Web Account <EHMAWeb@calaverascounty.gov>

Mon 6/10/2024 3:41 PM

To:Clarissa Smith <csmith@dudek.com>

1 attachments (90 KB)

20240610154044.pdf;

No files on record for the properties in question.

Thank you.

County of Calaveras
Environmental Health Department, Building E
891 Mountain Ranch Road, San Andreas, CA 95249
phone: 209-754-6399, fax: 209-754-6722

From: Clarissa Smith <csmith@dudek.com>
Sent: Monday, June 10, 2024 2:05 PM
To: EHMA Web Account <EHMAWeb@calaverascounty.gov>
Subject: Public Records Request Form - APNs 40002017, 40002018, and 40002019

CAUTION: This email comes from outside the County. Do not click on links or open attachments unless you recognize the sender and know the content is safe. If you are unsure, use the Phish Alert button.

Hello,

I attached a public records request form to this email. I am requesting environmental records for a property comprised of three parcels in Calaveras County (APNs: 40002017, 40002018, and 40002019).

Thank you!

Clarissa Smith
Hydrogeologist I
DUDEK

O: 626 204 9813 **C:** 650 613 2603
dudek.com



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RE: Email from Member of the Public via the Calaveras County Website

Public Works Web Account <pworksWEB@calaverascounty.gov>
Mon 6/24/2024 7:49 AM
To:Clarissa Smith <csmith@dudek.com>

Good morning

Public Works has no record for permitting on this property. The information you are looking for may be found with Environmental Health or the Building Department.

https://ema.calaverasgov.us/Environmental-Health

Sarah Liptrap

Permit Technician II

Calaveras County Department of Public Works

(209) 754-6401

From: NoReply <noreply@calaverascounty.gov>
Sent: Friday, June 21, 2024 1:20 PM
To: Public Works Web Account <pworksWEB@calaverascounty.gov>
Cc: csmith@dudek.com
Subject: Email from Member of the Public via the Calaveras County Website

Email from Member of the Public via the Calaveras County Website

Your Contact Information:

First Name: Clarissa
Last Name: Smith
Email Address: csmith@dudek.com

Message Details:

Subject: Records request
Message: Good afternoon!

I am writing to inquire if the Public Works department has files relating to any underground storage tank removals, permits, or hazardous waste discharge for a property located on the following 3 parcels in Calaveras County,

APNs: 40002017, 40002018, and 40002019. The property does not have an address.

Please let me know if I can provide additional information to facilitate this request.

Thank you,
Clarissa Smith

Disclaimer

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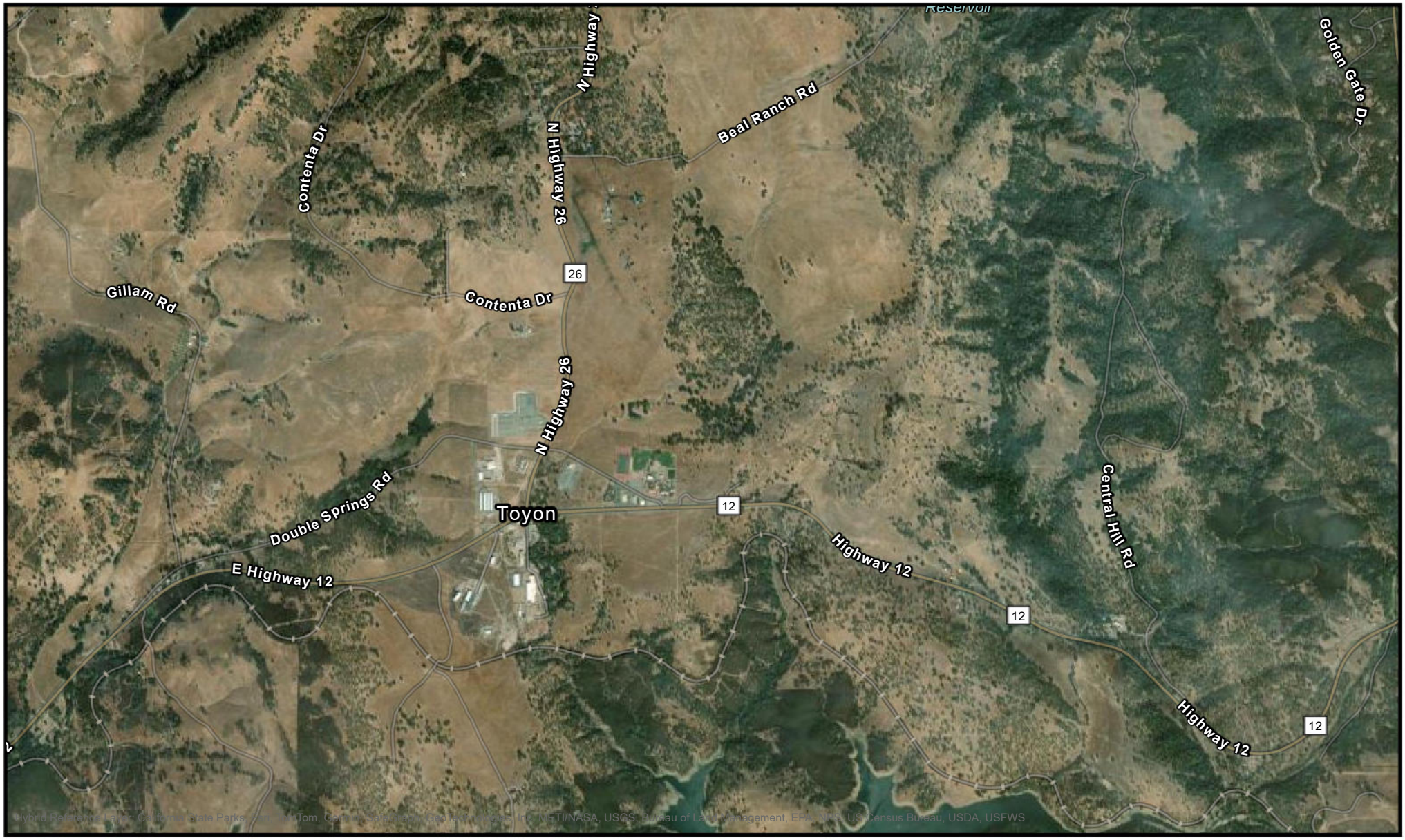


0 0.85 1.7 mi

0 1 2 km

Powered by

6/21/2024

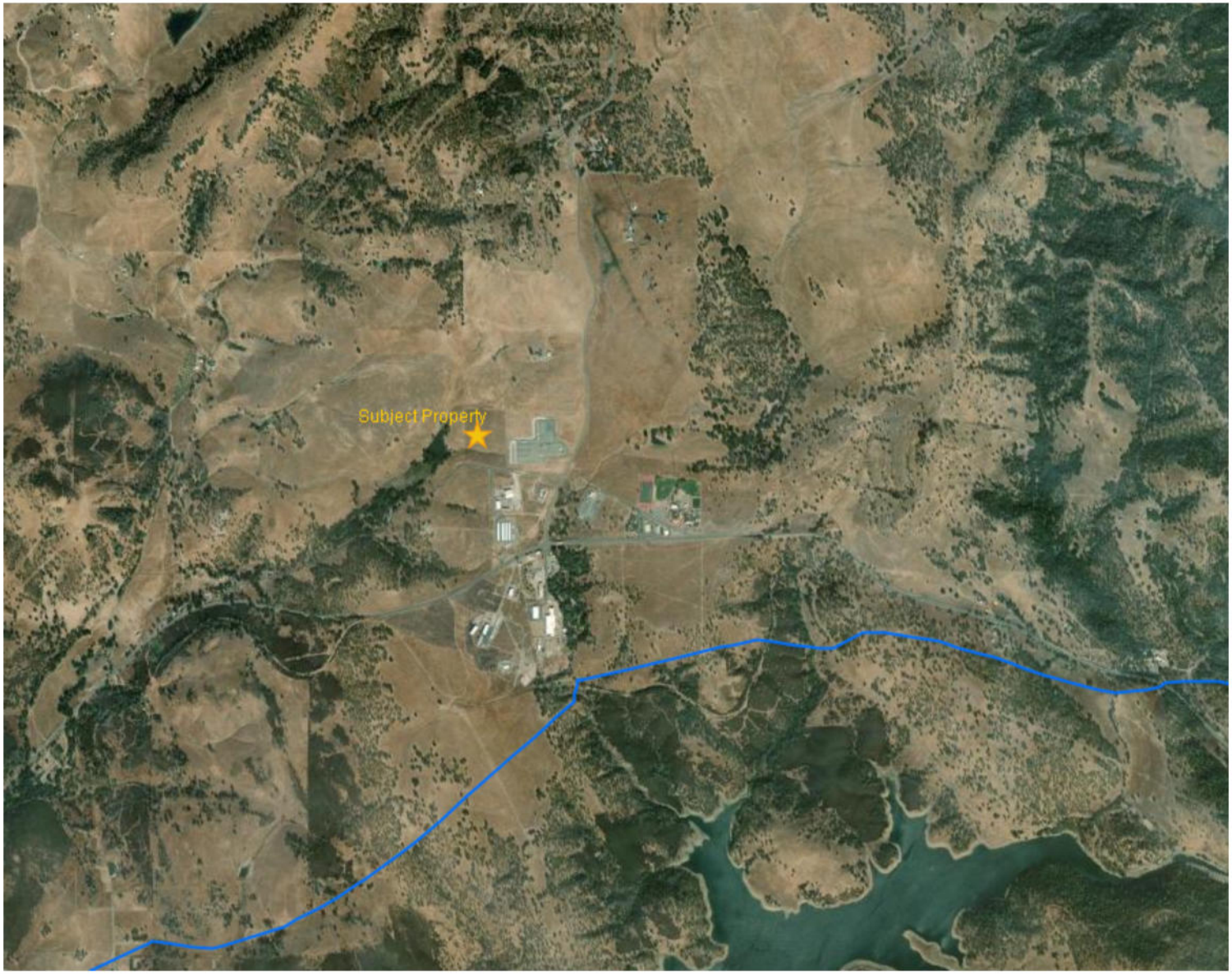
Well Status & Type

Geologic Energy Management Division
715 P Street, MS 1803
Sacramento, CA 95814
Phone: (916) 445-9686
Email: calgem_webmaster@conservation.ca.gov
www.conservation.ca.gov/calgem

California Natural Resources Agency
Department of Conservation

Pipeline and Hazardous Materials Safety Administration

NATIONAL PIPELINE MAPPING SYSTEM



Legend

- Accidents (Liquid)
- Incidents (Gas)
- Gas Transmission Pipelines
- Hazardous Liquid Pipelines
- LNG Plants
- Breakout Tanks

500 m
1000 ft

Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

This map should never be used as a substitute for contacting a one-call center prior to excavation activities. Please call 811 before any digging occurs.

Questions regarding this map or its contents can be directed to npms@dot.gov.

Projection: Geographic

Datum: NAD83

Map produced by the Public Viewer application at www.npms.phmsa.dot.gov

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Date Printed: Jun 21, 2024

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

Appendix F

Site Reconnaissance Report and Photographs

Exceptional Nationwide ESA Site Inspections.

SITE RECONNAISSANCE
Report

Subject Property:
Double Springs BESS
Double Springs Road
Valley Springs, CA

Omesa Project #:
O24-2335

Report Date:
June 11, 2024

Client:
Dudek
605 Third Street
Encinitas, CA



Inspected and Prepared by:

Chad M. Prevatte, EP
President

Table of Contents

Executive Summary 3
Field Site Plan 4
Site Reconnaissance Field Notes 5
Qualifications 13

Executive Summary

Scope and Purpose:

Omesa Data Group completes the Site Reconnaissance to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the Subject Property.

The Omesa Data Group Site Reconnaissance Report satisfies the requirements set forth in ASTM E1527-21 Section 9 – Site Reconnaissance.

The Omesa Data Group Site Reconnaissance includes a visit to the Subject Property to be visually and physically observed in accordance with ASTM E1527-21 Section 9.1, photographic documentation of the Subject Property, a Field Site Plan and geolocated photos, which locates site properties, RECs, other environmental concerns and physical deficiencies. Information not presented in the Site Reconnaissance Report is available in the Client's Data Portal

The Site Reconnaissance Report presents the Omesa-collected field data in an objective and non-biased method with no opinions or conclusions provided by Omesa Data Group.

The exterior of structure(s) if applicable, common interior area(s) if applicable, and the exterior was observed by walking transects to ensure entire exterior and adjacent properties were inspected.

Use of this Report:

The information included in this Site Reconnaissance Report may be used in its entirety by the "Client" listed on the Cover Page. The Client may include this report and associated data in their report. Additionally, the rights to the Omesa Data Group collected data are reserved for Omesa Data Group and clients.

Source of Data:

Data presented in this report is collected from Local City and/or County Records, Interview with Site Contact and Visual Observations.

Limitations:

Limitations encountered on-site are documented in the Site Reconnaissance Field Notes section. Omesa Data Group is not responsible for Limitations on-site, including but not limited to, bodies of water, asphalt, paved areas, snow and dense vegetation.

Guarantee:

Omesa Site Visits are completed by Environmental Professionals with the professional experience, education, training and judgement required and as defined by ASTM E1527-21 Appendix X2. Omesa Site Visit data, which is digitally delivered on-time and professionally and technically the best possible, meets and exceeds the ASTM requirements. If you are not completely satisfied with the data you receive, Omesa Data group will make it right or provide a refund. Guaranteed.

Declaration:

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 C.F.R. § 312 and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Part 312.

Field Site Plan



Approximate boundary

- A - Aboveground storage tank
- Air Compressor
- Back Up Generator (BUG)
- Debris pile
- X- Drains
- Drums
- Dumpster
- Elevator
- Fuel Island
- Former Hydraulic Lift
- Hydraulic Lift
- Other – See Report
- Oil/Water Separator
- Paint Booth
- Parts Washer
- Septic System
- Sumps
- Surface water
- Transformers
- Underground Storage Tank
- M - Well (monitoring)
- Well (all other types)

Site Reconnaissance Field Notes

Omesa Project Number: O24-2335
Project Name: Double Springs BESS
Site Address: Double Springs Road
City: Valley Springs
State: CA
Date of Inspection: June 11, 2024
Weather: Clear and 80 degrees
Site Contact Name/Contact Information/Person Interviewed (if applicable): None
Property Owner: Unknown
Previous Address: Unknown
Property Occupant(s): None
Past Property Occupant(s): Unknown
Current Use(s): Undeveloped land
Past Use(s): Unknown

Lot size (acres): 15.00
Structure(s) Description (exterior/interior): None
Date(s) of Construction: NA
Structure(s) size (square feet): NA
Heating/cooling system: NA
Heating fuel source: NA
Previous Heating/cooling system: Unknown
UST(s), (#, age, size construction, 2nd containment, Veeder Root, Tank Tightness, Registration, Insurance): None
Past UST(s): Unknown

Aboveground Storage Tanks (ASTs): None
Past AST(s): Unknown
Potable Water Source: None
Past Potable Water Source: Unknown
Sewage Disposal: None
Past Sewage Disposal: Unknown
Septic Systems: None
Electric Company: None
Natural Gas Company: None
Solid Waste Company: None

Dumpster(s):

None

Drum, Totes, and Intermediate Bulk Containers:

None

Hazardous Substances:

None

Drain(s) and Sump(s):

None

Oil Water Separator(s) (OWS), (#, age, discharge, construction type, service provider, frequency):

None

Backup generator(s), (#, age, issues) None
Elevator(s) (#, age, type, issues): None
Well(s): None
Parts Washer(s): None
Air Compressor(s) (#, age, discharge point, staining): None
Paint Booth(s) (#, age, permits, waste): None
Transformer(s): None

PCB-Containing Items:
None

Wastewater discharge:
None

Spills(s):
None

Strong, Pungent or Noxious Odors and Their Sources:
None

Pools of Liquid:
None

Stains or Corrosion on Floors, Walls or Ceilings:
None

Stained Soil or Pavement:
None

Standing Water, Pools or Sumps containing Liquids Likely to be Hazardous Substances or Petroleum Products:
None

Pits, Ponds or Lagoons:
None

Stressed Vegetation:
None

Solid Waste (dumping/debris):
None

Roads or Paths:
None

Topography:
Moderate West

Land Use Restrictions:
Unknown

Engineering Controls/Institutional Controls:
Unknown

Environmental Liens:
Unknown

Violation of Environmental Laws:
Unknown

Environmental Permits:
Unknown

Waste Manifests:
Unknown

Previous Reports:
Unknown

Past use of adjoining and surrounding, if identifiable:
Unknown

Additional Information:
None

Limitations:
None

Qualifications

Chad M. Prevatte, EP, CEM
President

Education
B.S. Environmental Resource Management - The Pennsylvania State University

Experience
Chad is an Environmental Professional with 29+ years of Environmental experience and 24+ years of dedicated Phase I ESA experience.

- Currently Founder and President of Omesa Group and responsible for the business operations including Phase I ESA Site Inspection data deliverables, product execution/delivery, client acquisition and interaction, product forecasting and development, and profit and loss reports.

- Managed 1,000s of Phase I ESAs of nearly every type of facility (including CERCLA, SHWS, LUSTs and More) and nearly every type of property nationwide, including gas stations, farmland, retail, dry cleaners, 30+ story high rises, skilled nursing facilities, oil change facilities, abandoned properties, undeveloped land, multi-family properties, manufacturing, warehouse, light industrial and many more.

- Previous experience includes the Director of Environmental Services and Western Regional Manager for a nationwide due diligence company. Specific responsibilities include EP Team management, training, report writing, senior review, report template construction, client acquisition, operations and business development, and more.

- Prior to 2000, Chad's experience includes Quality Assurance Auditor at the Rocky Mountain Arsenal CERCLA (Superfund) project including QA/QC Audits in order to ensure compliance with the Quality Management Plan, CQAPs and government regulations, where he performed field inspections of a variety of remediation projects including in situ slurry walls, hazardous waste landfill construction and building demolition.



Photo 1. Photo showing the undeveloped hilly terrain of the subject property.



Photo 2. Photo showing a tree near the central portion of the subject property.



Photo 3. Looking southeast across the subject property. Note Double Springs Road in the background.



Photo 4. Photo showing an example of the barbed-wire fence on the subject property. Looking north at the northern-adjoining undeveloped land.



Photo 5. Eastern-adjoining substation.



Photo 6. Western-adjoining undeveloped land and pond.



Photo 7. Looking east along Double Springs Road. Note the eastern-adjoining substation (left) and the southern-adjoining waste transfer facility (right).



Photo 8. Southern-adjoining waste transfer facility.

Appendix G
Historical Aerial Photographs

Double Springs BESS

No Address

Valley Springs, CA 95252

Inquiry Number: 7664944.8

May 30, 2024

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

05/30/24

Site Name:

Double Springs BESS
No Address
Valley Springs, CA 95252
EDR Inquiry # 7664944.8

Client Name:

DUDEK
605 Third Street
Encinitas, CA 92024
Contact: Susie Smith

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2020	1"=500'	Flight Year: 2020	USDA/NAIP
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1998	1"=500'	Acquisition Date: August 16, 1998	USGS/DOQQ
1984	1"=500'	Flight Date: June 16, 1984	USDA
1962	1"=500'	Flight Date: January 01, 1962	Cartwright
1959	1"=500'	Flight Date: June 06, 1959	USGS
1954	1"=500'	Flight Date: October 12, 1954	USGS
1944	1"=500'	Flight Date: October 02, 1944	USDA

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INQUIRY #: 7664944.8
YEAR: 2020
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 2012
= 500'
N
EDR

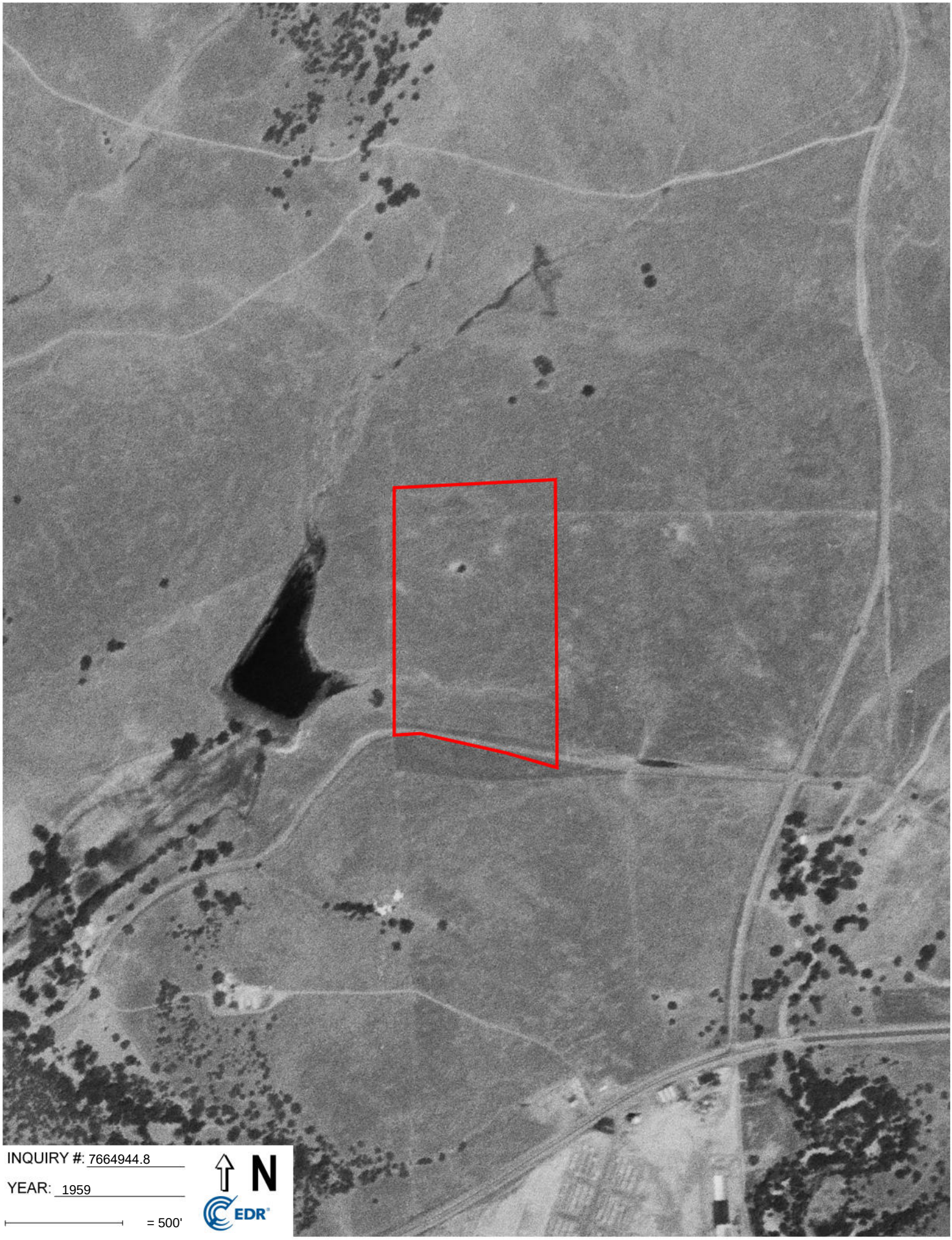

INQUIRY #: 7664944.8
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 1998
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 1984
= 500'
N
EDR


INQUIRY #: 7664944.8
YEAR: 1962
= 500'
N
EDR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YEAR: 1959
= 500'
N
EDR



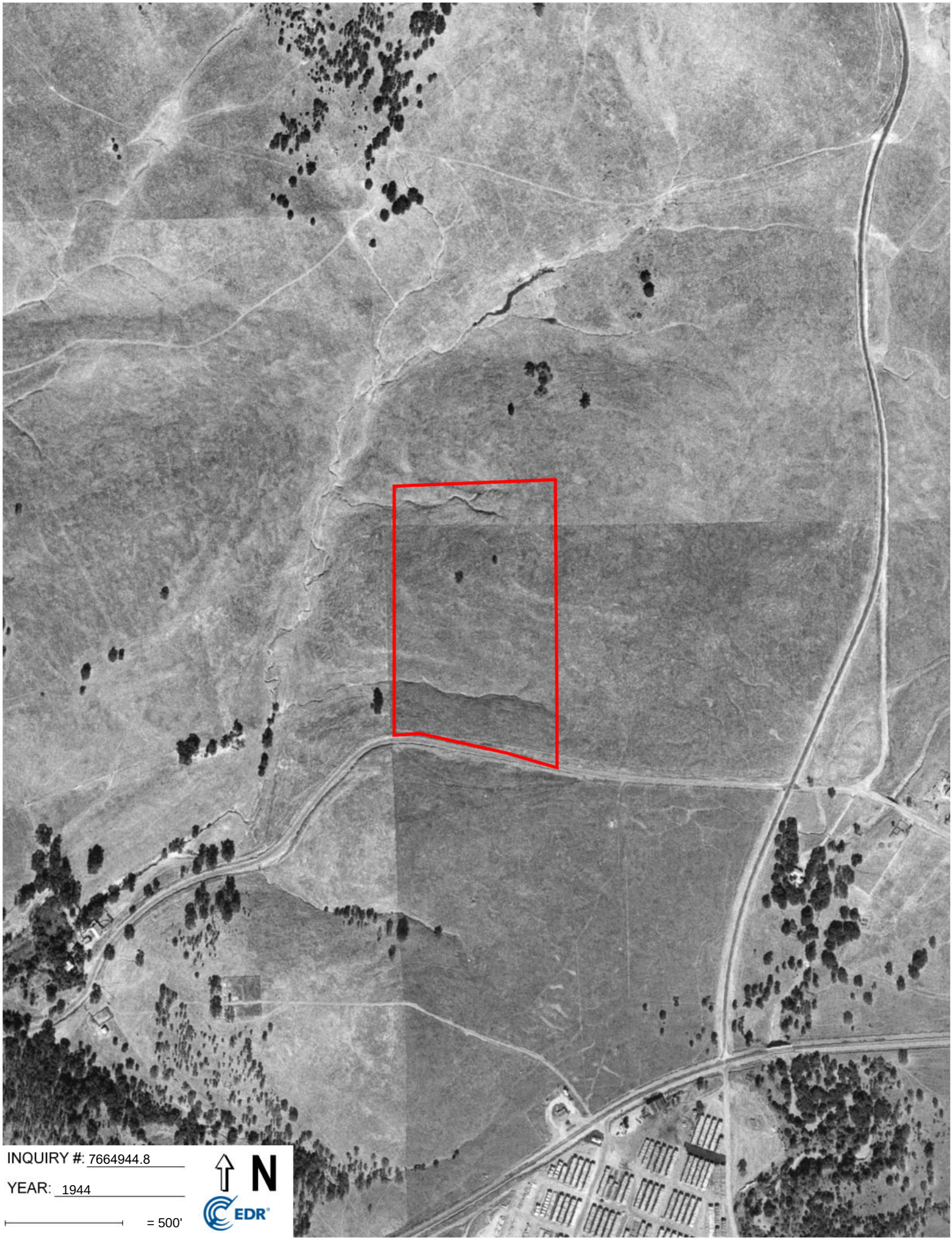
INQUIRY #: 7664944.8

YEAR: 1954

= 500'

N

EDR


INQUIRY #: 7664944.8
YEAR: 1944
= 500'
N
EDR

Appendix H

Certified Sanborn Map Report

Double Springs BESS

No Address

Valley Springs, CA 95252

Inquiry Number: 7664944.3

May 28, 2024

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/28/24

Site Name:

Double Springs BESS
No Address
Valley Springs, CA 95252
EDR Inquiry # 7664944.3

Client Name:

DUDEK
605 Third Street
Encinitas, CA 92024
Contact: Susie Smith

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by DUDEK were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # E997-4DDB-8DE5

PO # 13762.01 Ph 06

Project Double Springs BESS

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: E997-4DDB-8DE5

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Appendix I
City Directory Report

Double Springs BESS
No Address
Valley Springs, CA 95252

Inquiry Number: 7664944.5
May 31, 2024

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2020	☐	☑	EDR Digital Archive
2017	☐	☑	Cole Information
2014	☐	☑	Cole Information
2010	☐	☑	Cole Information
2005	☐	☑	Cole Information
2000	☐	☑	Cole Information
1995	☐	☐	Cole Information
1992	☐	☑	Cole Information
1985	☐	☑	Haines Criss-Cross Directory
1981	☐	☑	Haines Criss-Cross Directory
1977	☐	☑	Haines Criss-Cross Directory
1974	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

No Address
Valley Springs, CA 95252

No Addresses Found

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
DOUBLE SPRINGS RD			
2020	pg. A1	EDR Digital Archive	
2017	pg. A3	Cole Information	
2014	pg. A5	Cole Information	
2010	pg. A7	Cole Information	
2005	pg. A9	Cole Information	
2000	pg. A11	Cole Information	
1995	-	Cole Information	Target and Adjoining not listed in Source
1992	pg. A13	Cole Information	
1985	pg. A14	Haines Criss-Cross Directory	
1981	pg. A16	Haines Criss-Cross Directory	
1977	pg. A18	Haines Criss-Cross Directory	
1974	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
HIGHWAY 26			
2000	pg. A12	Cole Information	
N HIGHWAY 26			
2020	pg. A2	EDR Digital Archive	
2017	pg. A4	Cole Information	
2014	pg. A6	Cole Information	
2010	pg. A8	Cole Information	
2005	pg. A10	Cole Information	
1995	-	Cole Information	Target and Adjoining not listed in Source
1992	-	Cole Information	Target and Adjoining not listed in Source
1985	pg. A15	Haines Criss-Cross Directory	
1981	pg. A17	Haines Criss-Cross Directory	
1977	pg. A19	Haines Criss-Cross Directory	

Year	Uses	Source

FINDINGS

Year	CD Image	Source	
1974	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

DOUBLE SPRINGS RD 2020

2400	VERNE CLINE
2437	JANET CLARK
2528	JANE VERSHAY
	WILLIAM VERSHAY
2544	BONNIE NEWMAN
2578	JAMES TREJOS
2606	BONNIE NEWMAN
3169	JODY TAYLOR
3412	PARENT TEACHER CLUB-TOYON
	TOYON MIDDLE SCHOOL
3463	VTI VALTRONICS INC
3601	SPECIALIZED CONTRACTING SVC
3651	JAMES TESCH
4697	ANDREA TESCH
	JAMES TESCH
	LEAH TESCH
	SHARON TESCH

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

N HIGHWAY 26 2020

1733	LAURENCE MENDOZA
	MARIAH MENDOZA
	SHEILA MENDOZA
1915	DANIELLE COUILLET
2440	DONNA CANNON
	WILLIAM CANNON
2445	JAMES MARTIN
2477	KELLY GORE
4101	ELOISE FISCHER
	MARK FISCHER
	MATTHEW FISCHER
	REBECCA FISCHER

Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 2017

2400	CLINE, VERNE A
	DOUBLE SPRINGS PIPE & STEEL
2437	CLARK, JANET L
2528	VERSHAY, WILLIAM C
2544	NEWMAN, BONNIE J
2578	TREJOS, JAMES D
2606	ADAMS, ROGER W
3412	CALAVERAS UNIFIED SCHOOL DISTRICT
3463	V T I VALTRONICS INC
4450	COMCAST

Target Street	Cross Street	Source
-	✓	Cole Information

N HIGHWAY 26 2017

1733	WINDLE, ELAINE N
1915	COUILLET, DANIELLE D
2477	GORE, MARK P
4101	BALL, VIVIAN

Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 2014

2400	DOUBLE SPRINGS PIPE & STEEL
	MCCLENAHAN, SARAH E
2437	CLARK, JANET
2524	TREJOS, JAMES D
2528	VERSHAY, WILLIAM C
2544	NEWMAN, BONNIE J
2591	CLARK, FRANK D
2606	ADAMS, ROGER W
3169	TAYLOR, JODY A
3412	CALAVERAS UNIFIED SCHOOL DISTRICT
3463	V T I VALTRONICS INC

Target Street	Cross Street	Source
-	✓	Cole Information

N HIGHWAY 26 2014

1733	OCCUPANT UNKNOWN,
1915	COUILLET, DANIELLE D
2477	GORE, MARK P
3025	OCCUPANT UNKNOWN,
4101	FISCHER, MARK A

Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 2010

2400	CLINE, DAVID W
2508	MALOON, LYNDA L
2524	DAVIS, MARY D
2528	VERSHAY, WILLIAM C
2544	NEWMAN, BONNIE J
2550	JOHNSON, TILLIE M
2591	CLARK, FRANK D
2606	ADAMS, ROGER W
3169	BIRD, ROBERT
3412	TOYON MIDDLE SCHOOL
3463	VALTRONICS INC

Target Street	Cross Street	Source
-	✓	Cole Information

N HIGHWAY 26 2010

1733	MENDOZA, LAURENCE M
1915	COUILLET, DANIELLE
2477	GORE, MARK P
4101	FISCHER, ELOISE A
	FISCHER, MARK A

Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 2005

2400	CLINE, DAVID W
	DOUBLE SPRINGS PIPE & STEEL
2508	MALOON, LYNDA L
2524	CHANDLER, PATRICIA S
2528	VERCHAY, WILLIAM C
2544	NEWMAN, BONNIE J
2550	JOHNSON, TILLIE M
2591	CLARK, FRANK D
2606	ADAMS, ROGER W
2731	GATES, WILLIAM J
3169	TAYLOR, JODY A
3412	CALAVERAS UNIFIED SCHOOL DST
3463	VTI VALTRONICS

Target Street	Cross Street	Source
-	✓	Cole Information

N HIGHWAY 26 2005

1733	MENDOZA, LAURENCE M
1915	GUERRINI, THOMAS A
4101	FISCHER, ELOISE A
4194	PICO, MARK A

Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 2000

2437	LANG, JUANITA M
2508	MALOON, L M
2524	DAVIS, BOYD
2544	NEWMAN, B
2731	GATES, WILLIAM J

Target Street	Cross Street	Source
-	✓	Cole Information

HIGHWAY 26 2000

164	FISCHER, JOHN R
351	SECURED SELF STORAGE
1653	LACONTENTA GOLF CLUB ON THE GREEN
	LACONTENTA GOLF CLUB PRO SHOP
3337	EVANS, FRED
4083	COUNTRY OAKS REALTY
	PACIFIC HAWAIIAN LAND COMPANY
	RANCHO CALAVERAS SALES

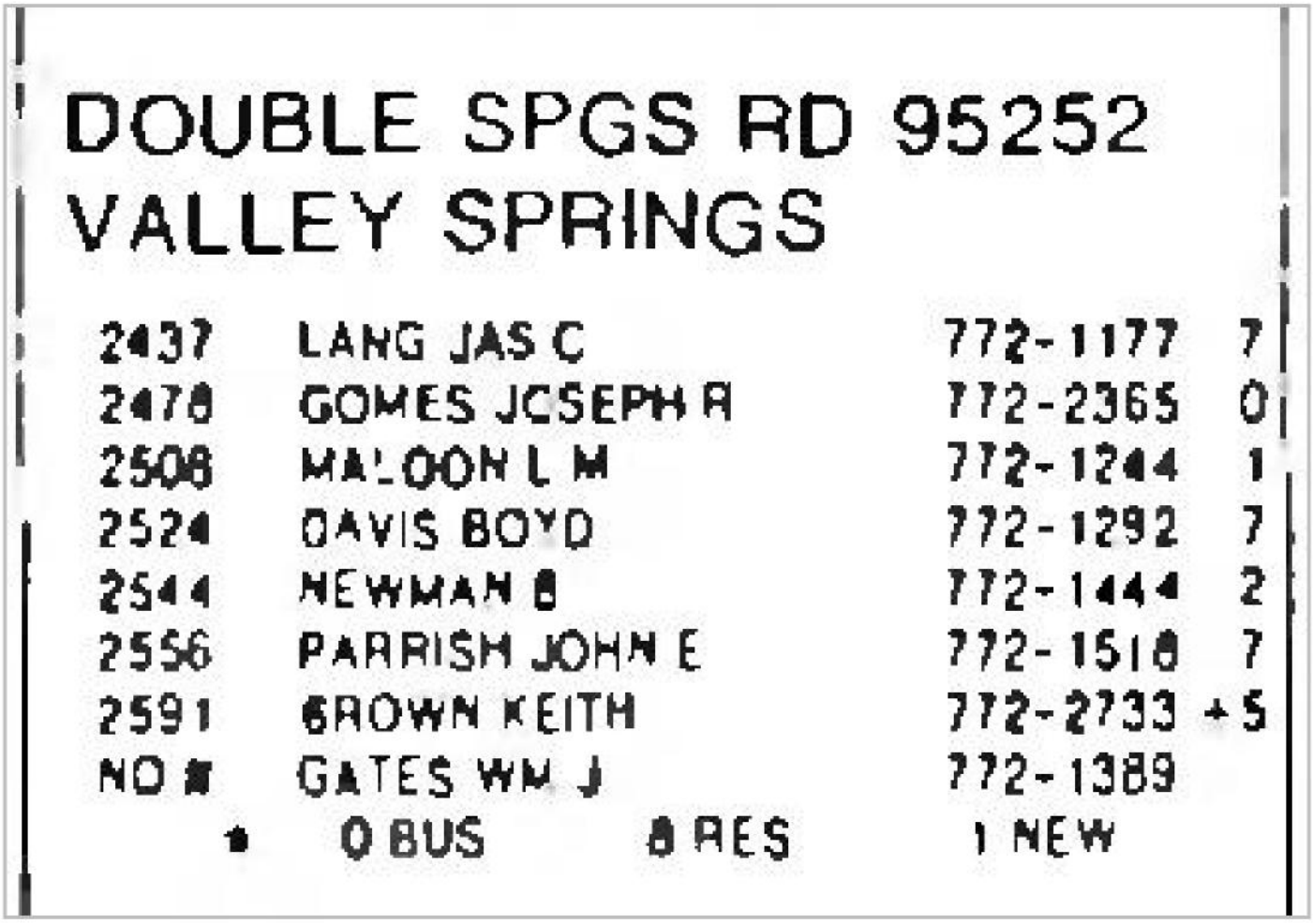
Target Street	Cross Street	Source
-	✓	Cole Information

DOUBLE SPRINGS RD 1992

2437	DOUBLE SPRINGS PIPE
	LANG, JAMES C
2478	GOMES, JOSEPH R
2508	MALOON, L M
2524	DAVIS, BOYD
2544	NEWMAN, B
2556	PARRISH, JOHN E
2731	GATES, WILLIAM J
4550	HULLS CABINTREE

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

DOUBLE SPRINGS RD 1985

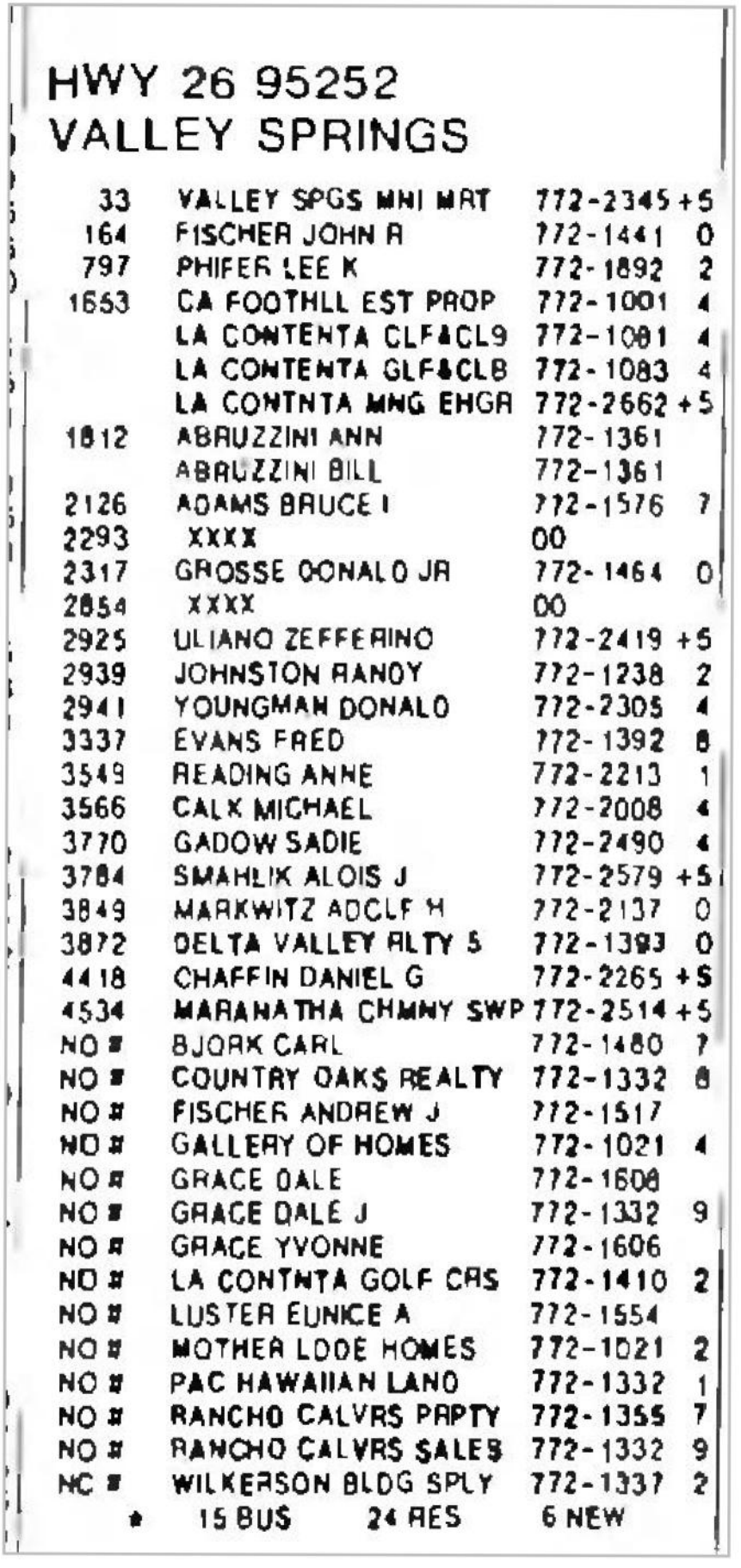


DOUBLE SPGS RD 95252
VALLEY SPRINGS

2437	LANG JAS C	772-1177	7
2478	GOMES JOSEPH R	772-2365	0
2508	MALOON L M	772-1244	1
2524	DAVIS BOYD	772-1292	7
2544	NEWMAN B	772-1444	2
2556	PARRISH JOHN E	772-1518	7
2591	BROWN KEITH	772-2733	+5
NO #	GATES WM J	772-1389	
*	0 BUS 8 RES	1 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N HIGHWAY 26 1985



HWY 26 95252
VALLEY SPRINGS

33	VALLEY SPGS MNI MRT	772-2345	+5
164	FISCHER JOHN R	772-1441	0
797	PHIFER LEE K	772-1892	2
1653	CA FOOTHLL EST PROP	772-1001	4
	LA CONTENTA CLF&CL9	772-1081	4
	LA CONTENTA GLF&CLB	772-1083	4
	LA CONTNTA MNG EHGR	772-2662	+5
1812	ABRUZZINI ANN	772-1361	
	ABRUZZINI BILL	772-1361	
2126	ADAMS BRUCE I	772-1576	7
2293	XXXX	00	
2317	GROSSE DONALD JR	772-1464	0
2854	XXXX	00	
2925	ULIANO ZEFFERINO	772-2419	+5
2939	JOHNSTON RANDY	772-1238	2
2941	YOUNGMAN DONALD	772-2305	4
3337	EVANS FRED	772-1392	8
3549	READING ANNE	772-2213	1
3566	CALX MICHAEL	772-2008	4
3770	GADOW SADIE	772-2490	4
3784	SMAHLIK ALOIS J	772-2579	+5
3849	MARKWITZ ADOLF H	772-2137	0
3872	DELTA VALLEY RLTY 5	772-1393	0
4418	CHAFFIN DANIEL G	772-2265	+5
4534	MARANATHA CHMNY SWP	772-2514	+5
NO #	BJORK CARL	772-1480	7
NO #	COUNTRY OAKS REALTY	772-1332	8
NO #	FISCHER ANDREW J	772-1517	
NO #	GALLERY OF HOMES	772-1021	4
NO #	GRACE DALE	772-1606	
NO #	GRACE DALE J	772-1332	9
NO #	GRACE YVONNE	772-1606	
NO #	LA CONTNTA GOLF CRS	772-1410	2
NO #	LUSTER EUNICE A	772-1554	
NO #	MOTHER LODE HOMES	772-1021	2
NO #	PAC HAWAIIAN LAND	772-1332	1
NO #	RANCHO CALVRS PRPTY	772-1355	7
NO #	RANCHO CALVRS SALES	772-1332	9
NO #	WILKERSON BLDG SPLY	772-1337	2

* 15 BUS 24 RES 6 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

DOUBLE SPRINGS RD 1981

DOUBLE SPGS RD 95252
VALLEY SPRINGS

2437	LANG JAS C	772-1177	7
2478	GOMES JOSEPH R	772-2365	0
2508	MALOON L M	772-1244	+1
2524	DAVIS BOYD	772-1292	7
2544	BURNHAM J R	772-1444	6
2556	PARRISH JOHN E	772-1518	7
2591	MOLLER CORD C	772-1316	0
3169	TAYLOR JODY ALLEN	754-3072	+1
NO #	GATES WM J	772-1389	
★	0 BUS 9 RES	2 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N HIGHWAY 26 1981

HWY 26 95252
VALLEY SPRINGS

26	WALKER LEONA	772-1295 +1
42	XXXX	00
164	FISCHER JOHN R	772-1441 0
1766	XXXX	00
1797	PHIFER LEE K	772-1892 D
1812	ABRUZZINI ANN	772-1361 5
	ABRUZZINI DIANE	772-2434 +1
2126	ADAMS BRUCE I	772-1576 7
2132	JOHNSTON RANDY	772-1238 7
2273	CLARK JESS	772-2234 +1
2293	VASBARY JAYNE	772-2417 +1
2317	GROSSE DONALD JR	772-1464 0
2854	BRENNAN THOS D	772-1329 7
3337	EVANS FRED	772-1392 9
3549	READING ANNE	772-2213 +1
3770	GADOW FRANK	772-1257 0
3849	MARKWITZ ADOLF H	772-2137 0
3872	DELTA VALLEY RLTY 5	772-1393 0
4418	IRON HORSE FARM	772-1370 7
	LONGLEY DANA	772-1370 +1
	LONGLEY DANA O	772-1370 7
4534	RUSSELL BILL J	772-2276 +1
6031	MARQUEZ ARNOLD	772-1174 8
6055	RANSOM RAYMOND	772-1129 0
6065	STEENECK DAVID	772-1771 0
6129	REYNOLDS MYRTLE	772-1243 0
	WALLIOR DAVE J	772-1243 0
6179	HENDRICKS R L SR	772-1685 0
7438	HILLIOUS FRED	772-1236 +1
	MESSING CHAS L	772-1521 +1
NO #	BJORK CARL	772-1480 7
NO #	BOJORQUEZ JEANNETTE	772-1854 9
NO #	CALAM INC	772-1386 +1
NO #	COUNTRY OAKS REALTY	772-1332 8
NO #	FISCHER ANDREW J	772-1517
NO #	GOLD CROWN CATTLE	772-1494 4
NO #	GRACE DALE	772-1606
NO #	GRACE DALE J	772-1332 9
NO #	GRACE YVONNE	772-1606 9
NO #	LACONTENTA GLF CLB	772-1494 4
NO #	LACONTENTA LAKES	772-1494
NO #	LUSTER EUNICE A	772-1554
NO #	PAC HAWAIIAN LAND	772-1332 +1
NO #	RANCHO CALVRS PRPTY	772-1355 7
NO #	RANCHO CALVRS PRPTY	772-9990 7
NO #	RANCHO CALVRS SALES	772-1332 9
NO #	VALLEY SPGS LMBR CO	772-1337 9
NO #	VALLEY SPGS LMBR CO	772-2039 +1

★ 15 BUS 33 RES 12 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

DOUBLE SPRINGS RD 1977

DOUBLE SPRINGS RD 95252 VLY SPGS

2437	LANG JAS C	772-1177+7
2478	NORMAN MILDRED	772-1303 6
2524	DAVIS BOYD	772-1292+7
2544	BURNHAM J R	772-1444 6
2556	PARRISH JOHN E	772-1518+7
NO #	GATES WM J	772-1389
NO #	HUNT PERCY E	754-3072
NO #	JOHNSON HOWARD P	772-1620 4
NO #	JOHNSON MATILDA M	772-1620 4
NO #	MOLLER CORD C	772-1316

* 0 BUS 10 RES 3 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

N HIGHWAY 26 1977

HIGHWAY 26 95252 VALLEY SPRINGS

1812 ABRUZZINI ELMER 772-1361 5
2126 ADAMS BRUCE I 772-1576+7
2132 JOHNSTON RANDY 772-1238+7
2854 BRENNAN THOS D 772-1329+7
3337 BURKHARDT ROBT 772-1725+7
4418*IRON HORSE FARM 772-1370+7
LONGLEY DANA O 772-1370+7
NO # BJORK CARL 772-1480+7
NO # BUTLER MICHAEL 772-1469+7
NO # FISCHER ANDREW J 772-1517
NO # FISCHER JOHN R 772-1441
NO #*GOLD CROWN CATTLE 772-1494 4
NO # GROSSE DONALD JR 772-1464+7
NO # HILLIOUS FRED 772-1236
NO # HILLIOUS ROBT 772-1521+7
NO #*LACONTENTA GOLF&CLB772-1494 4
NO #*LACONTENTA LKES&CLB772-1494 4
NO #*LEWIS DEVELOPMENT 772-1386+7
NO # LUSTER EUNICE A 772-1554
NO # MORIARTY MURL 772-1854+7
NO #*PACIFIC HAWAIIN LND772-1332+7
NO #*PATTERSON DICK CONS772-1394+7
NO #*RANCHO CALAVERS PRO772-9990+7
NO #*RANCHO CALAVERS PRO772-1355+7
NO # SALAZAR MARCELLINO 772-1729+7
NO #*SIERRA MTN BUILDERS772-1538+7
NO # STEENECK DAVID 772-1771 6
NO # WALKER LEONA MRS 772-1295
* 10 BUS 18 RES 18 NEW

Appendix J

Environmental Lien Search Report

ENVIRONMENTAL LIEN AND AUL REPORT TO 1980

Order Number:
79-357417-47

Project Number:
13672.01-COTEL1

Site Name:

Subject Property:
CA, 400002017
CALAVERAS COUNTY, CA

Effective:
06/21/2024

Completed:
07/02/2024

AFX RESEARCH, LLC

A Quarter-Century of Title Document Research Expertise

999 Monterey St. Suite 380, San Luis Obispo, CA 93401

(877) 848-5337 / www.afxllc.com

Order #: 79-357417-47 | Project #: 13672.01-COTEL1 | Completed: 07/02/2024 | Effective: 06/21/2024

SOURCES SEARCHED

Source 1: CALAVERAS COUNTY RECORDER'S OFFICE

Source 2: CALAVERAS COUNTY ASSESSOR'S OFFICE

Source 3: CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Source 4: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Examiner Notes: PUBLIC RECORDS OF CALAVERAS COUNTY, CA WERE SEARCHED FROM JANUARY 1, 1993 TO JUNE 21, 2024, AND NO OTHER DEEDS VESTING TITLE IN THE SUBJECT PROPERTY WERE FOUND OF RECORD DURING THE PERIOD SEARCHED.
NOTICE: JUDICIAL RECORDS NOT SEARCHED. BASED ON AVAILABLE INFORMATION EVALUATED BY THE TITLE SEARCH PROFESSIONAL, THE JURISDICTION DOES NOT REQUIRE A SEARCH OF JUDICIAL RECORDS IN ORDER TO IDENTIFY ENVIRONMENTAL LIENS.
NOTICE: RESEARCH PRIOR TO 1993 IS NOT REASONABLY ASCERTAINABLE AT THIS TIME. RECORDED DOCUMENTS AND/OR PROPERTY HISTORY, TO THE EXTENT THEY ARE CURRENTLY AVAILABLE, ARE REVIEWED AND DOCUMENTED IN THIS REPORT.

TARGET PROPERTY

Current Owner(s): DANIEL N. SOUZA AND ENEIDA G. SOUZA

Property Description: CA, 400002017

County, State: CALAVERAS COUNTY, CA

APN/Parcel/PIN: 040-002-017-000 County: CALAVERAS

Legal Description: PCL 1 OF PM 9 143 IN 9 T4R11

ENVIRONMENTAL LIENS

LIMITED RECORDS ACCESS. NO ENVIRONMENTAL LIENS FOUND 1993 - PRESENT.

ACTIVITY AND USE LIMITATIONS (AUL)

LIMITED RECORDS ACCESS. NO AUL FOUND 1993 - PRESENT.

DEED CHAIN (con't...)

Instrument 1. **TAX DEED**

Date Recorded: 11/27/2006 Instrument: 2006-22412

Dated: 11/16/2006

Grantor(s): TAX COLLECTOR OF CALAVERAS COUNTY, LYNETTE NORFOLK

Grantee(s): DANIEL N. SOUZA AND ENEIDA G. SOUZA

DEED CHAIN (con't...)

Instrument 2. **GRANT DEED**

Date Recorded:	11/16/2001	Instrument:	2001 20488
Dated:	11/16/2001		
Grantor(s):	BUSINESS CONDOMINIUMS, INC.		
Grantee(s):	ROBERT LEAF, JEFFREY TINDALL, CURTIS MAXWELL, MICHAIL LEYDIKER, MONIQUE BJORNDAL, VICTOR MALORATSKY, INTERCORP FINANCIAL DEVELOPMENT		

Instrument 3. **GRANT DEED**

Date Recorded:	12/24/1997	Instrument:	1997 16379
Dated:	12/03/1997		
Grantor(s):	DOUBLE SPRINGS PARTNERS - A LIMITED PARTNERSHIP		
Grantee(s):	BUSINESS CONDOMINIUMS, INC.		
Notes:	LIMITED RECORDS ACCESS. RESEARCH CONDUCTED BACK TO 1993. THIS IS THE OLDEST PERTINENT DEED OF RECORD ACCESSIBLE AT THIS TIME.		

MISCELLANEOUS INSTRUMENTS

LIMITED RECORDS ACCESS. NO MISCELLANEOUS INSTRUMENTS FOUND 1993 - PRESENT.

NOTICE: RECORDS ACCESS LIMITED

IN THIS COUNTY, RESEARCH OF HARDCOPY, ORIGINAL DEEDS, AND OTHER DOCUMENTS BACK TO 1980 ARE NOT AVAILABLE NOR REASONABLY ASCERTAINABLE AT THIS TIME.

PROPERTY AND/OR ENCUMBRANCE HISTORY, TO THE EXTENT DATA AND DOCUMENTS WERE AVAILABLE, WAS REVIEWED AND DOCUMENTED IN THE REPORT BACK TO 1993.

THANK YOU FOR YOUR ORDER

For questions, please contact our office at 1-877-848-5337.

Order Number:
79-357417-47

Project Number:
13672.01-COTEL1

Our Environmental Lien and AUL report to 1980 provides a summary of recorded information on a specific property from January 1st, 1980 to present time. The report is intended to assist in the search for environmental liens filed in land title records. The report will verify property ownership, links the recorded transactions which pass title from one person (and/or entity) to another, and provide information on recorded environmental liens and/or Activity and Use Limitations that have been recorded from January 1st, 1980 forward. The scope of this search is compliant with ASTM 1527-21 standards.

Our professional network of trained researchers follow established industry protocols and use client-supplied property information to complete this Environmental Lien and AUL report. The research is conducted at all appropriate government offices based on the location of the subject property. This would include City, County, State, Federal and Tribal offices as needed. The report includes:

- Current deed information (i.e. grantor, grantee, recording dates)
- Historical property transfer information from 1980 forward (i.e. grantor, grantee, recording dates)
- Legal Description
- Environmental Lien information
- Activity and Use Limitation information
- Any Environmental Liens and/or documents referencing AULs that are listed within our summary report

DISCLAIMER

This report was prepared for the intended use of AFX Research, LLC (AFX) and client, exclusively. This report is not a guarantee of title, nor a commitment to insure, nor a policy of title insurance. NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. AFX Research, LLC specifically disclaims the making of any such warranties, including without limitation, merchantability or fitness for a particular use or purpose. The information contained in this report is retrieved as it is recorded from the various agencies that make it available. The total liability is limited to the fee paid for this report.

DEEDS EXHIBIT

CALAVERAS COUNTY, CA
KAREN VARNI, COUNTY CLERK-RECORDER

11/27/2006 08:50:00AM #2006-22412 1 OF 1

WHEN RECORDED
MAIL TO: DANIEL N SOUZA &
ENEIDA G SOUZA
P O BOX 36
SHEEP RANCH CA 95250

15-1-1

Mail Tax Statements To: SAME

(1) Doc. Trans Tax – computed on full value of property conveyed $ 22.00

Lynette Norfolk
Signature of Declarant

TAX DEED TO PURCHASER OF TAX-DEFAULTED PROPERTY

On which the legally levied taxes were a lien for Fiscal Year 2000/2001

and for nonpayment were duly declared to be in default. DEF010000407
Default Number

This deed, between the Tax Collector of Calaveras County, ("SELLER") and SOUZA, DANIEL N AND SOUZA, ENEIDA G

("PURCHASER") conveys to the PURCHASER the real property described herein which the SELLER sold to the PURCHASER at Public Auction on November 16, 2006 pursuant to a statutory power of sale in accordance with the provisions of Division 1, Part 6, Chapter 7, Revenue and Taxation Code, for the sum of $20,000.00
No Taxing agency objected to the sale.
In accordance with the law, the SELLER hereby grants to the PURCHASER that real property situated in said county, State of California, last assessed to INTERCORP FINANCIAL DEVELOPMENT 040-002-017-000

THE REAL PROPERTY SITUATED IN THE COUNTY OF CALAVERAS, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

Parcel 1 as shown on the Parcel Map filed December 1, 1997 of Book 9 of Parcel Maps, Page 143 of Calaveras County Records.

STATE OF CALIFORNIA EXECUTED ON

CALAVERAS COUNTY November 16,2006 BY Lynette Norfolk
Lynette Norfolk, TAX COLLECTOR

ON November 16,2006 Lynette Norfolk, known to me to be both the tax collector of said county and the person who executed this document, personally appeared before me and acknowledged having executed the same as tax collector.

KAREN VARNI
County Clerk –Recorder

Deputy

TDL8-19

ENVIRONMENTAL LIEN AND AUL REPORT TO 1980

Order Number:
79-357418-47

Project Number:
13672.01-COTEL2

Site Name:

Subject Property:
CA, 400002018
CALAVERAS COUNTY, CA

Effective:
06/21/2024

Completed:
07/02/2024

AFX RESEARCH, LLC

A Quarter-Century of Title Document Research Expertise

999 Monterey St. Suite 380, San Luis Obispo, CA 93401

(877) 848-5337 / www.afxllc.com

Order #: 79-357418-47 | Project #: 13672.01-COTEL2 | Completed: 07/02/2024 | Effective: 06/21/2024

SOURCES SEARCHED

Source 1: CALAVERAS COUNTY RECORDER'S OFFICE

Source 2: CALAVERAS COUNTY ASSESSOR'S OFFICE

Source 3: CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Source 4: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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NOTICE: RESEARCH PRIOR TO 1993 IS NOT REASONABLY ASCERTAINABLE AT THIS TIME. RECORDED DOCUMENTS AND/OR PROPERTY HISTORY, TO THE EXTENT THEY ARE CURRENTLY AVAILABLE, ARE REVIEWED AND DOCUMENTED IN THIS REPORT.

TARGET PROPERTY

Current Owner(s): JAMES A. RAINBOLDT AND ANNETTE CASTAGNA

Property Description: CA, 400002018

County, State: CALAVERAS COUNTY, CA

APN/Parcel/PIN: 040-002-018-000 County: CALAVERAS

Legal Description: PCL 2 OF PM 9 143 IN 9 T4R11

ENVIRONMENTAL LIENS

LIMITED RECORDS ACCESS. NO ENVIRONMENTAL LIENS FOUND 1993 - PRESENT.

ACTIVITY AND USE LIMITATIONS (AUL)

LIMITED RECORDS ACCESS. NO AUL FOUND 1993 - PRESENT.

DEED CHAIN (con't...)

Instrument 1. **TAX DEED**

Date Recorded: 11/27/2006 Instrument: 2006-22413

Dated: 11/16/2006

Grantor(s): TAX COLLECTOR OF CALAVERAS COUNTY

Grantee(s): JAMES A. RAINBOLDT AND ANNETTE CASTAGNA

DEED CHAIN (con't...)

Instrument 2. **GRANT DEED**

Date Recorded:	11/16/2001	Instrument:	2001 20487
Dated:	11/16/2001		
Grantor(s):	BUSINESS CONDOMINIUMS, INC.		
Grantee(s):	ROBERT LEAF, JEFFREY TINDALL, MONIQUE BJORNDAL, CURTIS MAXWELL & INTERCORP FINANCIAL DEVELOPMENT		

Instrument 3. **GRANT DEED**

Date Recorded:	03/25/1998	Instrument:	1998 3720
Dated:	12/08/1997		
Grantor(s):	DOUBLE SPRINGS PARTNERS - A LIMITED PARTNERSHIP		
Grantee(s):	BUSINESS CONDOMINIUMS, INC.		
Notes:	LIMITED RECORDS ACCESS. RESEARCH CONDUCTED BACK TO 1993. THIS IS THE OLDEST PERTINENT DEED OF RECORD ACCESSIBLE AT THIS TIME.		

MISCELLANEOUS INSTRUMENTS

LIMITED RECORDS ACCESS. NO MISCELLANEOUS INSTRUMENTS FOUND 1993 - PRESENT.

Order #: 79-357418-47 | Project #: 13672.01-COTEL2 | Completed: 07/02/2024 | Effective: 06/21/2024

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PROPERTY AND/OR ENCUMBRANCE HISTORY, TO THE EXTENT DATA AND DOCUMENTS WERE AVAILABLE, WAS REVIEWED AND DOCUMENTED IN THE REPORT BACK TO 1993.

THANK YOU FOR YOUR ORDER

For questions, please contact our office at 1-877-848-5337.

Order Number:
79-357418-47

Project Number:
13672.01-COTEL2

Our Environmental Lien and AUL report to 1980 provides a summary of recorded information on a specific property from January 1st, 1980 to present time. The report is intended to assist in the search for environmental liens filed in land title records. The report will verify property ownership, links the recorded transactions which pass title from one person (and/or entity) to another, and provide information on recorded environmental liens and/or Activity and Use Limitations that have been recorded from January 1st, 1980 forward. The scope of this search is compliant with ASTM 1527-21 standards.

Our professional network of trained researchers follow established industry protocols and use client-supplied property information to complete this Environmental Lien and AUL report. The research is conducted at all appropriate government offices based on the location of the subject property. This would include City, County, State, Federal and Tribal offices as needed. The report includes:

- Current deed information (i.e. grantor, grantee, recording dates)
- Historical property transfer information from 1980 forward (i.e. grantor, grantee, recording dates)
- Legal Description
- Environmental Lien information
- Activity and Use Limitation information
- Any Environmental Liens and/or documents referencing AULs that are listed within our summary report

DISCLAIMER

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DEEDS EXHIBIT

CALAVERAS COUNTY, CA
KAREN VARNI, COUNTY CLERK-RECORDER

11/27/2006 #2006-22413
08:50:00AM 1 OF 1

WHEN RECORDED
MAIL TO: JAMES A RAINBOLDT
ANNETTE CASTAGNA
6101 BALL RD STE #207
CYPRESS CA 90630

Mail Tax Statements To: SAME

57-1

(1) Doc. Trans Tax – computed on full value of property conveyed $ 27.50

Lynette Norfolk
Signature of Declarant

TAX DEED TO PURCHASER OF TAX-DEFAULTED PROPERTY

On which the legally levied taxes were a lien for Fiscal Year 2000/2001

and for nonpayment were duly declared to be in default. DEF010000408
Default Number

This deed, between the Tax Collector of Calaveras County ("SELLER") and RAINBOLDT, JAMES A, A MARRIED MAN AS HIS SEPARATE PROPERTY & CASTAGNA, ANNETTE, A MARRIED WOMAN AS HER SEPARATE PROPERTY, AS TENANTS IN COMMON.

("PURCHASER") conveys to the PURCHASER the real property described herein which the SELLER sold to the PURCHASER at Public Auction on November 16, 2006
pursuant to a statutory power of sale in accordance with the provisions of Division 1, Part 6, Chapter 7, Revenue and Taxation Code, for the sum of $25,000.00
No Taxing agency objected to the sale.
In accordance with the law, the SELLER hereby grants to the PURCHASER that real property situated in said county, State of California, last assessed to
INTERCORP FINANCIAL DEVELOPMENT 040-002-018-000

THE REAL PROPERTY SITUATED IN THE COUNTY OF CALAVERAS, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

Parcel 2, as shown upon the Parcel Map filed December 1, 1997 in Book 9 of Parcel Maps, Page 143 of Calaveras County Records.

STATE OF CALIFORNIA EXECUTED ON

CALAVERAS COUNTY November16,2006 BY Lynette Norfolk
Lynette Norfolk, TAX COLLECTOR

ON November 16,2006 Lynette Norfolk, known to me to be both the tax collector of said county and the person who executed this document, personally appeared before me and acknowledged having executed the same as tax collector.

KAREN VARNI
County Clerk –Recorder

Deputy

TDL8-19

22413 0001 0000 0000 TAX DEED

ENVIRONMENTAL LIEN AND AUL REPORT TO 1980

Order Number:
79-357419-47

Project Number:
13672.01-COTEL3

Site Name:

Subject Property:
CA, 400002019
CALAVERAS COUNTY, CA

Effective:
06/21/2024

Completed:
07/02/2024

AFX RESEARCH, LLC

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999 Monterey St. Suite 380, San Luis Obispo, CA 93401

(877) 848-5337 / www.afxllc.com

Order #: 79-357419-47 | Project #: 13672.01-COTEL3 | Completed: 07/02/2024 | Effective: 06/21/2024

SOURCES SEARCHED

Source 1: CALAVERAS COUNTY RECORDER'S OFFICE

Source 2: CALAVERAS COUNTY ASSESSOR'S OFFICE

Source 3: CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Source 4: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Examiner Notes: PUBLIC RECORDS OF CALAVERAS COUNTY, CA WERE SEARCHED FROM JANUARY 1, 1993 TO JUNE 21, 2024, AND NO OTHER DEEDS VESTING TITLE IN THE SUBJECT PROPERTY WERE FOUND OF RECORD DURING THE PERIOD SEARCHED.
NOTICE: JUDICIAL RECORDS NOT SEARCHED. BASED ON AVAILABLE INFORMATION EVALUATED BY THE TITLE SEARCH PROFESSIONAL, THE JURISDICTION DOES NOT REQUIRE A SEARCH OF JUDICIAL RECORDS IN ORDER TO IDENTIFY ENVIRONMENTAL LIENS.
NOTICE: RESEARCH PRIOR TO 1993 IS NOT REASONABLY ASCERTAINABLE AT THIS TIME. RECORDED DOCUMENTS AND/OR PROPERTY HISTORY, TO THE EXTENT THEY ARE CURRENTLY AVAILABLE, ARE REVIEWED AND DOCUMENTED IN THIS REPORT.

TARGET PROPERTY

Current Owner(s): JAMES A. RAINBOLDT AND ANNETTE CASTAGNA

Property Description: CA, 400002019

County, State: CALAVERAS COUNTY, CA

APN/Parcel/PIN: 040-002-019-000 County: CALAVERAS

Legal Description: PCL 3 OF PM 9 143 IN 9 T4R11

ENVIRONMENTAL LIENS

LIMITED RECORDS ACCESS. NO ENVIRONMENTAL LIENS FOUND 1993 - PRESENT.

ACTIVITY AND USE LIMITATIONS (AUL)

LIMITED RECORDS ACCESS. NO AUL FOUND 1993 - PRESENT.

DEED CHAIN (con't...)

Instrument 1. **DEED**

Date Recorded: 11/27/2006 Instrument: 2006-22414

Dated: 11/16/2006

Grantor(s): TAX COLLECTOR OF CALAVERAS COUNTY, LYNETTE NORFOLK

Grantee(s): JAMES A. RAINBOLDT AND ANNETTE CASTAGNA

DEED CHAIN (con't...)

Instrument 2. **GRANT DEED**

Date Recorded:	11/16/2001	Instrument:	2001 20486
Dated:	11/16/2001		
Grantor(s):	BUSINESS CONDOMINIUMS, INC.		
Grantee(s):	ROBERT LEAF, JEFFREY TINDALL, MONIQUE BJORNDAL, ANGES GIRARD, INTERCORP FINANCIAL DEVELOPMENT		

Instrument 3. **GRANT DEED**

Date Recorded:	12/12/1997	Instrument:	1997 15063
Dated:	12/03/1997		
Grantor(s):	DOUBLE SPRINGS PARTNERS - A LIMITED PARTNERSHIP		
Grantee(s):	BUSINESS CONDOMINIUMS, INC.		
Notes:	LIMITED RECORDS ACCESS. RESEARCH CONDUCTED BACK TO 1993. THIS IS THE OLDEST PERTINENT DEED OF RECORD ACCESSIBLE AT THIS TIME.		

MISCELLANEOUS INSTRUMENTS

LIMITED RECORDS ACCESS. NO MISCELLANEOUS INSTRUMENTS FOUND 1993 - PRESENT.

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PROPERTY AND/OR ENCUMBRANCE HISTORY, TO THE EXTENT DATA AND DOCUMENTS WERE AVAILABLE, WAS REVIEWED AND DOCUMENTED IN THE REPORT BACK TO 1993.

THANK YOU FOR YOUR ORDER

For questions, please contact our office at 1-877-848-5337.

Order Number:
79-357419-47

Project Number:
13672.01-COTEL3

Our Environmental Lien and AUL report to 1980 provides a summary of recorded information on a specific property from January 1st, 1980 to present time. The report is intended to assist in the search for environmental liens filed in land title records. The report will verify property ownership, links the recorded transactions which pass title from one person (and/or entity) to another, and provide information on recorded environmental liens and/or Activity and Use Limitations that have been recorded from January 1st, 1980 forward. The scope of this search is compliant with ASTM 1527-21 standards.

Our professional network of trained researchers follow established industry protocols and use client-supplied property information to complete this Environmental Lien and AUL report. The research is conducted at all appropriate government offices based on the location of the subject property. This would include City, County, State, Federal and Tribal offices as needed. The report includes:

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- Legal Description
- Environmental Lien information
- Activity and Use Limitation information
- Any Environmental Liens and/or documents referencing AULs that are listed within our summary report

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DEEDS EXHIBIT

CALAVERAS COUNTY, CA
KAREN VARNI, COUNTY CLERK-RECORDER

11/27/2006 08:50:00AM #2006-22414 1 OF 1

WHEN RECORDED
MAIL TO: JAMES A RAINBOLDT
ANNETTE CASTAGNA
6101 BALL RD STE #207
CYPRESS CA 90630

Mail Tax Statements To: SAME

5-1-1

(1) Doc. Trans Tax – comp on full value of property conveyed $ 28.60

Lynette Norfolk
Signature of Declarant

TAX DEED TO PURCHASER OF TAX-DEFAULTED PROPERTY

On which the legally levied taxes were a lien for Fiscal Year 2000/2001

and for nonpayment were duly declared to be in default. DEF010000409
Default Number

This deed, between the Tax Collector of Calaveras County ("SELLER") and RAINBOLDT, JAMES A, A MARRIED MAN AS HIS SEPARATE PROPERTY & CASTAGNA, ANNETTE, A MARRIED WOMAN AS HER SEPARATE PROPERTY, AS TENANTS IN COMMON.

("PURCHASER") conveys to the PURCHASER the real property described herein which the SELLER sold to the PURCHASER at Public Auction on November 16, 2006 pursuant to a statutory power of sale in accordance with the provisions of Division 1, Part 6, Chapter 7, Revenue and Taxation Code, for the sum of $26,000.00 No Taxing agency objected to the sale.
In accordance with the law, the SELLER hereby grants to the PURCHASER that real property situated in said county, State of California, last assessed to INTERCO , FINANCIAL DEVELOPMENT 040-[illegible]-019-000

THE REAL PROPERTY SITUATED IN THE COUNTY OF CALAVERAS, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS.

Parcel 3 as shown on the parcel map filed December 1, 1997 in Book 9 of Parcel Maps, Page 143 of Calaveras County Records.

STATE OF CALIFORNIA
CALAVERAS COUNTY

EXECUTED ON November16,2006 BY

Lynette Norfolk
Lynette Norfolk, TAX COLLECTOR

ON November 16,2006 Lynette Norfolk, known to me to be both the tax collector of said county and the person who executed this document, personally appeared before me and acknowledged having executed the same as tax collector.

KAREN VARNI
County Clerk –Recorder

Deputy

TDL8-19

[illegible] TAX DEED

Appendix J

UL9540A Testing of Battery Components

HiTHIUM ∞ BLOCK

HiTHIUM

ESS Container 5.015 MWh

Liquid-cooled battery storage system



Liquid-cooled battery storage system based on HiTHIUM prismatic LFP ESS Cells 314 Ah with very high cyclic lifetime.

Improved safety characteristics and specially optimised for the highest requirements on safety, reliability and performance. Suitable e.g. for industrial, utility, and grid serving applications.

- Product certifications:
  UL 1973, UL 9540A, UN 38.3
- Company certifications:
  ISO 9001, ISO 14001, ISO 45001, SA 8000
- Environmental Compliance:
  RoHS, REACH, Cobalt free

High safety

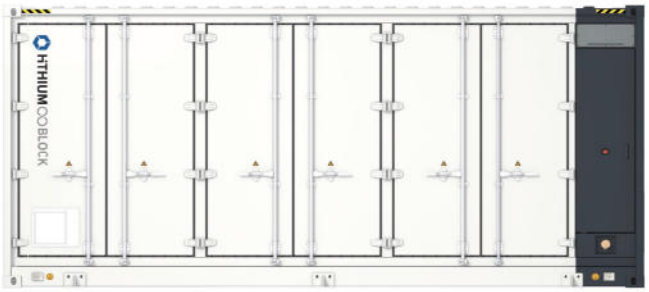
- High thermal stability thanks to liquid cooling
- Multi-stage, active fire protection system, compliance to NFPA 855
- Use of highly safe prismatic HiTHIUM LFP cells
- Dedicated cell monitoring and protection system

Low LCOS (Levelised Cost of Storage)

- Excellent thermal management improves energy throughput by ensuring optimal operating temperature
- Highly integrated: including thermal management system, fire protection system, BMS, etc.
- Supports back to back and side by side installations

ESS **Container**
5.015 MWh

Liquid-cooled battery storage system based on prismatic LFP cells with very high cyclic lifetime



GENERAL	
Battery Type	HiTHIUM LFP314-1P104S
No. of Battery Modules	48 (12 x 4)
Configuration	12*1P416S
Cooling Method	Liquid Cooling
BMS Communication	CAN, RS485, Ethernet
Gravimetric	≥ 119 Wh/kg
Volumetric	≥ 117 Wh/L
Application Altitude	≤ 4,000 m

ELECTRICAL	
Nominal Voltage Container	1,331.2 V
Operating Voltage Container	1,040 ...1,500V
Nominal Energy Container	5,015.96 kWh [1, 2]
Nominal SOC at delivery	27 % [2]
Nominal Charge/Discharge Rate	0.5 P / 0.5 P
Round Trip Efficiency	> 94 %

[1] 0.5 P / 0.5 P
[2] 25°C +/- 2.0
[3] ambient temperature

MECHANICAL	
Dimensions (L x W x H)	6,058 x 2,438 x 2,896 mm
Weight Container (20 ft.)	< 42,000 kg
Protection Level	IP 55

TEMPERATURE RANGE	
Operating	-30 °C ... 55 °C [3]
Storing (recommended)	-20 °C ... 35 °C [3]

PRODUCT CERTIFICATIONS	
Certificates and Reports	UL 1973, UL 9540A, NFPA 855
Safe Transportation	UN 38.3

ENVIRONMENTAL	
Compliance	RoHS, REACH, Cobalt free
Battery Regulation (EU)	2023/1542

COMPANY CERTIFICATIONS	
	ISO 9001, ISO 14001, ISO 45001, SA 8000

HiTHIUM Energy Storage Technology USA Inc.
Address: 4046 Clipper Ct, Fremont, CA 94538, United States
Email: hithium@hithium.com

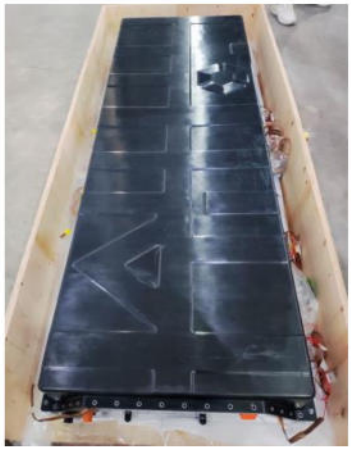
Xiamen HiTHIUM Energy Storage Technology Co., Ltd.
Address: HiTHIUM Industrial Park, Tongxiang High Tech Zone, Xiamen, Fujian, China | Email: hithium@hithium.com

LinkedIn Website

Document is subject to regular updates, corrections, and improvements.
Kindly check you are using latest version.
Picture for illustration purpose only.
Hithium_DS_ESS Container_5015kWh_Datasheet (12*1P416S)_20240605_V1.0_US

Prüfbericht-Nr.: *Test report no.*:	**CN23XXY9 003**	**Auftrags-Nr.:** *Order no.*:	168449171	Seite 1 von 37 *Page 1 of 37*
Kunden-Referenz-Nr.: *Client reference no.:*	2347845	**Auftragsdatum:** *Order date:*	2023-12-16	
Auftraggeber: *Client:*	**Xiamen Hithium Energy Storage Technology Co., Ltd.** No.1 Benyuan Road, Tongxiang High - Tech Zone, Xiamen, Fujian, China			
Prüfgegenstand: *Test item:*	Lithium iron phosphate battery module			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	LM010401-A			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification:*	UL 9540A: 2019 (Fourth Edition)			

Wareneingangsdatum: *Date of sample receipt:*	2023-12-16
Prüfmuster-Nr.: *Test sample no:*	A003672973-001
Prüfzeitraum: *Testing period:*	2024-01-08 - 2024-01-10
Ort der Prüfung: *Place of testing:*	See to clause 1.1 of main report
Prüflaboratorium: *Testing laboratory:*	See to clause 1.1 of main report
Prüfergebnis*: *Test result*:*	See main report



erstellt von: *created by:*		**genehmigt von:** *authorized by*:	
Datum: *Date:* 2024-05-11	Jason Zhu	**Ausstellungsdatum:** *Issue date:* 2024-05-11	Xun Yu
Stellung / *Position:*	Project Engineer	**Stellung** / *Position:*	Reviewer

Sonstiges / *Other:*

This report does not evidence compliance of the provided sample with the relevant standards but only with the referred tests. This test report documents the findings of examination conducted on the delivered product mentioned above only. This report does not entitle the applicant to carry any safety mark on this or similar products. Further for sales or other application purposes of the tested product, any reference to TÜV Rheinland or a test through TÜV Rheinland is only permissible with prior written consent of TÜV Rheinland.

Zustand des Prüfgegenstandes bei Anlieferung: **Prüfmuster vollständig und unbeschädigt**
Condition of the test item at delivery: ***Test item complete and undamaged***

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. *The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.*

INTRODUCTION

Model fire codes and energy storage system standards require energy storage systems to comply with UL 9540, which in turn requires battery cells and modules to comply with UL 1973. Compliance with these standards reduces the risk of batteries and battery energy storage systems (BESS) creating fire, shock or personal injury hazards. However, they don't evaluate the ability of the BESS installed as intended and with fire suppression mechanisms in place if necessary, from contributing to a fire or explosion in the end use installations.

To address these fire and explosion hazards associated with the installation of a BESS, the fire and other codes require energy storage systems to meet certain location, separation, fire suppression and other criteria. Those codes also provide a means to provide an equivalent level of safety based on large scale fire testing of anticipated BESS installations.

UL 9540A is intended to provide a test method that can be used as a basis for validating the safety of a BESS installation in lieu of meeting the specific criteria provided in those codes. The data generated can be used to determine the fire and explosion protection required for installation of a BESS.

The test method is initiated through the establishment of a thermal runaway condition that leads to combustion within the BESS. The test method outlined in UL 9540A consists of several steps – cell level testing, module level testing, unit level testing and installation level testing. The cell and module level testing steps are information gathering steps to inform the unit and installation level testing.

The following outlines the information that may gathered as part of the testing:

a) Cell level – An individual cell fails in a manner that leads to thermal runaway and fire through a suitable method such as external heating. Data such as off-gassing contents, temperatures at venting and temperatures at thermal runaway are recorded.

b) Module level – One or more cells within a BESS module fail in the manner determined during the cell level testing. Data such as fire propagation in the module, temperatures on the failed cells and surrounding cells, off-gassing contents and heat release data are gathered.

c) Unit level – A complete BESS is installed surrounded by target (e.g. dummy) BESS and walls separated at a distance as intended in its installation. The module level test is repeated on a module located in the BESS in the most unfavorable location. Data such as temperature within the BESS, on surrounding walls and target BESS; incident heat flux on walls and target BESS; observation of fire propagation from BESS to target units and walls as well as observance of explosions or evidence of re-ignition within the BESS; and heat release and off-gassing contents are gathered.

d) Installation level – This test is a repeat of the unit level test with the test conducted within a test room and with the intended fire suppression system installed as well as any overhead cables (that can lead to fire propagation) installed. This test is intended to validate the fire suppression system for the BESS installation. Data such as temperature within the BESS, on surrounding walls and target BESS; incident heat flux on walls and target BESS; fire propagation from the BESS to target units, walls or overhead cables and any observable explosion incidents or re-ignition within the BESS; and off-gassing contents (if needed) and heat release are gathered.

Contents

1 GENERAL INFORMATION 4

1.1 TEST SPECIFICATION 4
1.2 GENERAL REMARKS 4
1.3 REVISION INFORMATION 4
1.4 SUMMARY OF THE TEST 5
1.5 DEFINITIONS 6

2 GENERAL PRODUCT INFORMATION 7

2.1 CELL 7
2.2.1 Product information and parameters 7
2.2.2 Cell level test information 8
2.2 MODULE 8
2.2.1 Product information and parameters 8
2.2.2 Diagram with overall dimension 9

3 MODULE LEVEL TEST (SECTION 8 OF UL 9540A) 9

3.1 GENERAL 9
3.2 SAMPLE PREPARATION 10
3.3 MODULE LEVEL THERMAL RUNAWAY TEST 11
3.3.1 Thermal runaway test method description 11
3.3.2 Observations and records 13
3.3.3 Temperature measurements 14
3.4 CHEMICAL HEAT RELEASE RATE MEASUREMENT 16
3.4.1 Test method 16
3.4.2 Test result 18
3.5 SMOKE RELEASE RATE MEASUREMENT 19
3.5.1 Test method 19
3.5.2 Test result 20
3.6 GAS GENERATION MEASUREMENT 21
3.6.1 Test method 21
3.6.2 Total gas release 21
3.6.3 Gas components 22
3.7 PHOTOS 29
3.8 LIST OF TEST AND MEASUREMENTS INSTRUMENTS 35

1 General information

1.1 Test specification

Standard: ANSI/CAN/UL 9540A: 2019 (Fourth Edition)

Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

This report presents the result of module level tests of UL 9540A: 2019.

All tests were conducted at TUV Rheinland (Shenzhen) Co., Ltd. and TUV Rheinland's partner labs that were under supervision of TÜV Rheinland's engineer.

Testing period: 2024.01.09 to 2024.01.10

Refer to Clause 3 for test and measurement instruments.

1.2 General remarks

This report is descriptive and provide the test data only.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

1.3 Revision information

Description of changes:

1. Updated the Figures 12 to 16, detail see page 23 to 31.

Change	Testing	Comment
1	N/A	No additional test necessary.

History of amendments and modifications:

Ref. No. CN23XXY9 001, dated 2024-03-11(original test report)

Ref. No. CN23XXY9 002, dated 2024-04-24(1st amendment)

Ref. No. CN23XXY9 003, dated 2024-05-11(2st amendment)

1.4 Summary of the test

Video records of the test from 2 directions were provided in .mp4 format.

One external heater was place in the module to initiating the thermal runaway inside module. The initiating cells were heated at a rate of 4°C to 7°C per minute until the cell thermal runaway.

White smoke was observed during test. No flying debris or explosive discharge of gases during test. No sparks, electrical arcs, or other electrical events during test. No external flaming observed.

The battery pack weight measured was 675.0kg (before test) and 674.5kg (after test).

Measured peak chemical heat release rate HRR was 22.70kW.

Measured total heat release through the test THR was 97.90MJ.

Measured peak smoke release rate SRR was 0.821m^2/s.

Total smoke release TSR was 118.0m^2

Total hydrocarbons gas was 101.04L.

Detail information see relevant clause of this report.

1.5 Definitions

CELL – The basic functional electrochemical unit containing an assembly of electrodes, electrolyte, separators, container, and terminals. It is a source of electrical energy by direct conversion of chemical energy.

MODULE – A subassembly that is a component of a BESS that consists of a group of cells or electrochemical capacitors connected together either in a series and/or parallel configuration (sometimes referred to as a block) with or without protective devices and monitoring circuitry.

UNIT – A frame, rack or enclosure that consists of a functional BESS which includes components and subassemblies such a cells, modules, battery management systems, ventilation devices and other ancillary equipment.

BATTERY SYSTEM (BS) – Is a component of a BESS and consists of one or more modules typically in a rack configuration, controls such as the BMS and components that make up the system such as cooling systems, disconnects and protection devices.

BATTERY ENERGY STORAGE SYSTEM (BESS) – Stationary equipment that receives electrical energy and then utilizes batteries to store that energy to supply electrical energy at some future time. The BESS, at a minimum consists of one or more modules, a power conditioning system (PCS), battery management system (BMS) and balance of plant components.

a) INITIATING BATTERY ENERGY STORAGE SYSTEM UNIT (INITIATING BESS) – A BESS unit which has been equipped with resistance heaters in order to create the internal fire condition necessary for the installation level test.

b) TARGET BATTERY ENERGY STORAGE SYSTEM UNIT (TARGET BESS) – The enclosure and/or rack hardware that physically supports and/or contains the components that comprise a BESS. The target BESS unit does not contain energy storage components, but serves to enable instrumentation to measure the thermal exposure from the initiating BESS.

Note: Depending upon the configuration and design of the BESS (e.g. the BESS is composed of multiple separate parts within separate enclosures), the unit level test can be done at battery system level. In such case, the BESS is be read as BS throughout this report.

NON-RESIDENTIAL USE – Intended for use in commercial, industrial or utility owned locations.

RESIDENTIAL USE – In accordance with this standard, intended for use in one or two family homes and town homes and individual dwelling units of multi-family dwellings.

THERMAL RUNAWAY- The incident when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion. The thermal runaway progresses when the cell's generation of heat is at a higher rate than the heat it can dissipate. This may lead to fire, explosion and gas evolution.

STATE OF CHARGE (SOC) – The available capacity in a BESS, pack, module or cell expressed as a percentage of rated capacity.

2 General Product Information

2.1 Cell

2.2.1 Product information and parameters

The product information and parameters are provided by the client as below.

Manufacturer:	**Xiamen Hithium Energy Storage Technology Co., Ltd.** 201-1, Comprehensive Building 5, No. 11, Butang Middle Road, Industrial Base Of Xiamen Torch High Tech Zone (Tongxiang), Xiamen, Fujian P.R. China	
Model number:	LFP71173207/314Ah	
Chemistry:	☒ $LiFePO_4$ ☐ NMC ☐ NCA ☐ LTO ☐ Other:	
Physical configuration:	☒ Prismatic ☐ Cylindrical ☐ Pouch	
	Weight(kg):	5.60±0.20
Electrical rating :	Rated capacity (Ah):	314 (25°C±2°C)
	Nominal voltage (V):	3.2
Standard charge method:	Charge current (A):	157(25°C±2°C)
	Standard Charge Voltage (V):	3.65
	Cut off current (A):	/
Standard discharge method:	Discharge current (A):	157(25°C±2°C)
	End of discharge voltage (V):	2.5(T>0°C) 2.0(T≤0°C)
Maximum continuous charge current (A):	314(25°C±2°C)	
Maximum continuous discharge current (A):	314(25°C±2°C)	
Compliance with UL 1973:	☒ Yes TUV Report No.: CN23RGEH 001 ☐ No	

2.2.2 Cell level test information

Cell level thermal runaway test information is copy from TUV Rheinland UL 9540A cell level test report No.: CN23F118 001

Thermal Runaway Methodology:	External heater applied on one side of the cell with surface heating rate at about of 5°C per minute until thermal runaway triggered.
Average Cell Surface Temperature at Gas Venting:	203.7°C
Average Cell Surface Temperature Start Thermal Runaway:	295.7°C

2.2 Module

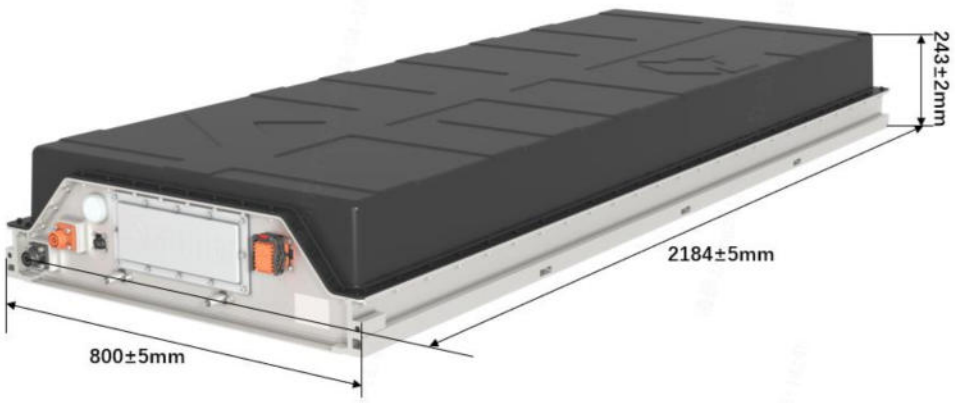
2.2.1 Product information and parameters

The product information and parameters are provided by the client as below.

Manufacturer:	**Xiamen Hithium Energy Storage Technology Co., Ltd.** 201-1, Comprehensive Building 5, No. 11, Butang Middle Road, Industrial Base Of Xiamen Torch High Tech Zone (Tongxiang), Xiamen, Fujian, P.R. China	
Model number:	LM010401-A	
Physical configuration:	Metal base, the other sides are non-metallic material. A mica plate is installed under the top enclosure.	
	Weight:	667 ±10 kg
	Cells in series/parallel:	2P52S
Cooling method:	Liquid cooling	
Separation between cells:	Thermal insulation sheet: Aerogel Heat insulation pad and Polyurethane foam, see Figure 4 for install location details.	
Electrical rating:	Rated capacity:	628 Ah
	Nominal voltage:	166.4Vdc
Standard charge method:	Charge power:	52.25KW
	End of charge:	The highest cell voltage reaches 3.65 V
Standard discharge method:	Discharge power:	52.25KW
	End of discharge:	The lowest cell voltage reaches 2.5 V
Compliance with UL 1973:	☐ Yes	☒ No

2.2.2 Diagram with overall dimension

Figure 1 Diagram with overall dimension



(Unit : mm)

3 Module level test (section 8 of UL 9540A)

3.1 General

This testing is conducted on battery modules, which are in turn installed in an enclosure or in an open rack system to form a BESS unit.

This test uses applied stresses determined during the cell level test to force a selected number of battery cells within the module into thermal runaway. If there is fire that results from the cell being driven into thermal runaway, the fire is allowed to progress within the module.

The test measures the chemical heat release rate, smoke release rate, maximum temperature, and vent gas composition; and documents the module enclosure integrity after the test, any explosions or hazardous ejection of parts outside of the module enclosure, and the extent and duration of any flame propagation outside of the module.

The module level testing establishes a base line fire test performance that can be evaluated against the fire performance of other battery modules the BESS manufacturer may choose to use within the system. Testing can be discontinued after the module level testing if the effects of thermal runaway (fire and explosion) are contained by the module design and the cell vent gas (as determined by the cell level testing) is non-flammable.

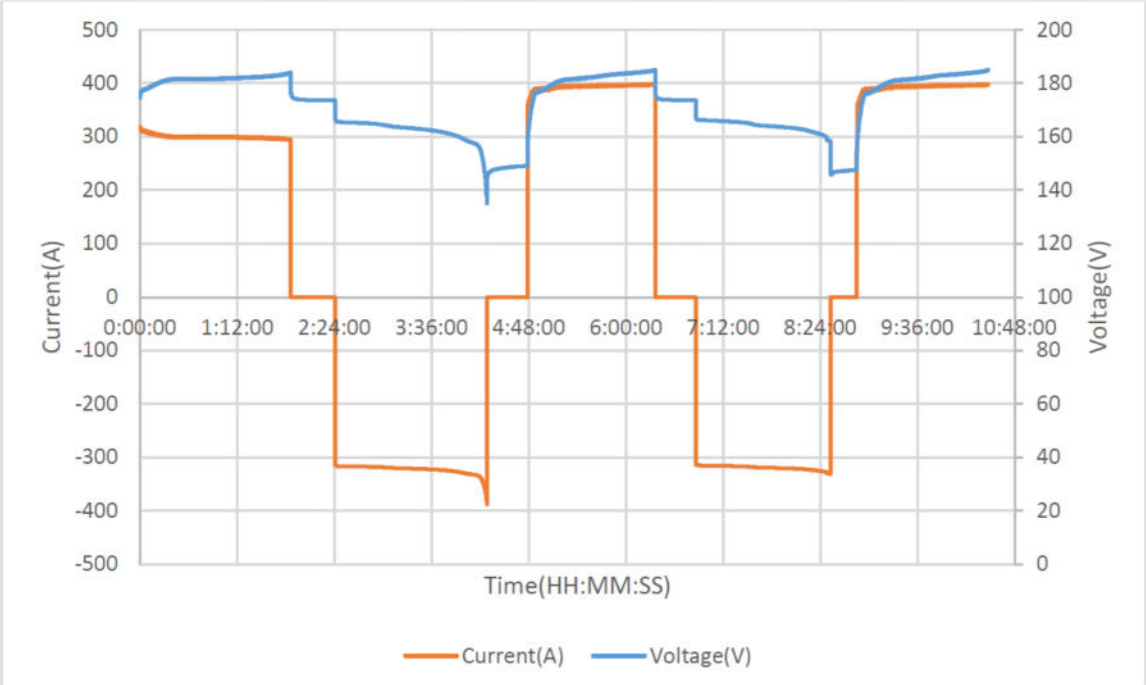
3.2 Sample preparation

Module sample was conditioned, prior to testing, through charge and discharge cycles of 2 cycles to verify that the module was functional.

Each cycle was defined as a charge to 100% SOC and allowed to rest several minutes and then discharged to an end of discharge voltage (EODV) determined by the manufacturer. Refer to 2.2.1 for charge and discharge profile.

The module sample was put in a climate chamber during charge and discharge. The ambient is kept at 25°C±2°C and 50%±5% R.H.

Figure 2 Sample cycling curve



3.3 Module level thermal runaway test

3.3.1 Thermal runaway test method description

The module to be tested was charged to 100% SOC and allow stabilizing for a minimum of 1 h and a maximum of 8 h before the start of the test.

The module consisted of 104 cells 2P52S. All cells in the pack were numbered from #1-1 to #1-26, #2-1 to #2-26, #3-1 to #3-26, #4-1 to #4-26 as below.

External heating method was used to initiate thermal runaway in the module. One metal heater was fitted on cell (rated 220V ac/1000 W, size 190*160).

Total 11 thermocouples (type K, 24AWG) were attached at the center of the wider side surface of cell and below the hater film in the module. See Figure 3 and Figure 4 for the detail locations.

Voltage of the module was monitored during test.

Figure 3 Internal view of module

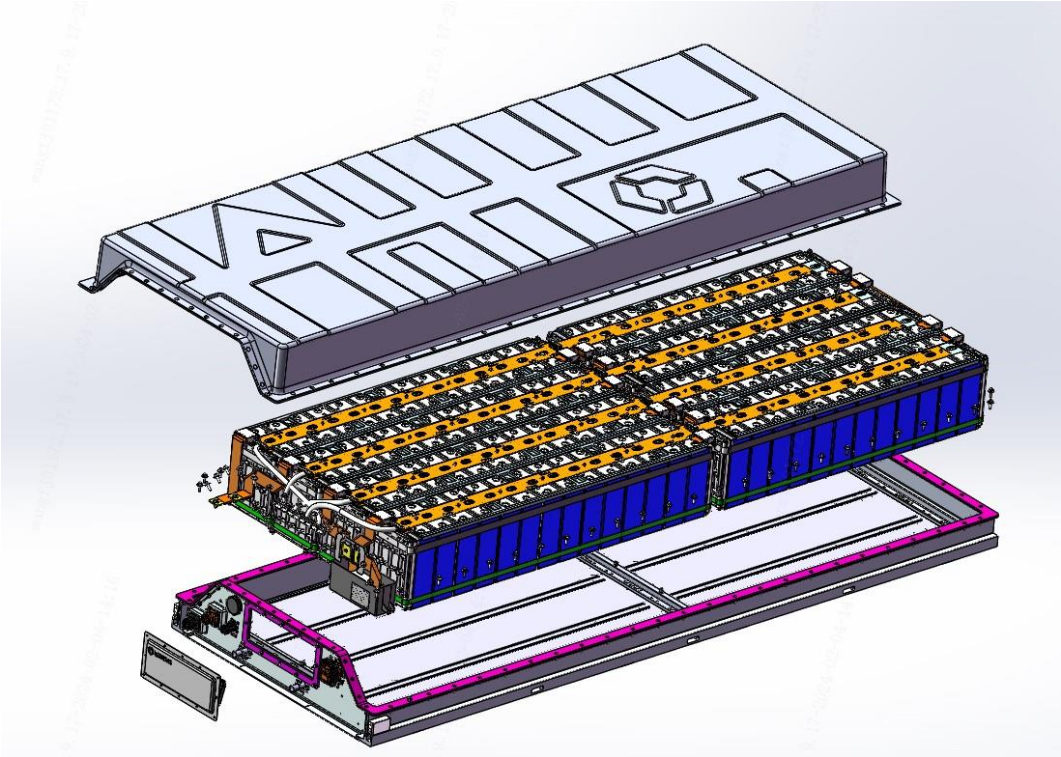


Figure 4 Cell number, location of heater, thermal insulation sheet (Aerogel Heat insulation pad and Polyurethane foam) and thermocouple



A PID controller was used to control the voltage supply to the heater and maintain a 4°C/min to 7°C/min heating rate. Additional one thermocouple on the center of initiating cell surface below heater was used to feedback the cell surface temperature to the controller.

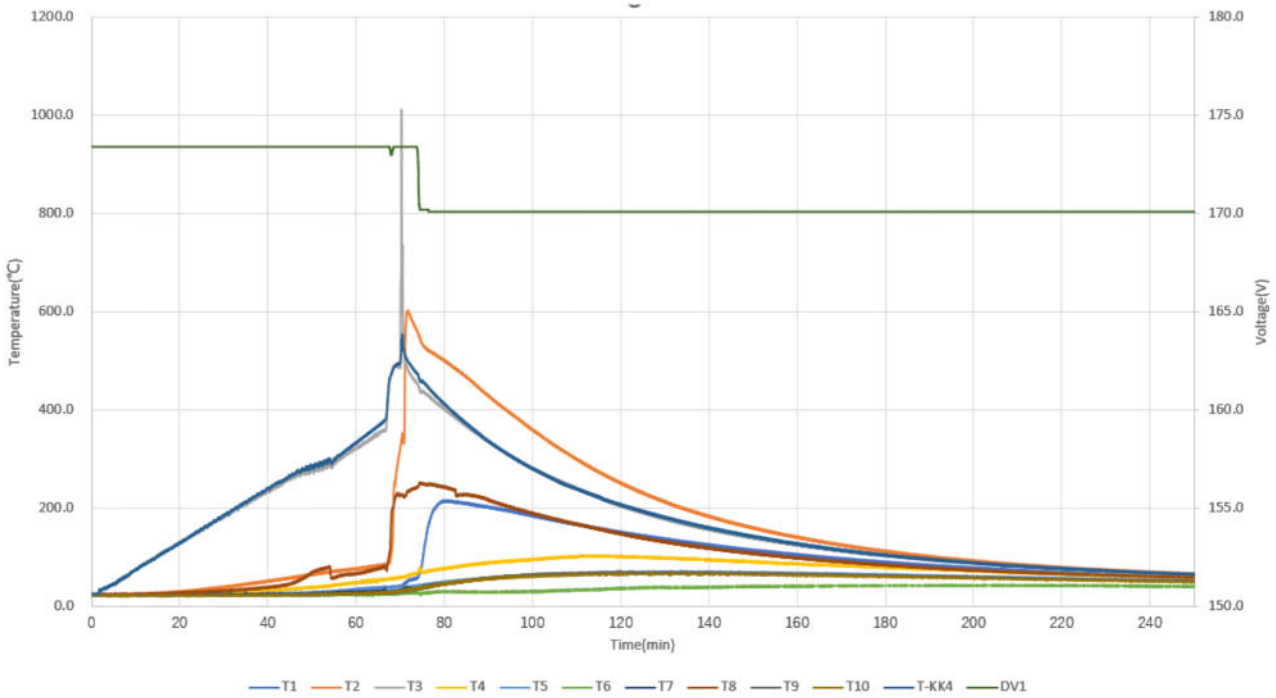
The initiating cells were heated at a rate of 4°C to 7°C per minute until the cell thermal runaway. Once the measured temperature exceed the set heating rate, the heaters were immediately de-energized.

3.3.2 Observations and records

Ambient conditions at the initiation of the test	:	21.2°C, 62% R.H.
Sample number	:	A003672973-001
Open circuit voltage before test (V)	:	173.4
Weight before test (kg)	:	675.0
Time initiating the test	:	2024.01.09 11:30:56
Observations during test	:	The first thermal runaway cell (#1-10) and smoke release at 12:38. The second thermal runaway cell (#1-9) at 12:41. No flying debris or explosive discharge of gases during test. No sparks, electrical arcs, or other electrical events during test. No external flaming observe.
Posttest evaluation	:	Two cells (#1-9 to #1-10) went into thermal runaway during test. one cell (#1-9) went into thermal runaway by cell to cell propagation.
Open circuit voltage after test (V)	:	170.1
Weight after test (kg)	:	674.5
Weight loss (kg)	:	0.5

3.3.3 Temperature measurements

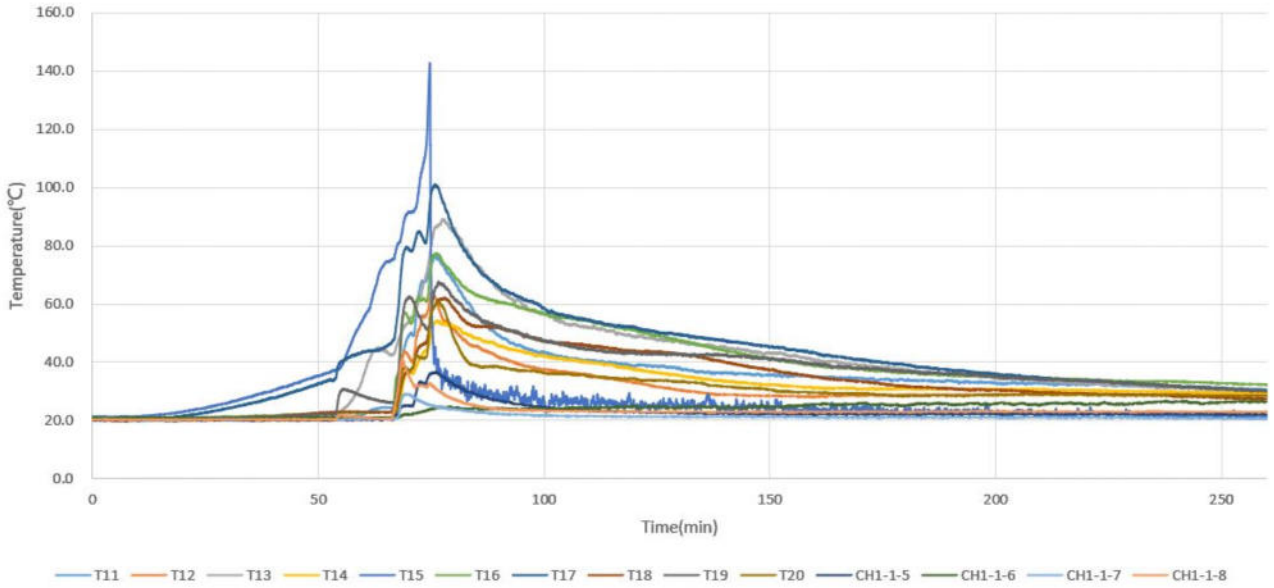
Figure 5 The cells temperature and module voltage VS time curve



Thermocouple no.	Location	Maximum temp. °C
T1	Surface of cell #1-8	214.0
T2	Surface of cell #1-9	601.7
T3	Surface of cell #1-10	1010.4
T4	Surface of cell #1-11	102.3
T5	Surface of cell #1-12	70.4
T6	Surface of cell #1-13	42.3
T7	Surface of cell #2-9	67.4
T8	Surface of cell #2-10	251.3
T9	Surface of cell #3-9	69.1
T10	Surface of cell #3-10	65.5
T-KK4	Heater	553.3

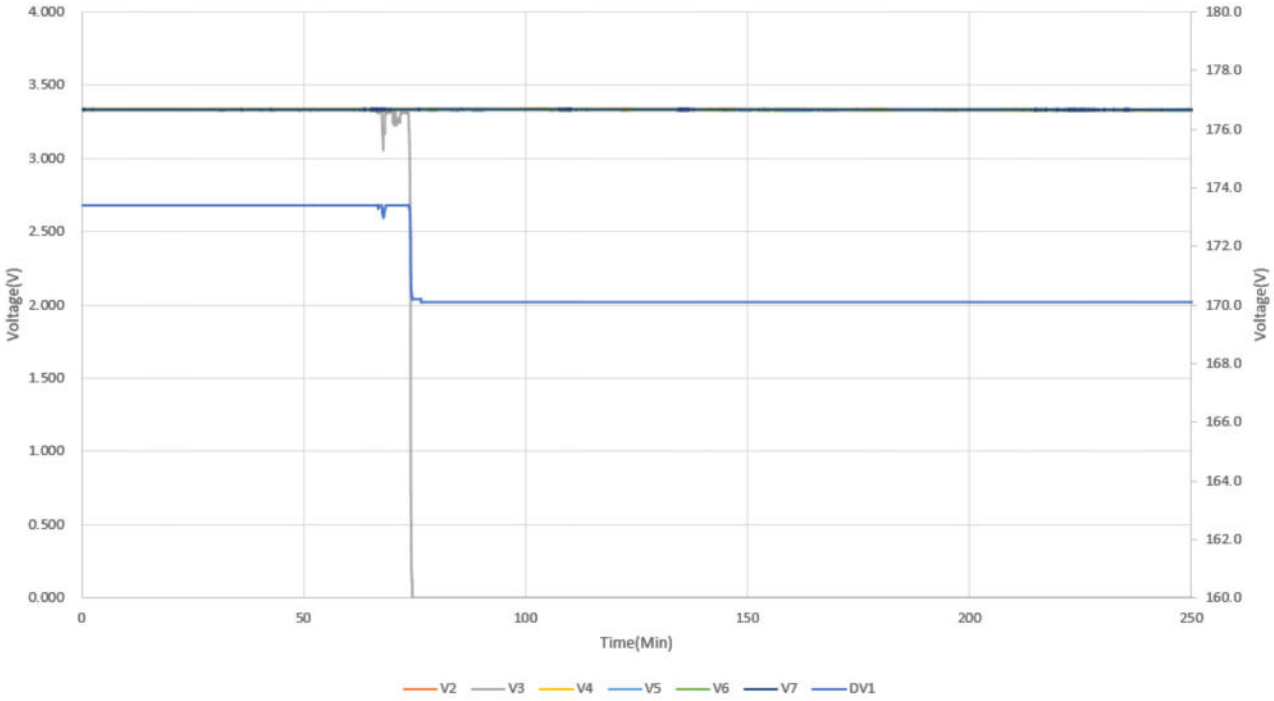
Voltage no.	Name	Voltage(V)
V-Module	Voltage of Module	173.4 V to 170.1 V

Figure 6 The enclosure temperature VS time curve



Thermocouple no.	Location	Maximum temp. °C
T11	Top surface of the Enclosure	76.6
T12	Top surface of the Enclosure	64.4
T13	Top surface of the Enclosure	89.2
T14	Top surface of the Enclosure	54.3
T15	Top surface of the Enclosure	142.7
T16	Top surface of the Enclosure	77.3
T17	Top surface of the Enclosure	101.1
T18	Top surface of the Enclosure	62.1
T19	Top surface of the Enclosure	67.7
T20	Top surface of the Enclosure	60.8
CH1-1	Right surface of the Enclosure	36.6
CH1-2	Left surface of the Enclosure	26.9
CH1-3	Back surface of the Enclosure	29.2
CH1-4	Front surface of the Enclosure	41.1

Figure 7 The cells and module voltage VS time curve



Name	V2 #1-7 & #1-8	V3 #1-9& #1-10	V4 #1-11& #1-12	V5 #1-13& #1-14	V6 #2-9& #2-10	V7 #3-9& #3-10	DV1
Begin of the test	3.334	3.335	3.338	3.331	3.332	3.336	173.4
End of the test	3.330	0.000	3.334	3.331	3.331	3.335	170.1

3.4 Chemical heat release rate measurement

3.4.1 Test method

The chemical heat release rates were measured by an oxygen consumption calorimeter measurement system consisting of a paramagnetic oxygen analyzer, non-dispersive infrared carbon dioxide and carbon monoxide analyzer, velocity probe, and a Type K thermocouple.

The instrumentations are located in the exhaust duct of the heat release rate calorimeter.

The chemical heat release rate was calculated at each of the flows as follows:

$$HRR_1 = \left[E \times \varphi - (E_{co} - E) \times \frac{1-\varphi}{2} \times \frac{X_{co}}{X_{O_2}}\right] \times \frac{\dot{m}_e}{1+\varphi \times (\alpha - 1)} \times \frac{M_{O_2}}{M_a} \times (1 - X^o_{H_2O}) \times X^o_{O_2}$$

In which:

HRR_t = total heat release rate, as a function of time (kW)

E = Net heat released for complete combustion per unit of oxygen consumed (adjusted for oxygen contained within cell chemistry, 13,100 kJ/kg)

E_{CO} = Net heat released for complete combustion per unit of oxygen consumed, for CO (adjusted for oxygen contained within cell chemistry, 17,600 kJ/kg)

φ = Oxygen depletion factor (non-dimensional), where:

$$\varphi = \frac{X^o_{O_2} \times [1 - X_{CO_2} - X_{CO}] - X_{O_2} \times [1 - X^o_{CO_2}]}{X^o_{O_2} \times [1 - X_{O_2} - X_{CO_2} - X_{CO}]}$$

X_{CO} = Measured mole fraction of CO in exhaust flow (non-dimensional)

X_{CO_2} Measured mole fraction of CO_2 in exhaust flow (non-dimensional)

$X^\circ_{CO_2}$ = Measured mole fraction of CO_2 in incoming air (non-dimensional)

$X^\circ_{H_2O}$ = Measured mole fraction of H_2O in incoming air (non-dimensional)

X_{O_2} = Measured mole fraction of O_2 in exhaust flow (non-dimensional)

$X^\circ_{O_2}$ = Measured mole fraction of O_2 in incoming air (non-dimensional)

α = Combustion expansion factor (non-dimensional; normally a value of 1.105)

M_a = Molecular weight of incoming and exhaust air (29 kg/kmol)

M_{O_2} = Molecular weight of oxygen (32 kg/kmol)

$\dot{m}_e$ = Mass flow rate in exhaust duct (kg/s), in which:

$$\dot{m}_e = C \times \sqrt{\frac{\Delta p}{T_e}}$$

or

$$\dot{m}_e = 26.54 \times \frac{A \times k_c}{f(\mathrm{Re})} \times \sqrt{\frac{\Delta p}{T_e}}$$

C = Orifice plate coefficient (in $kg^{1/2}m^{1/2}K^{1/2}$)

Δp = Pressure drop across orifice plate or bidirectional probe (Pa)

T_e = Combustion gas temperature at orifice plate or bidirectional probe (K)

A = Cross sectional area of the duct (m^2)

k_c = Velocity profile shape factor (non-dimensional)

$f(Re)$ = Reynolds number correction (non-dimensional)

3.4.2 Test result

Peak chemical heat release rate HRR: 22.70kW

Total heat release through the test THR: 97.90MJ

Figure 8 HRR curve

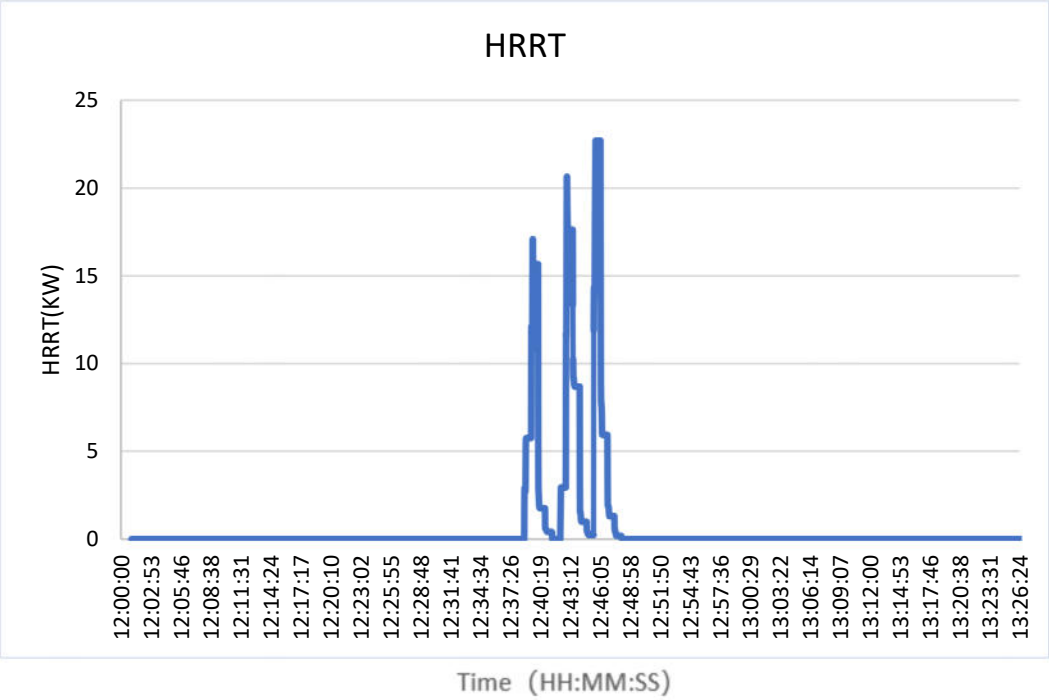
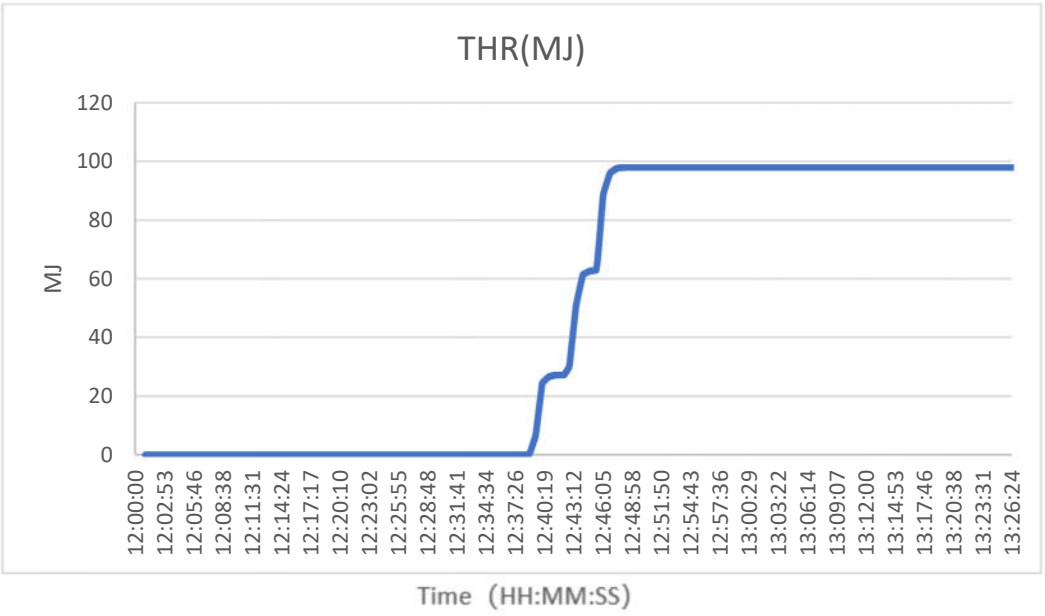


Figure 9 THR curve



3.5 Smoke release rate measurement

3.5.1 Test method

The light transmission in the calorimeter's exhaust duct was measured using a white light source and photo detector for the duration of the test.

The smoke release rate was calculated as follows:

$$SRR = 2.303\left(\frac{V}{D}\right) Log_{10}\left(\frac{I_o}{I}\right)$$

Where:

SRR = Smoke release rate (m^2/s)

V = Volumetric exhaust duct flow rate (m^3/s)

D = duct diameter (m)

I_o = Light transmission signal of clear (pre-test) beam (V)

I = Light transmission signal during test (V)

The whole smoke release rate measurement system were self-checked using calibrated light filter before test.

3.5.2 Test result

Peak smoke release rate SRR: 0.821m²/s

Total smoke release TSR: 118.0m²

Figure 10 SRR curve

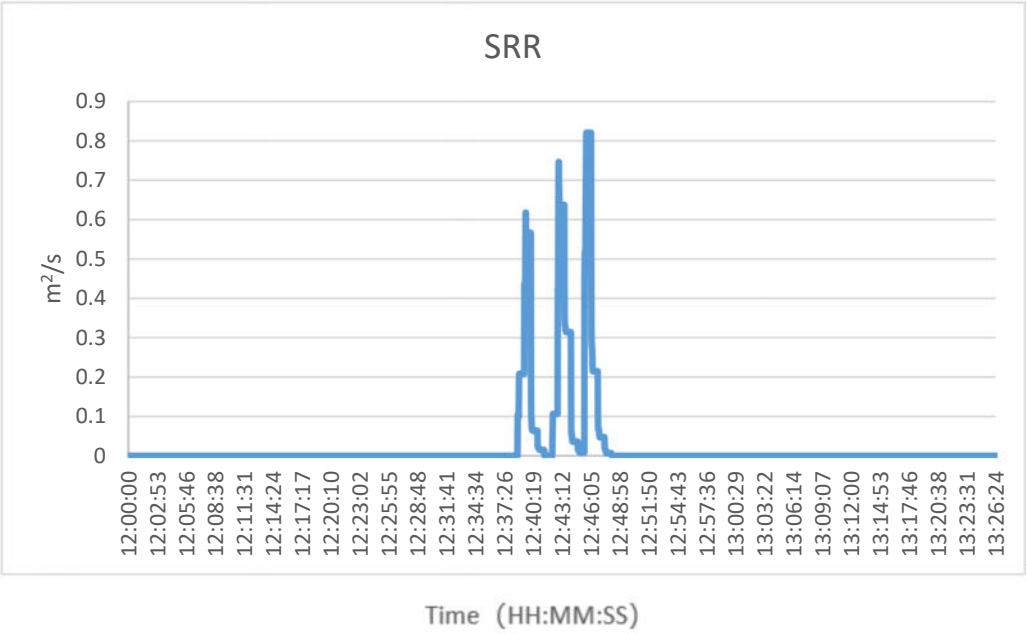
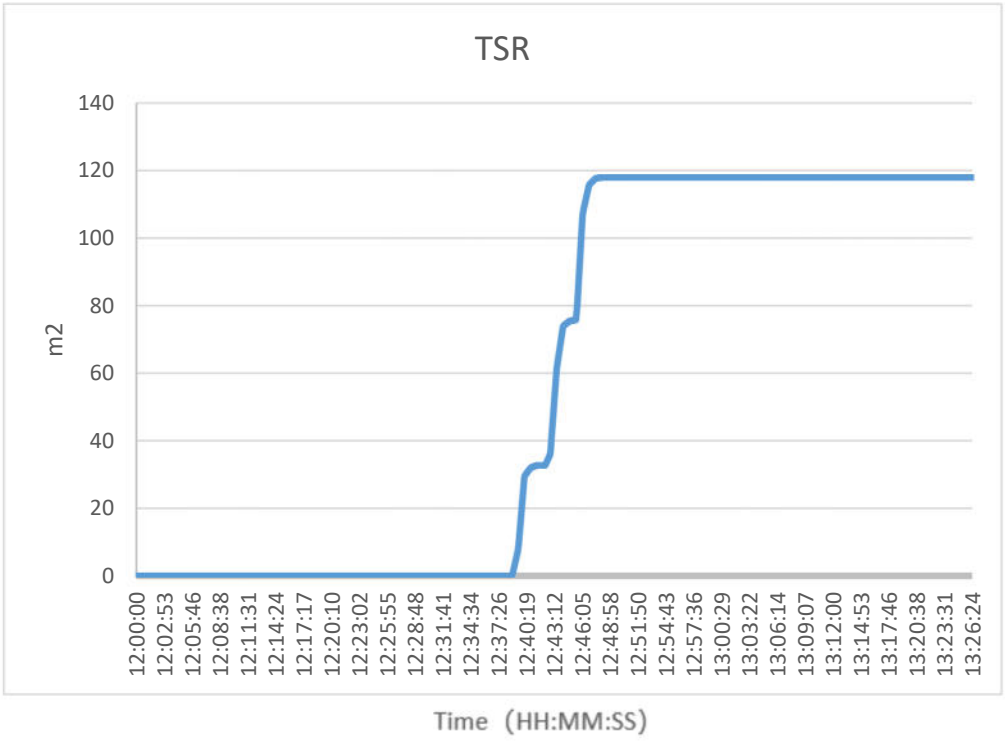


Figure 11 TSR curve



3.6 Gas generation measurement

3.6.1 Test method

The composition, velocity and temperature of the vent gases were measured within the calorimeter's exhaust duct.

Gas composition were measured using a Fourier-Transform Infrared Spectrometer with a resolution of 0.5 cm^{-1} and a path length of 5.1 m within the calorimeter's exhaust duct.

The hydrocarbon content of the vent gas was measured using flame ionization detection.

Hydrogen gas was measured with a palladium-nickel thin-film solid state sensor.

Composition, velocity and temperature instrumentation were collocated with heat release rate calorimetry instrumentation

3.6.2 Total gas release

The flow rates of various gases were integrated over the test duration and the total cumulative volume of gas calculated for the total test duration were presented in below table.

Gas type	Gas components		Total volume of gas (L)
Hydrocarbon species	Methane	CH_4	20.570
	Ethylene	C_2H_4	13.594
	Ethane	C_2H_6	1.787
	Propylene	C_3H_6	2.581
	Propane	C_3H_8	0.824
Hydrogen halide species	Hydrogen Fluoride	HF	0.872
Others	Carbon Monoxide	CO	33.852
	Carbon Dioxide	CO_2	77.634
	Hydrogen (Electrochemical) For reference only	H_2	160.97**
	Hydrogen (Palladium nickel thin film solid state sensor)	H_2	Below detectable limit*

	Carbonyl Sulfide	COS	0.464
	Oil as octane	/	1.362
	Dimethyl carbonate	$C_3H_6O_3$	36.830
	Ethyl methyl carbonate	$C_4H_8O_3$	16.244
	Methanol	CH_3OH	/
Total Hydrocarbons (equivalent to C_3H_8, measured by FID)			101.04

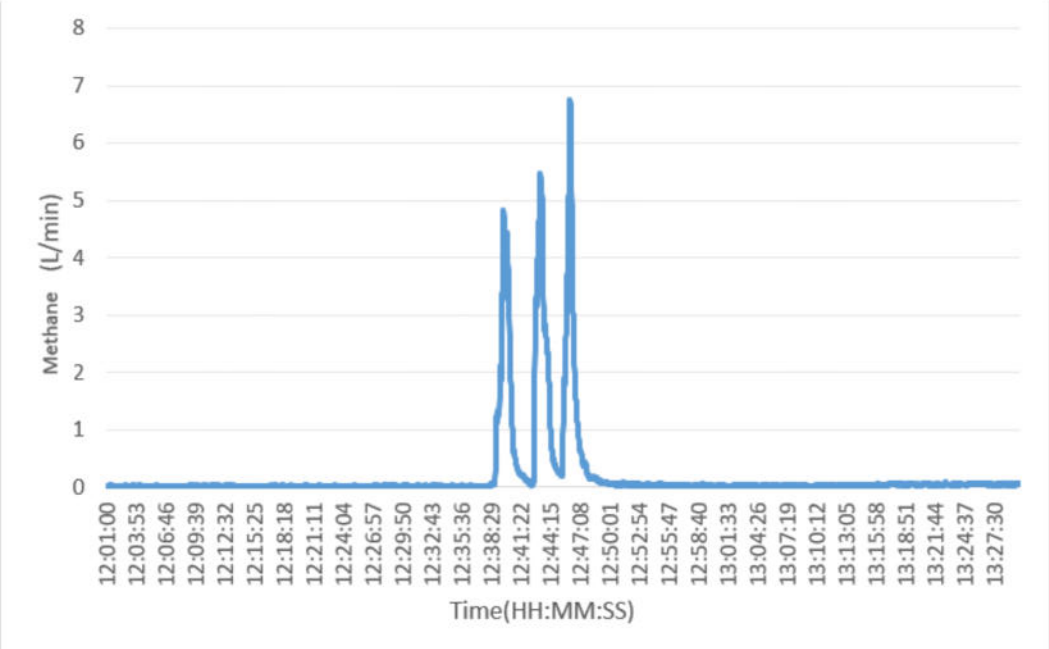
* = The volume of hydrogen released by a single cell after thermal runaway referred to the cell UL 9540A report is about 64.8L. However, it should be noted that the gas production of a single cell in the current test environment is not exactly equivalent to the gas production of the cell level test, because the test environment is not the same.

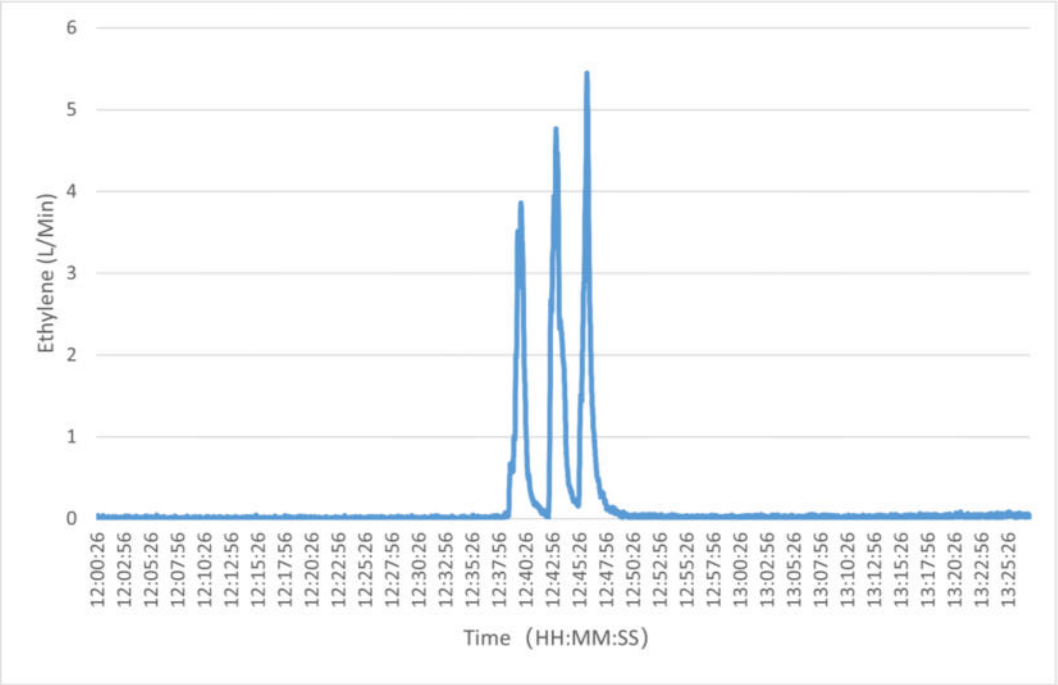
** = As there are some factor sensors which can affect the accuracy of hydrogen gas measurements, such as the accuracy for gas voltage signal, airflow rates, and environmental variables, the 160.97L in only for reference.

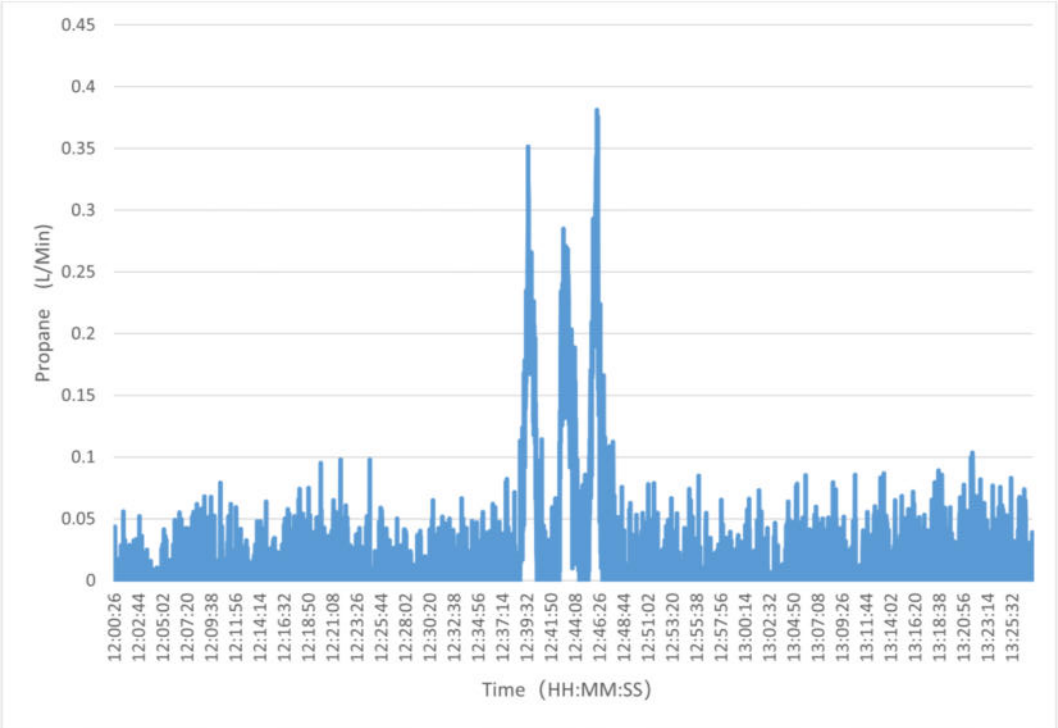
3.6.3 Gas components

Concentration of different gas components were present according to gas species classification in Figures 12 to 16. Average flow rate was 2.09 m^3/s during test.

Figure 12 Hydrocarbon species:




Ethylene (L/Min)
0
1
2
3
4
5
6
12:00:26
12:02:56
12:05:26
12:07:56
12:10:26
12:12:56
12:15:26
12:17:56
12:20:26
12:22:56
12:25:26
12:27:56
12:30:26
12:32:56
12:35:26
12:37:56
12:40:26
12:42:56
12:45:26
12:47:56
12:50:26
12:52:56
12:55:26
12:57:56
13:00:26
13:02:56
13:05:26
13:07:56
13:10:26
13:12:56
13:15:26
13:17:56
13:20:26
13:22:56
13:25:26
Time (HH:MM:SS)


Propane (L/Min)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
12:00:26
12:02:44
12:05:02
12:07:20
12:09:38
12:11:56
12:14:14
12:16:32
12:18:50
12:21:08
12:23:26
12:25:44
12:28:02
12:30:20
12:32:38
12:34:56
12:37:14
12:39:32
12:41:50
12:44:08
12:46:26
12:48:44
12:51:02
12:53:20
12:55:38
12:57:56
13:00:14
13:02:32
13:04:50
13:07:08
13:09:26
13:11:44
13:14:02
13:16:20
13:18:38
13:20:56
13:23:14
13:25:32
Time (HH:MM:SS)

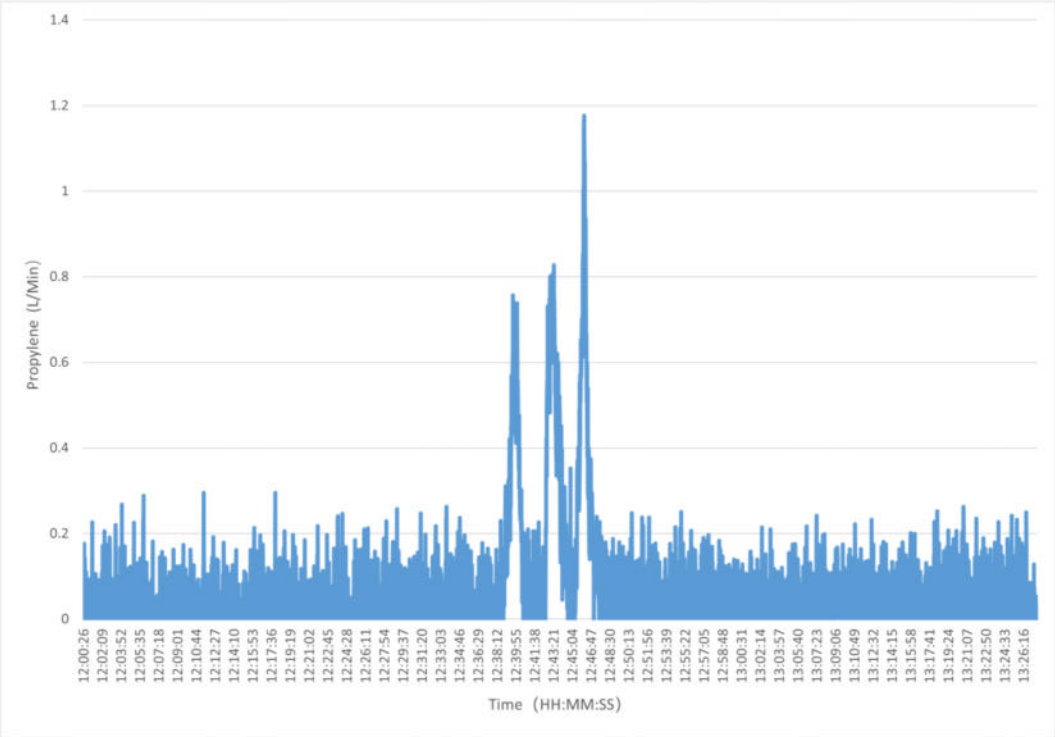


Figure 13 Hydrogen halide species:

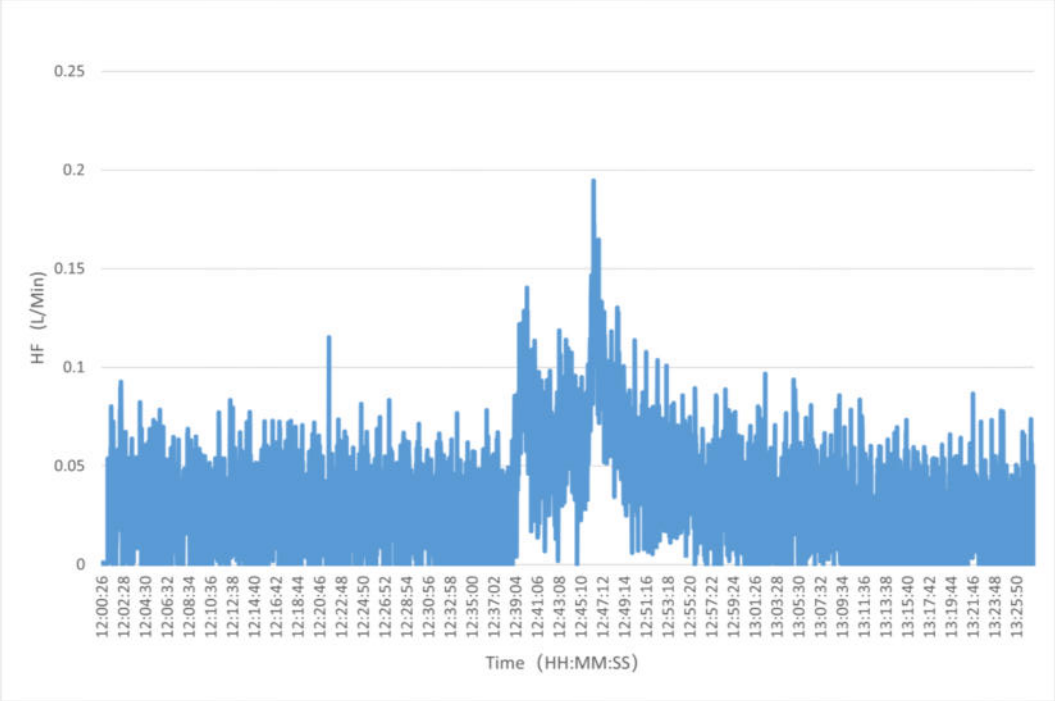
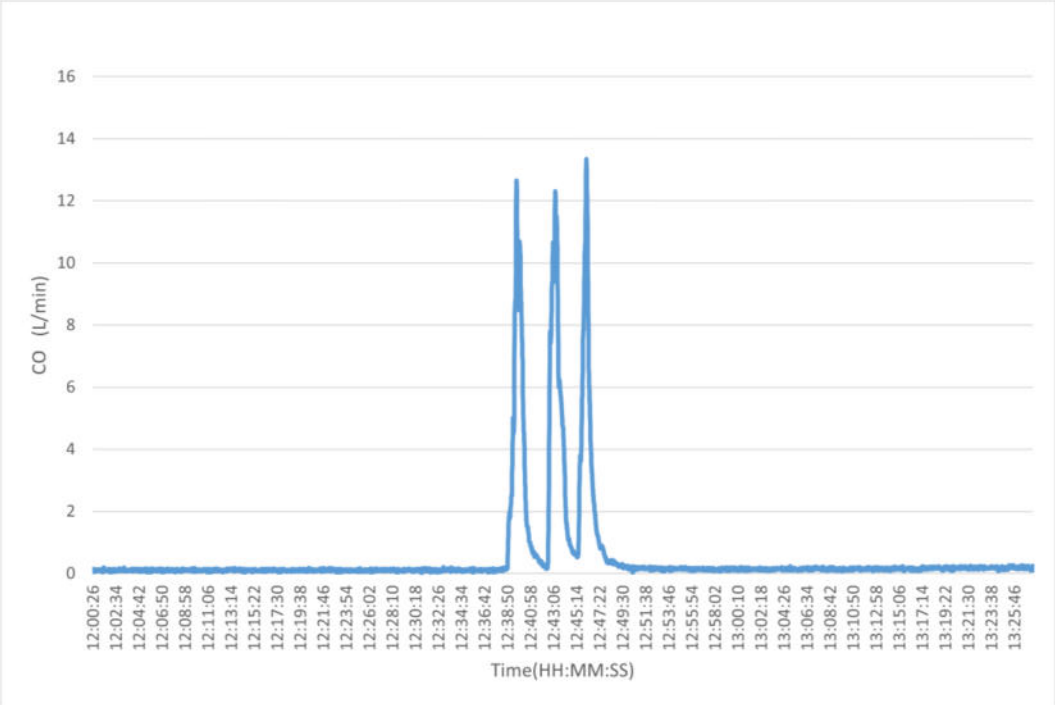


Figure 14 CO, CO2 concentration:



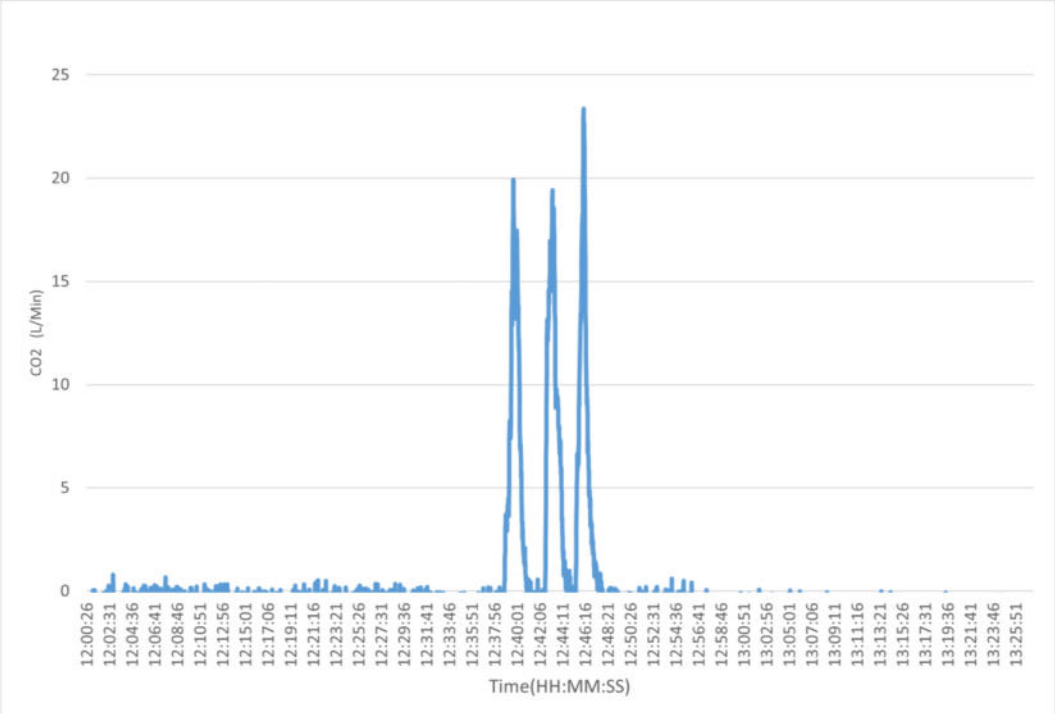


Figure 15 Total Hydrocarbons (equivalent to C3H8, measured by FID):

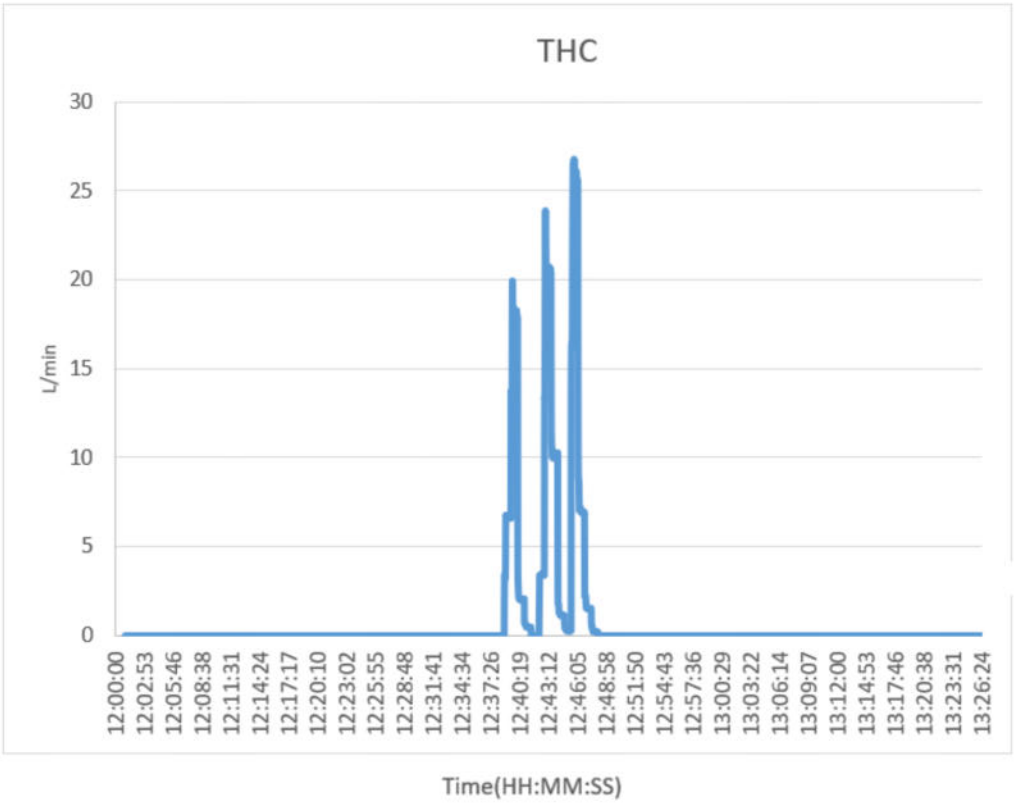
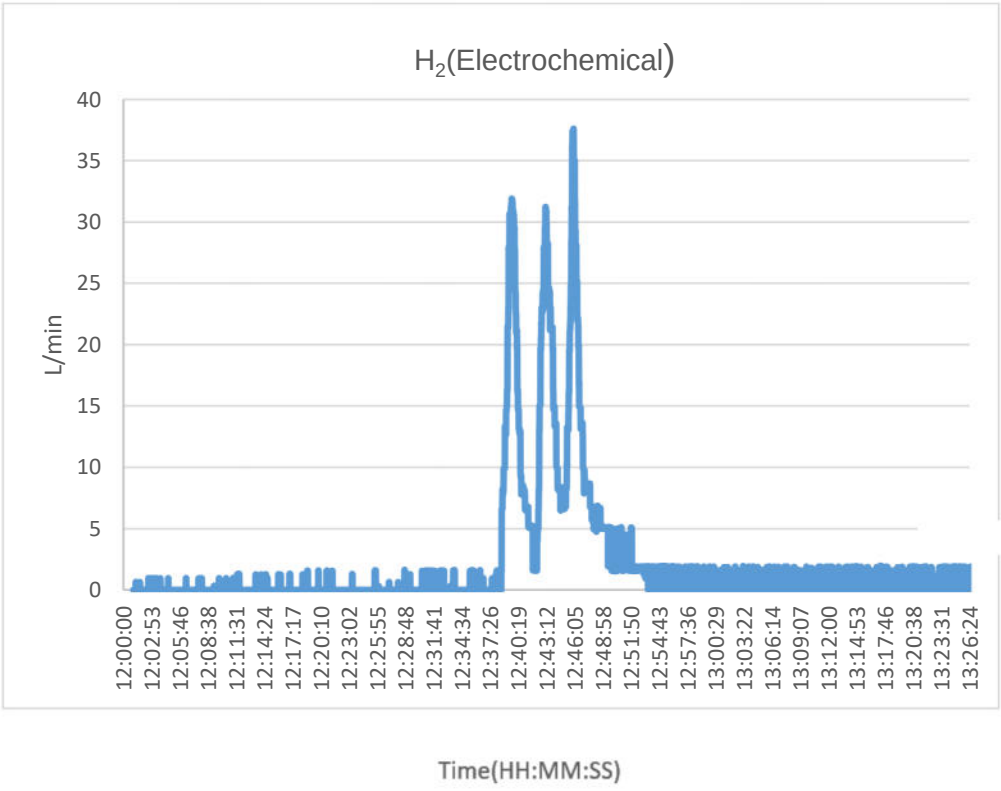
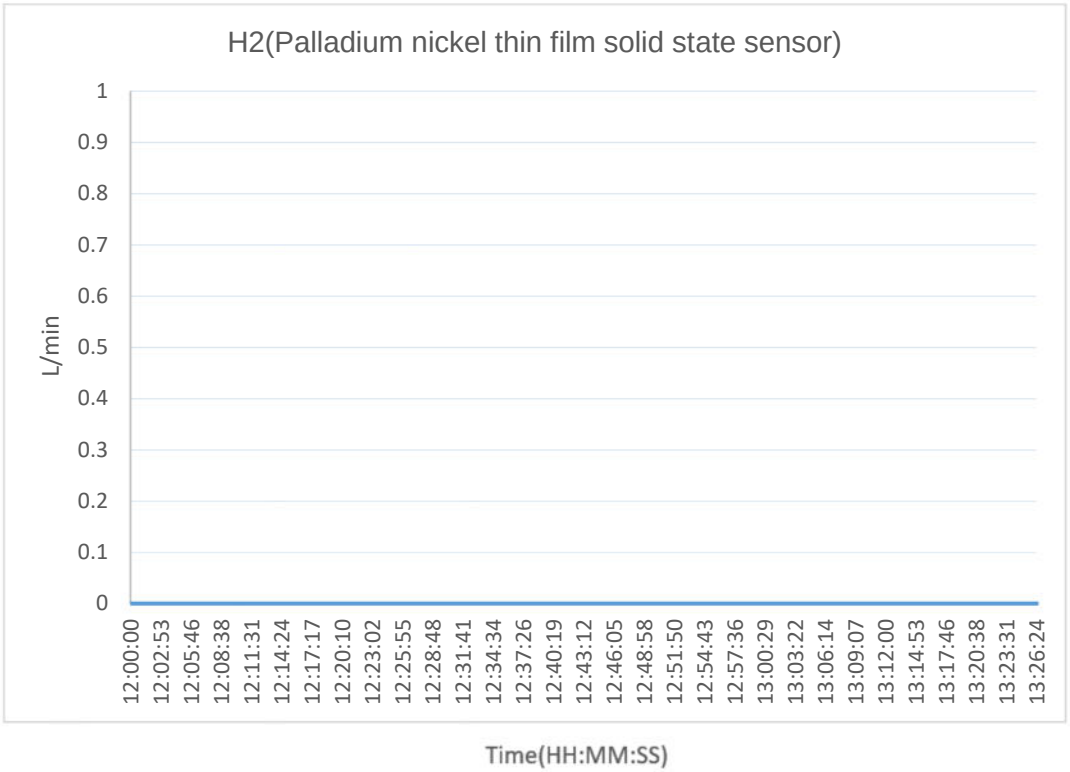
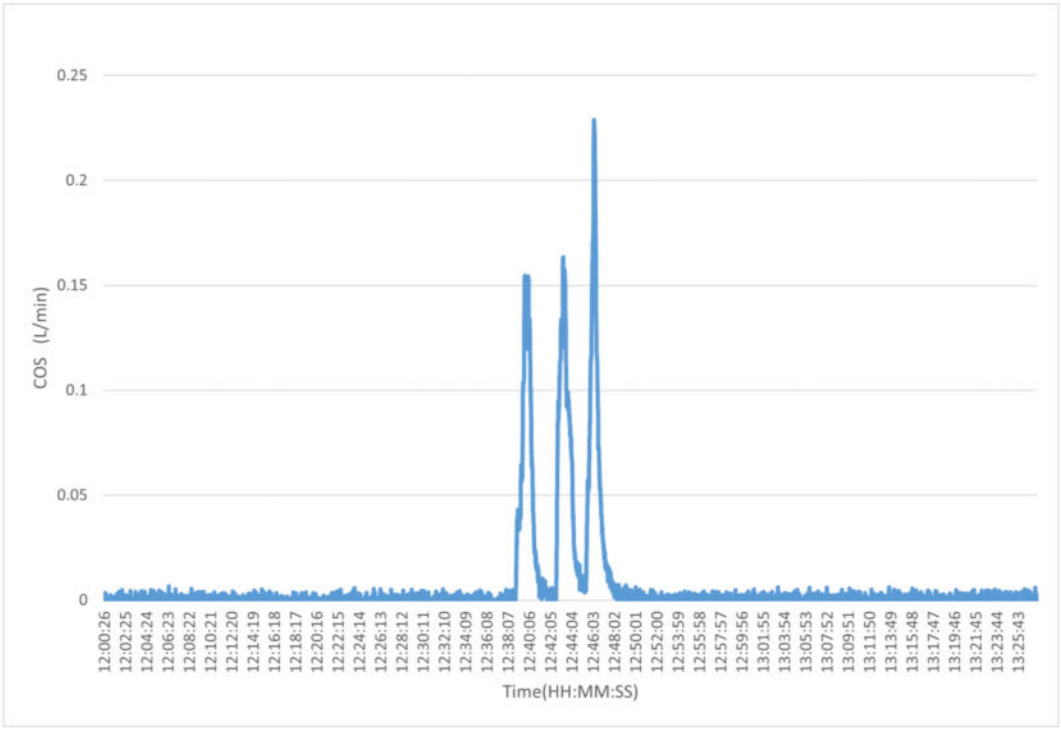
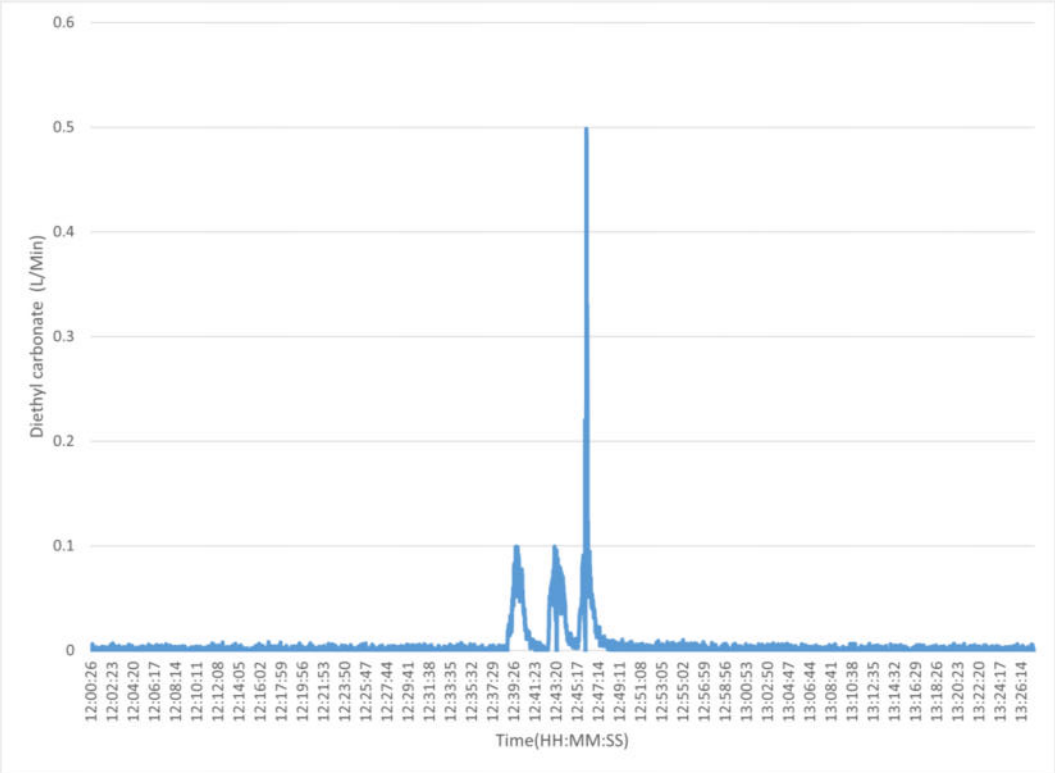


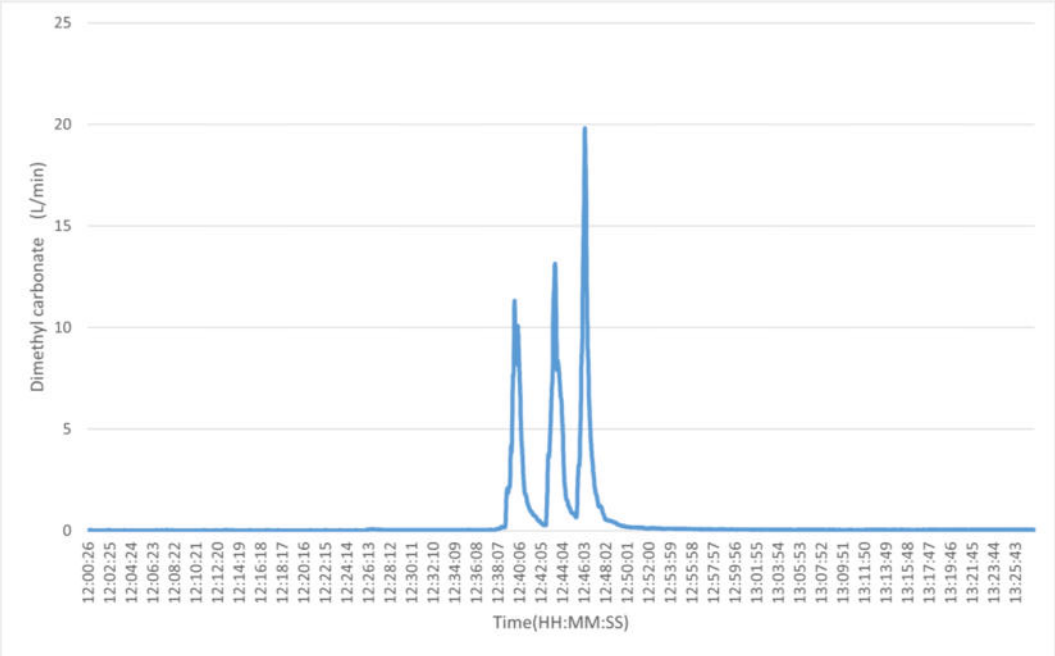
Figure 16 Others:

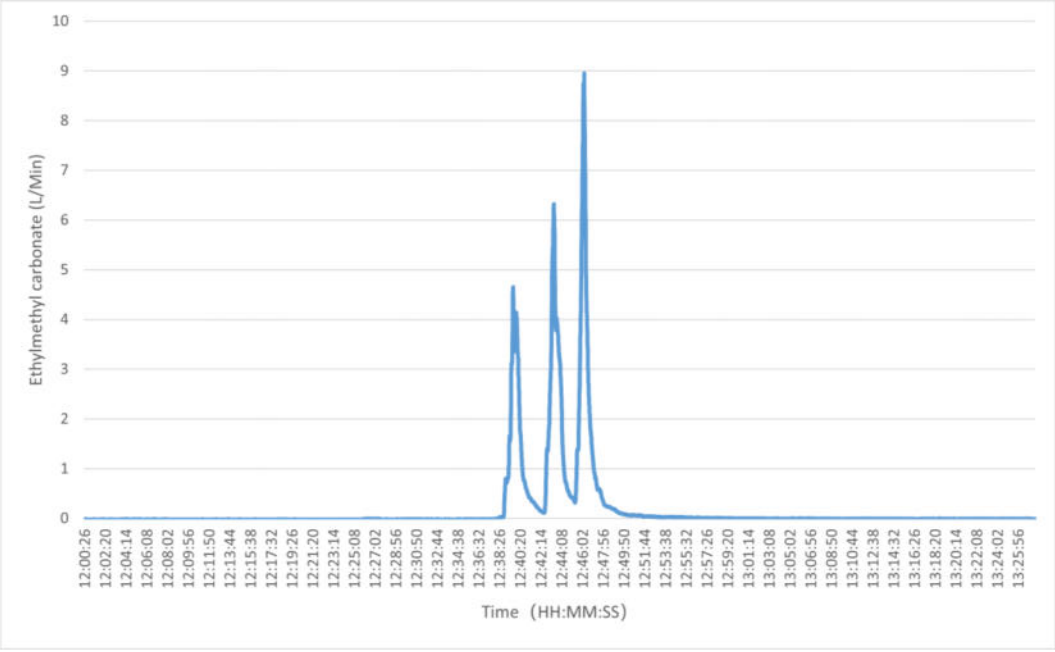


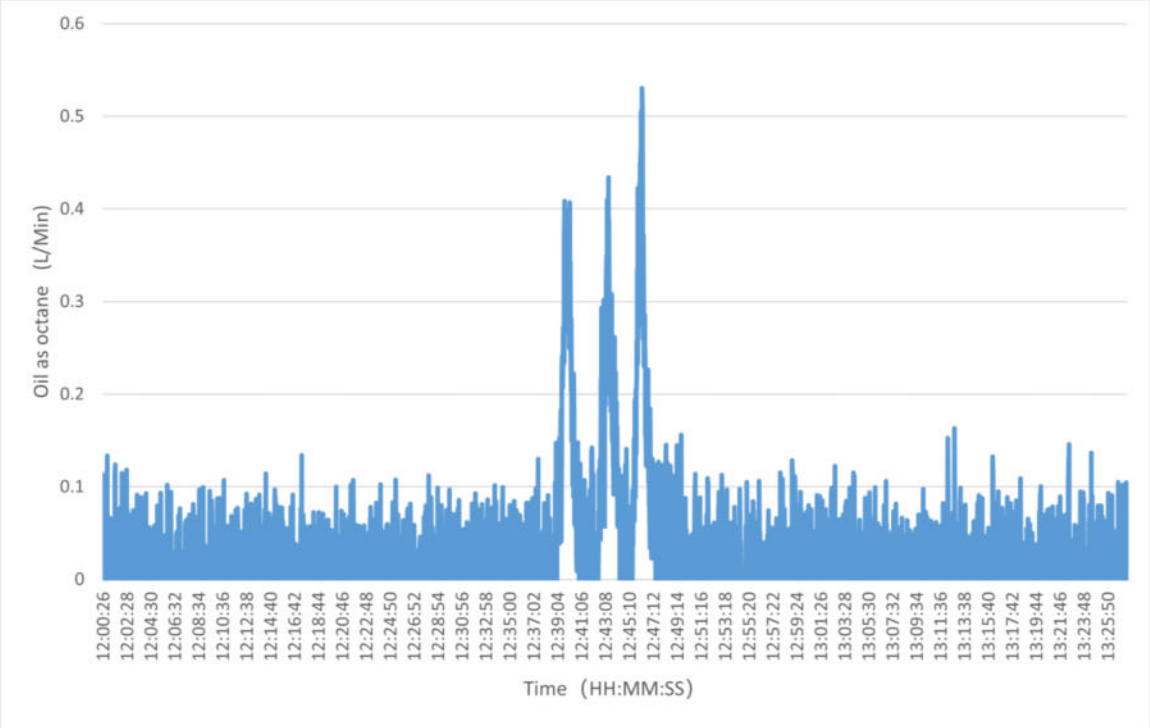

H2(Palladium nickel thin film solid state sensor)
L/min
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
12:00:00
12:02:53
12:05:46
12:08:38
12:11:31
12:14:24
12:17:17
12:20:10
12:23:02
12:25:55
12:28:48
12:31:41
12:34:34
12:37:26
12:40:19
12:43:12
12:46:05
12:48:58
12:51:50
12:54:43
12:57:36
13:00:29
13:03:22
13:06:14
13:09:07
13:12:00
13:14:53
13:17:46
13:20:38
13:23:31
13:26:24
Time(HH:MM:SS)


COS (L/min)
0.25
0.2
0.15
0.1
0.05
0
12:00:26
12:02:25
12:04:24
12:06:23
12:08:22
12:10:21
12:12:20
12:14:19
12:16:18
12:18:17
12:20:16
12:22:15
12:24:14
12:26:13
12:28:12
12:30:11
12:32:10
12:34:09
12:36:08
12:38:07
12:40:06
12:42:05
12:44:04
12:46:03
12:48:02
12:50:01
12:52:00
12:53:59
12:55:58
12:57:57
12:59:56
13:01:55
13:03:54
13:05:53
13:07:52
13:09:51
13:11:50
13:13:49
13:15:48
13:17:47
13:19:46
13:21:45
13:23:44
13:25:43
Time(HH:MM:SS)


0.6
0.5
0.4
0.3
0.2
0.1
0
Diethyl carbonate (L/Min)
12:00:26
12:02:23
12:04:20
12:06:17
12:08:14
12:10:11
12:12:08
12:14:05
12:16:02
12:17:59
12:19:56
12:21:53
12:23:50
12:25:47
12:27:44
12:29:41
12:31:38
12:33:35
12:35:32
12:37:29
12:39:26
12:41:23
12:43:20
12:45:17
12:47:14
12:49:11
12:51:08
12:53:05
12:55:02
12:56:59
12:58:56
13:00:53
13:02:50
13:04:47
13:06:44
13:08:41
13:10:38
13:12:35
13:14:32
13:16:29
13:18:26
13:20:23
13:22:20
13:24:17
13:26:14
Time(HH:MM:SS)

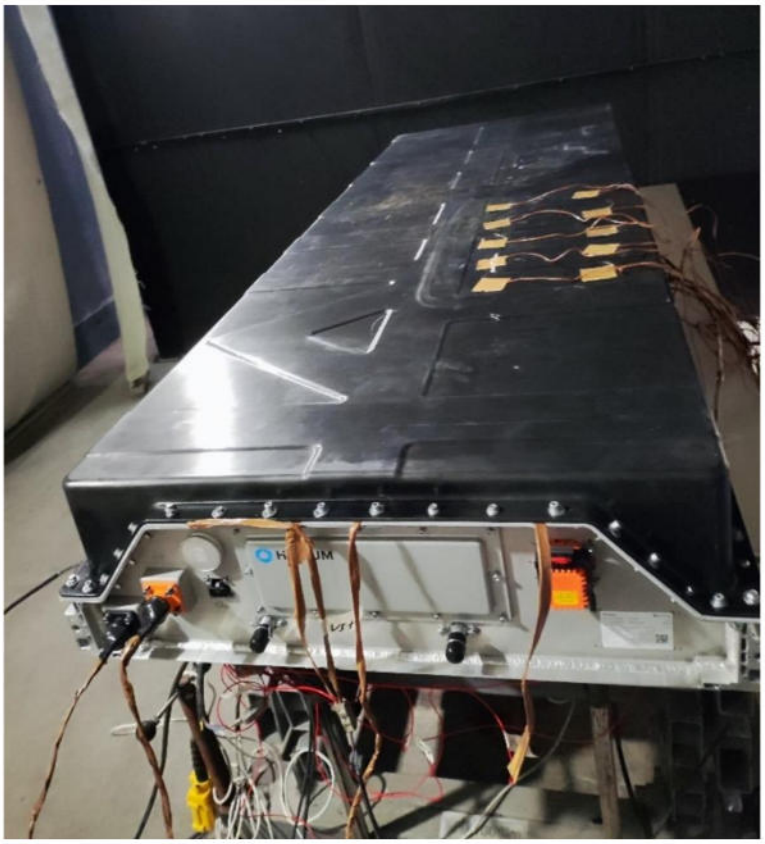

Dimethyl carbonate (L/min)
25
20
15
10
5
0
12:00:26
12:02:25
12:04:24
12:06:23
12:08:22
12:10:21
12:12:20
12:14:19
12:16:18
12:18:17
12:20:16
12:22:15
12:24:14
12:26:13
12:28:12
12:30:11
12:32:10
12:34:09
12:36:08
12:38:07
12:40:06
12:42:05
12:44:04
12:46:03
12:48:02
12:50:01
12:52:00
12:53:59
12:55:58
12:57:57
12:59:56
13:01:55
13:03:54
13:05:53
13:07:52
13:09:51
13:11:50
13:13:49
13:15:48
13:17:47
13:19:46
13:21:45
13:23:44
13:25:43
Time(HH:MM:SS)


Ethylmethyl carbonate (L/Min)
10
9
8
7
6
5
4
3
2
1
0
12:00:26
12:02:20
12:04:14
12:06:08
12:08:02
12:09:56
12:11:50
12:13:44
12:15:38
12:17:32
12:19:26
12:21:20
12:23:14
12:25:08
12:27:02
12:28:56
12:30:50
12:32:44
12:34:38
12:36:32
12:38:26
12:40:20
12:42:14
12:44:08
12:46:02
12:47:56
12:49:50
12:51:44
12:53:38
12:55:32
12:57:26
12:59:20
13:01:14
13:03:08
13:05:02
13:06:56
13:08:50
13:10:44
13:12:38
13:14:32
13:16:26
13:18:20
13:20:14
13:22:08
13:24:02
13:25:56
Time (HH:MM:SS)

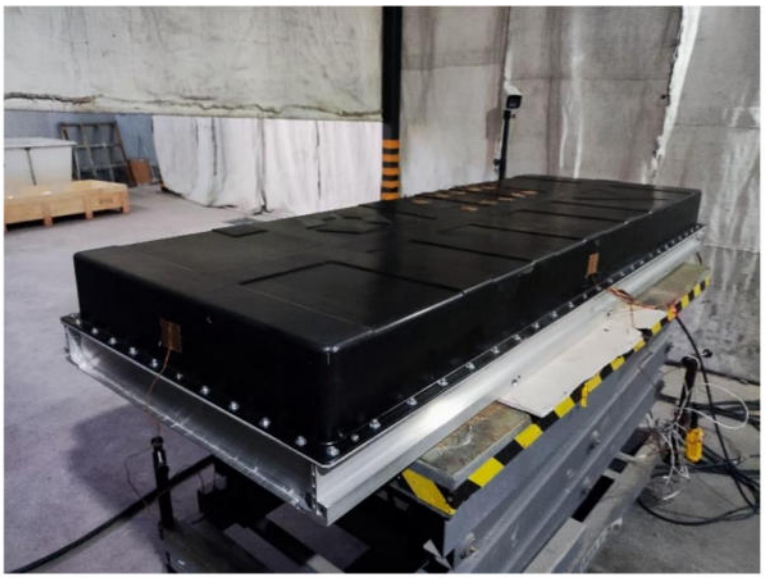

0.6
0.5
0.4
0.3
0.2
0.1
0
Oil as octane (L/Min)
12:00:26
12:02:28
12:04:30
12:06:32
12:08:34
12:10:36
12:12:38
12:14:40
12:16:42
12:18:44
12:20:46
12:22:48
12:24:50
12:26:52
12:28:54
12:30:56
12:32:58
12:35:00
12:37:02
12:39:04
12:41:06
12:43:08
12:45:10
12:47:12
12:49:14
12:51:16
12:53:18
12:55:20
12:57:22
12:59:24
13:01:26
13:03:28
13:05:30
13:07:32
13:09:34
13:11:36
13:13:38
13:15:40
13:17:42
13:19:44
13:21:46
13:23:48
13:25:50
Time (HH:MM:SS)

3.7 Photos

Module before test





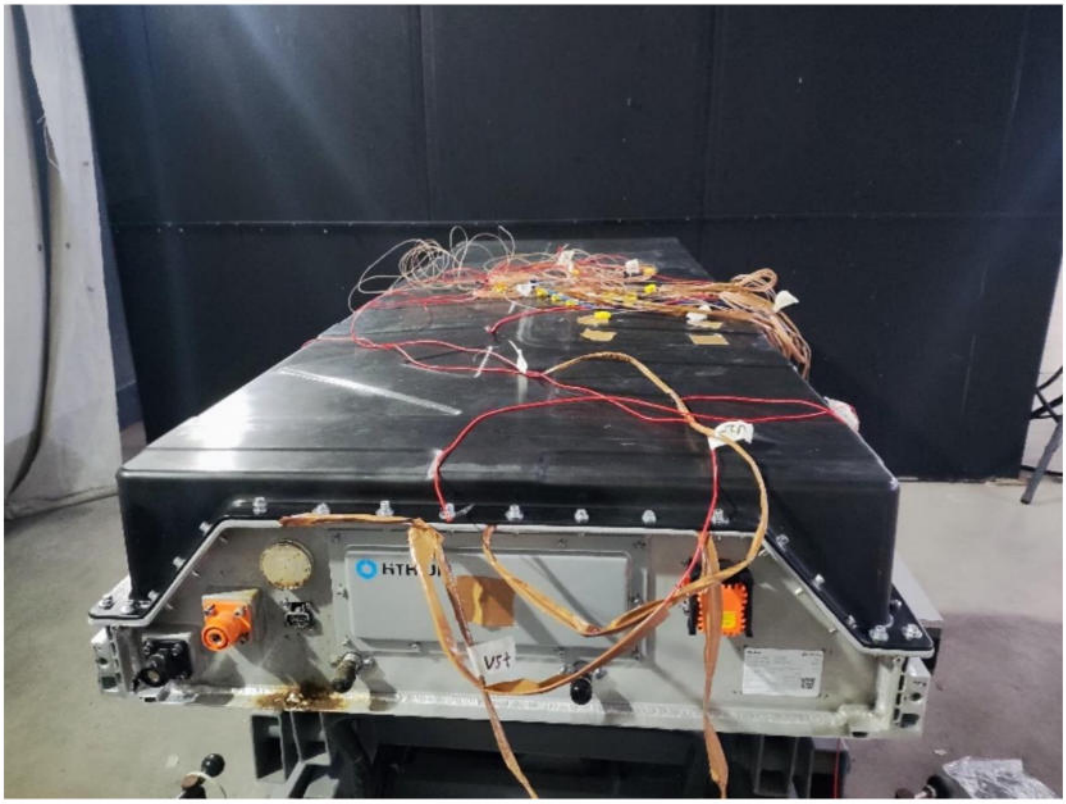


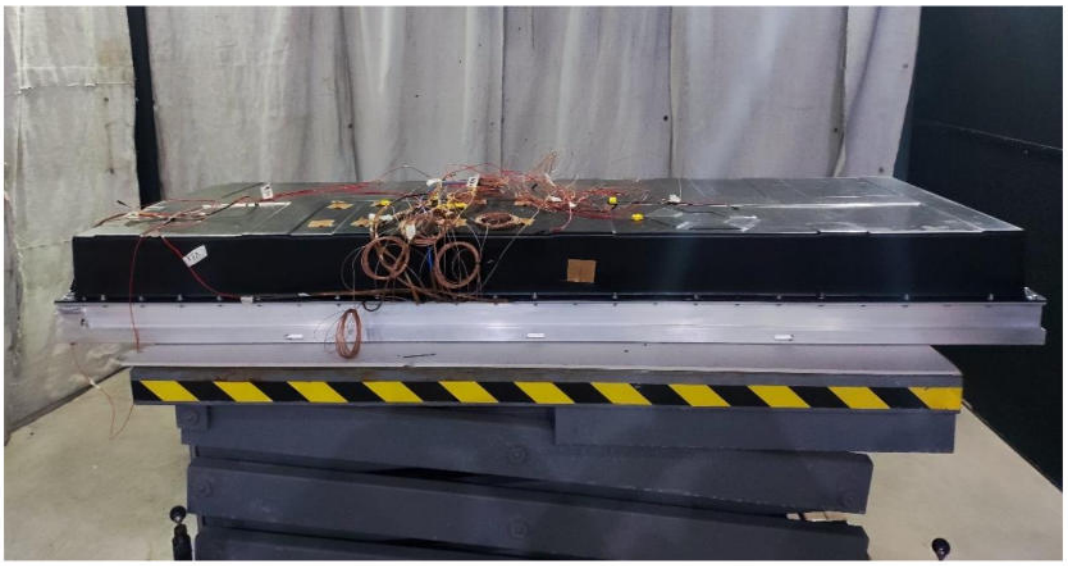

HTHIUM

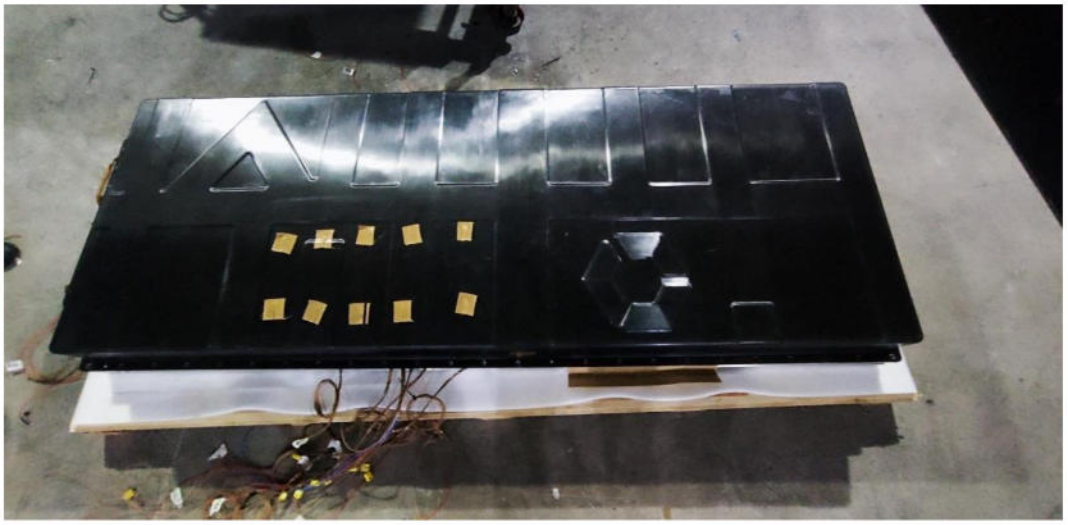
Smoke release during test



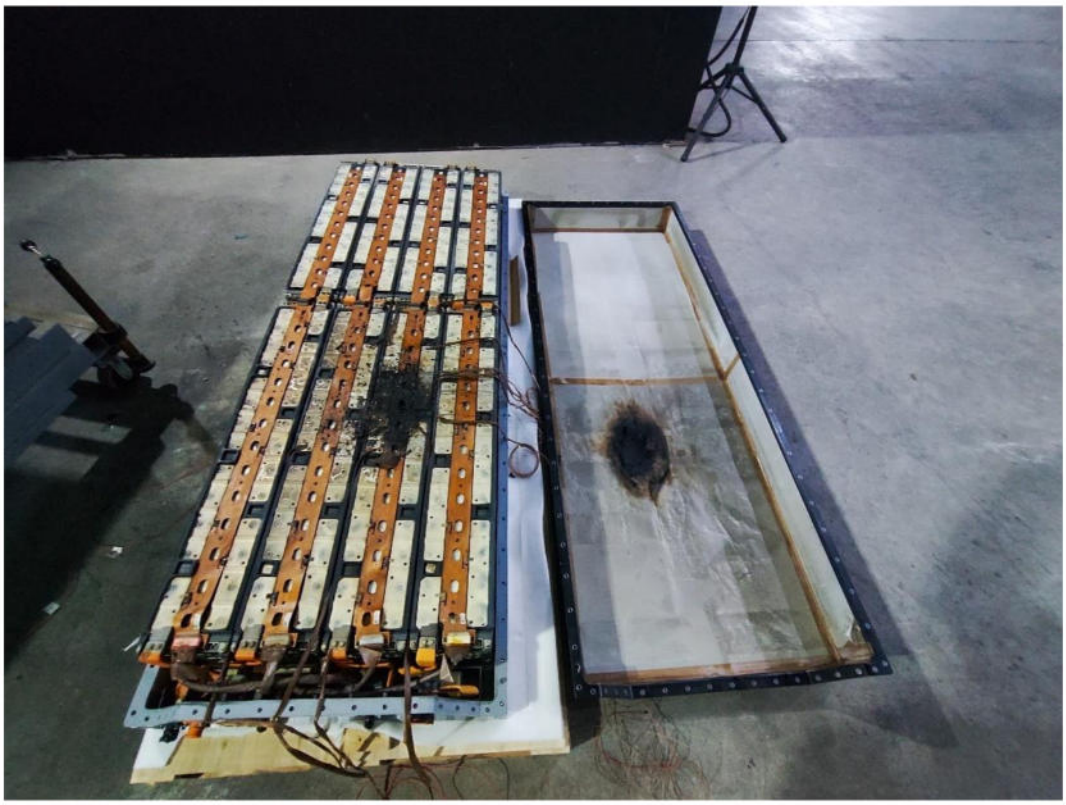
Sample after test

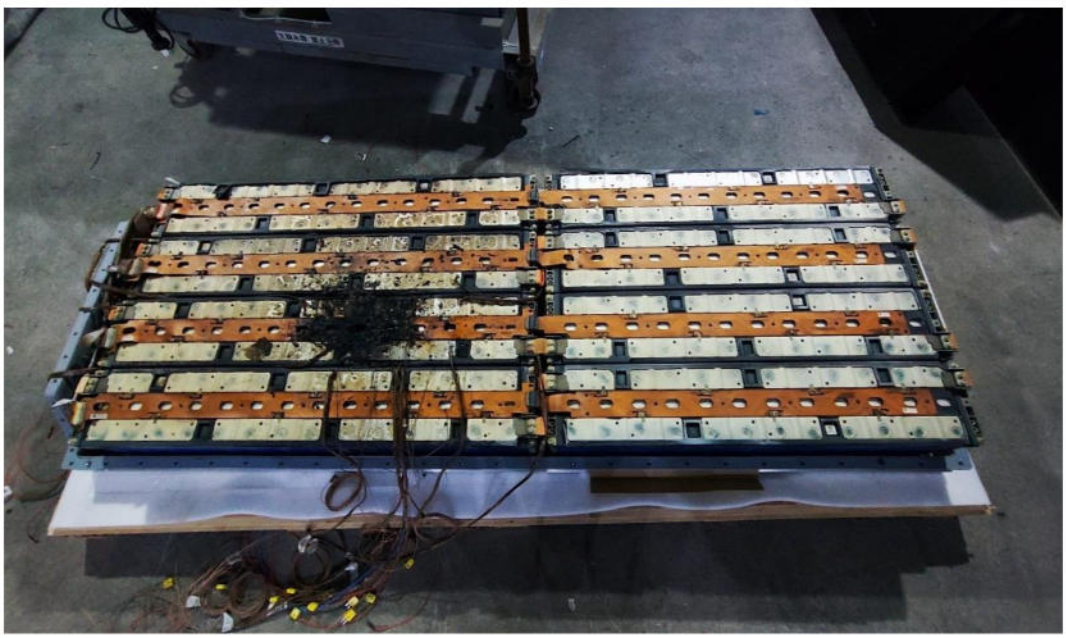






Damage of the internal components





3.8 List of test and measurements instruments:

No.	Equipment	Model	Rating	Inventory no.	Last Cal. date
1	Ambient temperature and humidity	COS-03	0°C ~50°C, 30%RH~95%RH	D-ZNDW23052402	2023.05.24
2	Data acquisition equipment	LR8450-01	0~1100°C	0221-0704-06	2023.10.19
3	Electronic scale	OCS-2t/1kg	1kg~2000kg	0221-0704-10	2023.11.19
4	Paramagnetic oxygen analyser	AO2020	Oxygen measurement: 6.02%vol~24%vol; Hydrogen concentration: 1%~3%; Carbon monoxide: 0.2%~0.8%; Carbon dioxide concentration: 2%~8%	0221-0704-03	2023.03.06
5	Velocity probe	DYM3	800~1060hPa	D-ZNDW23032210	2023.03.10
7	Fourier-Transform Infrared Spectrometer	MULTIGAS 6030	Methane, propane, acetylene concentration: 100μmol/mol~1000μmol/mol; Carbon monoxide concentration: 0.2%~0.8%	0221-0704-08	2023.03.06
9	Palladium-nickel thin-film solid state sensor	HY-OPTIMA-2720	Range: 0.4%~5.0%	0221-0704-01	2023.03.20
10	Flame ionization detector	AO2040	Methane concentration: 100μmol/mol~500μmol/mol	0221-0704-04	2023.03.06
11	Thermopile	TJ120-CAXL-116U-80	0~300°C	0221-0704-31	2023.10.22

Remark: Calibration of equipment is valid for 1 year.

End of Test Report

Prüfbericht - Produkte
Test Report - Products

Prüfbericht-Nr.: *Test report no.*:	**CN244DBX 001**	**Auftrags-Nr.:** *Order no.*:	**168460578**	Seite 1 von 40 *Page 1 of 40*
Kunden-Referenz-Nr.: *Client reference no.:*	2347845	**Auftragsdatum:** *Order date:*	2023-12-28	
Auftraggeber: *Client:*	**Xiamen Hithium Energy Storage Technology Co., Ltd.** No.1 Benyuan Road, Tongxiang High - Tech Zone, Xiamen, Fujian, China			
Prüfgegenstand: *Test item:*	Battery cluster			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	LC083502			
Auftrags-Inhalt: *Order content*:	Test report			
Prüfgrundlage: *Test specification:*	UL 9540A: 2019 (Fourth Edition)			

Wareneingangsdatum: *Date of sample receipt:*	2024-03-01
Prüfmuster-Nr.: *Test sample no:*	Engineering samples
Prüfzeitraum: *Testing period:*	2024-03-02 to 2024-03-07
Ort der Prüfung: *Place of testing:*	See page 5
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	See main report.



erstellt von: *created by:*		**genehmigt von:** *authorized by*:	
Datum: *Date:* 2024-04-26	Stephen Huang	**Ausstellungsdatum:** *Issue date:* 2024-04-26	Xun Yu
Stellung / *Position:*	Project Engineer	**Stellung** / *Position:*	Reviewer

Sonstiges / *Other:* This report does not evidence compliance of the provided sample with the relevant standards but only with the referred tests. This test report documents the findings of examination conducted on the delivered product mentioned above only. This report does not entitle the applicant to carry any safety mark on this or similar products. Further for sales or other application purposes of the tested product, any reference to TÜV Rheinland or a test through TÜV Rheinland is only permissible with prior written consent of TÜV Rheinland.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. *The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.*

INTRODUCTION

Model fire codes and energy storage system standards require energy storage systems to comply with UL 9540, which in turn requires battery cells and modules to comply with UL 1973. Compliance with these standards reduces the risk of batteries and battery energy storage systems (BESS) creating fire, shock or personal injury hazards. However, they don't evaluate the ability of the BESS installed as intended and with fire suppression mechanisms in place if necessary, from contributing to a fire or explosion in the end use installations.

To address these fire and explosion hazards associated with the installation of a BESS, the fire and other codes require energy storage systems to meet certain location, separation, fire suppression and other criteria. Those codes also provide a means to provide an equivalent level of safety based on large scale fire testing of anticipated BESS installations.

UL 9540A is intended to provide a test method that can be used as a basis for validating the safety of a BESS installation in lieu of meeting the specific criteria provided in those codes. The data generated can be used to determine the fire and explosion protection required for installation of a BESS.

The test method is initiated through the establishment of a thermal runaway condition that leads to combustion within the BESS. The test method outlined in UL 9540A consists of several steps – cell level testing, module level testing, unit level testing and installation level testing. The cell and module level testing steps are information gathering steps to inform the unit and installation level testing.

The following outlines the information that may be gathered as part of the testing:

a) Cell level – An individual cell fails in a manner that leads to thermal runaway and fire through a suitable method such as external heating. Data such as off-gassing contents, temperatures at venting and temperatures at thermal runaway are recorded.

b) Module level – One or more cells within a BESS module fail in the manner determined during the cell level testing. Data such as fire propagation in the module, temperatures on the failed cells and surrounding cells, off-gassing contents and heat release data are gathered.

c) Unit level – A complete BESS is installed surrounded by target (e.g. dummy) BESS and walls separated at a distance as intended in its installation. The module level test is repeated on a module located in the BESS in the most unfavorable location. Data such as temperature within the BESS, on surrounding walls and target BESS; incident heat flux on walls and target BESS; observation of fire propagation from BESS to target units and walls as well as observance of explosions or evidence of re-ignition within the BESS; and heat release and off-gassing contents are gathered.

d) Installation level – This test is a repeat of the unit level test with the test conducted within a test room and with the intended fire suppression system installed as well as any overhead cables (that can lead to fire propagation) installed. This test is intended to validate the fire suppression system for the BESS installation. Data such as temperature within the BESS, on surrounding walls and target BESS; incident heat flux on walls and target BESS; fire propagation from the BESS to target units, walls or overhead cables and any observable explosion incidents or re-ignition within the BESS; and off-gassing contents (if needed) and heat release are gathered.

Contents

1 GENERAL INFORMATION 5

1.1 TEST SPECIFICATION 5
1.2 GENERAL REMARKS 5
1.3 REVISION INFORMATION 5
NEW REPORT, NOT APPLICABLE. 5
1.4 DEFINITIONS 6

2 GENERAL PRODUCT INFORMATION 7

2.1 CELL 7
Cell level test information 8
2.2 MODULE 8
2.3 UNIT 9
2.4 PHOTO 10

3 UNIT LEVEL TEST (SECTION 9 OF UL 9540A) 11

3.1 GENERAL 11
3.2 UNIT SAMPLE PREPARATION 12
3.3 SETUP OF THE TEST 12
3.4 OBSERVATIONS AND RECORDS 17
3.5 TEMPERATURE MEASUREMENT 18
3.6 HEAT FLUX MEASUREMENT 21
3.7 CHEMICAL HEAT RELEASE RATE MEASUREMENT 22
3.8 CONVECTIVE HEAT RELEASE RATE MEASUREMENT 25
3.9 SMOKE RELEASE RATE MEASUREMENT 27
3.10 GAS GENERATION MEASUREMENT 29
3.11 PERFORMANCE SUMMARY REMARK AGAINST CRITERIA 36
3.12 PHOTOS 37
3.13 LIST OF TEST AND MEASUREMENT INSTRUMENTS 40

1 General information

1.1 Test specification

Standard: ANSI/CAN/UL 9540A: 2019 (Fourth Edition)

Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

This report presents the result of unit level tests of UL 9540A: 2019.

All tests were conducted at TUV Rheinland (Shenzhen) Co., Ltd. and TUV Rheinland's partner labs that were under supervision of TÜV Rheinland's engineer.

Testing period: 2024-03-02 to 2024-03-07

Refer to Clause 4 for test and measurement instruments.

1.2 General remarks

This report is descriptive and provide the test data only.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

1.3 Revision information

New report, not applicable.

1.4 Definitions

CELL – The basic functional electrochemical unit containing an assembly of electrodes, electrolyte, separators, container, and terminals. It is a source of electrical energy by direct conversion of chemical energy.

MODULE – A subassembly that is a component of a BESS that consists of a group of cells or electrochemical capacitors connected together either in a series and/or parallel configuration (sometimes referred to as a block) with or without protective devices and monitoring circuitry.

UNIT – A frame, rack or enclosure that consists of a functional BESS which includes components and subassemblies such as cells, modules, battery management systems, ventilation devices and other ancillary equipment.

BATTERY SYSTEM (BS) – Is a component of a BESS and consists of one or more modules typically in a rack configuration, controls such as the BMS and components that make up the system such as cooling systems, disconnects and protection devices.

BATTERY ENERGY STORAGE SYSTEM (BESS) – Stationary equipment that receives electrical energy and then utilizes batteries to store that energy to supply electrical energy at future time. The BESS, at a minimum consists of one or more modules, a power conditioning system (PCS), battery management system (BMS) and balance of plant components.

a) INITIATING BATTERY ENERGY STORAGE SYSTEM UNIT (INITIATING BESS) – A BESS unit which has been equipped with resistance heaters in order to create the internal fire condition necessary for the installation level test.

b) TARGET BATTERY ENERGY STORAGE SYSTEM UNIT (TARGET BESS) – The enclosure and/or rack hardware that physically supports and/or contains the components that comprise a BESS. The target BESS unit does not contain energy storage components, but serves to enable instrumentation to measure the thermal exposure from the initiating BESS.

Note: Depending upon the configuration and design of the BESS (e.g. the BESS is composed of multiple separate parts within separate enclosures), the unit level test can be done at battery system level. In such case, the BESS is be read as BS throughout this report.

NON-RESIDENTIAL USE – Intended for use in commercial, industrial or utility owned locations.

RESIDENTIAL USE – In accordance with this standard, intended for use in one or two family homes and town homes and individual dwelling units of multi-family dwellings.

THERMAL RUNAWAY- The incident when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion. The thermal runaway progresses when the cell's generation of heat is at a higher rate than the heat it can dissipate. This may lead to fire, explosion and gas evolution.

STATE OF CHARGE (SOC) – The available capacity in a BESS, pack, module or cell expressed as a percentage of rated capacity.

2 General Product Information

The product information and parameters were provided by the client as below.

2.1 Cell

Manufacturer:	**Xiamen Hithium Energy Storage Technology Co., Ltd.** 201-1, Comprehensive Building 5, No. 11, Butang Middle Road, Industrial Base Of Xiamen Torch High Tech Zone (Tongxiang), Xiamen, Fujian P.R. China	
Model number:	LFP71173207/314Ah	
Chemistry:	☒ $LiFePO_4$ ☐ NMC ☐ NCA ☐ LTO ☐ Other:	
Physical configuration:	☒ Prismatic ☐ Cylindrical ☐ Pouch	
	Weight(kg):	5.60±0.20
Electrical rating :	Rated capacity (Ah):	314 (25°C±2°C)
	Nominal voltage (V):	3.2
Standard charge method:	Charge current (A):	157(25°C±2°C)
	Standard Charge Voltage (V):	3.65
	Cut off current (A):	/
Standard discharge method:	Discharge current (A):	157(25°C±2°C)
	End of discharge voltage (V):	2.5(T>0°C) 2.0(T≤0°C)
Maximum continuous charge current (A):	314(25°C±2°C)	
Maximum continuous discharge current (A):	314(25°C±2°C)	
Compliance with UL 1973:	☒ Yes TUV Report No.: CN23RGEH 001 ☐ No	

Cell level test information

Cell level thermal runaway test information is copy from TUV Rheinland UL 9540A cell level test report No.: CN23F118 001

Thermal Runaway Methodology:	External heater applied on one side of the cell with surface heating rate at about of 5°C per minute until thermal runaway triggered.
Average Cell Surface Temperature at Gas Venting:	203.7°C
Average Cell Surface Temperature Start Thermal Runaway:	295.7°C

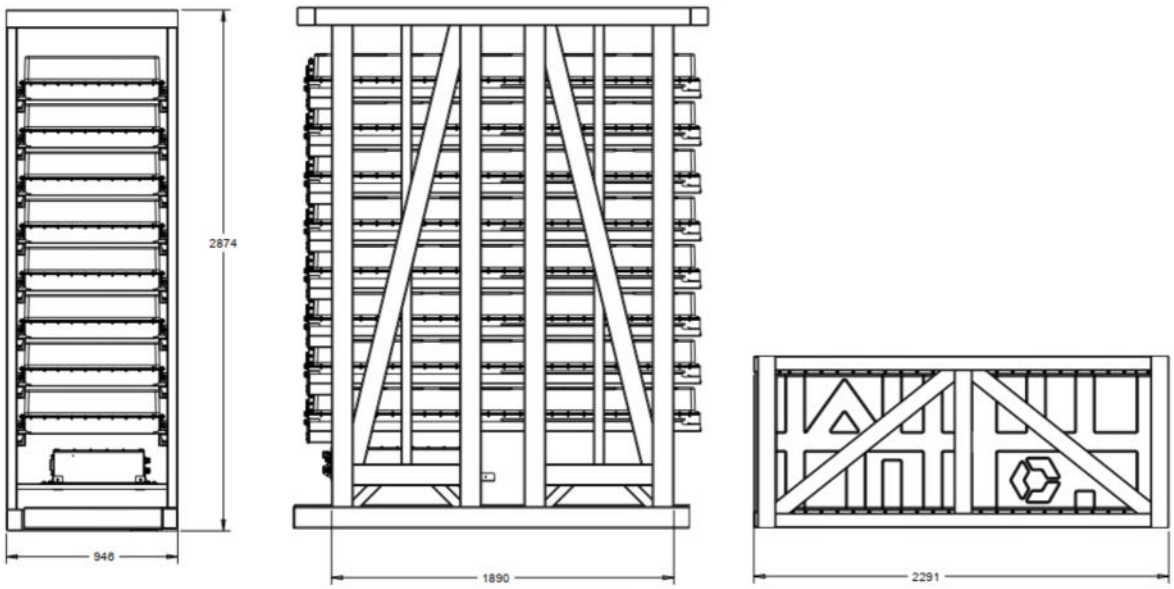
2.2 Module

Manufacturer:	**Xiamen Hithium Energy Storage Technology Co., Ltd.** 201-1, Comprehensive Building 5, No. 11, Butang Middle Road, Industrial Base Of Xiamen Torch High Tech Zone (Tongxiang), Xiamen, Fujian, P.R. China	
Model number:	LM010401-A	
Physical configuration:	Metal base, the other sides are non-metallic material. A mica plate is installed under the top enclosure.	
	Weight:	680 ±10 kg
	Cells in series/parallel:	2P52S
Cooling method:	Liquid cooling	
Separation between cells:	Thermal insulation sheet: Aerogel Heat insulation pad and Polyurethane foam, see Figure 4 for install location details.	
Electrical rating:	Rated capacity:	628 Ah
	Nominal voltage:	166.4Vdc
Standard charge method:	Charge power:	52.25KW
	End of charge:	The highest cell voltage reaches 3.65 V
Standard discharge method:	Discharge power:	52.25KW
	End of discharge:	The lowest cell voltage reaches 2.5 V
Compliance with UL 1973:	☐ Yes	☒ No

2.3 Unit

Product name	Battery cluster
Model	LC083502
Voltage range	1040 VDC – 1500 VDC
Nominal voltage	1331.2VDC
Rated capacity	628Ah
Operating Temperature	0-55°C(Cell)(Charge), -30-55°C(Cell)(Discharge)
Recommend charging method declared by the manufacturer	Charged with constant power 417.996kW till cell voltage reaches 3.65V, at 25±2°C.
Recommend discharging method declared by the manufacturer	Discharged with constant power 417.996kW till cell voltage reaches 2.5V, at 25±2°C.
Nominal mass	6500±500kg
External dimensions (mm)	L*W*H: 946*2291*2874

Unit diagram with overall dimension, Unit: mm:



2.4 Photo



Unit

3 Unit level test (section 9 of UL 9540A)

3.1 General

Unit level testing corresponds with the testing anticipated by fire codes and other codes impacting energy storage system installations to evaluate the large scale fire performance of BESS units installed in, on or adjacent to buildings or in other areas and their resultant performance to qualify for exceptions to limits in the codes imposed on these installations. The limitations where exceptions may be sought are limitations on the size of the individual BESS units, the total number of BESS units installed within a room, and the separation distances between BESS units and between BESS units and walls of the building.

In this test the initiating BESS unit is placed a set distance from target BESS units simulating BESS units identical to the initiating BESS unit, and from simulated walls representative on the installation. A thermal runaway is induced in cells, using the same approach as used in the module level testing within one of the modules in the initiating BESS, and a variety of measurements are taken. The results are intended to be used to verify that a fire within a single BESS unit will not spread to other units, nor breach the walls or the BESS enclosure (if provided), and there shall be no flying debris or explosive discharge of gases.

The test arrangement include the largest (energy) BESS unit for the installation to be represented by the test, and minimum spacing to adjacent walls and BESS units. The BESS may be tested with an internal fire suppression system provided by the manufacturer if that fire suppression system is required to be installed in the BESS. Optional internal fire suppression systems are not included in the unit level testing.

The test monitors the fire behavior of the BESS unit and measures heat release rates (convective and chemical); gas generation and composition; smoke release rate; maximum heat flux on the target BESS units, wall surfaces and within the accessible means of egress; maximum surface temperatures of the walls and modules within the target BESS units; and documents any explosions, deflagrations and flying debris from the BESS under test.

3.2 Unit sample preparation

The battery rack is constructed with 8 modules that was considered as a unit for purposes of the test.

All 8 modules samples through 3 charge/discharge cycles per the manufacturer's instructions to verify that the module was functional. Each cycle was defined as a charge to 100% SOC and allowed to rest 30 minutes and then discharged to an end of discharge voltage (EODV) determined by the module specification. Refer to 2.2 for the end of condition of charge and discharge.

3.3 Setup of the test

3.3.1 Battery system installation information

The installation information was provided by the client as below.

Intended use location.....:	☐ Residential	☒ Non-residential
	☐ Non-residential rooftop	
	☐ Non-residential open garage use	
Type of installation.....:	☒ Indoor	☐ Outdoor
	☒ Floor/ground mounted	☐ Wall mounted
Row(s) of installation	☒ Single	☐ Multiple

3.3.2 Test site setup

Walls were constructed of 16-mm (5/8-in) gypsum wall board and painted flat black.

Two units were used for the purpose of the test.

The initiating unit was positioned adjacent to the three instrumented wall sections.

Minimum separation distance from the unit to wall and between unit were provided by the client, separation distance: A=B=21mm, C=70mm, D=0mm, E=F=134mm,

Unit's layout can be seen in Figure 1.

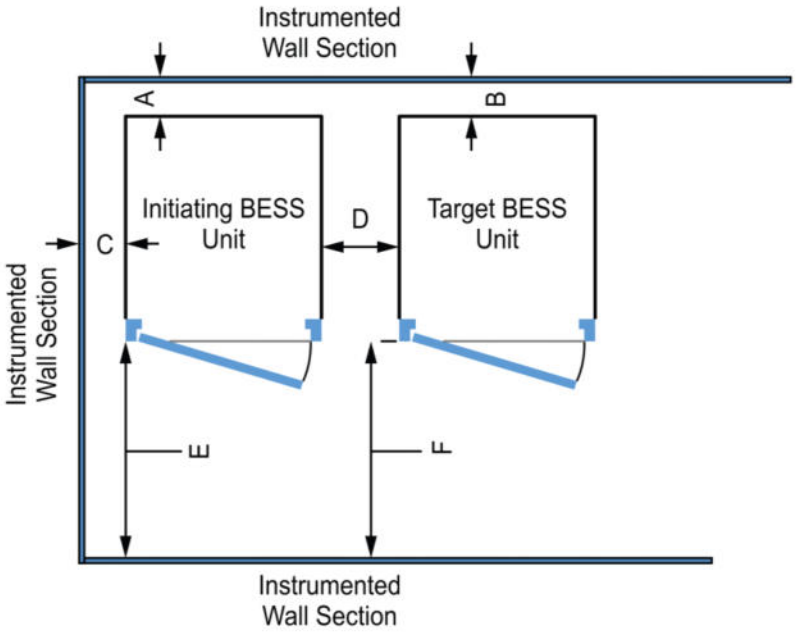


Figure 1 Layout of BESS units

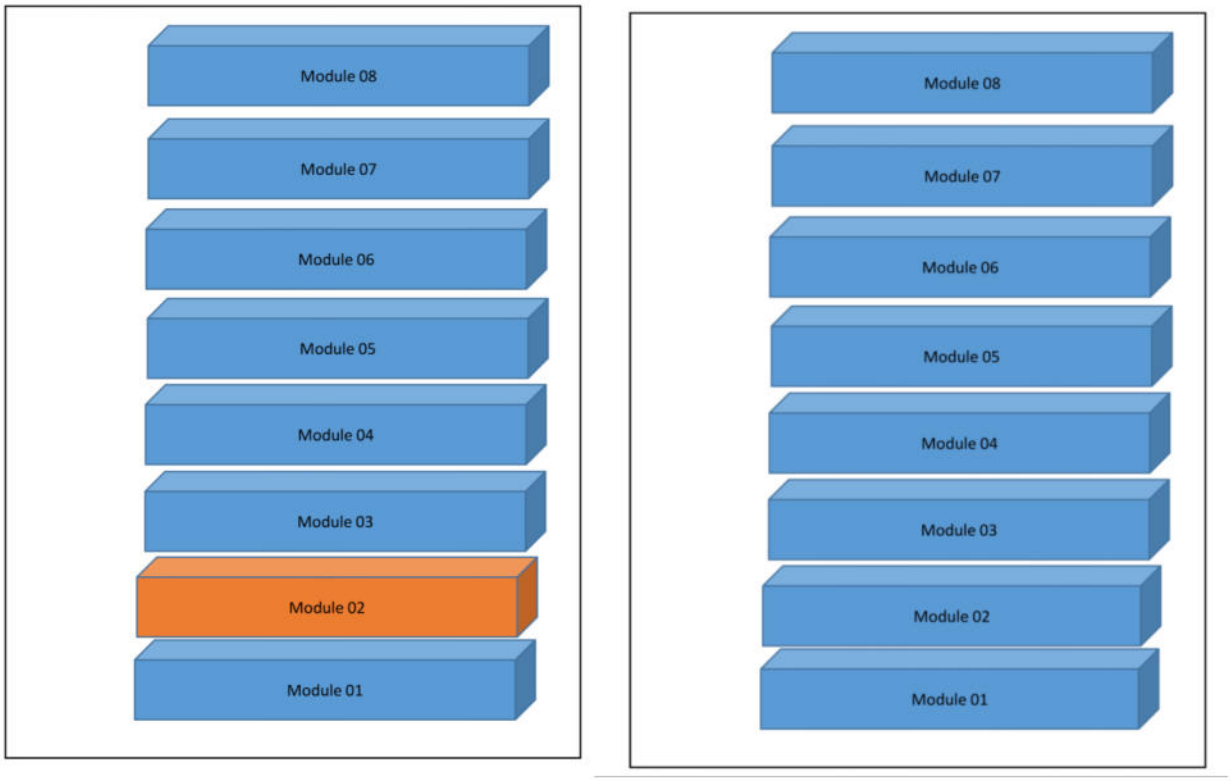
3.3.3 Thermal runaway setup

Setup of Unit:

There were two units were marked as initiating unit and target unit, one was initiating unit, and the other was target unit. Each unit had been installed 8 modules.

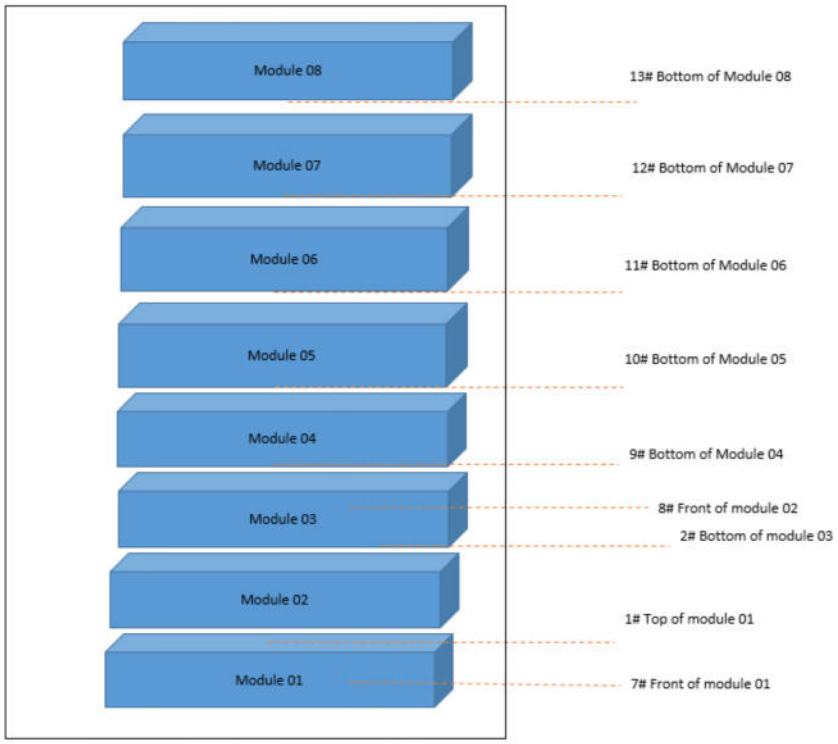
Module 02 in initiating unit was selected as “initiating module” for the test.

Modules 01, 03 in initiating unit and modules in target unit were used to check the possible propagation between modules in initiating unit and target unit. Figure 2 show the details.



Initiating Unit Target Unit

Figure 2 Module numbering in unit



PS: #3 to #6 is on the front, back, left and right surface side of module 02

Figure 3 Thermocouple in initiating unit

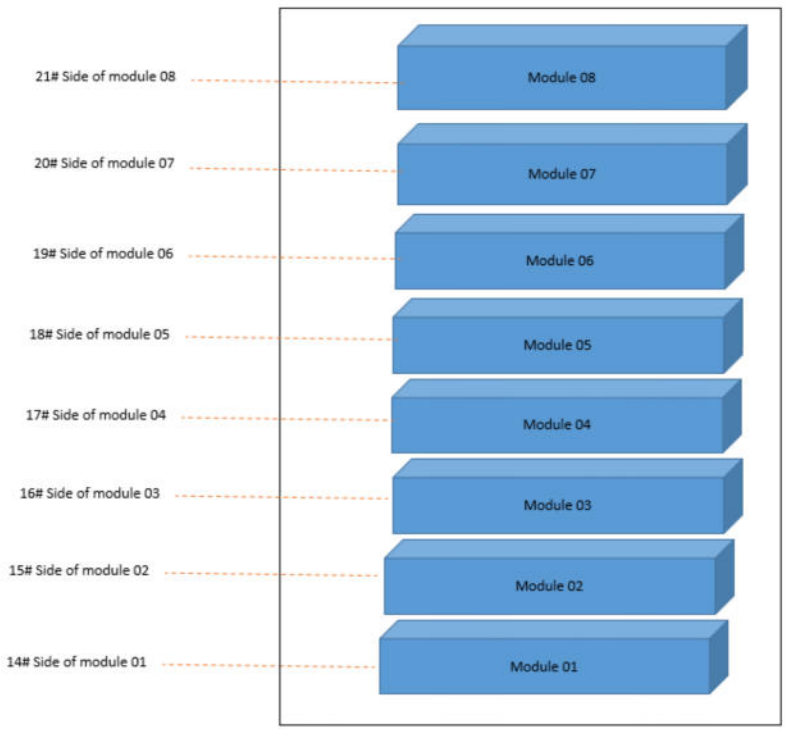


Figure 4 Thermocouple in target unit

Setup of module:

The module consisted of 104 cells 2P52S. All cells in the pack were numbered from #1-1 to #1-26, #2-1 to #2-26, #3-1 to #3-26, #4-1 to #4-26 as below.

External heating method was used to initiate thermal runaway in the module. One metal heater was fitted on cell (rated 220V ac/1000 W, size 190*160).

Total 11 thermocouples (type K, 24AWG) were attached at the center of the wider side surface of cell and below the hater film in the module. See Figure 5 for the detail locations.

Voltage of the module was monitored during test.

See Figure 5 for the detail locations.

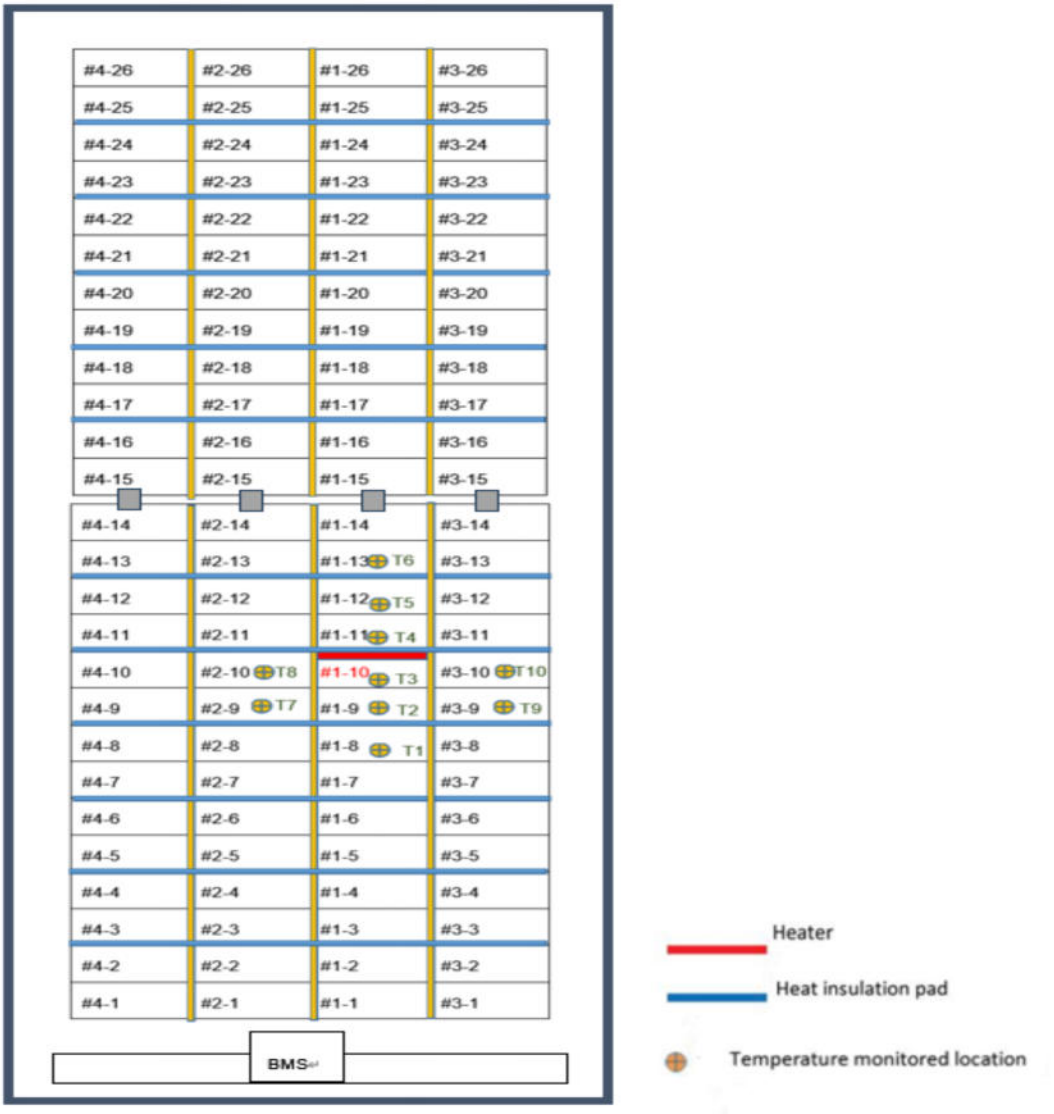


Figure 5 Cell number, location of heater, thermal insulation sheet (Aerogel Heat insulation pad and Polyurethane foam) and thermocouple

3.4 Observations and records

Before test:

The initiating module was charged to 100% SOC and allowed to stabilize for a minimum of 1 h and a maximum of 8 h before the start of the test.

Ambient condition at the initiation of the test was 26.1°C, 62.1% R.H.

Test was performed on 2024-03-07, started at 1:34 PM.

Before the test, The Module 2 in Initiating unit	
OCV (V)	173.5
Weight (kg)	676.5

Observations during test:

Time	1	2
Vent time	14:30:10	14:46:08
Thermal runaway	14:42:58	14:49:49

No flying debris or explosive discharge of gases during test.

No sparks, electrical arcs, or other electrical events during test.

No external flaming was observed.

Observations after test:

No damage on target walls.

No damage on target units.

The initiating cells (#1-10) was damaged (thermal runway) after the test. Cell #1-9 was damaged because of the cell to cell propagation.

After the test, The Module 2 in Initiating unit	
OCV (V)	170.1
Weight (kg)	676.0
Weight loss (kg)	0.5

3.5 Temperature measurement

3.5.1 Temperature measurement of initiating module

Multiple thermocouples, Type K, 24AWG, were attached on all module and unit. See Figure 3 to Figure 5 for the detailed locations.

The thermocouple temperature of the module 2 in initiating unit was shown in the figure 6 as below.

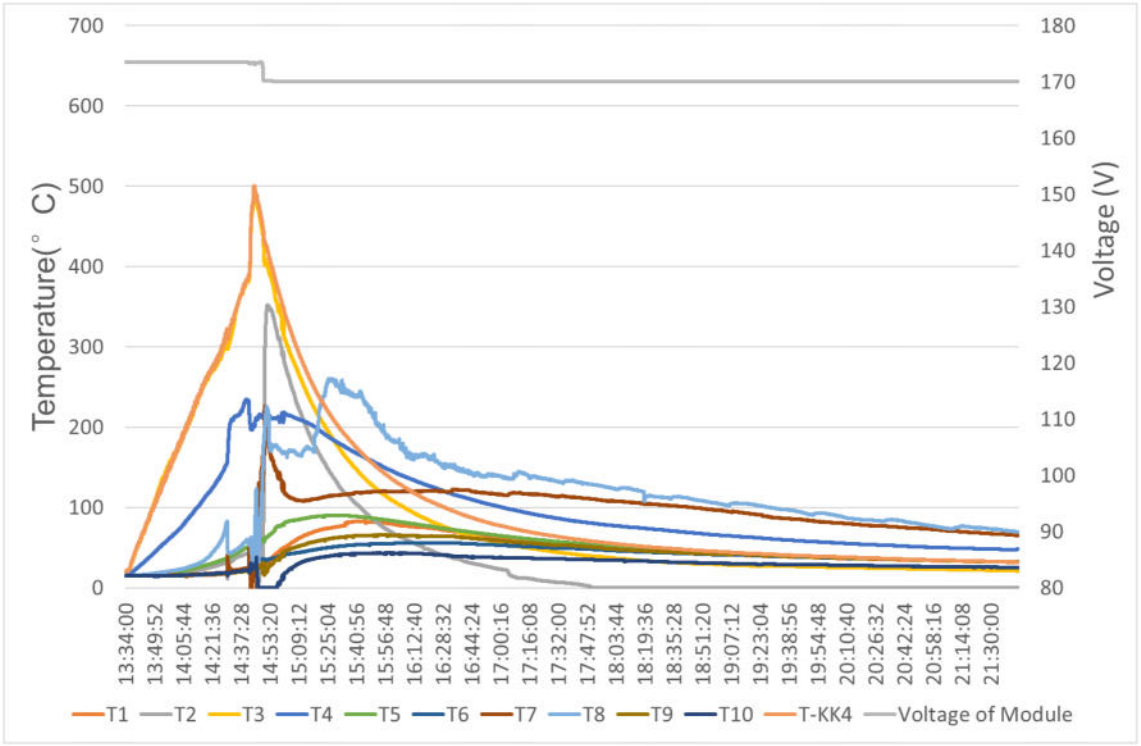


Figure 6 The cells temperature and module voltage in initiating unit

Thermocouple no.	Location	Maximum temp. °C
T1	Surface of cell #1-8	82.7
T2	Surface of cell #1-9	352.6
T3	Surface of cell #1-10	491.1
T4	Surface of cell #1-11	234.8
T5	Surface of cell #1-12	90.2
T6	Surface of cell #1-13	56
T7	Surface of cell #2-9	226.3
T8	Surface of cell #2-10	260.5
T9	Surface of cell #3-9	43.5
T10	Surface of cell #3-10	65.7
T-KK4	Heater	500.6

Voltage no.	Name	Voltage(V)
V-Module	Voltage of Module	173.5 V to 170.1 V

3.5.2 Temperature measurement of module surface in unit

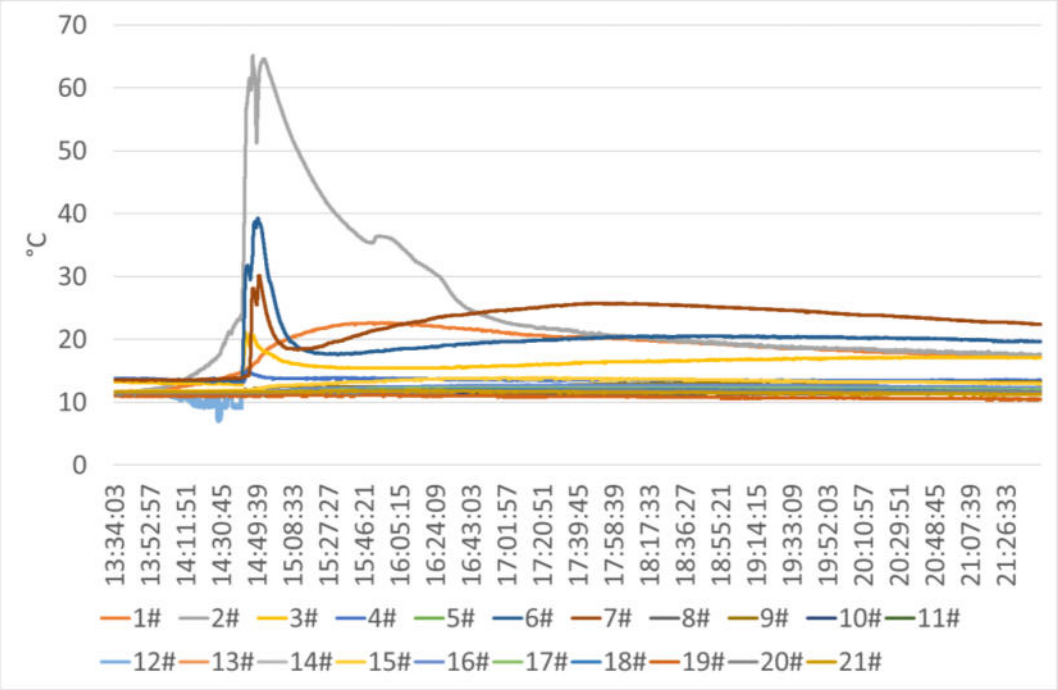


Figure 7 Surface temperatures of module in units

Unit	Channel No.	Location	Max Temp. (°C)
Initiating Unit	1#	Top of module 01 (near the heated cell)	22.60
	2#	Bottom of module 03 (near the heated cell)	65.20
	3#	Front of module 02	21.10
	4#	Back of module 02	15.10
	5#	Left of module 02	12.00
	6#	Right of module 02	39.30
	7#	Front of module 01	30.20
	8#	Front of module 02	12.10
	9#	Bottom of Module 04	13.30
	10#	Bottom of Module 05	11.90
	11#	Bottom of Module 06	12.40
	12#	Bottom of Module 07	12.00
	13#	Bottom of Module 08	12.10
Target unit	14#	Front of module 01	12.50

	15#	Front of module 02	13.90
	16#	Front of module 03	12.80
	17#	Front of module 04	12.30
	18#	Front of module 05	12.00
	19#	Front of module 06	11.10
	20#	Front of module 07	11.90
	21#	Front of module 08	11.90

3.5.3 Temperature measurement of instrumented wall

Wall surface temperatures were measured in vertical array at 152 mm intervals for the full height of the instrumented wall sections using Type K, 24 AWG thermocouple. The thermocouple array were collinear with the center line of initiating unit and target unit.

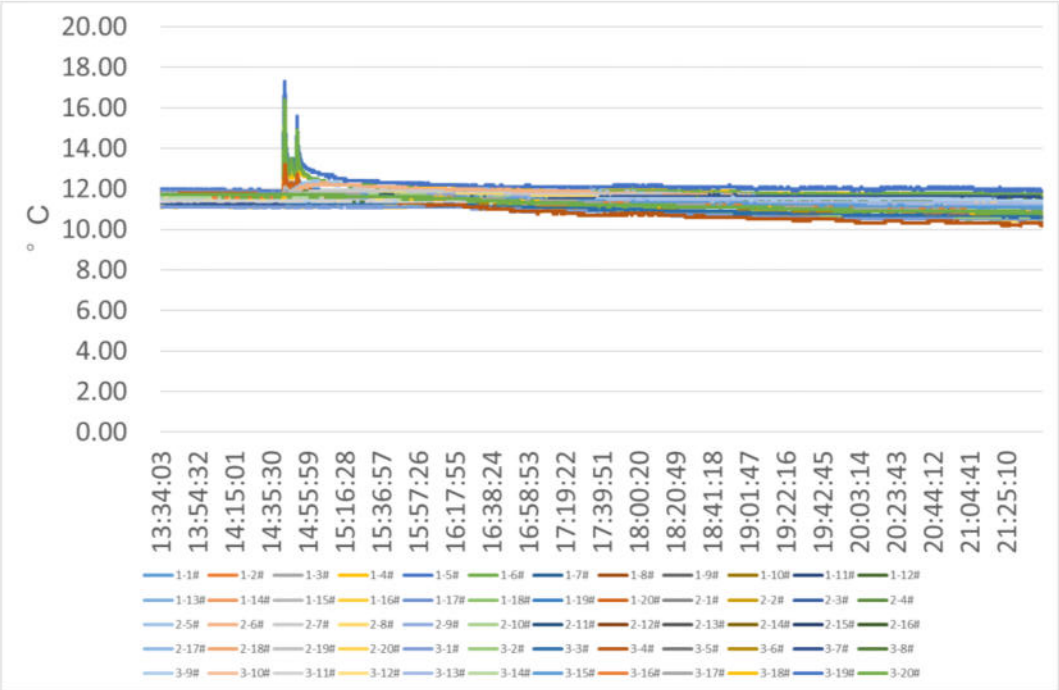


Figure 8 Temperature of instrumented wall A and B

Number	Location	Channel No.	Max Temp. (°C)
1	Wall A.	1-1# to 1-20#	17.3
2	Wall C.	2-1# to 2-20#	
2	Wall E	3-1# to 3-20#	

3.6 Heat flux measurement

Eight sensors were placed on the instrument wall A, wall C, wall E and target units to measure the heat flux, see below table and figure 9 for details.

Channel Number	Location
HF1, HF2	on the surface of instrumented wall C
HF3, HF4	on the surface of instrumented wall A
HF5, HF6	on target unit surface that facing initiating unit
HF7	In the center of the accessible means of egress, at the height of the module 2.
HF8	In the center of the accessible means of egress, at the mid height of the initiating unit

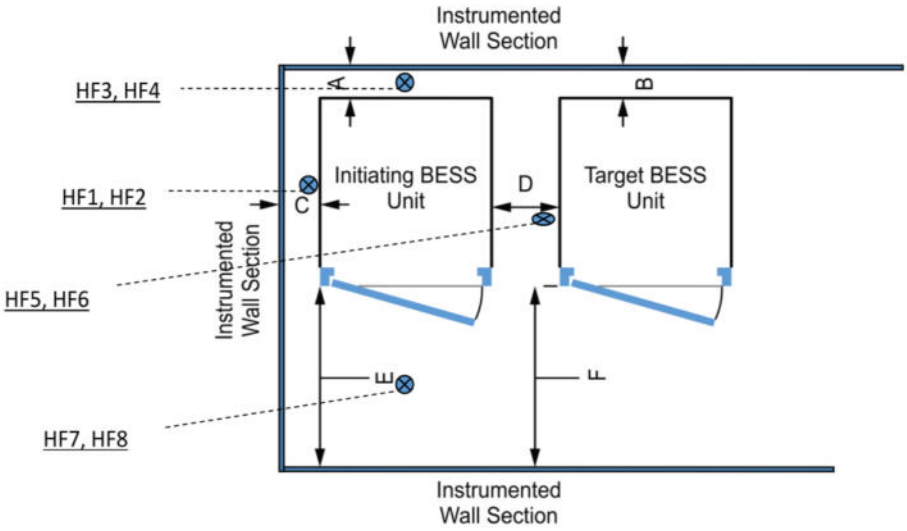


Figure 9 Layout of Heat flux sensor

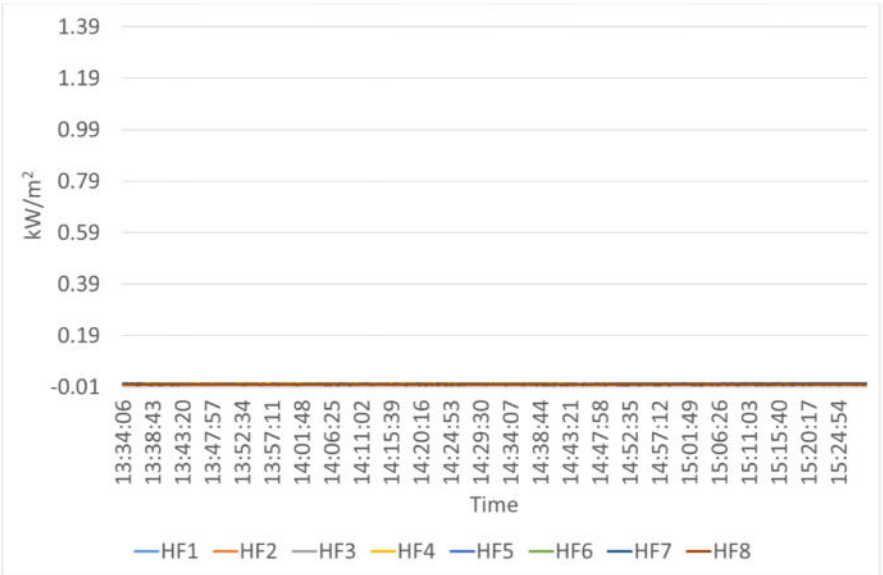


Figure 10 The measured heat flux of target walls and target unit

3.7 Chemical heat release rate measurement

The chemical heat release rates were measured by an oxygen consumption calorimeter measurement system consisting of a paramagnetic oxygen analyzer, non-dispersive infrared carbon dioxide and carbon monoxide analyzer, velocity probe, and a Type K thermocouple.
The instrumentations are located in the exhaust duct of the heat release rate calorimeter.
The chemical heat release rate was calculated at each of the flows as follows:

$$HRR_1 = \left[E \times \varphi - (E_{co} - E) \times \frac{1-\varphi}{2} \times \frac{X_{co}}{X_{O_2}} \right] \times \frac{\dot{m}_e}{1+\varphi \times (\alpha - 1)} \times \frac{M_{O_2}}{M_a} \times (1 - X^o_{H_2O}) \times X^o_{O_2}$$

In which:

HRR_t = total heat release rate, as a function of time (kW)

E = Net heat released for complete combustion per unit of oxygen consumed (adjusted for oxygen contained within cell chemistry, 13,100 kJ/kg)

E_{CO} = Net heat released for complete combustion per unit of oxygen consumed, for CO (adjusted for oxygen contained within cell chemistry, 17,600 kJ/kg)

φ = Oxygen depletion factor (non-dimensional), where:

$$\varphi = \frac{X^o_{O_2} \times [1 - X_{CO_2} - X_{CO}] - X_{O_2} \times [1 - X^o_{CO_2}]}{X^o_{O_2} \times [1 - X_{O_2} - X_{CO_2} - X_{CO}]}$$

X_{CO} = Measured mole fraction of CO in exhaust flow (non-dimensional)

X_{CO_2} Measured mole fraction of CO_2 in exhaust flow (non-dimensional)

$X°_{CO_2}$ = Measured mole fraction of CO_2 in incoming air (non-dimensional)

$X°_{H_2O}$ = Measured mole fraction of H_2O in incoming air (non-dimensional)

X_{O_2} = Measured mole fraction of O_2 in exhaust flow (non-dimensional)

$X°_{O_2}$ = Measured mole fraction of O_2 in incoming air (non-dimensional)

α = Combustion expansion factor (non-dimensional; normally a value of 1.105)

M_a = Molecular weight of incoming and exhaust air (29 kg/kmol)

M_{O_2} = Molecular weight of oxygen (32 kg/kmol)

$\dot{m}_e$ = Mass flow rate in exhaust duct (kg/s), in which:

$$\dot{m}_e = C \times \sqrt{\frac{\Delta p}{T_e}}$$

or

$$\dot{m}_e = 26.54 \times \frac{A \times k_c}{f(\mathrm{Re})} \times \sqrt{\frac{\Delta p}{T_e}}$$

C = Orifice plate coefficient (in $kg^{1/2}m^{1/2}K^{1/2}$)

Δp = Pressure drop across orifice plate or bidirectional probe (Pa)

T_e = Combustion gas temperature at orifice plate or bidirectional probe (K)

A = Cross sectional area of the duct (m^2)

k_c = Velocity profile shape factor (non-dimensional)

$f(Re)$ = Reynolds number correction (non-dimensional)

Measured peak chemical heat release rate HRR_t was 19.4 kW.

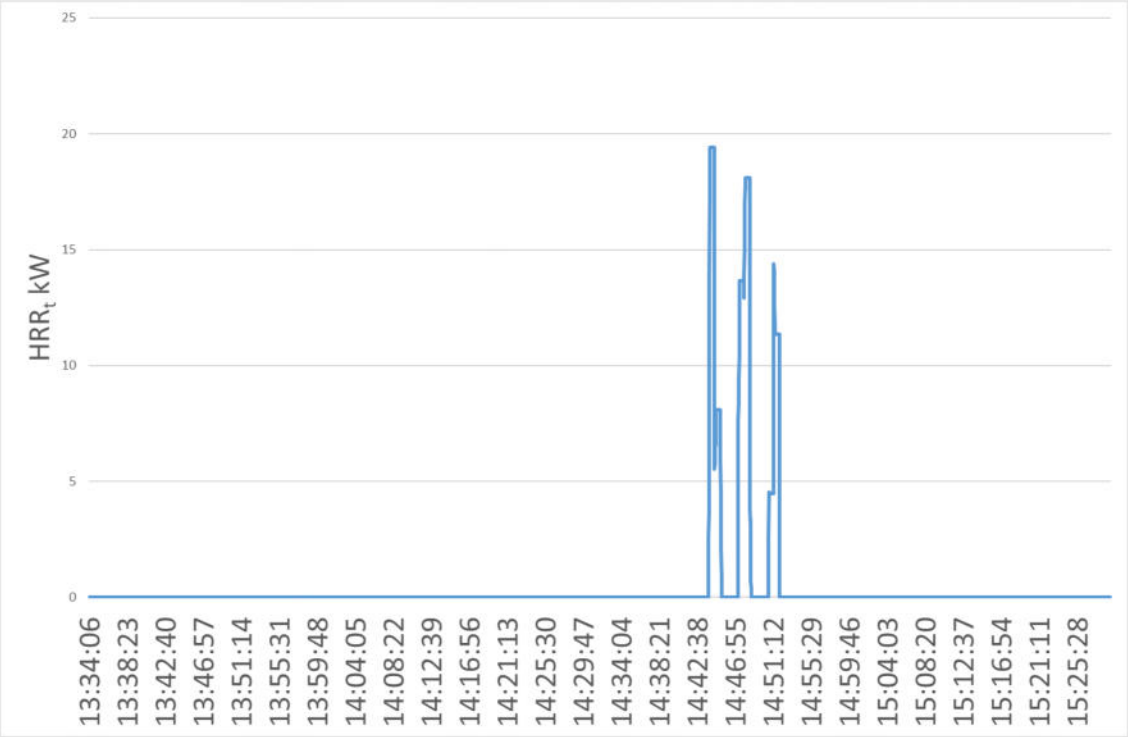


Figure 11 HRR_t curve

Measured total heat release THR through the test was 85.48 MJ

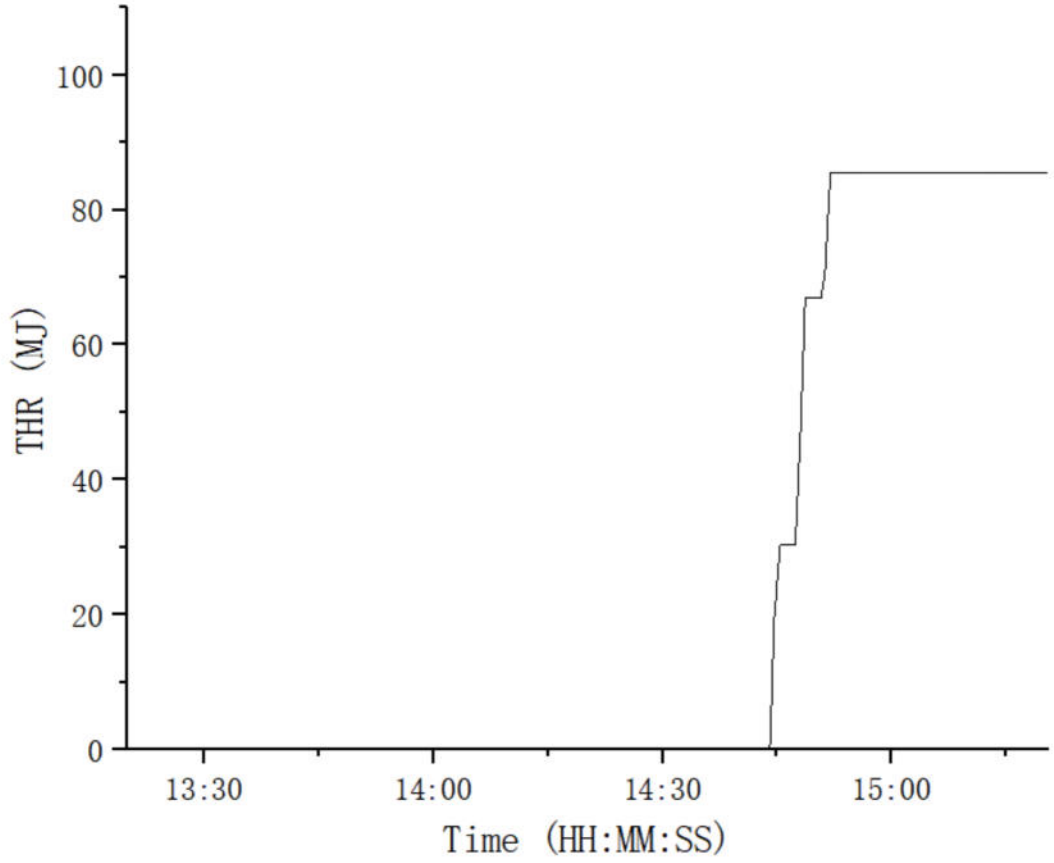


Figure 12 THR curve

3.8 Convective heat release rate measurement

The convective heat release rate were measured using thermopile, a velocity probe, and a Type K thermocouple, located in the exhaust system of the exhaust duct.

The convective heat release rate was calculated at each of the flows as follows:

$$HRR_c = V_e A \frac{353.22}{T_e} \int_{T_o}^{T} C_p dT$$

Where:

HRR_c = *The convective heat release rate (kW)*

V_e = *The exhaust velocity (m/s)*

A = *The exhaust duct cross sectional area (m^2)*

T_e = *The temperature at the location where exhaust velocity is measured (K)*

$353.22/T_e$ = *The density of air at the velocity measurement location (kg/m^3)*

T_o = *The ambient temperature (K) in the test room*

T = *The thermopile temperature (K)*

$$\int_{T_o}^{T} C_p dT = A_0(T - T_o) + A_1 / 2(T^2 - T_o^2) + A_2 / 3(T^3 - T_o^3) + A_3 / 4(T^4 - T_o^4)$$

Cp = Specific heat of air (kJ/kg-K), given as $\boldsymbol{C_p = A_0 + A_1 T + A_2 T^2 + A_3 T^3}$, where:

A_0 = *0.9950*

A_1 = *-5.29933E-05*

A_2 = *3.21022E-07*

A_3 = *-1.22004E-10*

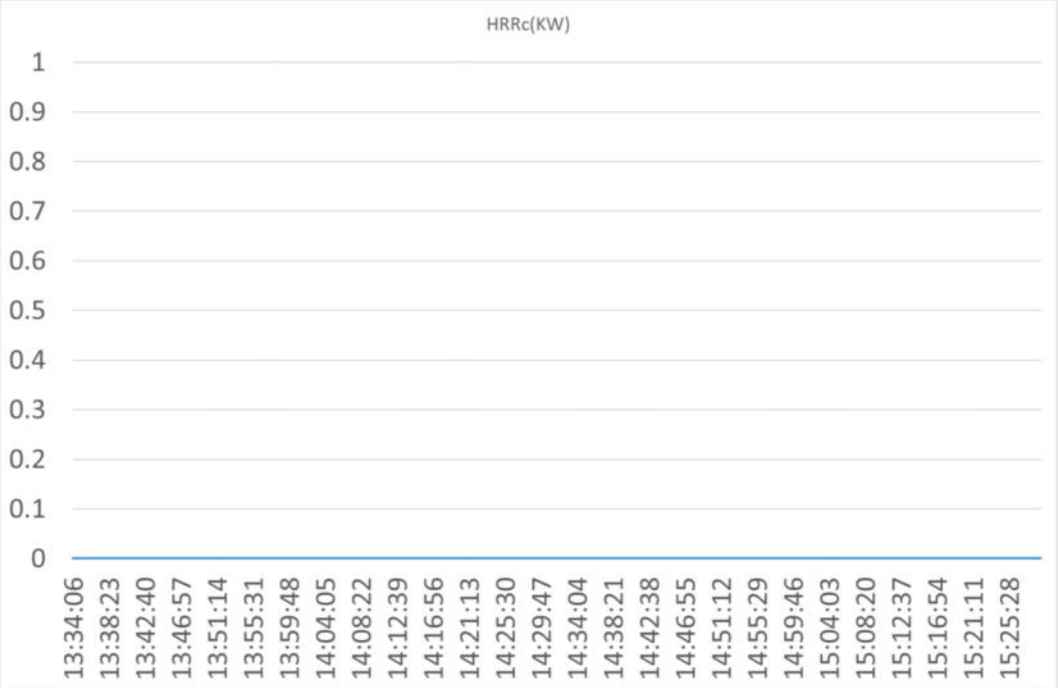


Figure 13 HRRc curve

3.9 Smoke release rate measurement

3.9.1 Test method

The light transmission in the calorimeter's exhaust duct was measured using a white light source and photo detector for the duration of the test.

3.9.2 Test result

Peak smoke release rate SRR: 0.485 m^2/s

Total smoke release TSR: 71.2 m^2

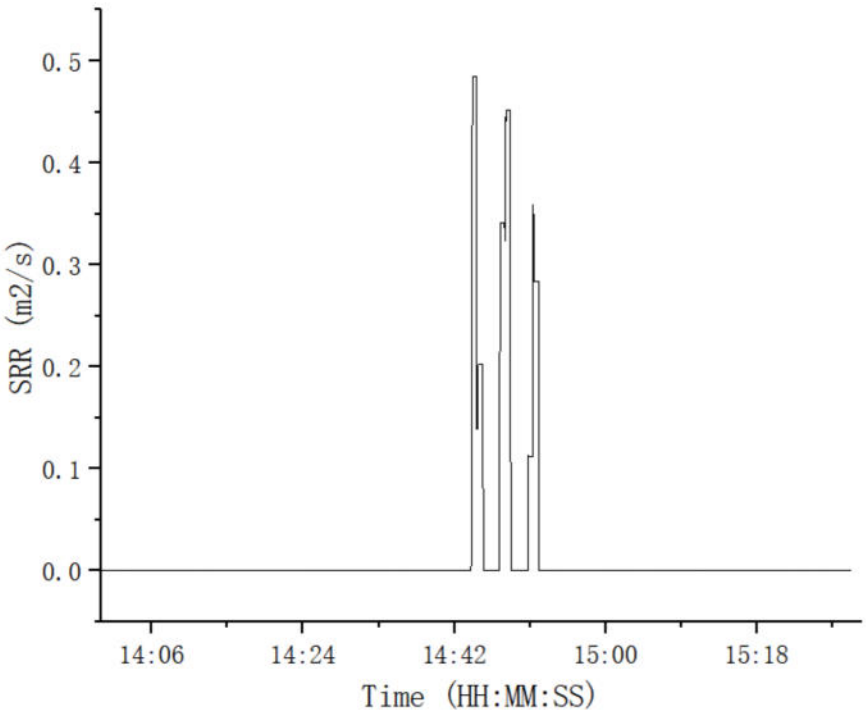


Figure 14 SRR curve

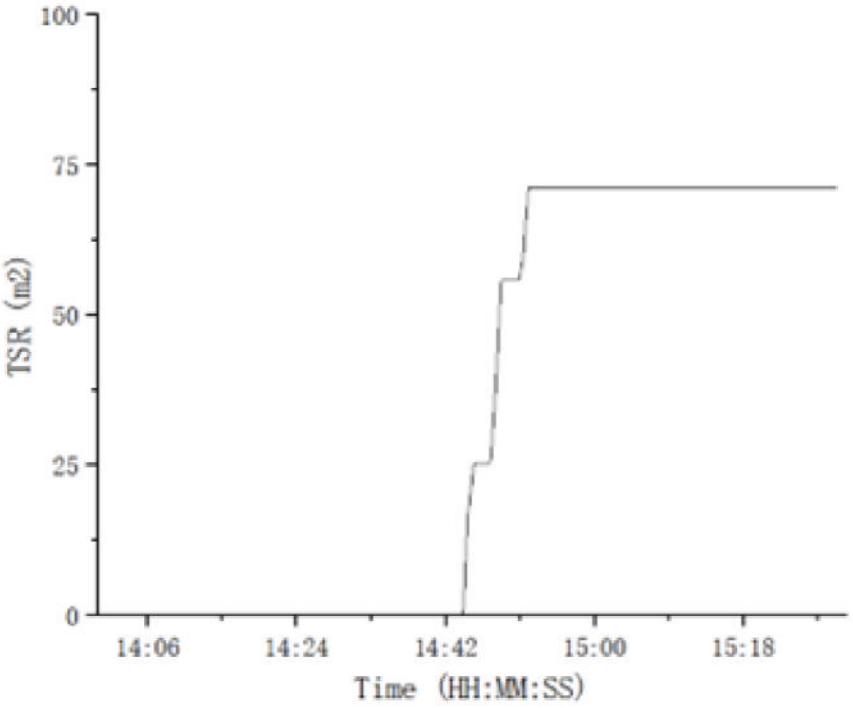


Figure 15 TSR curve

3.10 Gas generation measurement

3.10.1 Test method

The composition, velocity and temperature of the vent gases were measured within the calorimeter's exhaust duct.

Gas composition were measured using a Fourier-Transform Infrared Spectrometer with a resolution of 0.5 cm^{-1} and a path length of 5.1 m within the calorimeter's exhaust duct.

The hydrocarbon content of the vent gas was measured using flame ionization detection.

Hydrogen gas was measured with a palladium-nickel thin-film solid state sensor.

For reference only, the hydrogen gas was measured with a Electrochemical sensor.

Composition, velocity and temperature instrumentation were collocated with heat release rate calorimetry instrumentation.

3.10.2 Total gas release

Gas type	Gas components		Total volume of gas (L)
Hydrocarbon species	Methane	CH_4	24.2
	Ethylene	C_2H_4	18.3
	Ethane	C_2H_6	2.5
Others	Carbon Monoxide	CO	50.4
	Carbon Dioxide	CO_2	97.5
	Hydrogen (Palladium nickel thin film solid state sensor)	H_2	Below detectable limit*
	Hydrogen (Electrochemical sensor, for reference only)	H_2	237**
	Diethyl carbonate	$C_5H_{10}O_3$	3.4
	Ethylmethyl carbonate	$C_4H_8O_3$	10.5
	Dimethyl carbonate	$C_3H_6O_3$	30.6
Total Hydrocarbons (equivalent to C_3H_8, measured by FID)			113
* = The volume of hydrogen released by a single cell after thermal runaway referred to the cell UL 9540A report is about 64.8L. However, it should be noted that the gas			

production of a single cell in the current test environment is not exactly equivalent to the gas production of the cell level test, because the test environment is not the same.

** = As there are some factor sensors which can affect the accuracy of hydrogen gas measurements, such as the accuracy for gas voltage signal, airflow rates, and environmental variables, the 237L in only for reference.

3.10.3 Gas components

Concentration of different gas components were present according to gas species classification in Figures 16 to 25.

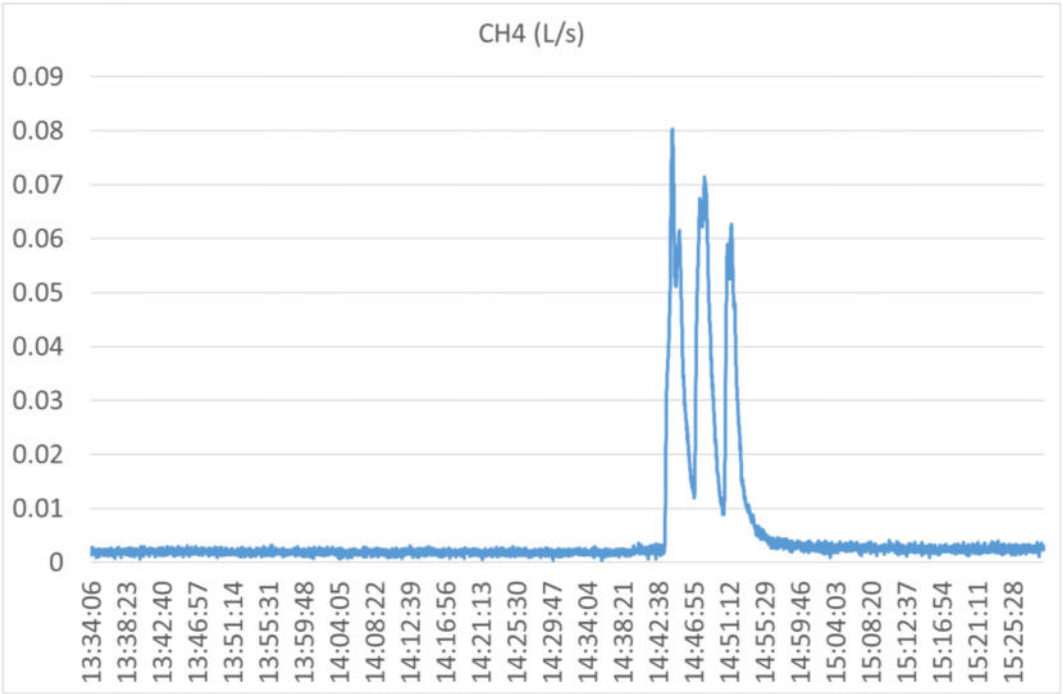


Figure 16 Methane curve

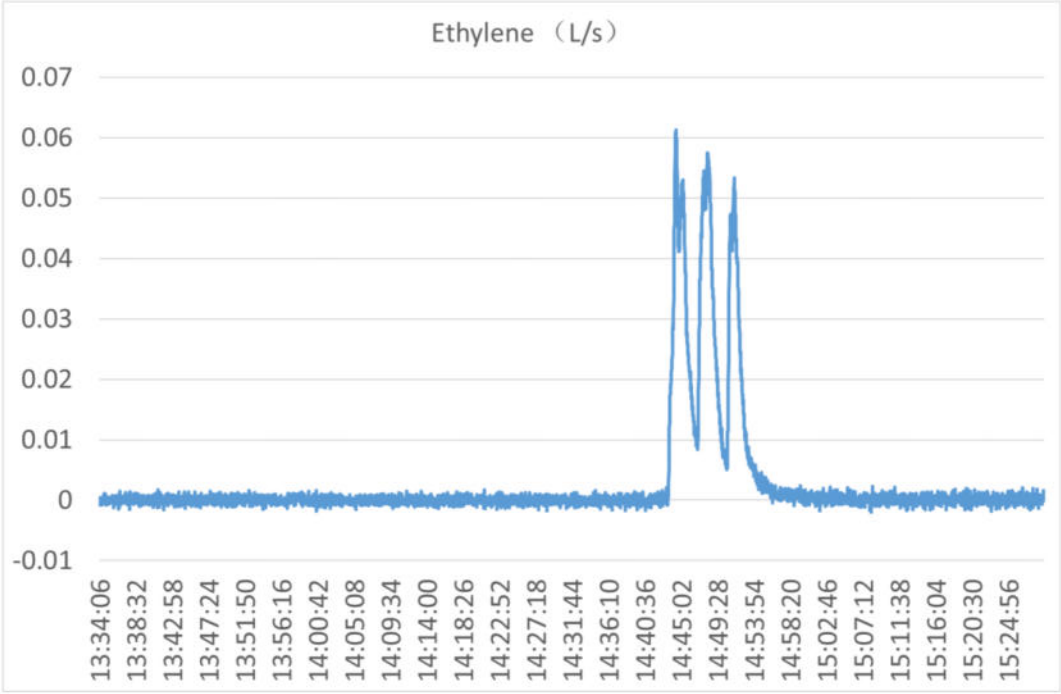


Figure 17 Ethylene curve

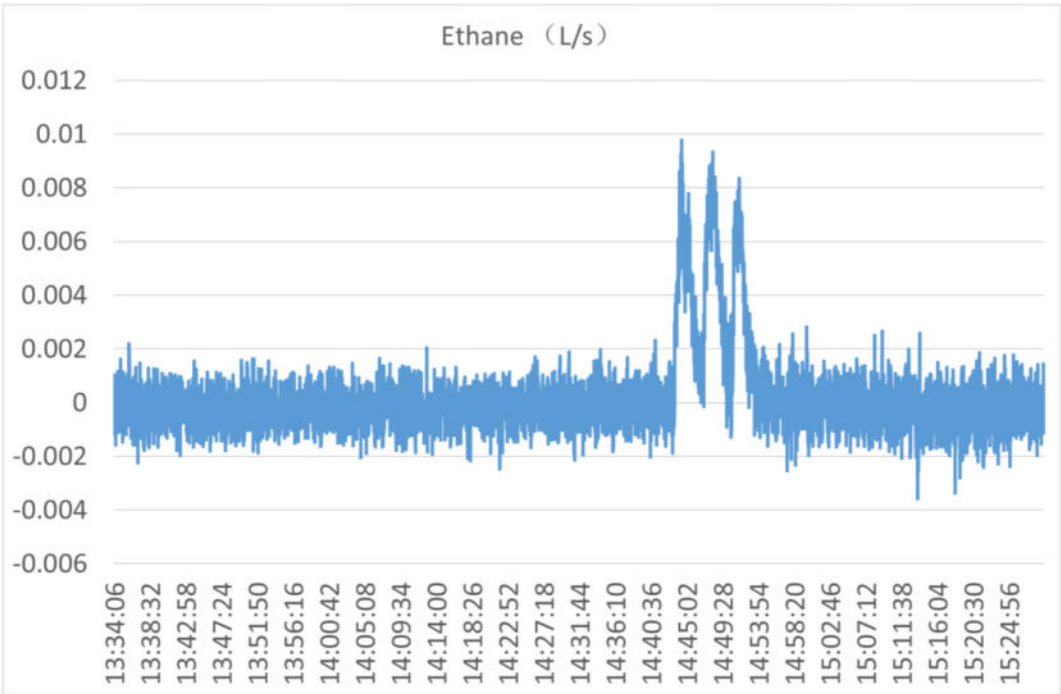


Figure 18 Ethane curve

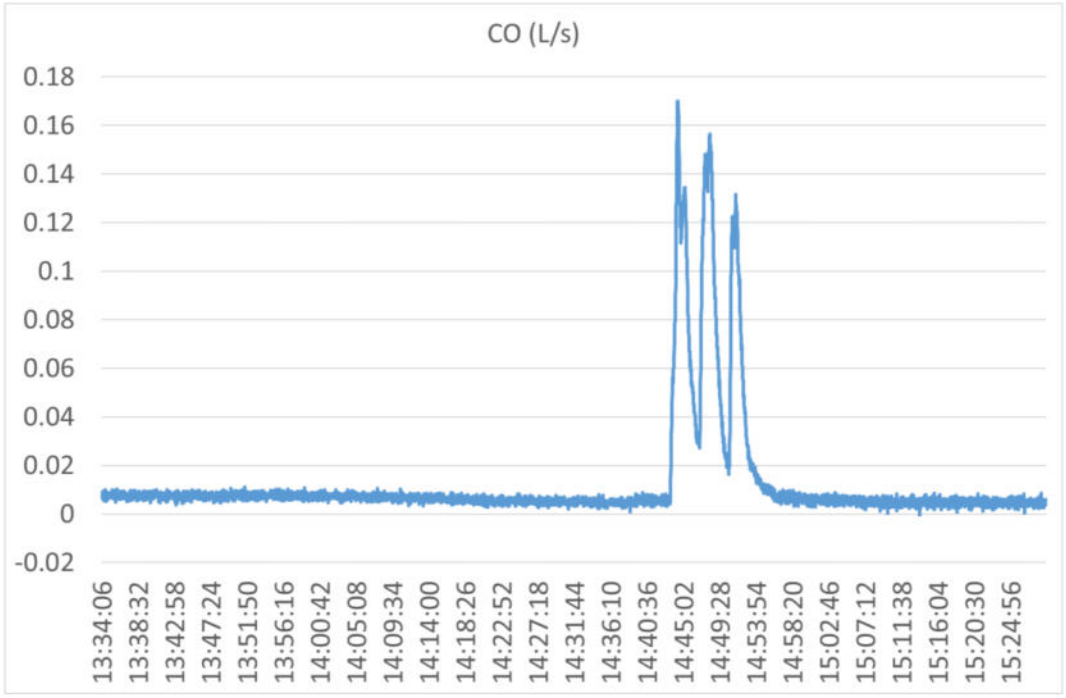


Figure 19 CO curve

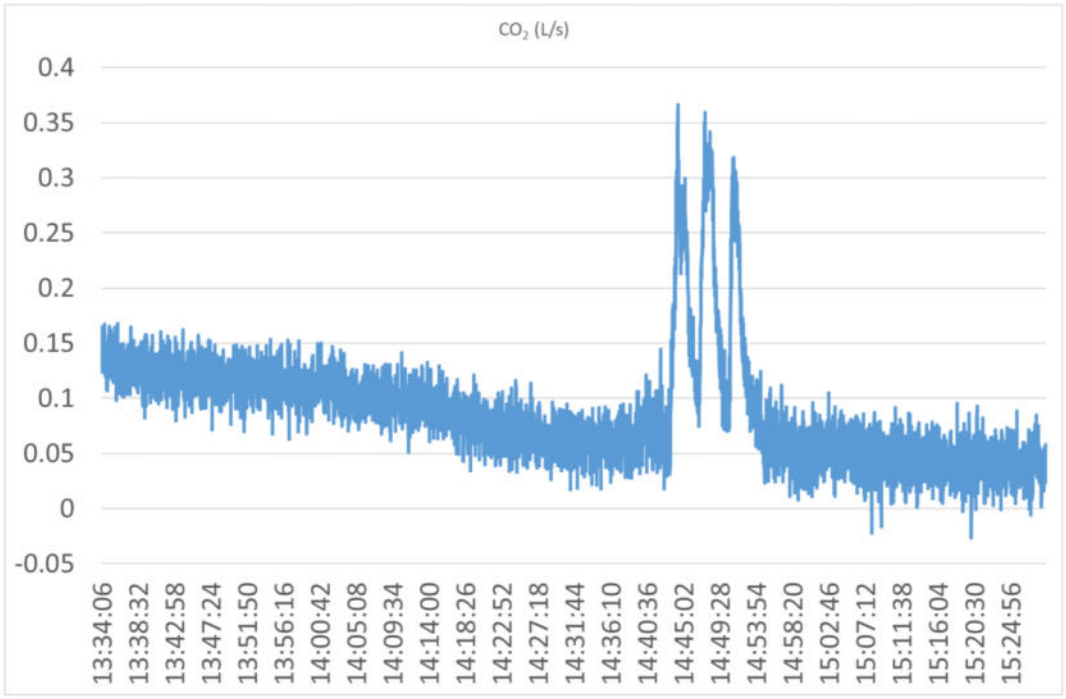


Figure 20 CO2 curve

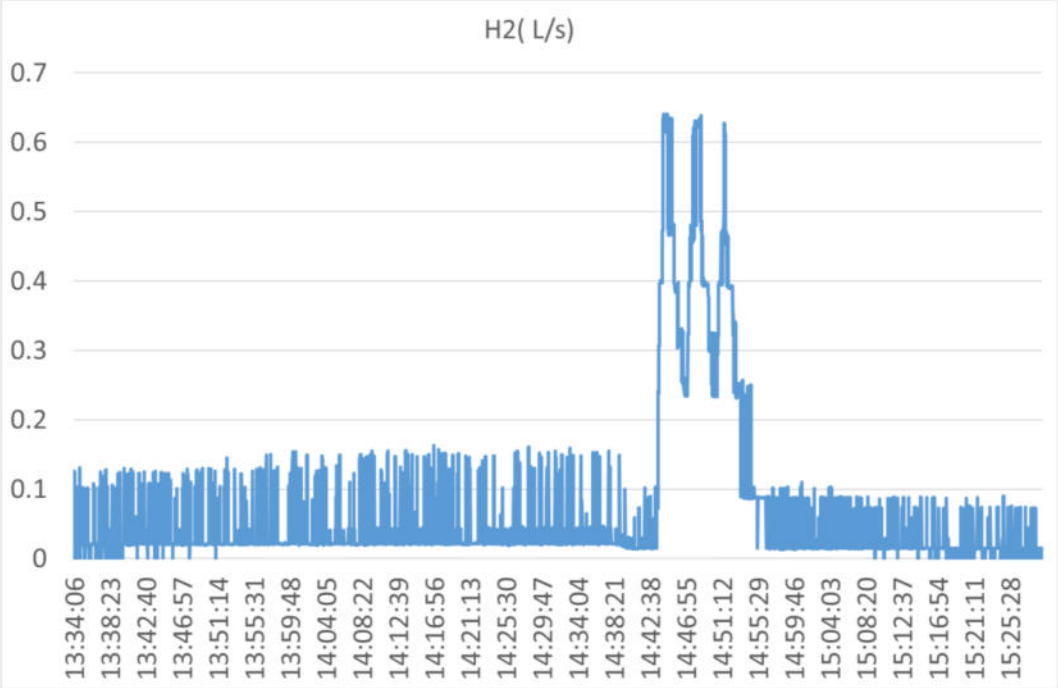


Figure 21 H2 curve (Electrochemical, for reference only)

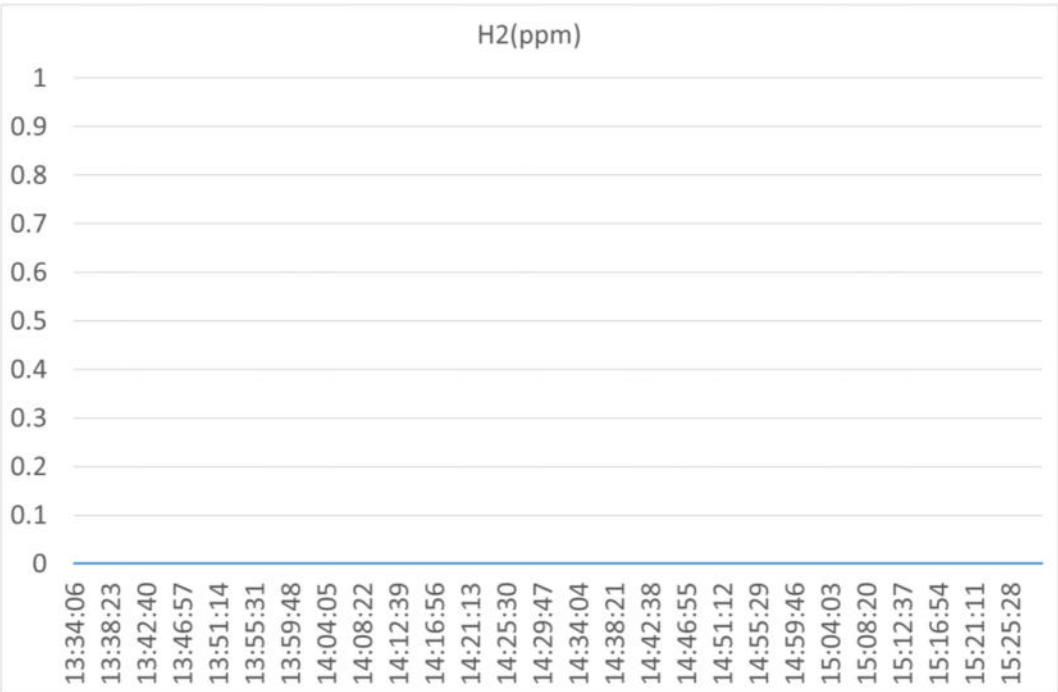


Figure 22 H2 curve (Palladium nickel thin film solid state sensor)

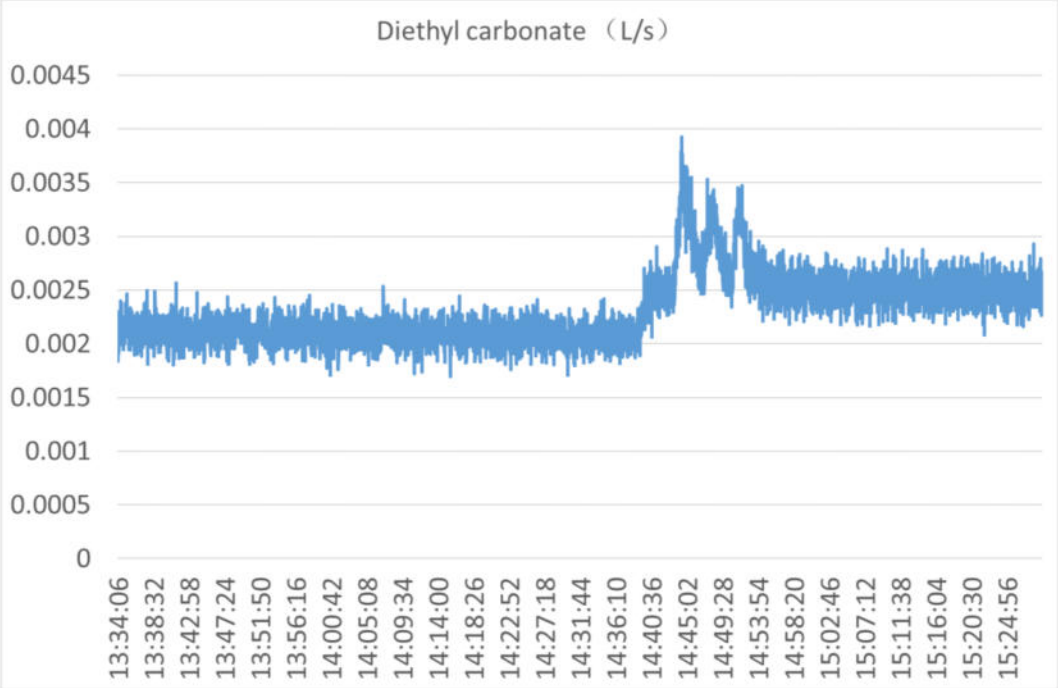


Figure 23 Diethyl carbonate curve

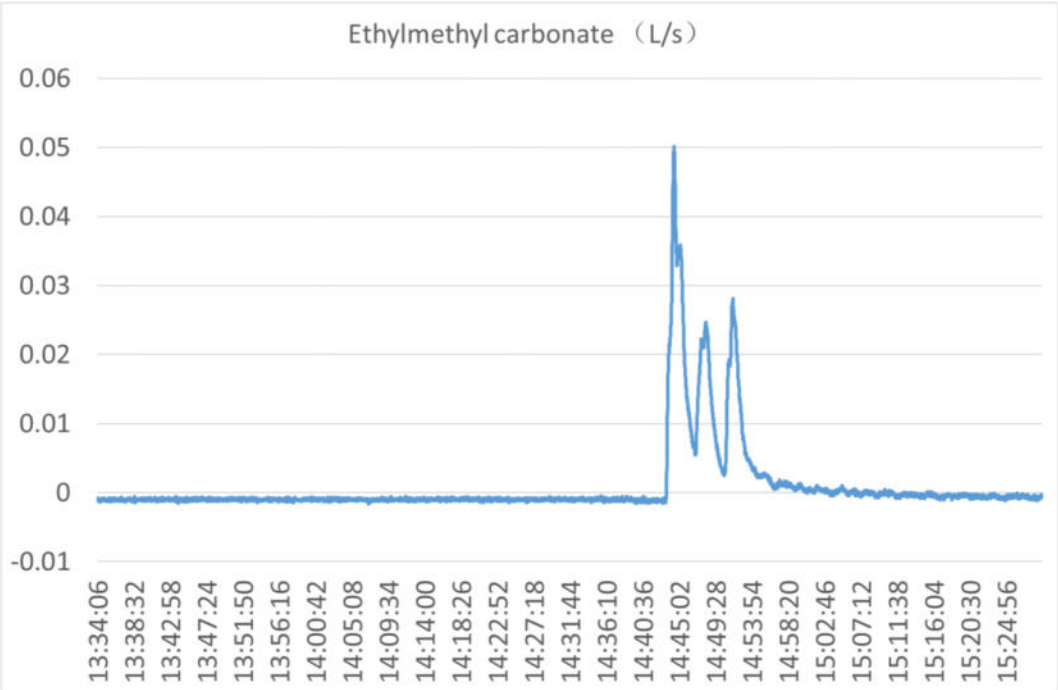


Figure 24 Ethylmethyl carbonate curve

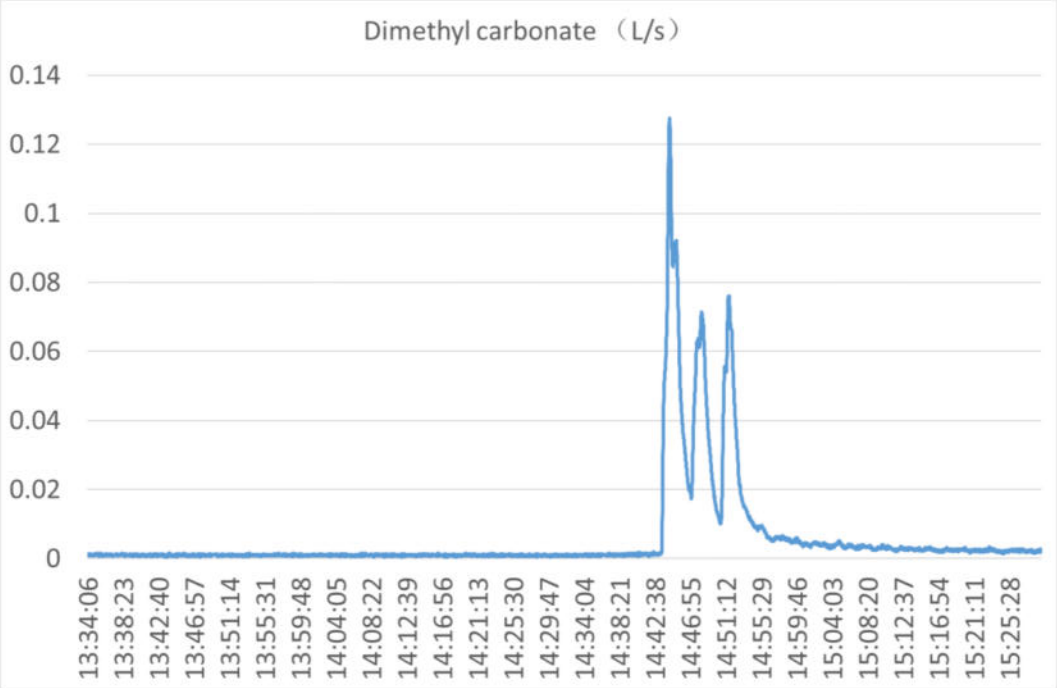


Figure 25 Dimethyl carbonate curve

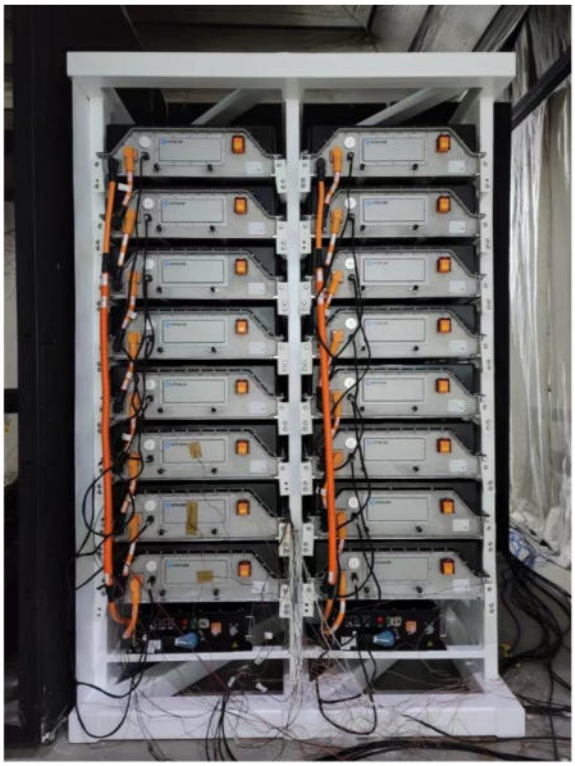
3.11 Performance Summary Remark Against Criteria

Installation level testing was not required as the following performance conditions were met during the unit level test.

Performance conditions	Remark
a) If flaming outside of the unit observed, separation distances to exposures shall be determine by greatest flame extension observed during test. *(No flaming)*	No flaming observed during the test.
b) Surface temperatures of modules within the target units adjacent to the initiating unit do not exceed the temperature at which thermally initiated cell venting occurs.	Surface temperatures of modules within the target units adjacent to the initiating unit was 13.9°C, which is far below the cell venting temperature 203.7°C (From TUV RH cell 9540A report No.: CN23F118 001).
c) For units intended for intended for near exposures, surface temperature measurements on wall surfaces do not exceed 97°C (175°F) of temperature rise above ambient installation.	Surface temperature measurements on wall surfaces was 17.3°C, below the 97°C of temperature rise above ambient.
d) Explosion hazards are not observed, including deflagration, detonation or accumulation of battery vent gases; *(The explosion shall not be observed)*	Explosion hazards were not observed during the test.
e) Heat flux in the center of the accessible means of egress shall not exceed 1.3kW/m^2	Less than 1.3 kW/m^2

3.12 Photos

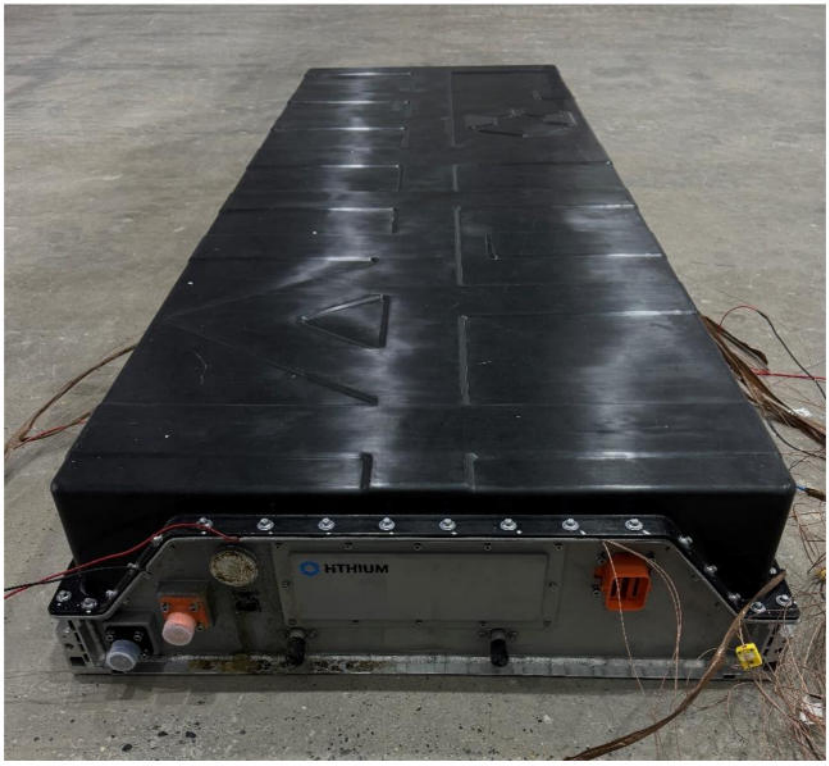
Before the test:

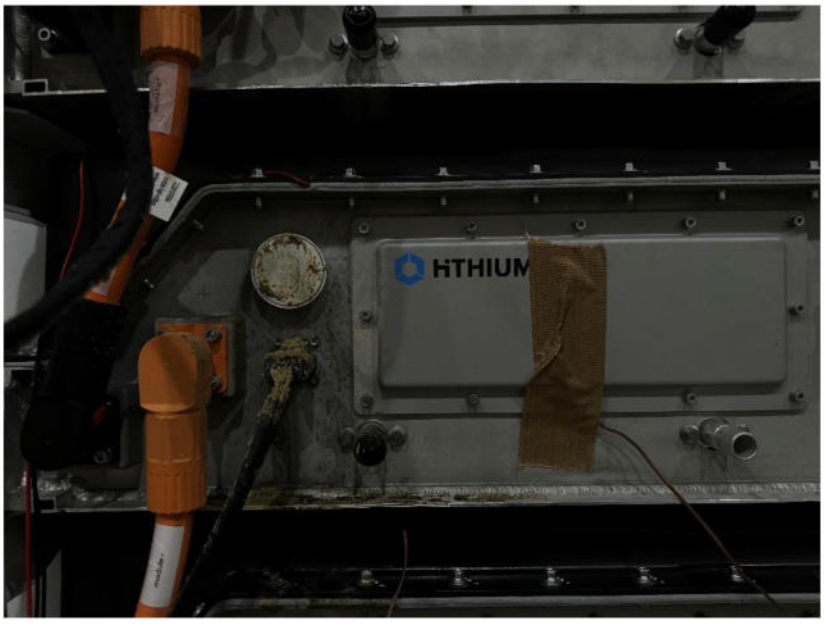


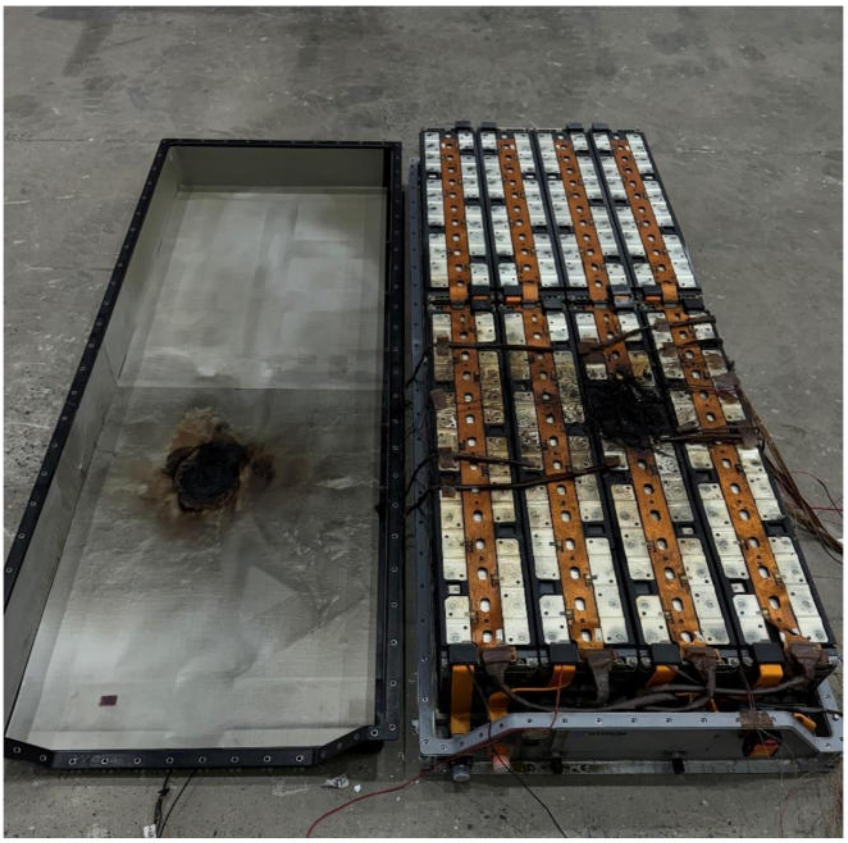
After the test:



Initiating module:









3.13 List of Test and Measurement Instruments

No.	Equipment	Model	Rating	Inventory no.	Last Cal. date
1	Ambient temperature and humidity	COS-03	0°C ~50°C, 30%RH~95%RH	D-ZNDW23052402	2023-05-24
2	Data acquisition equipment	LR8450-01	0~1100°C	0221-0704-06	2023-10-19
3	Electronic scale	OCS-2t/1kg	1kg~2000kg	0221-0704-10	2023-11-19
4	Paramagnetic oxygen analyser	AO2020	Oxygen measurement: 6.02%vol~24%vol; Hydrogen concentration: 1%~3%; Carbon monoxide: 0.2%~0.8%; Carbon dioxide concentration: 2%~8%	0221-0704-03	2023-03-06
5	Velocity probe	DYM3	800~1060hPa	D-ZNDW23032210	2023-03-10
7	Fourier-Transform Infrared Spectrometer	MULTIGAS 6030	Methane, propane, acetylene concentration: 100μmol/mol~1000μmol/mol; Carbon monoxide concentration: 0.2%~0.8%	0221-0704-08	2023-03-06
9	Palladium-nickel thin-film solid state sensor	HY-OPTIMA-2720	Range: 0.4%~5.0%	0221-0704-01	2023-03-20
10	Flame ionization detector	AO2040	Methane concentration: 100μmol/mol~500μmol/mol	0221-0704-04	2023-03-06
11	Thermopile	TJ120-CAXL-116U-80	0~300°C	0221-0704-31	2023-10-22
12	Heat flux measurement equipment	SBG01-050	0-50kW	G-ZNDW23040306 ~12	2023-05-12

End of Test Report

Appendix K

Hazardous Materials Business Plan

Hazardous Materials Business Plan

Double Springs Energy Storage Project

DECEMBER 2024

Prepared for:

DOUBLE SPRINGS ENERGY STORAGE, LLC

Prepared by:

DUDEK

687 S. Coast Highway 101, Suite 110
Encinitas, California 92024
Contact: Susan Jennings

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

1 Introduction 1
- 1.1 Elements of a Hazardous Materials Business Plan 1
- 1.2 Certified Unified Program Agency (CUPA) 1
- 1.3 Is a HMBP Plan Applicable to this Project? 2

2 Project Description 3
- 2.1 Project Location 3
- 2.2 Project Components 3

3 Hazardous Materials 7

4 Emergency Response Plan 9
- 4.1 Emergency Action Plan 9
- 4.2 Facility and Agency Contacts 10
- 4.3 Agency Notification Phone Numbers 11
- 4.4 Information and Documentation Submittals: 11

5 Spill Prevention and Spill Response 13
- 5.1 Spill Prevention Measures 13
  - 5.1.1 Emergency Equipment 13
  - 5.1.2 Vehicles and Transportation 13
  - 5.1.3 Temporary Fuel Storage Handling 14
- 5.2 Spill Cleanup and Containment 14
- 5.3 Large Spill Procedures 14
- 5.4 Operational Prevention and Containment Procedures 15

6 Training and Recordkeeping 17
- 6.1 Employee Training and Discharge Prevention 17
- 6.2 Recordkeeping 17
  - 6.2.1 Employee, Visitor and Contractor Training 17
  - 6.2.2 HMBP As-Needed and Annual Updates 17
  - 6.2.3 Inspections 18

7 References 19

TABLES

1 Potential Sources of Hazardous Materials at the Project 7
2 Facility Information 10
3 Emergency Response Phone Numbers 10
4 Agency Notification Phone Numbers 11

FIGURES

1 Project Vicinity 21
2 Project Components 23

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BESS	Battery Energy Storage System
gen-tie	Generation transmission line
CERS	California Environmental Reporting System, which is a State of California electronic database used to submit site information regarding environmental plans.
CUPA	Certified Unified Program Agency, the agency having local oversight for SPCC Plans in California
Emergency Coordinator	The person designated by the Project to be in charge of coordination during emergencies at the site. This person could change based on the stage of the Project, for example the lead contractor's safety manager may be the Emergency coordinator during construction and decommissioning, and the site lead for operations and maintenance may be the coordinator during Operation of the Project.
HMBP	Hazardous Materials Business Plan
kV	Kilovolt
LFP	Lithium iron phosphate
NFPA	National Fire Protection Association
SAFPD	San Andreas Fire Protection District
SCADA	Supervisory control and data acquisition systems
PCS	Power Conversion Systems
PG&E	Pacific Gas & Electric
UPA	Unified Plan Agency

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1 Introduction

Double Springs Energy Storage, LLC, a wholly-owned Subsidiary of Novis Renewables, LLC, proposes to construct, operate, maintain, and decommission at the end of the operational term the Double Springs Battery Energy Storage Project ("Project"), on approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California. The primary components of the Project include a utility scale battery energy storage system (BESS) facility, power inverters and transformers, telecommunication facilities, site access and security, and a 60-kV generation transmission (gen-tie) line that will transfer power between the Project and the Pacific Gas & Electric (PG&E) Valley Springs Substation.

This Hazardous Material Business Plan (HMBP) ("Plan") has been written as part of the project development documents for the County to describe anticipated hazardous materials, employee training, and emergency response for the Project. HMBP's are "living documents" in that the documents will change based on changing activities and personnel at the Project site. This originally submitted documentation will need to be reviewed and any changes will need to be updated prior to construction, during the operating life of the Project and during decommissioning. The final HMBP will be submitted to the Certified Unified Program Agency (CUPA) through the California Environmental Reporting System (CERS).

1.1 Elements of a Hazardous Materials Business Plan

The California Safety Code Division 20 (Miscellaneous Health and Safety Provisions) Chapter 6.95, §25505 establishes requirements for HMBPs in the State of California. A HMBP must contain the following:

- An inventory of hazardous materials onsite.
- An Emergency Response Plan including procedures and contacts for communicating an immediate response to a reportable release or threatened release of a hazardous material.
- Employee training in project safety procedures and emergency response plans and procedures in the event of a reportable release or threatened release.

1.2 Certified Unified Program Agency (CUPA)

The California Unified Program was established by the passing of California Senate Bill 1082 in 1994 to consolidate six related environmental programs into one oversight authority for the purposes of streamlining local oversight, administrative requirements, permits and emergency response. The Unified Program requires the California Environmental Protection Agency to certify qualified local governments known as Certified Unified Program Agencies (or CUPAs) as able to implement the programs, including HMBPs. Therefore, at a local level, it is the CUPA that oversees California HMBP plan applicability, review, inspections, and implementation. A CUPA can be a County, a City or a joint powers authority. The Calaveras County Environmental Health Department will act as the CUPA for the Project.

The six programs that have been consolidated under the Unified Program in California include:

- Aboveground Petroleum Storage Tank Program
- Hazardous Materials Business Plan Program

- California Accidental Release Prevention Program
- Hazardous Material Inventory Statement
- Hazardous Waste Generator-Tiered Permitting
- Underground Storage Tank Program

1.3 Is a HMBP Plan Applicable to this Project?

The Project is anticipated to qualify for a HMBP, and oversight by CUPA, during construction, operations and decommissioning because it is anticipated to have materials onsite that are greater than the State of California thresholds for quantities of hazardous materials. Threshold quantities are hazardous materials at or above the reporting quantities of 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas. A list of the hazardous substances which qualify for reporting is maintained in California Occupational Safety and Health (CAL OSHA) Regulations Chapter 3.2 Article 5 §339. The anticipated hazardous materials anticipated at the Project are discussed in Section 3 of this Plan.

2 Project Description

Double Springs Energy Storage, LLC, proposes to construct, operate, and eventually repower or decommission the Project on approximately 15.17 acres of undeveloped land in unincorporated Calaveras County. The primary components of the Project include a utility scale BESS facility, power inverters and transformers, telecommunication facilities, site access and security, and a 60-kilovolt (kV) gen-tie line that will transfer power between the Project and the PG&E Valley Springs Substation.

2.1 Project Location

The Project site is located directly adjacent to and west of the PG&E Valley Springs Substation in Calaveras County, California. The Project site is directly adjacent to and north of Double Springs Road and northwest of the intersection of Highway 26 and Highway 12 (see Figure 1, Project Vicinity). The Project site is approximately 0.2 miles west of Highway 26 and approximately 0.3 miles north of Highway 12. Adjacent land uses include scattered industrial buildings to the south, a middle school approximately 0.5 miles to the east, and resource production lands to the north and west.

2.2 Project Components

Project components include BESS enclosures, Power Conversion Systems (PCS), fire protection systems, gen-tie line, transformers, inverters, switchgear, additional electrical equipment, laydown yard, telecommunication facilities, stormwater facilities, site security, and fencing. This section provides preliminary details of each component.

- **Battery Energy Storage System (BESS).** The energy storage facility will utilize a modular and containerized BESS, consisting of approximately 196 prefabricated battery enclosures along with approximately 34 Power Conversion System (PCS) skids. Each enclosure contains internal racks and system control modules; fire suppression systems; thermal management/heating, ventilation, and air conditioning systems; communication systems; medium voltage transformers; and inverters.

  The energy storage facility will utilize 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.
- **Power Conversion Systems (PCS).** The PCS will 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.
- **Fire Protection System.** The Applicant will install battery storage systems compliant with National Fire Protection Association (NFPA) 855 standards and UL certification, ensuring robust safety and fire prevention measures. Each system includes advanced failsafe features, cooling systems, and thermal runaway prevention mechanisms, designed to prevent and control potential fire incidents. The San Andreas Fire Protection District (SAFPD) Fire Chief will have review and approval rights for the facility fire access, protection, and suppression requirements. The review/approval by SAFPD will cover all applicable design, construction, and testing requirements of the NFPA 855 Code.

- **Gen-tie Line.** A 60-kilovolt gen-tie line will be constructed that will transfer power to and from the Project and the PG&E Valley Springs Substation.
- **Outdoor Electrical Equipment.** Medium-voltage transformers, inverters, switchgear, electronic switchboards and additional electrical equipment will be installed outside the BESS enclosures. Underground wires and cabling will run from the battery enclosures to a concrete pad housing the inverters and medium voltage transformers. All electrical equipment will be housed in the appropriate National Electrical Manufacturers Association rated enclosures and screened from view to the extent practical, on all sides. All outside electrical cabling will be run underground. Underground wires and cabling will run from the medium-voltage transformers to the collector substation. The collector substation will consist of a main power transformer, control house, and switchgear.
- **Laydown Yard.** One temporary laydown yard is anticipated to be used during construction of the BESS facility, likely located in the northeast corner of the Project site.
- **Inverters.** The Project will use only industry-standard, nationally (and internationally) recognized equipment. The inverters will be unattended, stand-alone units that operate in all conditions. They will operate in both a charge mode and a discharge mode. They will be UL listed for bi-directional use and will be monitored and controlled remotely. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. They will be robust in their design and are designed to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.
- **Telecommunication Facilities.** The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote Project operations monitoring. To provide for communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

  The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

  The supervisory control and data acquisition systems (SCADA) system is critical to the PG&E utility interconnection and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing the labor and site diagnostic information. The SCADA system will also control the substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.
- **Site Access and Security.** The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet Calaveras County standards, including fire safety requirements as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario will be incorporated into the Project site based on any input from the County. A perimeter fence will be installed around the perimeter of the Project site for safety and security purposes and will remain in place for the life of the Project.

  The Project site will be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

- **Stormwater Collection and Treatment.** The Project will implement a comprehensive stormwater management plan in accordance with all applicable County and State regulations, designed to control runoff and protect surrounding land and waterways. A stormwater detention basin will be constructed on the Project site to collect and temporarily hold stormwater generated onsite. This basin is engineered to detain stormwater, allowing sediment and potential pollutants to settle out before the water is gradually discharged, ensuring compliance with County drainage standards.

  Additionally, the stormwater system will include measures to control both the rate and volume of discharge to minimize any impact on downstream properties and natural water bodies, as required by Calaveras County Code. Drainage facilities are designed to prevent an increase in stormwater discharge rates, aligning with best practices in stormwater control.

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3 Hazardous Materials

The hazardous materials that are anticipated to be used at the Project site are safe under normal handling and operating conditions. Each individual module will be monitored and controlled to ensure safe and efficient operations, and every BESS enclosure will be equipped with an integrated fire suppression system, ventilation, as well as gas, heat and smoke detection and alarms. The systems will be designed, constructed, and operated pursuant to the applicable California Fire Code.

The following types of hazardous materials may be found at the Project site during construction, operation and decommissioning of the Project site:

- **Temporary Fuel Tanks:** Petroleum such as Diesel No. 2 or gasoline, may be stored onsite during construction and decommissioning to fuel construction and decommissioning equipment, including onside generators, though it is not anticipated to be stored onsite during the operation of the Project.
- **Transformer Oil:** Transformer oil, or mineral oil, is a fluid that is used and stored in transformers and plays a pivotal role in the operation and longevity of electrical transformers and is sealed within the transformer housing. There are two types of oils used at present which are Paraffinic oil or Naphthenic oil.
- **Backup Batteries:** Lead acid and/or lithium-ion batteries (or compatible) used for emergency backup located within the control house.
- **BESS Components:** Lithium-ion batteries commonly contain the heavy metals cobalt, copper, and nickel as well as other trace heavy metals depending on the location of the source of the mined components. The exact components will not be fully known until the batteries are sourced closer to construction.

Table 1. Potential Sources of Hazardous Materials at the Project

Location	Type of Container	Estimated Volume and Type	Stage
BESS – Laydown	Temporary auxiliary fuel storage for generator	1 EA at approximately 1,000-gallon Diesel No. 2	Construction/ Decommissioning
BESS – Laydown	Temporary fueling station	1 EA at approximately 500-gallon Diesel No. 2	Construction/ Decommissioning
Collector Substation	Temporary auxiliary fuel storage for generator	1 EA at approximately 1,000-gallon Diesel No. 2	Construction/ Decommissioning
Control House	Emergency backup batteries	20 EA Lead Acid and/or lithium-ion batteries	Operations
Collector Substation	Transformer	1 EA approximately 12,900 gallons mineral oil	Operations
BESS	BESS Enclosures	196 EA lithium-ion phosphate cells.	Operations

Once specific properties and quantities of onsite materials are known, a hazardous materials inventory for any hazardous materials that are greater than the State of California thresholds for quantities of hazardous materials can be uploaded onto the California Environmental Reporting System (CERS).

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4 Emergency Response Plan

The following sections describe the Project emergency response procedures, contacts, and reporting for the Project.

The Project team should assign an Emergency Coordinator to be in charge of coordination during emergencies at the site. This person could change based on the stage of the Project, for example the lead contractor's safety manager may be the Emergency Coordinator during construction and decommissioning, and the site lead for operations and maintenance may be the coordinator during Operation of the Project.

The designated Emergency Coordinator is listed in Table 3 below.

4.1 Emergency Action Plan

The following Emergency Action Plan covers potential onsite chemical spills, fires and earthquakes involving the hazardous materials described in Section 3 above:

Notify Internal and Onsite Personnel

1. On site alarm system(s) will automatically alert Internal Staff and San Andreas Fire Department.
2. Notify facility personnel via cell phone and evacuate if necessary.
3. Proceed to a Project Muster Point (See Figure 2).

Notify Emergency Response

4. Notify local emergency responders by calling 9-1-1.
5. Onsite alarm system(s) will automatically alert Internal Staff and San Andreas Fire Department.

Notify Neighboring Facilities That May Be Affected by an Off-Site Release

6. The Emergency Coordinator shall ensure that Neighboring Facilities that may be affected by an off-site release have been notified:
    b. Verbally.
    a. Via cell phone.

Notification to CUPA and State

7. (if needed) Notify the Calaveras County Environmental Health Department (CUPA) (209) 754-6399.
8. (if needed) Notify the State Warning Center at (800) 852-7550.

Prior to Resumption of Operations

Following notification and before facility operations are resumed in areas of the facility affected by the incident, the Emergency Coordinator shall notify the local UPA and the local fire department's hazardous materials program, if necessary that the facility is in compliance with requirements to:

- Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from an explosion, fire, or release at the facility; and,
- Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until clean up procedures are completed.

4.2 Facility and Agency Contacts

Table 2. Facility Information

	Project
Facility Name	Double Springs Energy Storage Project
Facility Address	0 Double Springs Road Calaveras County, California 95252
Facility Phone number	TBD
Facility Mailing Address	TBD
Owner or Operator Name	Double Springs Energy Storage, LLC
Owner or Operator Address	One Bridge Street, Suite 11, Irvington, New York 10533

Table 3. Emergency Response Phone Numbers

Resource	Phone Number	Address
Emergency Coordinator	TBD	TBD
Ambulance, Fire, Police and CHP	911	Call or Text
Nearest Fire Station	San Andreas Fire Department 209.754.4693	37 Church Hill RD, San Andreas, Calaveras, California 95249
Nearest Police Station	Calaveras Sheriff's Office 209.754.6479	831 Mountain Rance Road, San Andreas, California 95249
Nearest Medical Facility	Mark Twain St. Joseph's Hospital 209.754.3521	768 Mountain Ranch Road, San Andreas, Caliornia 95249
Local Unified Program Agency (CUPA)	Calaveras County Environmental Health Department 209.754.6399	891 Mountain Ranch Road Building E, San Andreas, California 95249
California State Warning Center/ CAL OES	916.845.8510	3650 Schriever Ave, Mather, California 95655
National Response Center	800.424.8802	—
Poison Control Center	800.222.1222	—

4.3 Agency Notification Phone Numbers

Table 4. Agency Notification Phone Numbers

Agency	Phone Number / Email	Address
California Department of Toxic Substance Control	916.255.3545	—
Central Valley Regional Water Quality Control Board (5S)	916.464.3291 or spillreportR5@waterboards.ca.gov	11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
US Environmental Protection Agency (EPA)	800.424.9346 – EPA Information Center phone number	US EPA Pacific Southwest, Region 9 75 Hawthorne St. San Francisco, California 94105
California Department of Fish and Wildlife (CDFW)	916.358.2900	—
CAL OSHA	916.263.2800	—
CAL Fire Office of the State Fire Marshal (OSFM)	916.323.7390	—

4.4 Information and Documentation Submittals:

Documentation for HMBPs is submitted to the local CUPA by means of the CERS database. To keep accuracy of the CERS database relevant to emergency response, the HMBP and other applicable information is required to be updated in CERS within 30 days of placement or change at the Project site. This includes new or removed materials; changes in the facility that affect changes to hazardous material storage, quantities, locations, etc.; change of business or facility address, business ownership, or business name; or if a substantial change in the handler's operations occurs that requires modification to any portion of the business plan. The HMBP CERS Project information should be reviewed and updated at a minimum of once per year to ensure it is complete and accurate. If no changes are required, the Project may certify that there has been no change on the CERS database.

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5 Spill Prevention and Spill Response

5.1 Spill Prevention Measures

5.1.1 Emergency Equipment

The following emergency response equipment, containment supplies, and personal protective equipment are anticipated to be available onsite at all stages of the Project life. The location of the equipment will be determined based on accessibility during construction, operations, and decommissioning and the Site Plan should be updated to denote the location.

Safety and first aid equipment

Safety glasses, hard hats, chemical protective gloves, first aid kits, portable eyewash kits and/or station.

Communication Equipment

Cell phones and automatic alarm systems.

Firefighting equipment

Portable fire extinguishers and each BESS container will be equipped with a self-contained fire suppression system and individual fire detection system.

Spill Control and Cleanup Equipment

All-in-one spill kit and spill kits with absorbent materials to absorb battery fluids, and leak-proof, lined drums.

Safe Temporary Storage of Hazardous Waste

Safe designated hazardous waste storage location (to be determined) for storage of any hazardous waste generated during normal and emergency actions.

5.1.2 Vehicles and Transportation

Fuel Tank Loading and Unloading. The following tanker truck loading and unloading procedures will be followed when bulk petroleum product is delivered to the site:

- A spill kit containing booms, socks, and oil absorbent material will be on hand to contain any oil spills that may occur during fuel transfers.
- Appropriately trained personnel will regularly inspect the tank area for leaks, spills, signs of overflow and report any stained soil or oil sheen to the construction management or operations team.

5.1.3 Temporary Fuel Storage Handling

Temporary fuel storage may be required during construction and decommissioning activities at the Project in the form of fueling tanks for onsite equipment and as auxiliary tanks for onsite generators. Tanks should be regularly inspected as part of Project stormwater and safety inspections as required by local, state, and federal law.

Spill Protection Procedures for ***Temporary Fuel Tanks and Auxiliary Fuel Tanks***:

- Establish a dedicated equipment fueling and staging area that is clean and dry.
- The onsite fueling area should have a spill kit, and staff using the fueling area should be trained on the available spill kit materials and how to use them.

5.2 Spill Cleanup and Containment

The standard procedures for all spills are as follows:

- All spills shall be immediately cleaned up upon discovery.
- The spill area shall be kept well ventilated, and personnel shall wear the appropriate protective clothing to prevent injury when cleaning up a spill.
- Use appropriate personal protective equipment and determine the source of the leak.
- Spills of hazardous materials shall be reported to the appropriate local, state, and federal authorities and/or regulatory agencies as required by law.
- All vehicles leaking oil or fluids shall be scheduled for maintenance, and drip pans shall be placed under the leak when parked prior to the maintenance event.
- All spill and cleanup material will be removed from the site as soon as can be arranged and taken to a legal disposal facility.
- Use spill containment materials to absorb spill.
- Allow spill material to completely absorb the spill. Place spent sorbent material in appropriate hazardous waste container.

The designated discharge prevention person is responsible for determining whether the spill is reportable.

5.3 Large Spill Procedures

A hazardous materials spill at the site may be considered large based on the assessment of the onsite environmental personnel on site who are trained in spill prevention, control, and countermeasure management. Any oil spill that exceeds 42 gallons (one barrel) will be treated as a large spill. For any large spills, the following procedures shall be followed:

- Site personnel shall evacuate facility staff from the immediate area.
- Site personnel shall report immediately to the first available facility emergency contact.
- If possible, site personnel shall stay upwind.
- Site personnel shall don appropriate personal protective equipment and determine the source of the leak. Where appropriate, close valves and press emergency fuel shutoff.

- Site personnel shall use spill containment materials to keep spill from spreading and discharging off site.
- The emergency contact will contact the on-call spill response contractor for cleanup and disposal of fuel and sorbent materials.
- The emergency contact is responsible for reporting to the following agencies, as necessary. Reporting depends upon quantity spilled, nature of the spill, etc.
- Refer to the emergency contacts listed in Section 4 of this Plan.

Follow-up documentation, including the submission of an oil/hazardous substance discharge report, if necessary, will be the responsibility of the designated discharge prevention person. Additional documentation will include the description of corrective actions taken, root cause analysis of the spill event, and characterization of the resulting environmental or health and safety impacts.

5.4 Operational Prevention and Containment Procedures

The following are anticipated procedures for preventing, mitigating, and containing releases and fires at the Project site.

Monitoring

- Periodic in-person inspections for leaks, ruptures, and pressure buildup of Project battery systems and other facility components.
- Automated 24-hour remote facility monitoring.
- A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system.

System Design:

- The BESS units are designed such that electrolytes added to the cells are absorbed into the cell material and are contained by the cell casing which prohibits material leaking from the cell even with water fire suppression techniques.
- The units are designed such that should a fire occur, it would not propagate to a neighboring cabinet.
- The BESS unit will be compliant with all applicable federal and international codes.
- The facility will be surrounded with fire resistant materials, usually a gravel surface, maintained free of weeds and other combustible materials.
- The onsite facility drains to a detention basin at the southeast corner of the Project allowing for containment of larger releases if needed.

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6 Training and Recordkeeping

6.1 Employee Training and Discharge Prevention

Employee training is required for all employees and contractors handling hazardous materials or hazardous wastes during normal or emergency situations. The actual training plan will be determined based on the specific company's requirements in their Illness Injury Preventative Program Documents. Training must be provided to new employees (e.g., within 30 days) and refreshed annually and may take into consideration the position of each employee.

Training of personnel should be a combination of formal classroom videos, regularly scheduled safety meetings, onsite guides and manuals, and hands-on training for specific tasks for the following subject areas:

- The 2012 federal Hazard Communication Standard (HCS, 29 CFR 1910.1200(g)) and other applicable state and local laws. The Hazard Communication Standard contains general information about the chemicals, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., firefighting).
- The procedures outlined in this plan for emergency response, and emergency evacuation.
- Notification and coordination procedures for onsite personnel, neighboring properties, local emergency responders, CUPA, and Cal OES.
- Communication and alarm systems specific to the Project site.
- Location and availability of personal protective equipment, and how to use it.
- Location and availability of spill containment and response materials and equipment, and how and when to use them (fire extinguishers, respirators, spill control kits).
- Identification of facility areas, equipment and systems vulnerable to earthquakes, fire, and other natural disasters.

6.2 Recordkeeping

6.2.1 Employee, Visitor and Contractor Training

Training of employees should be refreshed on a regular (i.e., annual) basis. This training, including a description of the types and methods used for training and copies of any training materials, shall be documented (either electronically or by hard copy) and kept on file and available for CUPA inspection for a minimum of three years.

6.2.2 HMBP As-Needed and Annual Updates

This HMBP has been written as part of the Project development documents for the County to describe anticipated hazardous materials, employee training and emergency response for the Project.

HMBPs are submitted for electronic filing into CERS within 30 days of placement or change of substances above required quantities on site and will continue to be maintained online throughout operations until the site is decommissioned. The originally submitted documentation will need to be reviewed and any changes will be uploaded within 30 days of changes and recertified at least once annually in the CERS system.

6.2.3 Inspections

It is recommended that the onsite inspection information be recorded and kept for a period of at least one year.

7 References

Cal EPA. *Consolidated Emergency Response/Contingency Plan*. March 12, 2022, CONSOLIDATED EMERGENCY RESPONSE / CONTINGENCY PLAN (ca.gov)

Cal EPA. *Instructions for completing the CERS*. March 12, 2022, Instructions for Preparing CERS Consolidated Emergency Response/Contingency Plan (ca.gov)

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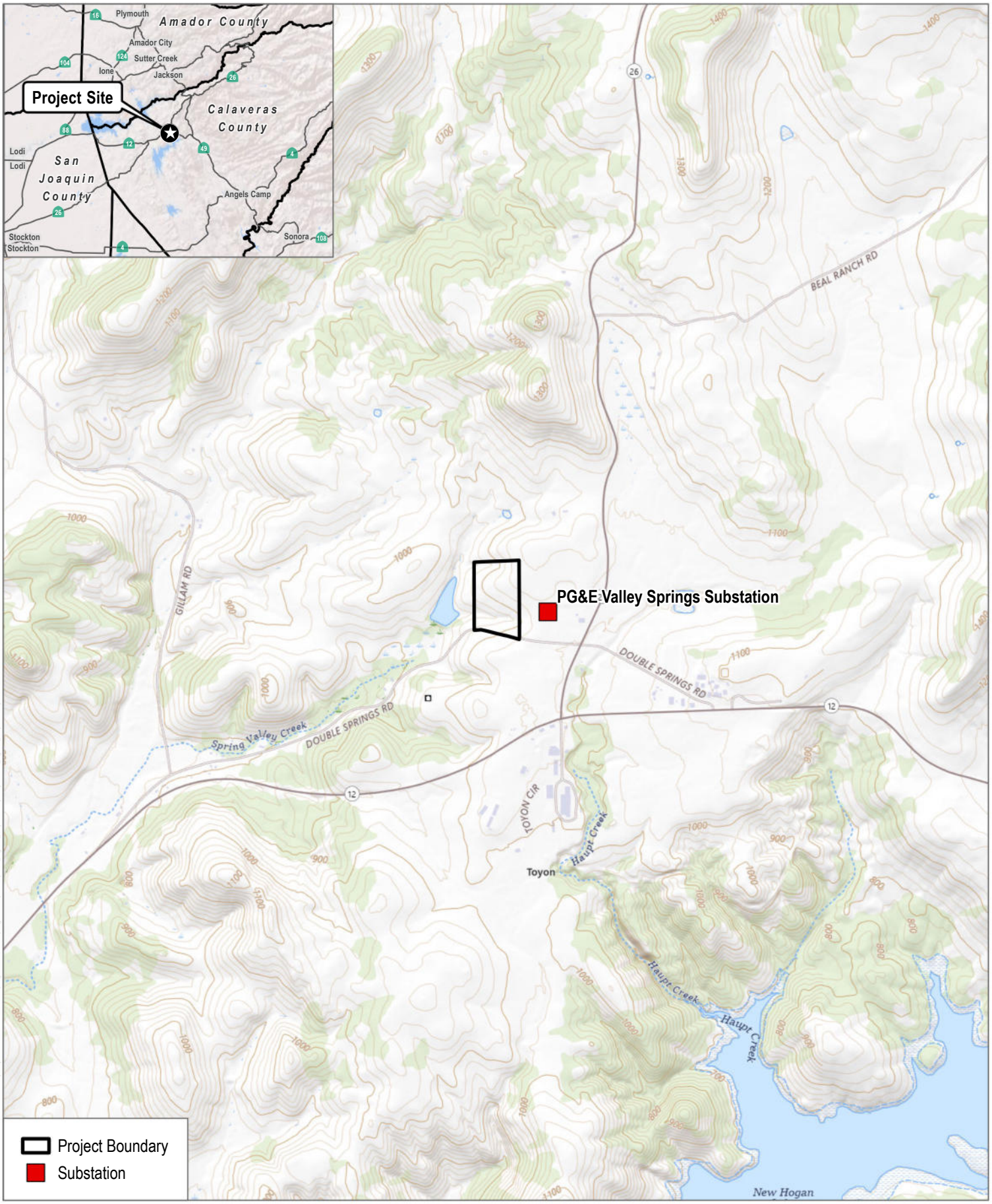

SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

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0 500 1,000 Feet

FIGURE 1

Project Vicinity

Double Springs Battery Energy Storage System Project

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SOURCE: TetraTech, 2024

FIGURE 2

Project Components

Double Springs Battery Energy Storage System Project

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Appendix L
Fire Safety Plan

Fire Safety Plan

Double Springs Energy Storage Project

APRIL 2025

Prepared for:

DOUBLE SPRINGS ENERGY STORAGE, LLC,
A WHOLLY OWNED SUBSIDIARY OF NADARA DEVELOPMENT US, LLC
1 Bridge Street, Suite 11
Irvington, New York 10533

For Submittal To:
SAN ANDREAS FIRE PROTECTION DISTRICT
37 East Churchill Street
San Andreas, California 95249

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Rob Hazard
Fire Protection Planner V

Reviewed by

Michael Huff
Practice Director, Urban Forestry and Fire Protection

Printed on 30% post-consumer recycled material.

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations v

Definitions vii

1 Introduction 1
- 1.1 For the Attention of the San Andreas Fire Protection District Representative: 1
- 1.2 Fire Safety Plan Goals 2

2 Site and Project Description 9
- 2.1 Site Location 9
- 2.2 Topography and Vegetation 9
- 2.3 Weather 9
- 2.4 Project Description 10
- 2.5 Project Characteristics 10
  - 2.5.1 Battery Energy Storage System Facility 10
  - 2.5.2 Fire Protection System 11
  - 2.5.3 Gen-Tie 11
  - 2.5.4 Power Inverters and Transformers 11
  - 2.5.5 Telecommunication Facilities 12
  - 2.5.6 Site Access and Security 12
- 2.6 Construction 13
  - 2.6.1 Temporary Construction Workspace 13
- 2.7 Operations and Maintenance Activities 13
- 2.8 Decommissioning 14

3 Project-Specific Risk Summary 15
- 3.1 Fire Risk 15
  - 3.1.1 Construction and Decommissioning Phase Risks 15
  - 3.1.2 Operation and Maintenance Phase Risks 16
  - 3.1.3 Aboveground Power Line Risks 16
- 3.2 Fire Prevention Measures for Construction Activities 17
  - 3.2.1 Electrical Fire Hazards 17
- 3.3 Double Springs Energy Storage Project Risk Rating 18
- 3.4 Risk Reduction Measures 18

4 Project Roles and Responsibilities 21
- 4.1 Project Owner/Management 21
- 4.2 Site Safety Director 21
- 4.3 Supervisors 21

4.4 Employees/Contractors 22
4.5 Fire Mitigation Personnel 22
5 Emergency Notification Procedures 23
5.1 First, Call: 9-1-1 23
5.2 Evacuation Procedures 24
5.2.1 Evacuation Routes 24
6 Fire Safety 27
6.1 Briefings and Inspections 27
6.2 Training Requirements 27
6.2.1 Basic Fire Safety Training 27
6.2.2 Supervisor/Foreman Fire Safety Training 28
6.2.3 Communication Plan 28
6.2.4 Project Personnel Firefighting Limitations 28
6.3 Daily Fire Prevention Measures 29
6.3.1 Fire Prevention/Protection System Maintenance 30
6.4 Hot Work 30
6.4.1 California Fire Code Requirements: 31
6.4.2 Additional Project-Specific Hot Work Requirements: 35
6.5 Energy Storage System Construction Safety 35
6.5.1 California Fire Code Requirements 35
6.6 Motorized Construction Equipment 39
6.7 Flammable and Combustible Liquids 39
6.7.1 Storage 39
6.7.2 Tanks 39
6.7.3 Handling at Point of Final Use 39
6.7.4 Leakage and Spills 39
6.8 Portable Fire Extinguishers 40
7 Red Flag Warning Protocol 41
8 Review and Approval 43
9 References 45

TABLE

1 Emergency Notification Primary Contacts 23

FIGURES

1 Project Site Map 3
2 Project Site Plan Map 5
3 CAL FIRE Fire Hazard Severity Zone Map 7
4 Evacuation Routes 25

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
Applicant	Double Springs Energy Storage LLC
BESS	Battery energy storage system
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code (2022)
CFC	California Fire Code (2022)
CFR	Code of Federal Regulations
County	County of Calaveras
FPP	Fire Prevention Plan
FSP	Fire Safety Plan
IC	Incident Commander
NFPA	National Fire Protection Association
PG&E	Pacific Gas & Electric
Project	Double Springs Battery Energy Storage Project
RFW	Red Flag Warning
SAFPD	San Andreas Fire Protection District
SRA	State Responsibility Area
SSD	Site Safety Director
UL	Underwriters Laboratories

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Definitions

- **Activity Risk**: Activity risks include those actions that present a risk of igniting a wildfire.
- **Fire Patrol:** A Double Springs Energy Storage Project (Project) individual will be assigned as Fire Patrol specifically to monitor work activities when an activity risk exists for fire compliance. The Fire Patrol personnel will regularly patrol the area on foot and monitor the area for any signs of fire or unsafe practices. They will have no other duties and will not be sitting in a vehicle or using a cell phone or computer except for emergency-related calls or for checking for Red Flag Warnings (RFWs) or other fire hazard or weather conditions. They will have the ability to stop work until an identified hazard has been mitigated.
- **Fire Season:** The unofficial term for the period during the year when conditions are right for the ignition and spread of a wildfire. For the western foothills of the Sierra Nevada Mountains, fire season typically lasts from May through October. The California Department of Forestry and Fire Protection adjusts their staffing patterns as fire conditions moderate or escalate; this can be used as an indicator of potential fire activity.
- **Fire Tools**: Essential firefighting tools to be staged near work activities are a 46-inch round-point shovel, Pulaski, McLeod, 5-gallon "Indian" backpack hand pump water extinguisher, and minimum 10-pound 4A:80BC dry chemical fire extinguisher.
- **Incident Commander:** The Incident Commander is the person responsible for all aspects of an emergency response, including quickly developing incident objectives, managing all incident operations, and applying resources, as well as responsibility for all persons involved. The Incident Commander sets priorities and defines the organization of the incident response teams and the overall incident action plan.
- **Red Flag Warning:** An RFW is used by fire-weather forecasters to call attention to weather conditions of particular importance that may result in extreme burning conditions. It is issued by the National Weather Service when there is an ongoing event or the fire-weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag criteria occur whenever a geographical area has been in a dry spell for at least 1 week, or for a shorter period if before "spring green-up" or after fall color. The National Fire Danger Rating System is "high" to "extreme" when the following weather parameters are forecasted to be met:
  1. A sustained wind average 15 miles per hour or greater
  2. Relative humidity less than or equal to 25%
  3. A temperature of greater than 75°F

  In California, dry lightning and unstable air are also criteria for issuing an RFW. A Fire Weather Watch may be issued prior to an RFW.
- **Site Safety Director:** Double Springs Energy Storage, LLC will designate a person to be the Site Safety Director (SSD). The SSD will be responsible for ensuring compliance with the Fire Safety Plan. The SSD will have the authority to enforce the provisions of the FSP. Where guard service is provided in accordance with National Fire Protection Association (NFPA) 241, the SSD will be responsible for the guard service. The SSD serves as a liaison to the emergency service agencies and all contractors or inspectors on the job site during emergency incidents and construction-related activities. The SSD has the authority to stop any Project work that appears to pose a particular fire risk or hazard.
- **State Responsibility Area:** The area of the state where the State of California is financially responsible for the prevention and suppression of wildfires.

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1 Introduction

Double Springs Energy Storage, LLC proposes to develop, own and operate the Double Springs Energy Storage Project (Project), a utility-scale battery energy storage system (BESS). The Project will be located on approximately 15.17 acres of undeveloped land in unincorporated Calaveras County, California (County). This Fire Safety Plan (FSP) provides basic direction for fire safety awareness during construction, alteration, and decommissioning activities on the Project site. FSPs do not anticipate every potential fire scenario that may occur on a project site but attempt to educate site personnel to the very real danger associated with fire hazards and potential ignitions. Incipient fires (the first sign of visible flame and smoke), if they involve off-site vegetation under certain weather conditions, can develop into large-scale wildfires that burn many acres and threaten public and private assets. Therefore, this FSP provides standard protocols and approaches for reducing the potential of accidental ignitions for typical Project site activities. When employed, the concepts discussed herein will help to minimize and avoid potential and accidental ignitions and to extinguish any incipient fires while they are small and controllable.

The activities anticipated during construction, operation and maintenance, and decommissioning include potential ignition sources and fire hazards normally encountered on energy storage development sites. This Project-specific FSP is intended to assist Double Springs Energy Storage, LLC and their contractors and staff with identifying fire risk, implementing important fire prevention measures, and meeting the requirements of Chapter 33 of the California Fire Code (CFC). This FSP is also intended to provide a quick reference for on-site staff for recognizing, reporting, and managing fire hazards during construction, operation and maintenance, and decommissioning.

1.1 For the Attention of the San Andreas Fire Protection District Representative:

According to County Municipal Code Chapter 15.04.020, the 2022 CFC portion of the California Building Standards Commission, including the appendix to Chapter 4, Appendices B and C, and referenced standards, will be applicable and enforced for this Project. In addition, County Municipal Code Chapter 15.10, Adoption of Regulations – Defensible Space Requirements, establishes fuel reduction requirements applicable to the Project site.

In lieu of any other amendments, this FSP has been prepared in accordance with CFC Chapter 33, other applicable Title 24 codes and referenced standards, and Dudek's experience with FSP preparation, implementation, and success.

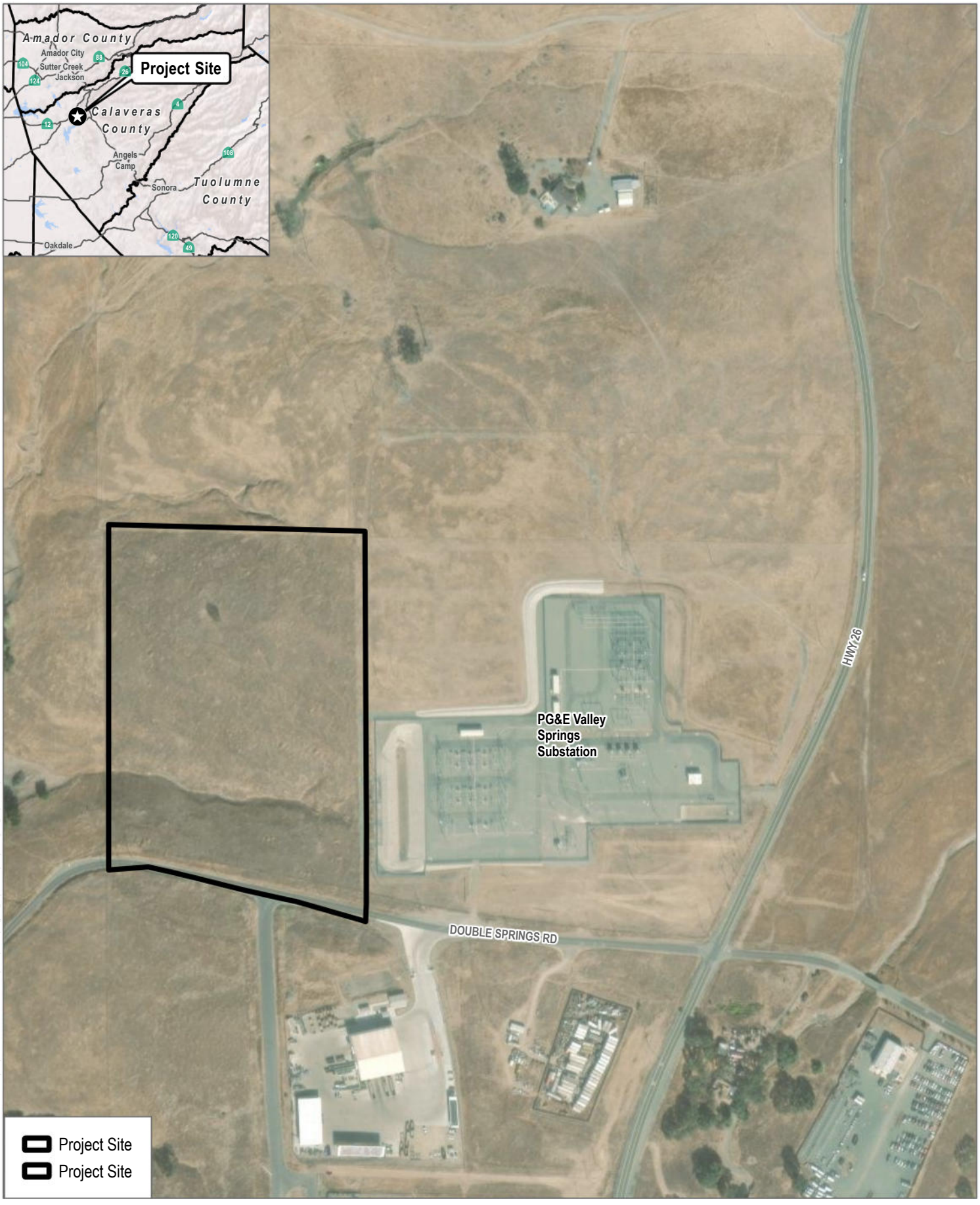
Dudek also understands that a fire protection plan may be required in accordance with CFC Section 4903.1.1. This FSP is not related to this requirement and does not claim to be a fire protection plan, as it is derived from CFC Chapter 33 Section 3303.1, not CFC Section 4903.1.1.

Thank you for your review of this FSP, and we appreciate your commitment to ensuring fire and life safety for Calaveras County.

1.2 Fire Safety Plan Goals

The primary goals of this FSP are to address the identified ignition sources and risks so that the personnel involved with constructing the Project have clearly defined protocols and procedures for reducing fire risk and maintaining a fire-safe worksite. The fire-related goals developed for the Project site include:

- Prevent/minimize fires
- Provide a safe worksite for all employees, contractors, visitors, and emergency personnel
- Prevent shock to emergency responders, workers, and unauthorized trespassers
- Prevent arcing or sparking, which could ignite vegetation and/or flammable materials on site
- Prevent or minimize fire-related business interruption
- Prevent or minimize potential for a fire starting on site to spread off site
- Provide water, appropriate fire extinguishers, and access for firefighters
- Provide adequate signage and shutoff devices to stop power feed into power lines in the event of a line failure or fire in a right-of-way
- Provide water trucks equipped with fire extinguishers, hoses, shovels, Pulaskis, and McLeods when work involves the use of chainsaws, chippers, vegetation masticators, grading/blading, grinders, drill rigs, tractors, torches, and/or explosives
- Provide for site security to minimize the potential for arson, vandalism, and theft
- Provide the ability to determine when fire weather conditions exist at the site and have been declared by the NWS
- Report all fire ignitions, regardless of size, to the San Andreas Fire Protection District (SAFPD)



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

0 175 350 Feet

FIGURE 1

Project Site

Double Springs BESS Project

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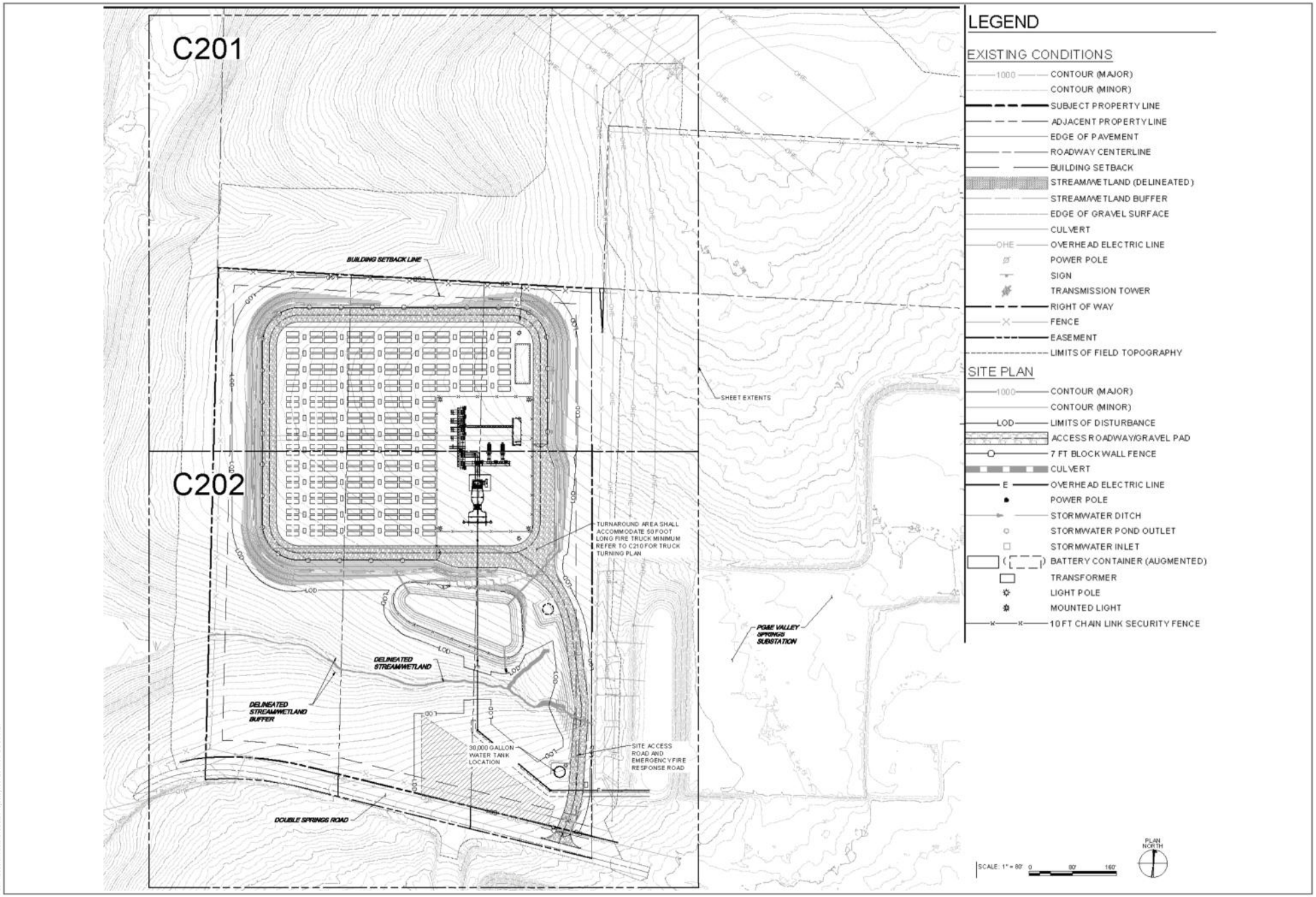

SOURCE: TetraTech, 2024

FIGURE 2

Project Site Plan

Double Springs BESS Project

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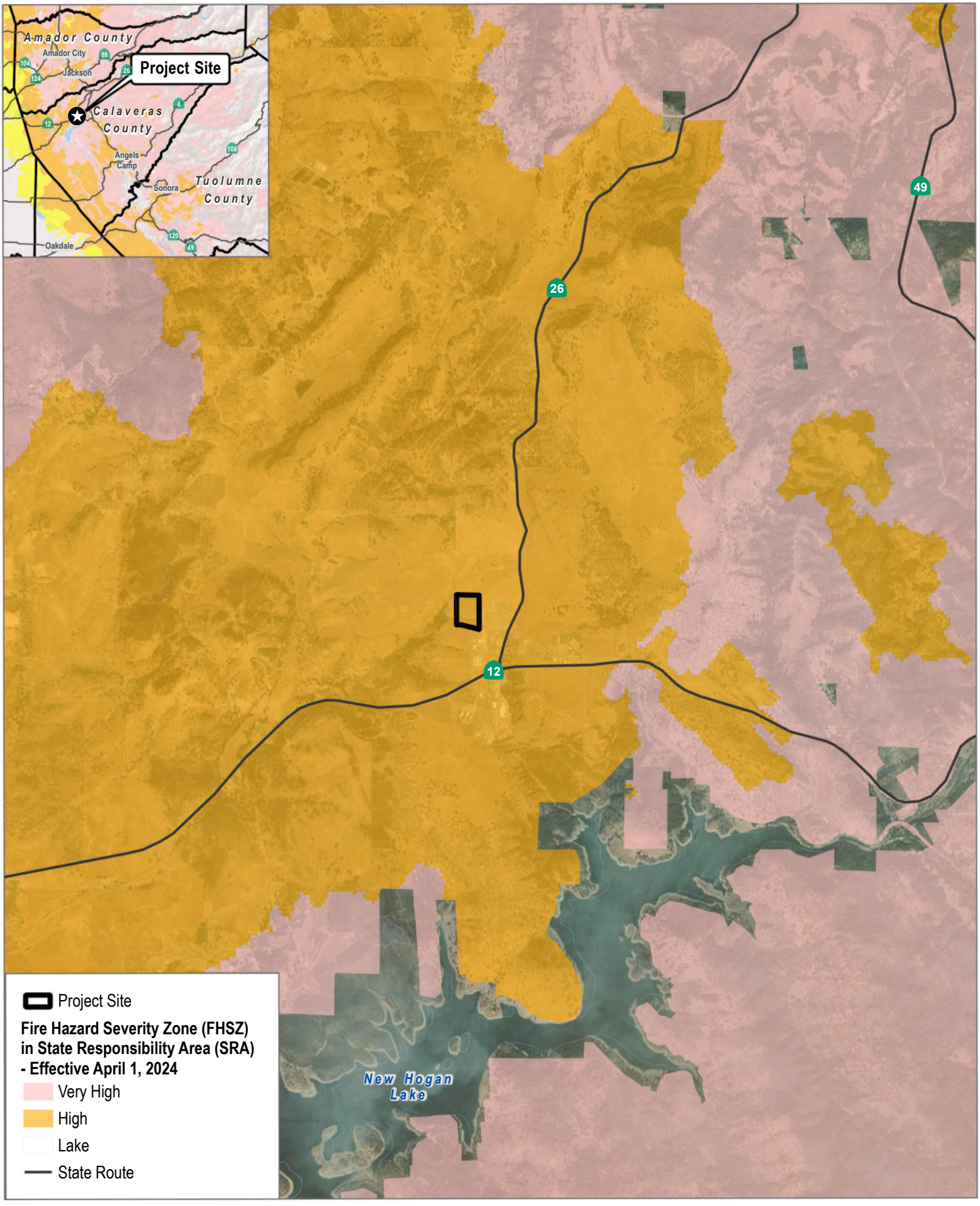

SOURCE: Esri World Imagery Basemap; Calaveras County 2024; CALFIRE 2025

DUDEK

0 1,500 3,000 Feet

FIGURE 3

Fire Hazard Severity Zone Map

Double Springs BESS Project

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2 Site and Project Description

2.1 Site Location

The Project site consists of approximately 15.17 acres of undeveloped and partially vegetated land in unincorporated Calaveras County (see Figure 1, Project Site). The Project site is located on the north side of Double Springs Road, just west of Highway 26 (see Figure 2, Project Site Plan).

The Project site is bordered by open grazing and grasslands to the northwest, west, and southwest; industrial buildings and related uses to the southeast; rural residential lands to the northeast; and the Pacific Gas & Electric (PG&E) Valley Springs Substation directly adjacent to the proposed Project to the east.

SAFPD provides all-risk fire protection services to the Project site. Additionally, the Project site is in a State Responsibility Area (SRA) on land designated as a High Fire Hazard Severity Zone (see Figure 3 Fire Hazard Severity Zone Map). The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for wildlfire protection on the State Responsibility Area lands (CCFPD 2014).

2.2 Topography and Vegetation

The Project site is located at the beginning of the western slopes of the Sierra Nevada. As a part of the western Sierra Nevada foothills, the site has a generally western aspect, with the land rising to the east for the next 50 miles, continuously becoming more mountainous and higher in elevation, with an apex in the High Sierras at the Pacific Crest. The flat California Central Valley is located 10 miles to the west. The site is sandwiched between New Hogan Lake (1.5 miles south), a reservoir for the Calaveras River, and Pardee Reservoir (3.5 miles north), a reservoir for the Mokelumne River.

The Project site is generally defined as rolling foothills, at an elevation of 1,000 feet above mean sea level. Although the area does have a generally western aspect, it rolls south to north, causing northern and southern aspects as well. A small drainage running east to west bisects the southern central part of the site, from the transmission substation directly east to the pond directly west of the site. The site slope is variable, ranging from 0% to 10%, with an estimated average of 4%.

The Sierra Nevada foothills are a mix of grassland and oak woodland, including the Project site. The site is dominated by invasive grasses, with a single oak tree in the middle of the site. The grasses form a continuous cover across the site, ranging in height from 0 to 3 feet; 3-foot-high grass is found only in sparse patches, however, and the estimated average height of grasses on site is 1 foot (Dudek 2024).

2.3 Weather

Based on historical RFWs, fire season runs from May through November. May and November each have an average of 0.5 RFWs. June has an average of 1.6 RFWs, July has an average of 0.8, and August has an average of 1.7. Fire season peaks in September and October, with each month having an average of 1.9 RFWs. The total precipitation during the 7-month fire season is 5 inches, with almost all precipitation occurring in October and November. Day

and night prevailing wind direction is predictable, with daytime winds coming from the west and nighttime winds coming from the east (IEMS 2024).

2.4 Project Description

The proposed Project is a utility-scale BESS composed of lithium-ion (or other comparable) batteries installed within modular outdoor enclosures, inverters, medium-voltage transformers, switchgear, a collector substation, and other associated equipment to connect the Project to the PG&E Valley Springs Substation (point of interconnection). Within the enclosures, the batteries will be arranged on battery storage racks with relay and communications systems for automated remote monitoring and managing of the batteries to optimize design performance.

A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of individual battery cell temperature with an integrated cooling system. Batteries operate with direct current electricity, which must be converted to alternating current for compatibility with the existing electric grid. Power inverters to convert between alternating current and direct current, along with transformers to step the voltage up and down, will be included as part of the proposed Project.

The Project location and vicinity are shown in Figure 1. A Project layout is depicted in Figure 2.

2.5 Project Characteristics

The Project will include the following components, which are described in more detail in the sections below:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances to provide dedicated energy storage capacity and dispatch to the electric grid.
- **Fire Protection System:** Advanced fail-safe features, cooling systems, and thermal runaway prevention mechanisms designed to prevent and control potential fire incidents.
- **Power Inverters and Transformers:** Power inverters to convert between alternating current (AC) and direct current (DC) will be included, along with transformers to step the voltage up and down.
- **Telecommunication Facilities:** Essential telecommunication equipment, including underground and overhead fiber optics and supervisory control and data acquisition (SCADA) systems to facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and motion-activated lighting for safety and security that meets all applicable code requirements.
- **Gen-Tie Line:** A 60-kilovolt gen-tie line, less than 0.25 miles in length, to transfer power between the PG&E Valley Springs Substation and the Project.

The facilities will be designed and are intended to operate year-round and would be available to receive or deliver energy 24 hours a day, 365 days a year.

2.5.1 Battery Energy Storage System Facility

The Project consists of the installation and operation of a utility-scale energy storage (BESS) facility consisting of approximately 240 prefabricated battery enclosures and approximately 60 power conversion system skids, containing the following:

- Internal racks and system control modules
- Fire suppression systems
- Thermal management/heating, ventilation, and air conditioning systems
- Communication systems
- Medium voltage transformers
- Inverters

The battery modules will be delivered to the Project site preassembled and moved into place by forklifts or cranes and connected in parallel to aggregate the required energy capacity.

The BESS facility will store and release (dispatch) energy based on market and utility demands. In general, the system will be dispatched to both release energy to the grid (discharge) during times of high load (demand) and to remove energy from the grid (charge) in times of low load (demand) relative to generation. PG&E, or other contracted off-takers, will have authority to determine when to dispatch the system, as dictated by the needs of their customers.

The Project will be remotely monitored on a continuous basis. Remote access to battery status, meters, schedules, and other telemetry data will be available to off-site personnel. In the event an operational anomaly should occur (e.g., unexpected temperature variation), the monitoring system will immediately alert local contracted operations and maintenance personnel, who can then expeditiously act on the issue. In addition, multiple fail-safes would be embedded in the facility's hardware and software to ensure safe and efficient operations, and, if necessary, automatically trigger a temporary shutdown of the facility until the issue is diagnosed and resolved.

2.5.2 Fire Protection System

Applicant will install the BESS system compliant with NFPA 855 Standard 9540 and 9540A certification, ensuring robust safety and fire prevention measures. Each system will include advanced fail-safe features, cooling systems, and thermal runaway prevention mechanisms designed to prevent and control potential fire incidents. The SAFPD Fire Chief will have review and approval rights for the facility fire access, protection, and suppression requirements. The review and approval by SAFPD will cover all applicable design, construction, and testing requirements of the NFPA 855 Standard.

2.5.3 Gen-Tie

A 60-kilovolt gen-tie line, less than 0.25 miles in length, will be constructed to transfer power to and from the Project and the PG&E Valley Springs Substation.

2.5.4 Power Inverters and Transformers

Medium-voltage transformers, inverters, switchgear, electronic switchboards, and additional electrical equipment will be installed outside the BESS enclosures. Underground wires and cabling will run from the battery enclosures to housings for the inverters and medium-voltage transformers on concrete pads. All electrical equipment will be housed in the appropriate National Electrical Manufacturers Association-rated enclosures. All outside electrical cabling will be run underground, including from the medium-voltage transformers to the collector substation. The collector substation will consist of one or more main power transformers, a control house, and switchgear.

The Applicant will use only industry-standard, nationally (and internationally) recognized equipment. The inverters will be standalone units that operate in all weather conditions. They will operate in both a charge mode and a discharge mode, and will be Underwriters Laboratory (UL) listed for bidirectional use along with remote control and monitoring. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. The inverters will be robust in their design and anticipated to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.

2.5.5 Telecommunication Facilities

The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and to support remote Project operations monitoring. To provide for communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The SCADA system is critical to the PG&E utility interconnection and for proper operation and maintenance of the Project. A SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag-out for the facility. The SCADA system will also control the Project substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.

2.5.6 Site Access and Security

The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet County standards, including fire safety requirements as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario incorporated into the final Project design subject to any input from the County. A perimeter fence will be installed around the Project site for safety and security purposes and will remain for the life of the Project. Limiting access to the Project site will be necessary both to ensure the safety of the public and to protect the equipment from potential theft and vandalism.

In accordance with County Zoning Code Section 17.50.050 lighting regulations, permanent security lighting will be installed to illuminate key areas, such as the plant substation and entrance/exit points. Lighting will be designed to minimize off-site glare, using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. To maintain visual comfort and safety standards, security lighting will not exceed a maximum color temperature of 5,000 Kelvin. These measures align with the County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. It is anticipated that the Project site will be monitored continuously via security cameras, with footage accessible 24 hours a day and 7 days a week to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security or maintenance personnel to ensure a prompt response.

2.6 Construction

Construction and site development activities for the Project will last approximately 12 months. Construction activities for the Project generally fall into the following categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, and cleanup.

The on-site construction workforce is expected to peak at approximately 80 individuals; however, the average daily workforce on site during construction is expected to be 5 to 10 individuals, comprising construction, supervisory, support, and construction management personnel. It is anticipated that the construction workforce will commute to the site each day from local/surrounding communities and report to the designated construction staging yard prior to the beginning of each workday. Deliveries of equipment and materials will generate an estimated five to seven round trips per day during peak construction periods.

The Project will be constructed by specialized construction contractors. Construction will primarily occur during daylight hours, Monday through Saturday between 7:00 a.m. and 7:00 p.m., as required to meet the construction schedule. Any construction work performed outside the normal work schedule will be coordinated with the appropriate agencies and conform to County regulations.

2.6.1 Temporary Construction Workspace

A temporary laydown yard for construction equipment and parking will be established within the Project site. Temporary staging areas may include fenced parking, covered trash disposal facilities, construction trailers, a laydown area, and sufficient portable toilets and potable water for use by the construction staff. Mobile trailers (or equivalent) will be used as construction offices for Project and subcontractor personnel. During construction, temporary utilities will be provided for the construction offices, laydown area, and Project area. Prior to the availability of permanent distribution power, temporary construction power will be provided either by PG&E or will come from temporary diesel generators located in the staging area. Temporary lighting will be provided and strategically located to ensure safety and security of the construction area.

The following site services will be provided by the Applicant or its contractors:

- Environmental, health, and safety training
- Site security
- Site first-aid station
- Construction and testing
- Site fire protection and extinguisher maintenance
- Furnishing and servicing of sanitary facilities
- Trash collection and disposal
- Disposal of hazardous materials and waste in accordance with local, state, and federal regulations

2.7 Operations and Maintenance Activities

Typical operations and maintenance activities that will occur on the Project site during operation include, but are not limited to, liaison and remote monitoring administration and reporting; semi-annual and annual services;

remote operations of batteries, inverters, substation, and site security and management; additional communication protocols; and repair and maintenance of the BESS, electrical transmission lines, and other Project facilities. The electrical equipment and security will be automated and monitored remotely.

The Project site will be unoccupied but will be visited periodically throughout the year for equipment inspections, monitoring and testing, and maintenance, as needed. Periodically, batteries and various components will be replaced or serviced to ensure optimal performance.

2.8 Decommissioning

At the end of the Project's operational life, the Applicant will decommission the Project as outlined in the Decommissioning Plan submitted to the County.

All decommissioning and site restoration activities will adhere to the requirements of the appropriate governing authorities and be in accordance with all applicable federal, state, and County regulations. Following the expiration of the Project's useful life, the facility will be decommissioned, which includes removal of Project components from the Project site. Aboveground equipment to be removed includes batteries and battery enclosures, inverters, transformers, substation steel bus work and structures, and electrical wiring. To avoid the potential for batteries to be disposed of as municipal waste, the Applicant will implement measures to ensure the collection and recycling of batteries.

Equipment will be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off site to be recycled or disposed of at an appropriately licensed disposal facility. The demolition debris and removed equipment will be cut or dismantled into pieces that can be safely lifted or carried with the decommissioning equipment being used. The area will be thoroughly cleaned, all debris removed, and the Project site readied for a new use. A collection and recycling program will be implemented to promote recycling of Project components and minimize their disposal in landfills.

3 Project-Specific Risk Summary

3.1 Fire Risk

The objective of this FSP is to eliminate or greatly reduce the causes of fire, prevent loss of life and property by fire, and comply with the Occupational Safety and Health Administration's standard on fire prevention, 29 Code of Federal Regulations (CFR) 1926.24. Additionally, it is intended to provide employees and the public with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

Fire risks are assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). The evaluation of fire risks must consider the frequency and severity of fires and other significant incidents.

The Project site includes common risk types and heightened sources of risk. Common risks that result in emergency calls include accidental injuries (residential, vehicle, other); medical-related incidents including heart attacks, strokes, and other serious conditions and illnesses; accidental vegetation fires; and occasional structure fires. Although less likely during certain portions of the year, the presence of non-native grasses on the site could potentially contribute to rapid fire growth. Roadside fires are also a significant risk, with spread into the adjacent wildlands possible.

In addition to common causes of fire incidents (cooking, unattended hot equipment, smoking, etc.), BESS projects necessitate additional considerations for fire safety. Project fire hazards include several operations and activities associated with the facility that could elevate the probability of ignition.

The Project's fire risks would be primarily associated with the following:

3.1.1 Construction and Decommissioning Phase Risks

- Food Warming. Food warming creates environments where ignition sources (cooking equipment) used to warm food can ignite nearby combustibles when unattended and not fully cooled.
- Smoking. Cigarette butts improperly disposed of can smolder for long periods of time and ignite loose combustibles.
- Temporary Heating Equipment. Equipment can be placed too close to nearby combustibles and ignite unattended debris.
- Earth-moving equipment. Equipment can create sparks, heat sources, fuel, or hydraulic leaks, etc.
- Chainsaws. Chainsaws may result in vegetation ignition from overheating, sparks, fuel leak, etc. Chainsaws should be fueled and maintained only in areas away from combustible fuels.
- Vehicles. Heated exhausts/catalytic converters in contact with vegetation may result in ignition.
- Welders. Welding creates an open heat source that may result in slag igniting nearby vegetation.
- Woodchippers. Woodchippers have flammable fuels and hydraulic fluid that may overheat and, with a hose failure, spray onto vegetation.
- Compost piles. Large piles allowed to dry and left on site for extended periods may result in combustion and potential for embers landing in adjacent vegetation.

- **Grinders**. Sparks from grinding metal components may land on a receptive fuel bed.
- **Torches**. A heat source, open flame, and resulting slag may ignite nearby vegetation or debris.
- **Electrical installations**. Arcs, shorts, or explosions may occur when installing either medium- or high-voltage Project components.
- **Dynamite/blasting**. Blasting may cause vegetation ignition from open flame, excessive heat, or contact of heated material with dry vegetation. The blasting plan will address mitigation for blasting procedures to minimize fire ignition potential.
- **Other human-caused accidental ignitions**. Other sources include discarded cigarettes, matches, temporary electrical connections, refueling-related incidents, inappropriately placed generators, poor maintenance of equipment, and others.

3.1.2 Operation and Maintenance Phase Risks

Ignition risks are anticipated to decrease considerably following the Project's active construction phase. Operation and maintenance activities will occur within a defined Project footprint where the adjacent fuels have been removed or converted to fuel modification-consistent vegetation.

- **Transformers**. Transformers are subject to occasional failure, sending sparks and hot materials out in any direction; fire in a transformer may result in ignition of the oil it contains.
- **Electrical transmission lines**. Power lines have the potential to incur an arcing fault, which could ignite adjacent vegetation.
- **Capacitors**. Capacitors can overheat, fail, and cause a spark, which may result in combustion of any nearby flammable materials, such as vegetation.
- **Substations**. Substations have various electrical components that may explode, fail, or ignite, including oil-cooled transformers; low flammability bio-degradable FR3 will be used in the transformer systems.
- **BESS**. Excess heat caused by lithium-ion battery defects or damage could start fires or explosions.
- **BESS**. Failure of the battery management systems could occur.
- **Vehicles**. Vehicles have heated exhausts that if in contact with vegetation may result in ignition.
- **Hot work equipment**. Small hand tools, either gas or electric powered, used for hot work (i.e., welding or working with an open flame or other ignition sources) may result in sparks, flames, or excessive heat that can ignite vegetation.

3.1.3 Aboveground Power Line Risks

The following are some aboveground power line risks:

- Uncleared vegetation, especially trees, coming into contact with conductors
- Sparks (from exploding hardware such as transformers and capacitors) coming into contact with vegetation
- Wind-blown debris coming into contact with hardware such as transformers and conductors
- Conductor-to-conductor contact
- Dust or dirt buildup on power line hardware

- Aircraft, helicopter, or attached features such as fire-fighting water buckets, coming into contact with power line hardware and support structures
- Wildlife coming into contact with power line hardware or transmission line

3.2 Fire Prevention Measures for Construction Activities

To limit the risk of fires, employees and contractors will take the following precautions:

- Minimize combustible and flammable materials storage on site.
- Store any combustible or flammable materials that need to be on site away from ignition sources.
- Clear a minimum 30-foot-wide area around parking areas and fuel or oil storage areas of all grass and brush.
- Keep incompatible (i.e., chemically reactive) substances away from each other.
- Dispose of combustible waste promptly and according to applicable laws and regulations.
- Keep equipment in good working order (i.e., inspect electrical wiring and appliances regularly and keep motors and tools free of dust and grease).
- Keep exit and evacuation routes free of obstructions.
- Label all containers as to their contents and store in the same location as flammable or combustible liquids.
- Perform hot work according to fire safety practices in a controlled environment and with fire suppression equipment at the job site. See Section 6.4.
- Report and repair fuel leaks without delay.
- Make sure not to overload circuits or rely on extension cords where other upgrades would be safer.
- Turn off and unplug electrical equipment when not in use.
- Ensure that heating units are safeguarded.
- Restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to low-fire-risk conditions, which would include higher humidity (15% and higher) and low winds (less than 10 mph). Dry windy days should be avoided for these types of activities. When the above tools are used, water trucks equipped with fire extinguishers, hoses, shovels, Pulaskis, and McLeods will easily be accessible to personnel.
- All construction-related vehicles will be equipped with a 10-pound, 4A:80BC dry chemical fire extinguisher, a 5-gallon backpack pump fire extinguisher, a 46-inch round-point hardwood shovel, and a first aid kit.
- During significant emergency situations, an evacuation notice may be issued by the site manager/ supervisor or SSD. When an evacuation has been called, all site employees will gather at the designated assembly area, and the SSD, or a designated supervisor, will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off site away from the threat. See Section 5.2.

3.2.1 Electrical Fire Hazards

- Electrical system failures and the misuse of electrical equipment are leading causes of workplace fires.
- Fires can result from loose ground connections, wiring with frayed insulation, or overloaded fuses, circuits, motors, or outlets.
- To prevent electrical fires, employees will:

- Make sure that worn wires are replaced.
- Use only appropriately rated fuses.
- Never use extension cords as substitutes for wiring safety.

3.3 Double Springs Energy Storage Project Risk Rating

The estimated risk associated with the Project is considered to be low to moderate during construction and low during operation, based on the successful application of SAFPD requirements and the requirements set forth in this FSP. There have been very few BESS facility fire ignitions in California (EUCI 2024).

The risk of fires associated with the latest battery technology meeting UL 9540A testing requirements is also low. Newer-technology battery modules and processes result in even lower risk of ignitions due to safer battery chemistries and the redundancy of fire safety measures (EUCI 2024). The Project will be equipped with monitoring and control systems that will prevent and/or control battery cell malfunctions. However, to determine unlikely but reasonable worst-case public health impacts for this analysis, it is assumed that these control systems fail and do not control the battery cell malfunction. For this unlikely scenario, it is assumed that the battery cell malfunction continues until third-party or municipal fire suppression services arrive at the Project site.

The active construction phase results in higher potential for fires due to hot work, vegetation clearing, and other activities that may result in flame or heat sources, which could ignite vegetation, especially if non-native grasses have established and cured. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable, as indicated by the low historic fire occurrence in existing energy storage facilities (EUCI 2024).

3.4 Risk Reduction Measures

The following measures will be employed, as appropriate, during the construction phase of the Project to reduce the risk of ignitions. These measures will be enforced by the SSD and supported by ongoing workplace safety training.

- A fuel management zone complying with SAFPD and CAL FIRE requirements will be installed prior to allowing any combustible material to arrive on the site; the zone will be maintained for the duration of the Project.
- All construction site activities will maintain compliance with the CFC.
- The Project will provide and maintain fire department access roadways in accordance with the CFC and California Code of Regulations 14 – Fire Safe Regulations.
- The address numbers of the property or Project location will be plainly visible and legible from the street or road fronting the property at the fire apparatus access point or as otherwise approved by SAFPD.
- All internal combustion engines, both stationary and mobile, will be equipped with spark arresters. Spark arresters will be in good working order.
- Light trucks and cars with factory-installed mufflers will be used only on roads where the roadway is cleared of vegetation. These factory-installed mufflers will be maintained in good condition.
- Fire rules will be posted on the Project bulletin board at the contractor's field office and areas visible to employees.
- Equipment parking areas and small stationary engine sites will be cleared of all extraneous flammable materials.

- Personnel will be trained in the FSP practices relevant to their duties. Construction and maintenance personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- The Project will be equipped with two water trucks, each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of 0.75 or 1 inch fast response hose with fog nozzles. Any hose size 1.5 inches or greater will use National Hose couplings.
- A cache of shovels, McLeods, and Pulaskis will be available at staging sites. The amount of equipment will be determined by consultation between the SSD and SAFPD. Additionally, on-site pickup trucks will be equipped with first aid kits, fire extinguishers, and shovels. Contractor vehicles will be required to include the same basic equipment.
- Equipment parking areas and small stationary engine sites will be cleared of all extraneous flammable materials and provided with a gravel surface.
- A fire watch (i.e., person responsible for monitoring for ignitions) will be provided during hot work, and the watch will continue for not less than 30 minutes following completion of the hot work activities.
- Smoking will not be permitted on site.
- If construction occurs simultaneously at various locations on the Project site, each construction site will be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- To prepare for specialized emergency incidents that may occur at the Project site, the on-site contractor or Project staff will coordinate with SAFPD to create a training component for emergency first responders.
- All on-site employees will participate in fire prevention and response training exercises with SAFPD.
- Ongoing Fire Patrols will be implemented during the fire season as defined by local and state agencies. The SSD will be assigned as Fire Patrol to monitor work activities when an activity risk exists for fire compliance. The SSD will verify proper tools and equipment are on site, assess any fire agency work restrictions, and serve as a lookout for fire starts, including staying behind (e.g., a fire watch) to make certain no residual fire exists. Fire watch may be performed by any site personnel. An SSD will perform routine patrols of the Project site during the fire season, equipped with a portable fire extinguisher and communications equipment. Project staff will notify SAFPD of the name and contact information of the current SSD in the event of any change.
- Fires ignited on site will be immediately reported to SAFPD via calling 9-1-1 for emergency dispatch.
- The engineering, procurement, and construction contracts for the Project will clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this FSP.

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4 Project Roles and Responsibilities

All employees should know how to prevent and respond to fires and are responsible for adhering to policies regarding fire emergencies. The following sections detail general responsibilities, by position.

4.1 Project Owner/Management

This site-specific FSP was prepared for the Project to determine overall fire risk. The Project is required to implement necessary measures to reduce the risk of fire and to comply with federal, state, and local fire safety/protection policies. Additionally, the Project owner/manager is responsible for ensuring that all contractors on the site have contractual obligations in place to abide by this FSP.

4.2 Site Safety Director

The SSD, in addition to previously identified duties, would also manage the Project's FSP and will maintain all records pertaining to it. Among the other responsibilities of the SSD are:

- Understanding the FSP and its mandates for training, fire prevention, fire suppression, and evacuation.
- Understanding the fire risk associated with the site and with activities that will occur on site.
- Understanding the requirements of sections 6.4 and 6.5 of this FSP as they relate to hot works operations and BESS construction procedures, respectively.
- Developing and administering the fire prevention and safety training program.
- Ensuring that fire control equipment and systems are properly maintained and in good working condition.
- Monitoring combustibles on the site and managing where they are stored.
- Conducting fire safety surveys and making recommendations.
- Posting fire rules on the Project bulletin board at the contractor's field office and areas visible to employees.
- Stopping Project work activities that pose a fire hazard or are not in compliance with this FSP.
- Reporting all fires ignited on the site, whether structural, vegetation, electrical, or other, to SAFPD.

4.3 Supervisors

Supervisors are responsible for the following:

- Ensuring that all employees receive appropriate fire safety training.
- Notifying the SSD when changes in operation increase the risk of fire.
- Enforcing fire prevention and protection policies.
- Accounting for all employees/contractors in the case of an evacuation.
- Performing site sweeps to round up staff.
- Facilitating fire agency access to the Project site.
- Cooperating with the fire agencies/incident command during and following fires.
- Identifying unsafe work practices that may lead to fire ignitions.

4.4 Employees/Contractors

Employees and contractors would perform the following tasks:

- Complete all required training before working on site.
- Conduct operations safely to limit the risk of fire.
- Report potential fire hazards to their supervisors.
- Follow fire emergency procedures.
- Understand the emergency evacuation protocols.

4.5 Fire Mitigation Personnel

Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on site to respond to possible ignition or re-ignition of a damaged BESS, the system owner, agent, or lessee will immediately dispatch one or more fire mitigation personnel to the premises, as required and approved, at their expense. These personnel will remain on duty continuously after the fire department leaves the premises until the damaged BESS equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.

On-duty fire mitigation personnel shall have the following responsibilities:

- Keep diligent watch for fires, obstructions to means of exit and other hazards.
- Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.
- Take prompt measures for remediation of hazards in accordance with the decommissioning plan in CFC Section 1207.2.3.
- Take prompt measures to assist the evacuation of the public from the structures.

5 Emergency Notification Procedures

Any fire event at or near the Project site will trigger the emergency notification procedures identified in this section. Fire reporting is critical for tracking where, when, why, and how fire ignitions occur and will help fire agencies develop protocols for reducing their occurrence.

5.1 First, Call: 9-1-1

Reporting fires and other emergencies: The first call should be to 9-1-1 so that appropriate emergency response resources can be dispatched.

Prior to construction, Applicant will provide the primary point of contacts to be notified during a fire emergency. Personnel contact information will include on-site construction representatives such as the SSD, site manager, project manager, project engineer, and construction supervisor. A designated primary point of contact for operations will be provided by Applicant prior to commercial operations.

The personnel in Table 1 are the primary site contacts to be notified during a fire emergency.

Table 1. Emergency Notification Primary Contacts

Name*	Position	Telephone Number*
	Site Safety Director	
	Site Manager	
	Project Manager	
	Project Engineer	
	Construction Supervisor	

Note:
* Upon designation of each of the positions listed, the names, contact numbers, and emails will be inserted into this table. Position names may be changed, but responsibilities will remain the same.

Technical Staff Contact: Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this FSP will be submitted to the responding fire agencies.

The first call should be to 911 so that emergency responders can be dispatched. Travel times to the site require notification of 911 as early as possible after a fire or other emergency has been observed.

Emergency-related contacts near the Project site include:

- **Fire/Emergency Medical – Calaveras County Dispatch Center** – 1045 Jeff Tuttle Drive, San Andreas, California 95249 (Emergency: 9-1-1, Non-Emergency: 209.754.6500)
- **San Andreas Fire Protection District Station 1 –** 37 Church Hill Road, San Andreas, California 95249 (Emergency: 9-1-1, Non-Emergency: 209.754.4693)
- **Calaveras Consolidated Fire Protection District Station 2 –** 129 East Highway 12, Valley Springs, California 95252 (Emergency: 9-1-1, Non-Emergency: 209.772.1268)
- **CAL FIRE Tuolumne Calaveras Unit –** 785 Mountain Ranch Road, San Andreas, California 95249 (Emergency: 911, Non-Emergency: 209.754.3831)

- **Calaveras County Sheriff's Department** – 1045 Jeff Tuttle Drive, San Andreas, California 95249 (Emergency: 911, Non-Emergency: 209.754.6500)
- **California Highway Patrol, San Andreas Office** – 749 Mountain Ranch Road, San Andreas, California 95249 (Emergency: 9-1-1, Business: 209.306.6400)
- **Hospital – Dignity Health – Mark Twain Medical Center** – 768 Mountain Ranch Road, San Andreas, California 95249 (Emergency: 9-1-1, Business: 209.754.3521)

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with SAFPD. The SSD, or designee if other SSD tasks have not been completed, will meet the emergency response team at the meeting point (location to be determined, but likely to be at the Project's primary entrance driveway (refer to Figure 2 – Project Site Plan) to lead them into the site. The meeting point will be selected with fire agency input.

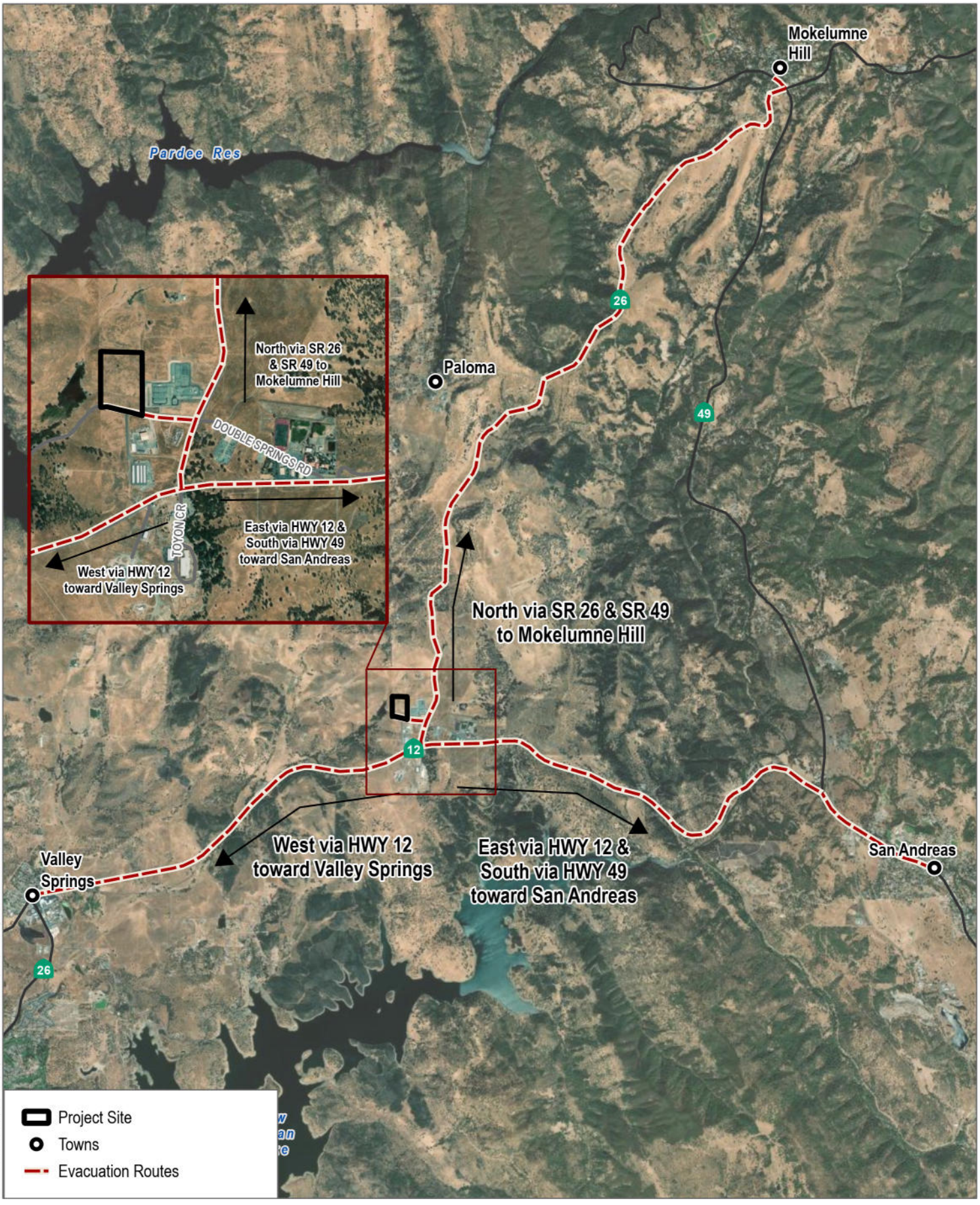
5.2 Evacuation Procedures

During significant emergency situations at or near the Project site, the Site Manager and/or SSD, in consultation with law or fire authorities, may issue an evacuation notice. When an evacuation has been called, all site employees will gather at the designated assembly area; this could be the site's primary access driveway but may be elsewhere, depending on the emergency and as designated by the SSD. The SSD will account for all personnel, as time allows. Once all employees are accounted for, or sooner if dictated by the emergency, the vehicles will safely convoy from the site to safe zones, which are usually areas off site away from the threat. Should there still be persons within the site after the evacuation has been called, the SSD will send convened personnel off site to safe zones; the SSD and designated construction supervisors will then perform a sweep of the facility, if it is safe to do so, to locate persons still remaining on site, and will then reconvene at the assembly area. Once all personnel are accounted for, they will exit the site. A primary designated assembly area is to be located near the main entrance; should a structure or wildland fire (or other emergency) occur that threatens the primary assembly area, other locations may be designated as secondary assembly areas by the SSD or site supervisors, as dictated by the situation. The SSD and/or site supervisors should be prepared to be available to the incident commander (IC) throughout the incident to facilitate information exchange.

5.2.1 Evacuation Routes

Depending on the type and severity of the emergency, along with weather and/or localized site conditions, roadways designated on Figure 4, Evacuation Routes, will be used for evacuating the area. The Project site is accessed by Double Springs Road, which travels east and west of the Project site. Double Springs Road intersects with Highway 26 just east of the Project site and with Highway 12 west of the Project site. Given the spatial extant of the site, there may be multiple evacuation route options, depending on the nature and type of emergency event. The primary evacuation route for the Project site is via Double Springs Road east to Highway 26; evacuation would then proceed either north on Highway 26 to the community of Mokelumne Hill or south on Highway 26 to Highway 12, and then head either west to the community of Valley Springs, 4 miles west of the Project site, or east to the community of San Andreas, 6 miles east of the Project site. See Figure 3, Evacuation Routes.

The SSD and site supervisors are primarily responsible for evacuations. They will employ situation awareness procedures to determine the emergency, speak with all site personnel and fire officials, as possible, and declare the emergency status. Foreman-level supervisors will assist the SSD in accounting for personnel. The SSD or designee will be assigned to meet and guide firefighting resources to the scene.



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

DUDEK

0 2,500 5,000 Feet

FIGURE 4

Evacuation Routes

Double Springs BESS Project

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6 Fire Safety

6.1 Briefings and Inspections

The SSD will conduct routine unannounced inspections. These inspections will be conducted at least once every week. The SSD will develop an inspection checklist to document these inspections. Completed checklists will be retained electronically and hard copies stored on site in the SSD's office/trailer. Checklists will be reviewed by the SSD, and if an issue is found, it will be shared with site supervisors for correction. If corrections are not provided within 36 hours, the SSD will stop work and report to the Project owner, who will be responsible for corrections.

Prior to Project initiation, all Project personnel will receive a presentation on the contents of this FSP along with additional fire safety and fire prevention information provided by Dudek. If possible, SAFPD personnel from the local fire station will attend this meeting (or meetings) and provide input, which will have the dual benefit of informing site personnel and providing Project familiarity for the SAFPD.

Supervisors/foremen will be responsible for sharing FSP content with transient Project personnel throughout the duration of the Project. A review of the content of this FSP will take place at a formal safety briefing; there will be a minimum of one briefing each month.

Each daily safety tailgate session will include an assessment of the day's fire-related risks or hazards, the mitigation for each, and review of any anticipated RFWs (see Section 7 below).

Violations of any of the requirements of this FSP will be addressed immediately. Appropriate consequences for repeated or serious negligence with respect to this FSP will be swiftly implemented.

6.2 Training Requirements

6.2.1 Basic Fire Safety Training

The SSD and/or site supervisors/foremen will present basic fire prevention training to all employees upon employment and will maintain documentation of the training, which includes:

- This FSP, including how it can be accessed.
- Review of Occupational Safety and Health Administration Fire Protection and Prevention 29 CFR 1926.24, including how it can be accessed.
- 43 CFR 9212.0 et seq. – Fire Management: Wildfire Prevention.
- Proper response and notification in the event of a fire.
- Instruction on the use of portable fire extinguishers, hand tools such as shovels, and recognition of potential fire hazards and risks.

The SSD will train all persons entering the site about the fire hazards associated with the specific materials and processes to which they are exposed and will maintain documentation of said training. Employees will receive this training at the following times:

- Upon first entering the facility
- Annually during a pre-planned meeting
- When changes in work processes necessitate additional training

6.2.2 Supervisor/Foreman Fire Safety Training

Prior to Project initiation and each spring prior to high fire season, all Project supervisors will receive a minimum of 1 hour of training on wildland fire prevention and safety. This training will be created by the SSD or their designee using this FSP as their source and will be provided and made available to all Project personnel. The training will then be reviewed with all construction personnel, either by the Project supervisors or the SSD, and verified by the Project's compliance monitor.

Each supervisor/foreman will be trained to understand the following:

- Fire reporting
- Extinguishing small fires in order to prevent them from growing into more serious threats
- Fire prevention
- Initial attack firefighting
- Identifying work activities that may result in a fire hazard or risk

6.2.3 Communication Plan

The ability to communicate quickly with all personnel working on the site is mandatory. The SSD and construction crews will be required to have a cell phone, satellite phone, and/or two-way radios operational within the area of work site to report an emergency. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities. All fires and medical emergencies will be immediately reported to SAFPD.

Each on-site worker will always carry a laminated FSP card listing 24-hour contact information, including telephone numbers for reporting an emergency and immediate action to take if an incident occurs. Information on the FSP card will be updated as needed and redistributed to all workers before the initiation of any construction activities. The Project's compliance monitor, who is responsible for ensuring the Project complies with all conditions and required measures, will provide the FSP cards to the site's SSD prior to construction kickoff so that all Project personnel can be provided training and receive their cards.

6.2.4 Project Personnel Firefighting Limitations

SAFPD provides all-risk fire protection services to the Project site. CAL FIRE provides wildfire direct protection on State Responsibility Area lands, including the Project site. Because CAL FIRE's response time to the site may be lengthy given the site's remote location, Project employees or contractors should provide only initial firefighting efforts, and only if they have had appropriate training.

The following fire suppression guidelines are recommended:

No employee will fight a fire beyond the incipient stage (the very beginning) and the arrival of professional fire suppression personnel. Involvement in firefighting is voluntary and should only be attempted by trained, qualified individuals.

6.3 Daily Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors will take the following precautions:

- Fire safety will be a component of daily tailgate meetings. Foremen will remind employees of fire safety, prevention, and emergency protocols daily.
- Minimize combustible and flammable materials storage on site.
- Store any combustible or flammable materials that need to be on site away from ignition sources.
- Combustible materials will be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSD will be informed of the situation.
- Construction work areas will be kept free of combustible materials.
- Dispose of combustible waste in accordance with all applicable laws and regulations.
- Smoking will not be permitted in the Project site.
- Evacuation routes will be maintained and free of obstructions. Unavoidable evacuation route blockages will be coordinated such that a secondary route is identified and available.
- Use and storage of flammable materials in areas away from ignition sources will be required.
- Proper storage of chemicals such that incompatible (i.e., chemically reactive) substances are separated appropriately.
- Performance of hot work in controlled areas under the supervision of a fire watch will be required. Fire watch may be any site personnel who would watch for accidental ignitions. Hot Work Permits are required and will be reviewed and granted by the SSD for all hot work.
- Equipment will be kept in good working order by inspecting electrical wiring and appliances regularly and maintaining motors and tools free of excessive dust and grease.
- Ensuring that heating units are safeguarded.
- Immediate reporting of fuel or petroleum leaks. The site mechanic will ensure that leaks are repaired immediately upon notification.
- Immediate repair and cleanup of flammable liquid leaks.
- Extension cords will not be relied on if wiring improvements are needed, and overloading of circuits with multiple pieces of equipment will be prohibited.
- Electrical equipment will be turned off and unplugged when not in use.
- Restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to low-fire risk conditions, which would include higher humidity (15% and higher) and low winds (less than 10 mph). These types of activities should be avoided on dry windy days. When the above tools are used, water trucks equipped with fire extinguishers, hoses, shovels, Pulaskis, and McLeods will be easily accessible to personnel.

6.3.1 Fire Prevention/Protection System Maintenance

Site maintenance personnel will ensure that fire suppression and related equipment is maintained according to manufacturers' specifications. NFPA guidelines will be implemented for specific equipment (welding and other hot work must be in accordance with NFPA 58B).

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- Portable fire extinguishers
- Skid-mounted units on pickup trucks during construction
- Fire alarm and alternative suppression systems inside of the BESS structures
- Water trucks and associated equipment
- Infrared camera fire detection/security system
- Battery and system monitoring systems
- Transformers
- Emergency backup generators/systems and the equipment they support

6.4 Hot Work

The requirements listed in the following sections are primarily taken from the 2022 edition of CFC Chapter 35, Welding and Other Hot Work; the 2019 edition of NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work; and American Society of Mechanical Engineers Standards and Schemes. Note that where two conflicting requirements occur, the more restrictive has been chosen.

Hot work is defined in the CFC as operations involving cutting, welding, thermite welding, brazing, soldering, grinding, thermal spraying, thawing pipe, or any other similar activity.

Hot work areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat because of the hot work.

SAFPD does not currently issue hot work operational permits for the construction phase of a project. In this case, a Hot Work Permit will be obtained from the SSD, following guidelines from SAFPD if required. The SSD will require all hot work to be done in compliance with the requirements of CFC Chapter 35 and NFPA 51B.

This will require the SSD to develop a formal process for contractors to initiate hot work operations. Documentation will be developed to keep track of who, when, where, and for how long a contractor may perform hot work. This paperwork must be made available if requested by the SAFPD so that fire origin and cause can be determined, if necessary.

6.4.1 California Fire Code Requirements:

6.4.1.1 General Requirements:

- **Hot Work Program Permit:** Hot Work Permits, issued by an approved responsible person (SSD) under a hot work program, will be available for review by the fire code official (SAFPD) at the time the work is conducted and for 48 hours after work is complete. (CFC Section 3503.3)
- **Qualification of Operators**: A permit for hot work operations will not be issued unless the individuals in charge of performing such operations are capable of performing such operations safely. Demonstration of working knowledge of the provisions of this chapter will constitute acceptable evidence of compliance with this requirement. (CFC Section 3503.4)
- **Records:** The individual responsible for the hot work area will maintain "prework check" reports in accordance with CFC Section 3504.3.1. Such reports will be maintained on the premises for not less than 48 hours after work is complete. (CFC Section 3503.5)
- **Signage:** Visible hazard identification signs will be provided where required by CFC Chapter 50. Where the hot work area is open to persons other than the operator of the hot work equipment, conspicuous signs will be posted to warn others before they enter the hot work area. Such signs will display the following warning (CFC Section 3503.6): "Caution – Hot Work In Progress – Stay Clear."

6.4.1.2 Fire Safety Requirements – Protection of Combustibles

- **Combustibles:** Hot work areas will not contain combustibles or will be provided with appropriate shielding to prevent sparks, slag, or heat from igniting exposed combustibles. (CFC Section 3504.1.1)
- **Openings:** Openings or cracks in walls, floors, ducts, or shafts within the hot work area will be tightly covered to prevent the passage of sparks to adjacent combustible areas, or will be shielded by metal fire-resistant guards, or curtains will be provided to prevent passage of sparks or slag. (CFC Section C3504.1.2)
- **Housekeeping:** Floors will be kept clean within the hot work area. (CFC Section 3504.1.3)
- **Conveyor Systems:** Conveyor systems that can carry sparks to distant combustibles will be shielded or shut down. (CFC Section 3504.1.4)
- **Partitions:** Partitions segregating hot work areas from other areas of the building will be noncombustible. In fixed hot work areas, the partitions will be securely connected to the floor such that gaps do not exist between the floor and the partition. Partitions will prevent the passage of sparks, slag, and heat from the hot work area. (CFC Section 3504.1.5)
- **Floors:** Fixed hot work areas will have floors with noncombustible surfaces. (CFC Section 3504.1.6)
- **Precautions in Hot Work**: Hot work will not be performed on containers or equipment that contain or have contained flammable liquids, gases, or solids until the containers and equipment have been thoroughly cleaned, inerted, or purged, except that "hot tapping" will be allowed on tanks and pipelines where such work is to be conducted by approved personnel. Hot work on flammable and combustible liquid storage tanks will be conducted in accordance with CFC Section 3510. (CFC Section 3504.1.7)
- **Sprinkler Protection:** Where applicable, automatic sprinkler protection will not be shut off while hot work is performed. Where hot work is performed close to automatic sprinklers, noncombustible barriers or damp cloth guards will shield the individual sprinkler heads and will be removed when the work is completed. If the work extends over several days, the shields will be removed at the end of each workday. The fire code official (SAFPD) will approve hot work where sprinkler protection is impaired. (CFC Section 3504.1.8)

- **Fire Detection Systems:** Approved special precautions will be taken to avoid accidental operation of automatic fire detection systems. (CFC Section 3504.1.9)

6.4.1.3 Fire Watch

- **When Required:** A fire watch will be provided during hot work activities and will continue for not less than 30 minutes after the conclusion of the work. The fire code official (SAFPD), or the responsible manager (SSD) under a hot work program, is authorized to extend the fire watch based on the hazards or work being performed. (CFC Section 3504.2.1)

  Exception: Where the hot work area has no fire hazards or combustible exposures.
- **Location:** The fire watch will include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual will have additional personnel assigned to fire watches to ensure that exposed areas are monitored. (CFC Section 3504.2.2)
- **Duties:** Individuals designated to fire watch duty will have fire-extinguishing equipment readily available and will be trained in the use of such equipment. Individuals assigned to fire watch duty will be responsible for extinguishing spot fires and communicating an alarm. (CFC Section 3504.2.3)
- **Fire Training:** The individuals responsible for performing the hot work and individuals responsible for providing the fire watch will be trained in the use of portable fire extinguishers. (CFC Section 3504.2.4)
- **Fire Hoses:** Where hose lines are required, they will be connected, charged, and ready for operation. (CFC Section 3504.2.5)
- **Fire Extinguisher:** Not less than one portable fire extinguisher complying with Section 906 and with a minimum 2-A:20-B:C rating will be provided with ready access within 30 feet of the location where the hot work is performed. (CFC Section 3504.2.6)

6.4.1.4 Area Reviews

- Before hot work is permitted and not less than once per day while the permit is in effect, the area will be inspected by the individuals responsible for authorizing hot work operations (SSD) (with the pre-hot work check provided below) to ensure that it is a fire-safe area.[1] Information shown on the permit will be verified prior to signing the permit in accordance with CFC Section 105.6. (CFC Section 3504.3)

Pre-Hot Work Check

- A pre-hot work check will be conducted prior to work to ensure that all equipment is safe and that hazards are recognized and protected. A report of the check will be kept at the worksite during the work and available upon request. The pre-hot work check will determine all the following (CFC Section 3504.3.1):
  1. Hot work equipment to be used will be in satisfactory operating condition and in good repair.
  2. The hot worksite is clear of combustibles, or combustibles are protected.
  3. Exposed construction is of noncombustible materials or, if combustible, then protected.
  4. Openings are protected.
  5. Floors are kept clean.

[1] In this case, because the San Andreas Fire Protection District does not require Hot Work Permits in Section 105.6, the Site Safety Director will verify the information shown on the permit prior to signing the permit.

6. Exposed combustibles are not located on the opposite side of partitions, walls, ceilings, or floors.
7. Fire watches, where required, are assigned, equipped, and trained.
8. Approved actions have been taken to prevent accidental activation of suppression and detection equipment in accordance with CFC Sections 3504.1.8 and 3504.1.9.
9. Fire extinguishers and fire hoses (where provided) are operable and available.

6.4.1.5 Gas Welding and Cutting

- **General:** Devices or attachments mixing air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blow pipe, will not be allowed unless approved. (CFC Section 3505.1)

Cylinder and Container Storage, Handling, and Use

- **Cylinders Connected for Use:** The storage or use of a single cylinder of oxygen and a single cylinder of fuel gas located on a cart will be allowed without requiring the cylinders to be separated, in accordance with CFC Sections 5003.9.8 or 5003.10.6.3, when the cylinders are connected to regulators, ready for service, equipped with apparatus designed for cutting or welding, and all of the following (CFC Section 3505.2.1):
  1. Carts will be kept away from the cutting or welding operation in accordance with CFC Section 3505.5, or fire-resistant shields will be protected.
  2. Cylinders will be secured to the cart to resist movement.
  3. Carts will be in accordance with CFC Section 5003.10.3.
  4. Cylinder valves not having fixed hand wheels will have keys, handles, or nonadjustable wrenches on valve stems while the cylinders are in service.
  5. Cylinder valve outlet connections will conform to the requirements of the Compressed Gas Association Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections.
  6. Cylinder valves will be closed when work is finished.
  7. Cylinder valves will be closed before moving the cart.
- **Individual Cart Separation:** Individual carts will be separated from each other in accordance with CFC Section 5003.9.8.[2] (CFC Section 3505.2.1.1)
- **Precautions:** Cylinders, valves, regulators, hoses, and other apparatus and fittings for oxygen will be kept free from oil or grease. Oxygen cylinders, apparatus, and fittings will not be handled with oily hands, oily gloves, or greasy tools or equipment. (CFC Section 3505.3)
- **Acetylene Gas:** Acetylene gas will not be piped except in approved cylinder manifolds and cylinder manifold connections or utilized at a pressure exceeding 15 psig unless dissolved in a suitable solvent in cylinders manufactured in accordance with DOTn 49 CFR Part 178. Acetylene gas will not be brought in contact with unalloyed copper, except in a blowpipe or torch. (CFC Section 3505.4)
- **Remote Locations:** Oxygen and fuel-gas cylinders and acetylene generators will be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks, or slag, or by misdirection of the torch flame. (CFC Section 3505.5)

[2] By either separating the carts by at least 20 feet or having a noncombustible partition extending not less than 18 inches above and to the sides of the stored material.

- **Cylinders Shutoff:** The torch valve will be closed and the gas supply to the torch completely shut off when gas welding or cutting operations are discontinued for a period of 1 hour or more. (CFC Section 3505.6)
- **Prohibited Operation:** Welding or cutting work will not be held or supported on compressed gas cylinders or containers. (CFC Section 3505.7)
- **Tests:** Test for leaks in piping systems and equipment will be made with soapy water. The use of flames will be prohibited for leak testing. (CFC Section 3505.8)

6.4.1.6 Electric Arc Hot Work

- **General:** The frame or case of electric hot work machines, except internal combustion engine–driven machines, will be grounded. Ground connections will be mechanically strong and electrically adequate for the required current. (CFC Section 3506.1)
- **Return Circuits:** Welding current return circuits from the work to the machine will have proper electrical contact at joints. The electrical contact will be periodically inspected. (CFC Section 3506.2)
- **Disconnecting:** Electrodes will be removed from the holders when electric arc welding or cutting is discontinued for any period of 1 hour or more. The holders will be located to prevent accidental contact, and the machines will be disconnected from the power source. (CFC Section 3506.3)
- **Emergency Disconnect:** A switch or circuit breaker will be provided so that fixed electric welders and control equipment can be disconnected from the supply circuit. The disconnect will be installed in accordance with the California Electrical Code. (CFC Section 3506.4)
- **Damaged Cable:** Damaged cable will be removed from service until properly repaired or replaced. (CFC Section 3506.5)

6.4.1.7 Piping Manifolds and Hose Systems for Fuel Gases and Oxygen

- **General:** The use of piping manifolds and hose systems will be in accordance with CFC Chapter 33 and CFC Chapter 53, Compressed Gases, and of NFPA 51 Chapter 5, Manifolding of Cylinders.[3] (CFC Section 3509.1)
- **Protection:** Piping will be protected against physical damage. (CFC Section 3509.2)
- **Signage:** Signage will be provided for piping and hose systems as follows (CFC Section 3509.3):
  - Aboveground piping systems will be marked in accordance with American Society of Mechanical Engineers Scheme A13.1.[4]
  - Station outlets will be marked to indicate their intended usage.
  - Signs will be posted, indicating clearly the location and identity of section shutoff valves.
- **Manifolding of Cylinders:** Oxygen manifolds will not be located in an acetylene generator room. Oxygen manifolds will be located not less than 20 feet away from combustible material such as oil or grease and from gas cylinders containing flammable gases unless the gas cylinders are separated by a fire partition. (CFC Section 3509.4)
  - **Identification of Manifolds:** Signs will be posted for oxygen manifolds with service pressures not exceeding 200 psig. Such signs will include the words (CFC Section 3509.5): "Low-Pressure Manifold – Do Not Connect High-Pressure Cylinders – Maximum Pressure 250 psig."

[3] National Fire Protection Association 51 is the Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes.

[4] American Society of Mechanical Engineers Scheme A13.1 is the Scheme for the Identification of Piping Systems.

- **Clamps:** Hose connections will be clamped or otherwise securely fastened. (CFC Section 3509.6)
- **Inspection:** Hoses will be inspected frequently for leaks, burns, wear, loose connections, or other defects rendering the hose unfit for service. (CFC Section 3509.7)

6.4.2 Additional Project-Specific Hot Work Requirements:

Hot work will only be done in fire-safe areas designated by the SSD and will comply with the following:

- All personnel involved in hot work will be trained in safe operation of the equipment by the SSD. This will include providing training at tailgate safety meetings. Personnel will also be made aware of the risks involved and of emergency procedures, such as how to transmit an alarm and who is responsible for calling 9-1-1.
- A fire extinguisher with a minimum rating of 4A:80BC, a 5-gallon backpack pump fire extinguisher, and a 46-inch round-point hardwood shovel will be readily accessible within 25 feet of the hot work area.
- Personal protective clothing will be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- Any ignitions will be immediately extinguished (if possible and safely) by site personnel, and SAFPD will be notified immediately by calling 9-1-1.

Note: The SSD will have the responsibility to ensure safe hot work operations, as well as the authority to modify hot work activities associated with construction and/or maintenance and to exceed the requirements of this FSP to the degree necessary to prevent accidental or unintended fire ignition.

6.5 Energy Storage System Construction Safety

The following requirements are from the 2022 edition of CFC Chapter 12, Section 1207, Electrical Energy Storage Systems.

6.5.1 California Fire Code Requirements

6.5.1.1 General Requirements

- **Fire remediation:** Where a fire or other event has damaged the BESS, and ignition or re-ignition of the BESS is possible, the system owner or agent (SSD) will take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location. (CFC 1207.1.6)
  - **Fire Mitigation Personnel:** Where, in the opinion of the fire code official (SAFPD representative), it is essential for public safety that trained personnel be on site to respond to possible ignition or re-ignition of a damaged BESS, the system owner, agent, or lessee will immediately dispatch one or more fire mitigation personnel to the premise, as required and approved, at their expense. These personnel will remain on duty continuously after the fire department leaves the premises until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.
  - **Duties:** On-duty fire mitigation personnel will have the following responsibilities:
    - Keep a diligent watch for fires, obstructions to means of exit and other hazards.

  - Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.
  - Take prompt measures for remediation of hazards in accordance with the decommissioning plan per CFC Section 1207.2.3.
  - Take prompt measures to assist in the evacuation of the public from the structures.
- **Working clearances:** Access and working space will be provided and maintained around all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with the California Electrical Code and the manufacturer's instructions. (CFC 1207.4.2)
- **Vehicle impact protection:** Where BESSs are subject to impact by a motor vehicle, including forklifts, vehicle impact protection will be provided in accordance with CFC Section 312.[5] (CFC 1207.4.5)
- **Combustible storage:** Combustible storage will not be stored in BESS rooms, areas, or walk-in units. Combustible storage in occupied work centers covered by CFC Section 1206.4.10 will be stored at least 3 feet from BESS cabinets. (CFC 1207.4.6)
- **Signage:** Approved signs will be provided on or adjacent to all entry doors for BESS rooms or areas and on enclosures of BESS cabinets and walk-in units located outdoors. Signs designed to meet the requirements of both this section and NFPA 70 will be permitted. The signage will include the following or equivalent (CFC 1207.4.8):
  - "Energy Storage System," "Battery Storage System," "Capacitor Energy Storage System," or equivalent.
  - The identification of the electrochemical BESS technology present.
  - "Energized electrical circuits."
  - If water-reactive electrochemical BESS are present the signage will include "Apply No Water."
  - Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by CFC Section 1207.1.6.1.
- **Security of installations:** Rooms, areas, and walk-in units in which electrochemical BESS are located will be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures will not inhibit the required air flow to or exhaust from the electrochemical BESS and its components. (CFC 1207.4.10)
- **Occupied work centers:** Electrochemical BESS located in rooms or areas occupied by personnel not directly involved with maintenance, service, and testing of the systems will comply with the following: (CFC 1207.4.10)
  - Electrochemical BESS located in occupied work centers will be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.
  - Where electrochemical BESS are contained in cabinets in occupied work centers, the cabinets will be located within? 10 feet of the equipment they support.
  - Cabinets will include signage complying with CFC Section 1207.4.8.
- **Walk-in units:** Walk-in units will only be entered for inspection, maintenance, and repair of BESS units and ancillary equipment and will not be occupied for other purposes. (CFC 1207.4.12)
- **Vegetation Control:** Areas within 10 feet on each side of outdoor BESSs will be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover

[5] California Fire Code (CFC) Section 312 has several requirements related to vehicle impact protection (i.e., bollards), including depth of burial, filling material, and height.

such as green grass, ivy, succulents, or similar plants used as ground covers will be permitted to be exempt, provided that they do not form a means of readily transmitting fire. (CFC 1205.5.1)

- **Indoor installations:** Indoor BESS installations will be in accordance with CFC Sections 1207.7.1 through 1207.7.4 (CFC 1207.7)
- **Outdoor installations:** Outdoor installations will be in accordance with CFC Sections 1207.8.1 through 1207.8.3. (CFC 1207.8)

6.5.1.2 Equipment Requirements

- **ESS listings:** Ess will be listed and labeled in accordance with UL 9540. (CFC 1207.11.1)
- **Equipment listing:** Chargers, inverters, and energy storage management systems will be covered as part of the UL 9540 listing or will be listed separately. (CFC 1207.3.2)
- **Utility interactive systems:** Inverters will be listed and labeled in accordance with UL 1741. Only inverters listed and labeled for utility interactive system use and identified as interactive will be allowed to operate in parallel with the electric utility power system to supply power to common loads. (1207.3.3)
- **Energy storage management system:** Where required by the BESS listing, an approved energy storage management system that monitors and balances cell voltages, currents, and temperatures within the manufacturer's specifications will be provided for. The system will disconnect electrical connections to the BESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage, or under voltage are detected. (CFC 1207.3.4)
- **Enclosures:** Enclosures of BESS will be of noncombustible construction. (CFC 1207.3.5)
- **Electrical Disconnects:** Where the BESS disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories will be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage of battery system disconnecting means in accordance with NFPA 70.[6] (CFC 1207.4.1)

6.5.1.3 Commissioning

- **Commissioning:** Commissioning of newly installed BESS and of existing BESS that have been retrofitted, replaced, or previously decommissioned and returned to service will be conducted prior to the BESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating the commissioning. (CFC 1207.2.1)
- **Initial acceptance testing:** During the commissioning process, a BESS will be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval. (CFC 1207.1.1)
- **Commissioning report:** A report describing the results of the system commissioning and including the results of the initial acceptance testing required in CFC Section 1207.2.1.1 will be provided to the code official prior to final inspection and approval and maintained at an approved on-site location. (CFC 1207.2.1.2)
- **Reused and repurposed equipment:** Equipment and materials will only be reused or reinstalled as permitted in CFC Section 104.7.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, will not be reused in applications regulated by CFC Chapter 12 unless the batteries are

6 National Fire Protection Association 70: Standard for Electrical Safety in the Workplace.

(1) approved by the fire code official; and (2) refurbished by a battery refurbishing company approved in accordance with UL 1974. (CFC 1207.3.9)

6.5.1.4 Prior to Operation

- **Fire detection and fire suppression systems:** An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with CFC Section 907.2 will be installed in rooms, indoor areas, and walk-in units containing electrochemical BESS. Alarm signals from detection systems will be transmitted to a central station or to a proprietary or remote station in accordance with NFPA 72, or where approved, to a constantly attended location. These systems will be reviewed, approved, and inspected by SAFPD prior to BESS operation. (CFC 1207.5.4)
- **Fire suppression systems:** Rooms and areas within buildings and walk-in units containing electrochemical BESS will be protected by an automatic fire suppression system designed and installed in accordance with the systems' respective section in the CFC. These systems will be reviewed, approved, and inspected by SAFPD prior to BESS operation. (CFC 1207.5.5)
- **Explosion control:** Explosion control complying with CFC Section 911 will be provided for rooms, areas, or walk-in units containing electrochemical BESS technologies, unless waived by the fire code official. (CFC 1207.6.3)
- **Thermal runaway:** Batteries and other BESS will be provided with a listed device or other approved method to prevent, detect, and minimize the impact of thermal runaway. (CFC 1207.6.5)
- **Operation and maintenance:** An operating and maintenance manual will be provided to both the BESS owner or authorized agent and to the BESS operator before the BESS is put into operation. The BESS will be operated and maintained in accordance with the manual, and a copy of the manual will be retained at an approved on-site or off-site location. (CFC 1207.2.2)

6.5.1.5 During Operation

- **Ongoing inspection and testing:** Systems that monitor and protect the BESS installation will be inspected and tested in accordance with the manufacturer's instructions and the operation and maintenance manual. Inspection and testing records will be maintained in the operation and maintenance manual. (CFC 1207.2.2.1)
- **Repairs:** Repairs of BESS will only be completed by qualified personnel. Repairs with other than identical parts will be considered retrofitting and will comply with CFC Section 1207.3.7.[7] Repairs will be documented in the service records log. (CFC 1207.3.6)
- **Replacements:** Replacements of BESS will be considered new BESS installations and will comply with the provisions of CFC Section 1207 as applicable to new BESS. The BESS being replaced will be decommissioned in accordance with CFC Section 1207.2.3 (see Section 6.5.1.6 below). (CFC 1207.3.8)

6.5.1.6 Decommissioning

- **Decommissioning:** The fire code official will be notified prior to the decommissioning of a BESS. Decommissioning will be performed in accordance with the decommissioning plan. (CFC 1207.2.3)

[7] CFC 1207.3.7: Retrofits for energy storage systems require a construction permit, listing of new components, installation in accordance with all manufacturer's instructions, compliance with Underwriters Laboratories 9540 when applicable, commissioning in accordance with CFC Section 1207.2.1, and documentation of all retrofitting actions in the service record logs.

6.6 Motorized Construction Equipment

Internal combustion–powered construction equipment will be used in accordance with the following conditions:

- Equipment will be located so that exhausts do not discharge against combustible material.
- Internal combustion equipment will be equipped with an approved spark arrestor.
- Exhausts will not discharge inside a building unless piped to the outside.
- Equipment will not be refueled while in operation.
- Fuel for equipment will be stored in an approved area outside of buildings.

6.7 Flammable and Combustible Liquids

6.7.1 Storage

Flammable and combustible-liquid storage areas will be maintained clear of combustible vegetation and waste materials. Such storage areas will not be used for the storage of combustible materials. Smoking and other sources of ignition will be prohibited in areas where flammable and combustible liquids are stored or used.

Storage of Class I and Class II liquids will not exceed 60 gallons within 50 feet of a structure unless approved by SAFPD.

6.7.2 Tanks

Tanks and containers for the aboveground storage of liquids will be conspicuously marked with the name of the product that they contain and the words: FLAMMABLE – KEEP FIRE AND FLAME AWAY. Tanks will bear the additional marking: KEEP 50 FEET FROM BUILDINGS.

- Tanks more than 100 gallons in capacity, which are permanently installed or mounted and used for Class I, II, or III liquids, will be provided with a placard in accordance with NFPA 704.
- Portable fire extinguishers with a minimum rating of 20-B:C will be provided within 30 feet of the tank.

6.7.3 Handling at Point of Final Use

The storage, use, and handling of flammable and combustible liquids at construction sites will be in accordance with CFC Section 5706.2. Ventilation will be provided for operations involving the application of materials containing flammable solvents. Class I and Class II liquids will be kept in approved safety containers.

6.7.4 Leakage and Spills

Leaking vessels will be immediately repaired or taken out of service, and spills will be cleaned up and disposed of properly. Significant spills will be reported to SAFPD. Further guidance on hazard materials spills, including reportable quantities constituting a “significant spill”, can be provided by Calaveras County Environmental Health Department, the Certified Unified Program Agency (CUPA) for Calaveras County.

6.8 Portable Fire Extinguishers

Structures undergoing construction, alteration, or demolition will be provided with not less than one approved portable fire extinguisher sized for not less than ordinary hazard in accordance with CFC Section 906; fire extinguishers will be located as follows:

- At each stairway on all floor levels where combustible materials have accumulated.
- In every storage and construction shed.
- In areas where special hazards exist including, but not limited to, the storage and use of flammable and combustible liquids.

All temporary structures such as office trailers, portable buildings, and storage containers will be provided with approved portable fire extinguishers in accordance with CFC Section 906.

Extinguishers will be mounted on a wall or post at a height not to exceed 5 feet as measured at the top of the extinguisher.

7 Red Flag Warning Protocol

The National Weather Service issues Red Flag Warnings and indicates when conditions are conducive to wildfire ignitions and spreading (e.g., low humidity, high winds). During Red Flag Warning or Watch periods, no hot work will be performed unless consultation with the SAFPD has occurred to discuss the type of hot works activity and what precautions will be provided. Other construction, operation and maintenance, and decommissioning activities may proceed during these periods under heightened awareness conditions. The SSD will determine which activities are appropriate, and which should not be conducted until the Red Flag Warning has been lifted.

To ensure compliance with Red Flag Warning restrictions, the National Weather Service website will be monitored daily during normal conditions or 2 to 3 times a day during Red Flag Warnings at the Project site during construction and decommissioning (National Weather Service 2024).

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8 Review and Approval

The signatory reviewing officials are acknowledging that Double Springs Energy Storage LLC has established an FSP so that when properly implemented, maintained, and enforced, fire hazard and risk will be reduced and mitigated for the Project's construction phase. Reviewing agencies do not accept any responsibility for Double Springs Energy Storage LLC's interpretation or implementation of this plan prior to, during, or following the construction of the Project or for any resulting actions associated with these activities.

Reviewed by:

_____ _____

Representative
Double Springs Energy Storage LLC

Date

Approved by:

_____ _____

SAFPD

Date

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Appendix M
Operational Noise Analysis

MEMORANDUM

To:	Double Springs Energy Storage, LLC (Applicant)
From:	Cole Martin, INCE, Nick Segovia, Mark Storm, INCE Bd. Cert. (Dudek)
Subject:	Double Springs Energy Storage Project Noise and Vibration Technical Memorandum
Date:	July 31, 2025
cc:	Bradley Cole (Dudek)
Attachment(s):	Figure 1 – Project Vicinity Figure 2 – Site Plan Figure 3 – Project Operation Noise Levels Attachment A – Construction Noise Prediction Model Worksheets Attachment B – Operation Noise Prediction Model Inputs

Dudek is pleased to present Double Springs Energy Storage, LLC (Applicant) with the following noise and vibration\ technical memorandum for the proposed Double Springs Energy Storage Project (Project) located approximately 0.2 miles west of State Route 26 in Calaveras County (County) (Project Site), as reflected in Figure 1. This memorandum (memo) presents quantitative estimates of Project onsite construction and post-construction operational noise emission to the surrounding sound environment, which consists of existing industrial, commercial, and sparse residential zoned parcels near the Project Site. Construction vibration is also discussed qualitatively, along with traffic noise impacts, using Federal Transit Administration (FTA) techniques under County standards. The potential for significant impacts from construction and operation of the Project is assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines and considers relevant County noise regulations. The contents and organization of this memorandum are as follows: Executive Summary, Project Description, Assessment Framework, Impact Assessment, Conclusions, and References Cited.

1 Executive Summary

As analyzed herein, potential Project construction and operation-related noise and vibration impacts to nearest noise-sensitive receptors would be considered less than significant on the basis of compliance with Calaveras County standards and FTA guidance. Post-construction Project operation noise is predicted to comply with the County General Plan standards at residential land uses described as an A-weighted energy-averaged hourly ($L_{eq[h]}$) exterior noise level of 50 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.), as well as County Municipal Code standards at residential land uses described as 60 dBA L_{eq} and 50 dBA L_{eq} during daytime and nighttime hours, respectively. Project operation noise is also predicted to comply with nearby industrial land uses, for which the County Municipal Code hourly sound level limit is 75 dBA L_{eq} and 65 L_{eq} dBA during daytime and nighttime hours, respectively. Project-attributed construction noise and ground-borne vibration exposure levels at the nearest noise-sensitive receptor locations—a residence approximately 1,050 feet northeast of the Project Site--are predicted to be below the FTA's recommended daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period.

2 Project Description

The Project will include the development of energy storage facilities and associated infrastructure. The batteries will be housed within modular outdoor enclosures. Power stored or discharged by the Project will be transferred to and from the PG&E Valley Springs Substation via a short 60kV generation tie (gen-tie) line.

The Project will consist of lithium-ion batteries, which will be installed in racks located in prefabricated outdoor enclosures; inverters; medium-voltage transformers and a main power transformer; switchgear; a collector substation; and other associated equipment. The Project will include the following components, which are described in more detail following the bulleted list:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances will be constructed that will provide dedicated energy storage capacity and dispatch to the electric grid.
- **Power Inverters and Transformers:** Power inverters to convert between AC and DC will be included, along with transformers that will step the voltage up and down.
- **Telecommunication Facilities:** Essential telecommunication equipment, including underground and overhead fiber optics and supervisory control and data acquisition systems (SCADA), will be installed to facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and lighting for safety and security will be provided for the Project, which will meet all applicable code requirements.
- **Gen-Tie Line:** A 60-kilovolt gen-tie line, less than a quarter mile in length, will be constructed to transfer power between the PG&E Valley Springs Substation and the Project.

The facilities will be designed and intended to operate year-round and will be available to receive or deliver energy 24 hours a day, 365 days a year.

3 Assessment Framework

3.1 Acoustical Fundamentals

The following subsections provide the reader a summary of acoustical terminology and concepts that the subsequent analyses will use to evaluate potential noise and vibration impacts associated with the Project.

3.1.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (µPa). One µPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 µPa. Because of this huge range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 µPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in

conjunction with environmental noise. Noise levels for environmental noise reports are typically reported in terms of A-weighted decibels or dBA. Table 1 describes typical A-weighted noise levels for various noise sources.

Table 1. Typical A-Weighted Noise Levels for Common Indoor and Outdoor Sources

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Diesel truck at 50 feet at 50 mph	85	Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime	75	—
Gas lawn mower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area	65	Normal speech at 3 feet
Heavy traffic at 300 feet	60	—
	55	Large business office
Quiet urban daytime	50	Dishwasher next room
	45	—
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	35	—
	30	Library
Quiet rural nighttime	25	Bedroom at night, concert hall (background)

Source: Caltrans 2013.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range (Caltrans 2013). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable by average healthy human hearing.

Noise Descriptors

Noise in our daily environment fluctuates over time at varying rates. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors utilized in this analysis.

- **Equivalent Sound Level** (L_{eq}): L_{eq} represents an energy average of the sound level occurring over a specified period. The 1-hour A-weighted equivalent sound level ($L_{eq[h]}$) is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria (NAC) used by Caltrans and the Federal Highway Administration (FHWA). Note that L_{eq} is not an arithmetic average of

varying dB levels over a period of time, L_{eq} uses a logarithmic equation for averaging of the energy levels and therefore accounts for greater sound energy represented by higher decibel contributions.

- **Percentile-Exceeded Sound Level** (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).
- **Maximum Sound Level** (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level** (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level** (CNEL): Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during evening hours between 7 p.m. and 10 p.m.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

- **Geometric Spreading** – Sound from a localized source (i.e., an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roadways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.
- **Ground Absorption** – The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective wave canceling can add to the attenuation associated with geometric spreading. For acoustically "hard" paths over which sound may traverse (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or "soft" sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.
- **Atmospheric Effects** – Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound pressure levels can also be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when distances between a source and receptor are large.

- **Shielding by Natural or Human-Made Features** – A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create a solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

3.1.2 Vibration Characteristics

Vibration is oscillatory movement of mass (typically a solid) over time. It is described in terms of frequency and amplitude and, unlike sound, can be expressed as displacement, velocity, or acceleration. For environmental studies, vibration is often studied as a velocity that, akin to the discussion of sound pressure levels, can also be expressed in dB as a way to cast a large range of quantities into a more convenient scale. Vibration impacts to buildings are generally discussed in terms of inches per second (ips) peak particle velocity (PPV), and the potential for annoyance to occupants within those buildings is evaluated with root-mean-square (rms) vibration velocity decibels (VdB), which are calculated from PPV and application of a crest factor (CF) with the following expression (FTA 2018):

$$L_v = 20*LOG(PPV/[CF*V_{ref}]) = 20*LOG(PPV/[4*0.000001])$$

Common sources of vibration within communities include construction activities and railroad operations. Ground-borne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities where sudden releases of subterranean energy or powerful impacts of tools on hard materials occur. Depending on their distances to a sensitive receptor, operation of large bulldozers, graders, loaded dump trucks, or other heavy construction equipment and vehicles on a construction site also have the potential to cause high vibration amplitudes.

3.2 Environmental Setting

The Project site is bordered by various industrial and commercial properties. The PG&E Valley Springs Substation is located to the east; open grazing and grasslands are located to the north and west; Double Springs Road, vacant land and a Cal-Waste Recovery Station is located to the south. Given the area's low population density and surrounding land uses, outdoor ambient noise levels in the Project vicinity are expected to range from 40 to 50 A-weighted decibels (dBA), measured as the day-night average sound level (L_{dn}), which is consistent with those typically found in rural areas (Cowan 1994). However, based on the low population density of the area, under the right conditions the ambient sound could be as low as 35 dBA L_{dn} (FTA 2018).

3.2.1 Studied Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some

passive recreation areas typically are considered noise- and vibration-sensitive receptors and may warrant unique measures for protection from intruding noise. Based on this understanding, the noise-sensitive receptors nearest to the Project Site boundary are residences approximately 1,050 feet to the northeast and west of State Route 26 and approximately 1,060 feet to the southeast of the Project Site access road and north of State Route 12. A school approximately 2,315 feet to the southeast of the Project Site access road would be considered noise sensitive, but was not included in the study as the predicted noise level at the school would be lower than the predicted noise levels at the nearest noise-sensitive receptors. In addition to noise-sensitive land uses, two industrial land uses to the south of the Project Site and along Double Springs Road are also studied.

3.3 Regulatory Setting

3.3.1 Federal Regulations and Guidance

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the FTA recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels.

3.3.2 Local Regulations and Guidance

The following are summarized portions or reproductions of applicable Calaveras County noise regulations, policies, and guidance with respect to assessing noise impacts for the proposed Project.

Calaveras County General Plan – Noise Element

Goal N-1. Noise levels consistent with the County's rural atmosphere and that maintain compatibility between differing land uses, and protect the health and well-being of residents, visitors and businesses.

> Policy N-1.1. Locate and design sensitive noise-receiving land uses so they are not exposed to noise levels exceeding noise standards set forth in Tables N-2 and N-3.
>
> Policy N-1.2. Evaluate the potential impacts of noise on and from existing and planned land uses and public and private transportation facilities during the development review process using noise thresholds set forth in Tables N-2 and N-3.
>
> Policy N-1.3. Determine that a potentially significant adverse noise-related impact exists when a non-transportation related project (excluding temporary initial construction noise) has the potential to increase the overall ambient noise levels at the receiving land use by 3 dB or more when the ambient noise levels exceed the standards in Table Noise-2.
>
> Policy N-1.4. Determine that a potentially significant adverse noise-related impact exists when a project generating transportation noise (excluding temporary initial construction noise) has the potential to do one or more of the following:

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

Policy N-1.14. Limit the use of heavy-duty vibration-generating construction equipment, such as vibratory rollers, within close proximity of existing buildings, particularly buildings of weak structural integrity and/or historical significance to ensure that ground-borne vibration shall not exceed 0.2 in/sec (ips) peak particle velocity (PPV) at the nearest sensitive receptor. For construction projects where vibration-intensive activities are anticipated, a designated person shall be responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted on the construction site.

In addition to the above relevant goals and policies, Table N-2 of the County's Noise Element establishes an "outdoor activity area" threshold of 60 dB L_{dn}/Community Noise Equivalent Level (CNEL) at residential noise-sensitive land uses, or 45 dB L_{dn}/CNEL in interior spaces, specifically for noise exposure resulting from transportation sources. According to Table N-2, "an outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on a residential property could be an outdoor activity area. Where the location of an outdoor activity area is unknown, the exterior noise level standard shall be applied at the property line of the receiving land use" (Calaveras County 2019).

Table N-3 provides the maximum allowable noise exposure from stationary noise sources to noise-sensitive land uses, specifically at outdoor activity areas. These standards are 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.), measured as equivalent continuous sound pressure levels (L_{eq}) on an hourly basis (Calaveras County 2019).

Calaveras County Noise Ordinance

Section 9.02.030 of the Calaveras County Municipal Code prescribes the sound level limits at land uses adjacent to a noise-producing land use. For residential uses such as the nearest noise-sensitive receptor to the north of the Project, the hourly sound level limit is 60 dBA L_{eq} from 7:00 a.m. to 10:00 p.m. and 50 dBA L_{eq} from 10:00 p.m. to 7:00 a.m. For industrial land uses such as those to the south of the Project, the hourly sound level limit is 75 dBA L_{eq} from 7:00 a.m. to 10:00 p.m. and 65 L_{eq} dBA from 10:00 p.m. to 7:00 a.m. (Calaveras County 2012).

Additionally, Section 9.02.060 exempts temporary construction noise provided that all construction in or adjacent to residential areas is limited to daytime hours (7:00 a.m. to 6:00 p.m.), unless otherwise subject to conditions in a valid discretionary land use permit that addresses construction noise associated with the Project (Calaveras County 2012).

3.4 Thresholds of Significance

The following significance criteria, included for analysis in this acoustical assessment, are based on Appendix G of the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.), and will be used to determine the significance of potential noise impacts. Noise impacts would be significant if the Project would:

A. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
B. Result in generation of excessive ground-borne vibration or ground-borne noise levels; and
C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in exposure of people residing or working in the project area to excessive noise levels.

The above generalized thresholds guided the establishment of quantitative thresholds of significance for the purposes of this analysis based on the local polices and regulations described in Section 3.3, and are listed below.

- **Construction Noise** – For purposes of this analysis, Project construction noise would be considered a significant impact if levels exceed the FTA's recommended daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period.

- **Construction Vibration** – Policy N-1.14 of the County's General Plan Noise Element limits the use of heavy-duty vibration-generating construction equipment, such as vibratory rollers, within close proximity of existing buildings, particularly buildings of weak structural integrity and/or historical significance, to ensure that ground-borne vibration shall not exceed 0.2 in/sec PPV at the nearest sensitive receptor.

- **Project-attributed Stationary Source Noise Emission to the Community** – Project-attributed stationary source noise must adhere to the thresholds established in Table N-3 of the County's Noise Element of 55 dBA L_{eq} during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during nighttime hours (10:00 p.m. to 7:00 a.m.), which are more stringent than the County's Municipal Code Limit of 60 dBA L_{eq} and 50 dBA L_{eq} during daytime and nighttime hours, respectively. For industrial land uses such as those to the south of the Project, the hourly sound level limit is 75 dBA L_{eq} from 7:00 a.m. to 10:00 p.m. and 65 L_{eq} dBA from 10:00 p.m. to 7:00 a.m., according to the County's Municipal Code.

- **Off-Site Traffic Noise Exposure** – For purposes of this analysis, off-site traffic noise exposure levels must adhere to the following limits established in Policy N-1.4 of the County's Noise Element:

    - Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
    - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
    - Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

- **Exposure of Project Workers or Visitors to Excessive Aviation Noise** – Typically, project areas where outdoor workers or visitors may be present that intersects the 65 dBA CNEL aviation noise contour of a public or private airport would be considered a potentially significant noise impact.

4 Impact Assessment

4.1 Approach and Methodology

4.1.1 Construction Noise and Vibration

Construction noise and vibration are temporary, with emission levels varying from hour to hour and day to day depending on the equipment in use, the operations performed, and the distance between the source and receptor. Equipment that would be in use during construction would include, in part, graders, backhoes, rubber-tired dozers, loaders, cranes, forklifts, pavers, rollers, and air compressors. The typical maximum noise levels at a distance of 50 feet from various pieces of construction equipment and activities anticipated for use on the proposed Project site are presented in Table 2. The equipment noise levels presented in Table 2 are maximum noise levels (L_{max}). Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 2. Typical Construction Equipment Maximum Noise Levels

Equipment Type	Typical Equipment (L_{max}, dBA at 50 Feet)
All Other Equipment > 5 HP	85
Backhoe	78
Compressor (air)	78
Concrete Saw	90
Crane	81
Dozer	82
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	72
Grader	85
Man Lift	75
Paver	77
Roller	80
Scraper	84
Welder / Torch	73

Source: DOT 2006.
Note: L_{max} = maximum sound level; dBA = A-weighted decibels.

Aggregate noise emission from proposed Project construction activities, broken down by sequential phase, was predicted at the nearest position of the construction site boundary. The intent of the nearest distance is to help

evaluate anticipated construction noise from equipment or vehicle activity expected to be at the boundary for some period of time, which would be most appropriate for phases such as site preparation, grading, and paving. In this studied scenario, because of the equipment location uncertainty and to emulate an extremely conservative analysis methodology (i.e. equipment would unrealistically "stack" at the nearest distance, which is not physically possible), all pieces of equipment for a construction phase are assumed to operate at the nearest position of the construction site boundary to the nearest noise-sensitive receptor (see Attachment A).

Construction Vibration

The vibration levels generated by common construction equipment are provided in Table 3, Vibration Source Levels for Construction Equipment.

Table 3. Vibration Source Levels for Construction Equipment

Equipment	PPV (ips) at 25 feet	Approximate VdB at 25 feet
Small Bulldozer	0.003	58
Jackhammer	0.035	79
Loaded Trucks	0.076	86
Large Bulldozer	0.089	87
Pile Driver (sonic)	0.17	93
Vibratory Roller	0.210	94

Source: Caltrans 2020.

Ground-borne vibration attenuates rapidly, even over short distances. The attenuation of ground-borne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and Caltrans guidance. To examine potential building damage risk and, thus, use PPV as the evaluation metric, vibration velocity level can be estimated with the following expression (FTA 2018):

$$PPV_{rcvr} = PPV_{ref} * (25/D)^{n}$$

where PPV_{rcvr} is the predicted vibration velocity at the receiver position, PPV_{ref} is the reference value at 25 feet from the vibration source, D is the actual horizontal distance to the receiver, and "n" is the Wiss exponent that FTA defines as 1.5 to generally characterize the propagation of vibration through soil/strata between the source and the receptor position.

For evaluating potential annoyance of a building occupant, FTA guidance provides an additional expression using the VdB metric (FTA 2018):

$$VdB_{rcvr} = VdB_{ref} - 30*LOG(D/25)$$

where VdB_{rcvr} is the predicted RMS vibration velocity at the receiver position, VdB_{ref} is the reference value at 25 feet from the vibration source, and D is the actual horizontal distance to the receiver.

Construction Traffic (Temporary)

Project construction is expected to temporarily generate 242 average daily worker trips, 20 average daily vendor truck trips, and 34 average daily haul truck trips—converted to a passenger car equivalent (PCE) number, the total average daily construction trips would equate to approximately 700. This temporary increase is relatively modest, and the dispersal of trips across numerous roadways minimizes the potential for significant impact on any single road. Because the construction of the Project will not require many daily trips and would be distributed across numerous roadways surrounding the Project, its potentially additive effects on pre-existing nearby roadway traffic volumes such as Double Springs Road, State Route 26 and State Route 12 are expected to be modest or even negligible.

4.1.2 Operations

Roadway Traffic Noise

The Project site will be unoccupied but will be visited periodically throughout the year for equipment inspections, monitoring and testing, and maintenance as needed. Because routine operation of the Project will not require many onsite personnel, its potentially additive effects on pre-existing nearby roadway traffic volumes such as Double Springs Road, Route 12, and Route 26 are expected to be modest or even negligible.

Stationary Source Noise

Using DataKustik's CadnaA software, which models three-dimensional outdoor sound propagation based on International Organization for Standardization (ISO) 9613-2 algorithms and relevant reference data and outputs predicted noise levels in $L_{eq\ (1h)}$, an operational scenario of the proposed Project was modeled for the purposes of this analysis. The modeled scenario included the following operating assumptions for the anticipated noise sources: 240 battery energy storage enclosures (each with a compressor speed of 4,500 rotations per minute (rpm) cooling system fans operating at 95% capacity), 60 medium voltage (MV) transformers, and 1 high-voltage (HV) transformer operating nominally at 70 MVA. Facilities are expected to operate at any time, either discharging or charging onsite batteries, up to 24 hours a day, 365 days a year (see Figure 2, Site Plan). The predictive analysis assumes that all the above equipment is operating under a charging or discharging condition that may last up to a full continuous hour (i.e. CadnaA outputs predicted levels in 1-hour L_{eq}). For the purposes of this preliminary analysis, the overall A-weighted levels appearing in Table 4 were used to define the individual Project sound sources.

Table 4. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	Sound Level (dBA) per Octave Band Center Frequency (OBCF, Hz)									Overall Sound Level (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
BESS Container[a]	57.2	50.4	65.1	68.8	75.4	76.7	74.9	70.9	64.7	87.2
HV transformer[b]	54.0	73.0	85.0	87.0	93.0	90.0	86.0	81.0	72.0	96.4
MV transformer[c]	49.7	61.5	69.8	73.7	81.6	83.1	87.2	77.0	53.2	89.8

Notes: OBCF = Octave Band Center Frequency in cycles per second (Hertz [Hz]); dBA = A-weighted decibels; BESS = battery energy storage system; HV = high voltage; MV = medium voltage.

[a] Reference sound power level data shown herein, derived from sound level data provided by the Applicant's candidate supplier of onsite equipment, represents the aforementioned 4500 rpm compressor speed and 95% capacity setting for cooling fan operation. This cooling system fan capacity setting and compressor speed are consistent with confidential operational data provided by the Applicant's candidate supplier of onsite equipment.
[b] Based on the Applicant-provided sound pressure level, converted to sound power and with OBCF granularity based on the Electric Power Plant Environmental Noise Guide (Edison Electric Institute 1984).
[c] Reference sound power level data per OBCF shown herein, derived from sound level data provided by the Applicant's candidate supplier of onsite medium voltage transformer equipment.

The sound propagation model conservatively neglects terrain and thus assumes flat topography. Additional modeling assumptions and parameters are as follows: reflection order = 1 (i.e., one "bounce" of a direct sound ray on an encountered structure or barrier is considered); ground absorption = 0.7 (on the 0-1 scale for this coefficient, intends to reflect the surrounding landscape); calm winds (less than 0.5 meters per second in any direction); temperature = 50 degrees Fahrenheit; and 70 percent relative humidity. Details of the CadnaA modeling input parameters (e.g., modeled sources) can be found in Attachment B.

Vibration

Once operational, the Project would not be expected to feature major onsite producers of ground-borne vibration. Anticipated electro-mechanical systems like the battery enclosure thermal management systems are designed and manufactured to feature rotating and reciprocating components (e.g., fans and refrigeration compressors) that are well-balanced with isolated vibration within or external to the equipment casings. On this basis, potential vibration impacts due to Project operation are not expected to be significant and have not been evaluated herein.

4.2 Analysis Results

The following noise and vibration impact analysis sections are arranged in the same order as the three aforementioned CEQA Appendix G checklist assessment criteria with abbreviated headings.

A. Generation of substantial temporary or permanent increase in noise levels?

Onsite Construction Noise (Temporary)

Table 5 presents the estimated construction noise level (8-hour L_{eq}) for each anticipated phase of Project construction activity at the nearest noise-sensitive receptor, a residence to the north of the Project site. Construction activities could occur at a nearest distance of approximately 1,050 feet from the Project site boundary within which most Project construction would occur.

Details of these predictions in Attachment A show the expected acoustical contribution from each type of operating construction equipment at the nearest distance for each phase and noise-sensitive receptor.

Table 5. Estimated Per-Phase Construction Noise Levels

Project Construction Activity Phase	Predicted 8-hour L_{eq} (dBA) at Nearest Distance to Single-Family Residence	Exceed FTA-Based Construction Noise Threshold of 80 dBA 8-hour L_{eq}? (Yes/No)
Site Preparation	55	No

Table 5. Estimated Per-Phase Construction Noise Levels

Project Construction Activity Phase	Predicted 8-hour L_{eq} (dBA) at Nearest Distance to Single-Family Residence	Exceed FTA-Based Construction Noise Threshold of 80 dBA 8-hour L_{eq}? (Yes/No)
Collector Substation Site Preparation	50	No
Grading	55	No
Collector Substation Grading	51	No
Battery Container Installation	55	No
Collector Substation Installation	57	No
Gen-Tie Trenching	52	No
Gen-Tie Road Resurface and Clean-Up	48	No
Decommissioning	56	No

Note: L_{eq} = energy-equivalent sound level; dBA = A-weighted decibel

The predicted aggregate noise levels for the studied construction activity phases occurring closest to the residential noise-sensitive receptor to the north would not exceed the 80 dBA 8-hour L_{eq} FTA-based standard. Construction noise could cause temporary increases to the daytime outdoor ambient sound level at the nearest residential noise-sensitive receptor based on the aforementioned 40 to 50 dBA range of estimated baseline conditions in the vicinity. These temporary increases may or may not be perceptible due to local background acoustic conditions; for example, construction noise could be acoustically masked by nearby traffic noise on Route 12 and Route 26, or by the adjacent industrial land uses. Additionally, under Section 9.02.060 of the County Municipal Code, temporary construction noise is exempt within the hours of 7:00 a.m. to 6:00 p.m. Therefore, on these bases, project-generated construction noise would be considered a **less than significant impact.**

Off-Site Construction Traffic Noise Exposure

The proposed Project is not expected to result in a significant increase in traffic noise levels attributed to offsite construction traffic. Project construction traffic would include 242 average daily worker trips, 20 average daily vendor truck trips, and 34 average daily haul truck trips—converted to a passenger car equivalent (PCE) number, the total average daily construction trips would equate to approximately 700. According to 2022 Annual Average Daily Traffic (AADT) data from Caltrans' Traffic Census Program, existing AADT volumes on Route 12 and Route 26 (which intersect southeast of the Project site) are 8,000 and 11,400, respectively.

According to Policy N.1-4 of the County's General Plan Noise Element, traffic noise would be considered significant if a +3 dB L_{dn} increase in noise levels occurs due to Project-generated construction trips at the outdoor activity areas of noise-sensitive uses where existing traffic noise levels range between 60 and 65 dB L_{dn}. Figure N-1 of the County's Noise Element suggests that the Project site and the nearest noise-sensitive land use to the north fall within the 61-65 CNEL contour of Route 12.

Based upon the fundamentals of acoustics, a 100% increase in ADT volumes, or a doubling of the existing 8,000 or 11,400 vehicles, would be needed to result in a 3-dB increase in noise levels, which would be just audible to the average human listener. Such an increase in ADT volumes on off-site roadways attributable to Project construction is not expected. Therefore, impacts related to off-site construction traffic noise exposure would be **less than significant.**

Operation Noise

Roadway Traffic Noise

Due to the Project's expected modest employee traffic and occasional maintenance and delivery vehicles, Project attributed changes to existing traffic volumes on Double Springs Road, Route 12, and Route 26 would result in negligible increase in traffic-related noise and would therefore be considered **less than significant**.

Stationary Sources

Figure 3 displays the predicted aggregate Project operational noise as concentric bands of different colors representing 5-decibel-wide ranges of sound pressure level, consistent with the color band legend appearing at the right side of the image.

As shown on Figure 3 and Table 6, the predicted aggregate sound emission (L_{eq1h}) of all operating battery energy storage enclosures, MV transformers, and the HV transformer stays below 45 dBA L_{eq} at the nearest residential noise-sensitive receptors to the north and southeast of the Project and below 65 dBA L_{eq} at the industrial receptors to the south of the Project, and thus below the applicable Calaveras County exterior noise thresholds established in Section 9.02.030 of the Municipal Code and Table N-3 of the General Plan Noise Element. Thus, Project operational noise would be considered **less than significant.**

Table 6. Predicted Operational Sound Pressure Levels at Modeled Receptors

Modeled Receptor (Location)	Receiving Land Use	Sound Pressure Level (dBA L_{eq})	County Municipal Code Nighttime* Noise Limit (dBA L_{eq}) and Compliance?[a]	County General Plan Nighttime* Noise Limit (dBA L_{eq}) and Compliance?[b]
M1 (1733 State Route 26)	Residential	42.7	50 – yes	45 – yes
M2 (Cal-Waste Recovery Systems; 3524 Double Springs Road)	Industrial	50.9	65 – yes	N/A
M3 (3596 Double Springs Road)	Industrial	44.8	65 – yes	N/A
M4 (3651 Double Springs Road)	Residential	41.9	50 – yes	45 – yes

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level; M# = modeled receiver point
Source: Attachment B
* Nighttime = 10:00 p.m. to 7:00 a.m.
[a] Calaveras County Municipal Code Section 9.02.030.
[b] Calaveras County General Plan Noise Element Table N-3. Noise Sensitive Land Uses do not include industrial uses.

B. Generation of excessive ground-borne vibration?

Onsite Construction Activities

Vibration is oscillatory movement of mass (typically a solid) over time. Depending on their distances to a sensitive receptor, operation of large bulldozers, graders, loaded dump trucks, or other heavy construction equipment and vehicles on a construction site have the potential to cause high vibration amplitudes.

Policy N-1.14 of the County's General Plan Noise Element limits the use of heavy-duty vibration-generating construction equipment, such as vibratory rollers, within close proximity of existing buildings, particularly buildings of weak structural integrity and/or historical significance, to ensure that ground-borne vibration shall not exceed 0.2 in/sec PPV at the nearest sensitive receptor.

Ground-borne vibration attenuates rapidly, even over short distances. The attenuation of ground-borne vibration as it propagates from source to receptor through intervening soils and rock can be estimated with expressions found in FTA and the California Department of Transportation guidance. Equipment used for Project construction, such as a vibratory roller, would operate at a nearest distance of approximately 1,050 feet away from the nearest receiving noise-sensitive land use; at such distances, ground-borne vibration is highly unlikely to be perceptible and is anticipated to be well below the 0.2 ips PPV threshold established in Policy N-1.14 of the County's General Plan Noise Element. Thus, the predicted ground-borne vibration velocity PPV values associated with Project construction would be **less than significant.**

C. Expose people to excessive aviation noise levels?

There are no public airports or private airfields within 2 miles of the Project Site, and the Project Site is distant from a mapped aviation traffic noise contour greater than 65 dBA CNEL associated with public airports in the region. Therefore, construction workers and post-construction Project operational or maintenance staff onsite would not be exposed to excessive noise levels, and the corresponding noise impact would be considered **less than significant**.

5 Conclusions

As analyzed herein, potential Project construction and operation-related noise and vibration impacts to the surrounding community would be considered less than significant on the basis of compliance with Calaveras County standards and FTA guidance.

6 References Cited

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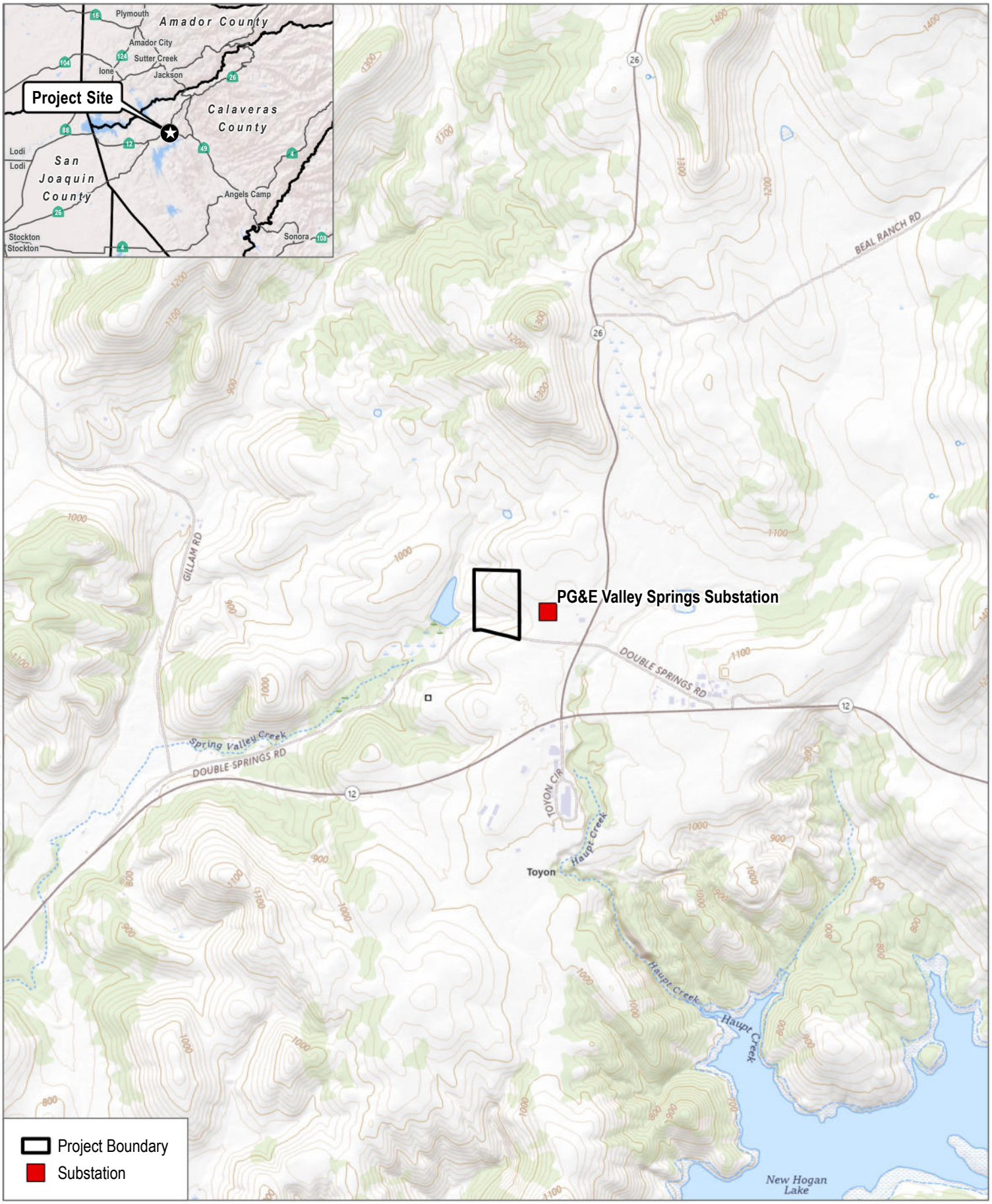


SOURCE: USGS 7.5 Minute Series Valley Spring Quadrangle
Township 4N; Range 11E; Section 9

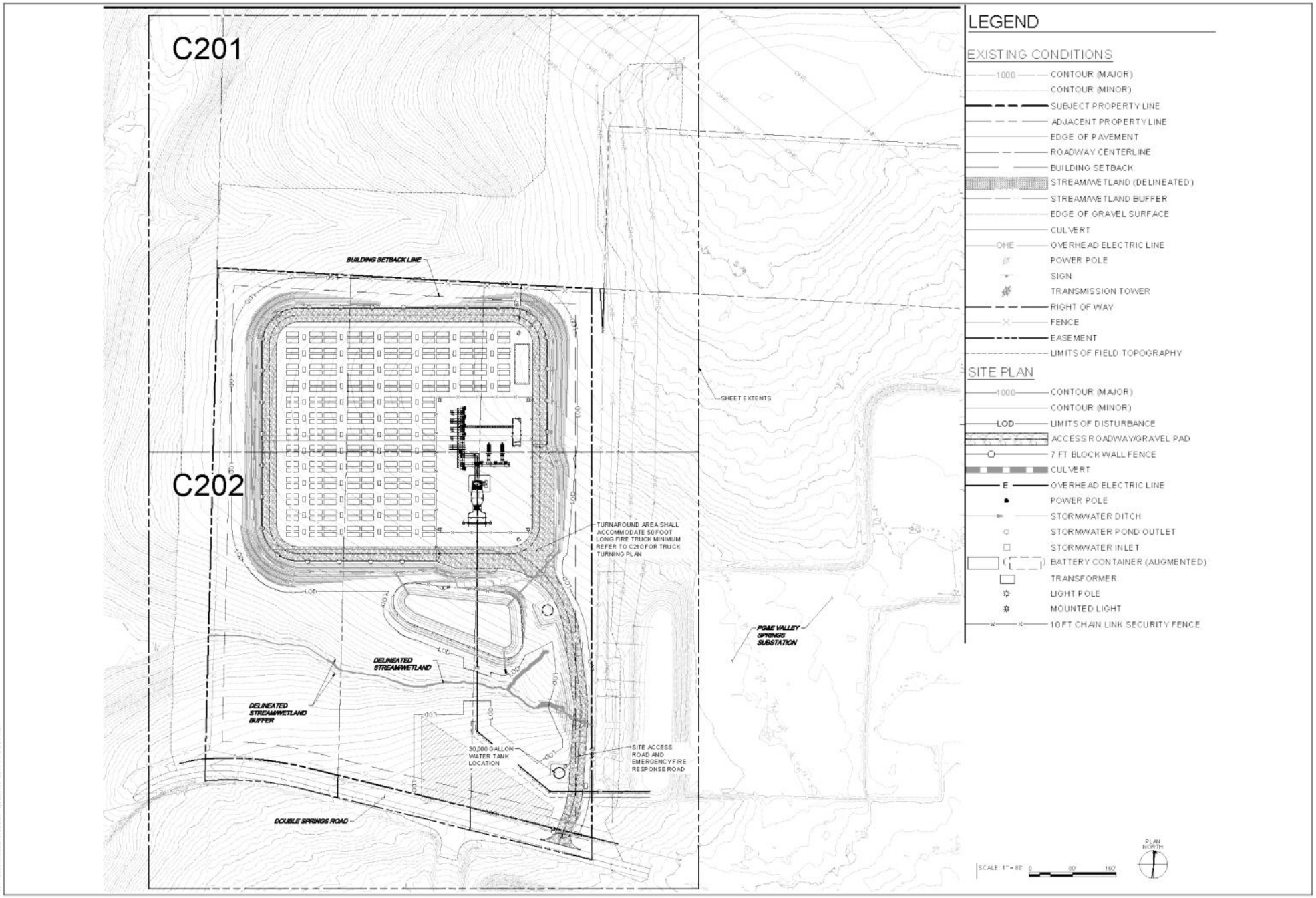
DUDEK

0 500 1,000 Feet

FIGURE 1

Project Vicinity

Double Springs Energy Storage Project



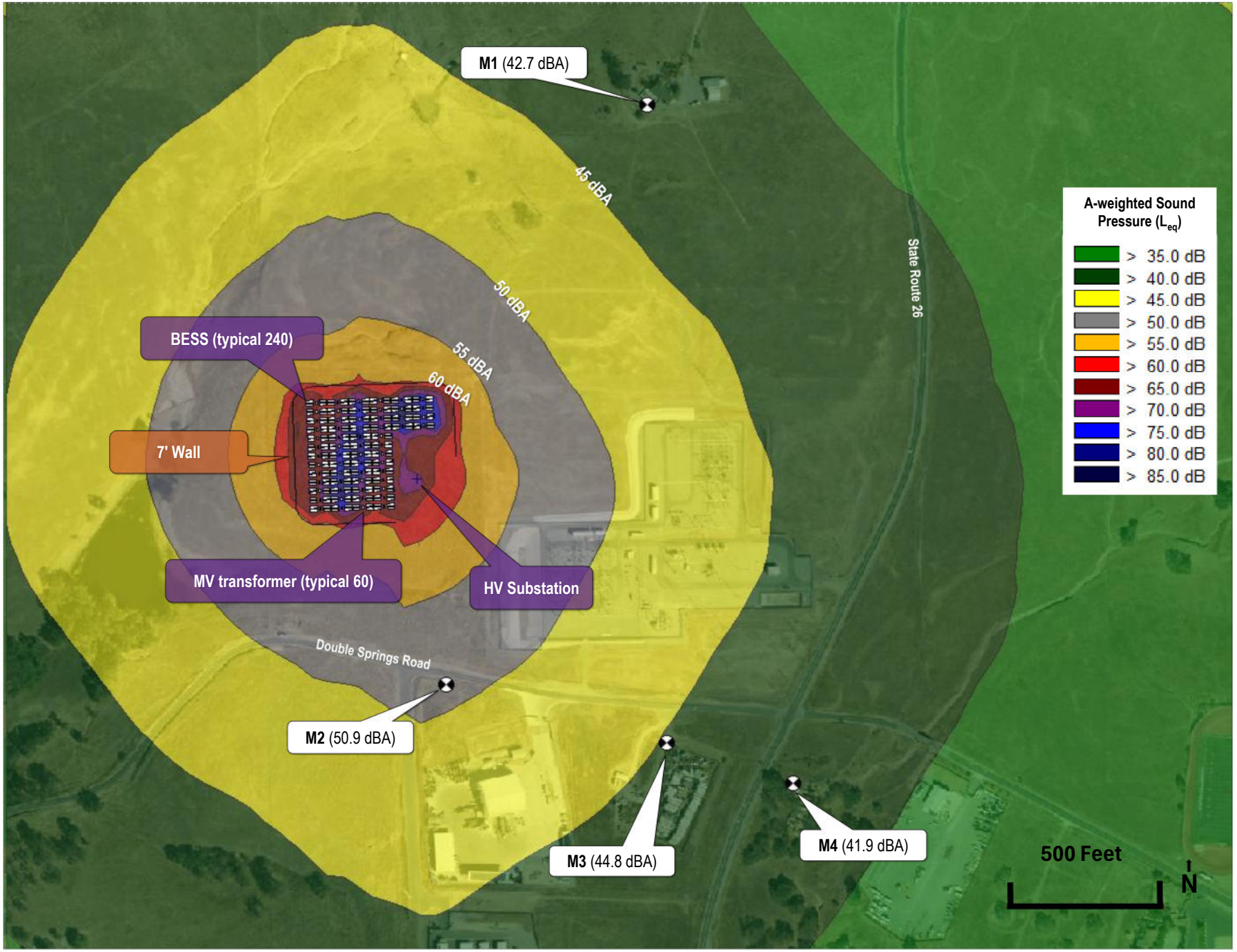
SOURCE: TetraTech, 2025

FIGURE 2

Site Plan

Double Springs Energy Storage Project

DUDEK



SOURCES: Microsoft 2024; Dudek 2024

DUDEK

FIGURE 3

Project Operation Noise Levels (at 4500 rpm compressor speed & 95% fan capacity)

Double Springs Energy Storage Project (Dudek No. 13672.01)

Attachment A

Construction Noise Prediction Model Worksheets

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase at residential land use, per SD guidance = 80

allowable hours over which Leq is to be averaged = 8

= highway noise barrier height (of earthen berm plus concrete wall above) between source and receptor

Construction Activity	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq	Source Elevation (ft)	Receiver Elevation (ft)	Barrier Height (ft)	Source to Barr. ("A") Horiz. (ft)	Rcvr. to Barr. ("B") Horiz. (ft)	Source to Rcvr. ("C") Horiz. (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length Diff. "P" (ft)	Abarr (dB)	Heff (with barrier)	Heff (wout barrier)	G (with barrier)	G (without barrier)	ILbarr (dB)
BESS Site Preparation	**grader**	2	40	85		1050	0.1		52.8	8	480	52	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	2	40	79		1050	0.1		46.8	8	480	46	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	2	40	79		1050	0.1		46.8	8	480	46	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for BESS Site Preparation Phase:			**54.9**																
Collector Substation Site Preparation	**dozer**	2	40	82		1050	0.1		49.8	8	480	49	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Collector Substation Site Preparation Phase:			**50.3**																
BESS Grading	**grader**	2	40	85		1050	0.1		52.8	8	480	52	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	front end loader	2	40	79		1050	0.1		46.8	8	480	46	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for BESS Grading Phase:			**55.0**																
Collector Substation Grading	**dozer**	2	40	82		1050	0.1		49.8	8	480	49	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Collector Substation Grading Phase:			**51.2**																
Battery Container Installation	crane	2	16	81		1050	0.1		48.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	2	40	81		1050	0.1		48.8	8	480	48	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	2	50	72		1050	0.1		39.8	8	480	40	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compactor (ground)	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	2	40	83		1050	0.1		50.8	8	480	50	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Battery Container Installation Phase:			**55.4**																
Collector Substation Installation	man lift	2	20	75		1050	0.1		42.8	8	480	39	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	compressor (air)	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	auger drill rig	2	20	84		1050	0.1		51.8	8	480	48	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	2	16	81		1050	0.1		48.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	excavator	2	40	81		1050	0.1		48.8	8	480	48	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	generator	2	50	72		1050	0.1		39.8	8	480	40	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	2	20	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	gradall	2	40	83		1050	0.1		50.8	8	480	50	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Collector Substation Installation Phase:			**57.1**																
Gen-Tie Trenching	pumps	2	50	77		1050	0.1		44.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	2	40	80		1050	0.1		47.8	8	480	47	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	slurry trenching machine	2	50	80		1050	0.1		47.8	8	480	48	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Gen-Tie Trenching Phase:			**52.3**																
Gen-Tie Road Resurface and Clean-up	paver	1	50	77		1050	0.1		44.8	8	480	42	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	roller	1	20	80		1050	0.1		47.8	8	480	41	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	skid-steer*	1	40	80		1050	0.1		47.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	1	40	78		1050	0.1		45.8	8	480	42	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Gen-Tie Road Resurface and Clean-up Phase:			**48.2**																
Decommissioning	**concrete saw**	2	20	90		1050	0.1		57.8	8	480	54	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	crane	2	16	81		1050	0.1		48.8	8	480	44	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	dozer	2	40	82		1050	0.1		49.8	8	480	49	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
	backhoe	2	40	78		1050	0.1		45.8	8	480	45	5	5	0	5	1045	1050	7.1	1045.0	1050.0	0.00	0.1	5.0	5.0	0.7	0.7	0.1
									Total for Decommissioning Phase:			**55.7**																

Notes

* https://ia.cpuc.ca.gov/Environment/info/ene/mesa/attachment/A1503003%20ED-SCE-01%20Q.PD-01%20Attachment%20(Revised%20Noise%20Levels%20Construction%20Equipment).pdf

Attachment B

Operation Noise Prediction Model Inputs

Point Sources

Name	Sel.	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (ft^2)	Attenuatio	Operating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Height (ft)		Coordinates X (ft)	Y (ft)	Z (ft)	
			HV XFMR	96.4	96.4	96.4	Lw	sub		0	0	0							0		(none)	8	r	6484791.59	2265815.67	8	

Area Sources

Name	Sel.	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL" Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (ft²)	Attenuatio	Operating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Moving Pt. Src Number Day	Evening	Night	
			CadnaA_PCS	89.8	89.8	89.8	83.3	83.3	83.3	Lw	PCS		0	0	0							0	(none)				0	g

Vertical Area Sources

Name	Sel.	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL" Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (ft^2)	Attenuatio	Operating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.		
			CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS		0	0	0			-2.5				3	(none)	9	8

CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8 Lw	BESS	0	0	0	-2.5	3	(none)	9	8

CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8 Lw	BESS	0	0	0	-2.5	3	(none)	9	8

CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8
CadnaA_vsrc	89.7	89.7	89.7	81.8	81.8	81.8	Lw	BESS	0	0	0	-2.5	3	(none)	9	8

Barriers

Name	Sel.	M.	ID	Absorption left	Absorption right	Z-Ext. (ft)	Cantilever horz. (ft)	Cantilever vert. (ft)	Height Begin (ft)		Height End (ft)
			P-TOP-FENC						7	a	

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height Begin (ft)	
			CadnaA_PCS		0		9.5	a
			CadnaA_PCS		0		9.5	a
			CadnaA_PCS		0		9.5	a

CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
CadnaA_PCS	0	9.5 a
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CadnaA_PCS	0	9.5 a
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CadnaA_AUG-BESS	0	9.5 a
CadnaA_AUG-BESS	0	9.5 a
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CadnaA_BESS	0	9.5 a
CadnaA_BESS	0	9.5 a
CadnaA_BESS	0	9.5 a
CadnaA_BESS	0	9.5 a
CadnaA_BESS	0	9.5 a

Sound Levels (local)

Name	ID	Type	1/3 Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
BESS Container (Position 9 Test)	BESS	Lw (c)	A	57.2	50.4	65.1	68.8	75.4	76.7	74.9	70.9	64.7	87.2	105.9	Hithium TI ESS 5016k v1.1
HV Transformer	sub	Lw	A	54	73	85	87	93	90	86	81	72	96.4	105.1	Edison Electric Institute 1984
MV Transformer (Sungrow PCS)	PCS	Lw		89.1	87.7	85.9	82.3	84.8	83.1	86	76	54.3	89.8	94.6	Sungrow SG4400UD-MV

Appendix N
Fire Prevention Plan

Fire Prevention Plan

Double Springs Energy Storage Project

APRIL 2025

Prepared for:

DOUBLE SPRINGS ENERGY STORAGE, LLC
A WHOLLY OWNED SUBSIDIARY OF NADARA DEVELOPMENT US, LLC
1 Bridge Street, Suite 11
Irvington, New York 10533

Prepared by:

DUDEK

1904 Franklin Street, Suite 600
Oakland, California 94612
Contact: Jeremy Cawn

Table of Contents

SECTION **PAGE NO.**

Acronyms and Abbreviations iii

Definitions v

1 Introduction 1
- 1.1 Project Description 1
- 1.2 Project Location and Access 3
- 1.3 Topography and Vegetation 4
- 1.4 Weather 4
- 1.5 Fire History 5

2 Emergency Response Service 7
- 2.1 Emergency Response Fire Facilities 7
  - 2.1.1 Emergency Response Travel Time Coverage 8

3 Project Specific Risk Summary 9
- 3.1 Fire Risk 9
- 3.2 Double Springs Project Risk Rating 10

4 Risk Reduction Measures 11
- 4.1 Battery Energy Storage System Risk Reduction 12
- 4.2 Fire Prevention Measures 13
  - 4.2.1 General Fire Prevention Measures 13
  - 4.2.2 Fire Prevention/Protection System Maintenance 14
  - 4.2.3 Electrical Equipment Inspection and Maintenance 14
  - 4.2.4 Hot Work 14
  - 4.2.5 Red Flag Warning Protocol 15
  - 4.2.6 Construction Fire Safety Briefings, Inspections and Training 16
- 4.3 Vegetation Management 17
  - 4.3.1 Fire Barriers 17
  - 4.3.2 Vegetation Management Standards 17

5 Minimum Project Fire Safety Standards 19

6 References 21

TABLE

1 Summary of the Nearest Emergency Responders to the Project Site 7

FIGURES

Figure 1 Project Layout 32
Figure 2 Project Vicinity Map 34
Figure 3 CAL FIRE Fire Hazard Severity Zone Map 36
Figure 4 CPUC High Fire Threat District Map 38
Figure 5 Historical Fire Perimeters Map for the Project Area 40

APPENDICES

Photos of the Double Springs BESS Project Site
Referenced Codes and Standards

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BESS	Battery energy storage system
CAL FIRE	California Department of Forestry and Fire Protection
CFC	California Fire Code
County	County of Calaveras
FHSZ	Fire Hazard Severity Zone
FPP	Fire Prevention Plan
mph	Miles per hour
NFPA	National Fire Protection Association
PCS	Power conversion system
PG&E	Pacific Gas & Electric
Project	Double Springs Energy Storage Project
SAFPD	San Andreas Fire Protection District
SCADA	Supervisory control and data acquisition
SSD	Site Safety Director
UL	Underwriters Laboratory

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Definitions

Activity Risk: Activity risks include those actions that present a risk of igniting a wildfire.

Site Safety Director: The Site Safety Director serves as a liaison between the emergency service agencies and all contractors and inspectors on the job site for the utilities regarding emergency incidents and construction-related activities. The Site Safety Director has the authority to stop any Project work that appears to pose a particular fire risk or hazard.

Fire Season: The unofficial term for the period during the year when conditions are heightened for the ignition and spread of a wildfire. For the western foothills of the Sierra Nevada Mountains, fire season typically lasts from May through October.

Incident Commander: The single point of contact for all utility resources (people and equipment) in an emergency incident.

Red Flag Warning: A term used by fire-weather forecasters to call attention to weather conditions of particular importance that may result in extreme burning conditions. It is issued by the National Weather Service when it is an ongoing event, or the fire weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag Warning criteria occur whenever a geographical area has been in a dry spell for at least 1 week, or a shorter period if before spring "green-up" or after fall color. The National Fire Danger Rating System is "high" to "extreme" when the following weather parameters are forecasted to be met:

- A sustained wind average of 15 miles per hour or greater
- Relative humidity less than or equal to 25%
- A temperature greater than 75°F

Dry lightning and unstable air are also criteria in California. A Fire Weather Watch may be issued prior to a Red Flag Warning.

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1 Introduction

Double Springs Energy Storage, LLC (Applicant) proposes to develop, own, and operate the Double Springs Energy Storage Project (Project) in Calaveras County, California. As a condition of the County of Calaveras (County) approval of the Project, this Fire Prevention Plan (FPP) details the fire environment and the emergency response capacity of the Project. This FPP also provides recommendations for addressing wildfire risk and meeting local and state fire code requirements for energy storage systems and new facilities located within a Fire Hazard Severity Zone (FHSZ). It will be the responsibility of the Applicant and its Project contractors to comply with the measures identified in this FPP.

The County of Calaveras is the California Environmental Quality Act lead agency for the Project. This FPP was prepared in a manner consistent with California Environmental Quality Act standards to support the preparation of the Project's environmental documents and the discretionary land use decisions that the County Board of Supervisors will undertake.

Double Springs Energy Storage, LLC will also prepare an Emergency Action and Emergency Response Plan, which will be developed in accordance with California Public Utility Code standards (Section 761.3) and applicable federal, state, and local occupational safety and health laws, regulations, and standards.

1.1 Project Description

The Project will involve the development of battery energy storage system (BESS) facilities and associated infrastructure. The batteries will be housed within modular outdoor enclosures. Power stored or discharged by the Project will be transferred to and from the Pacific Gas & Electric (PG&E) Valley Springs Substation via a short 60-kilovolt generation transmission (gen-tie) line. Figure 1, Project Layout, shows the overall Project layout, including the location of the BESS containers and on-site Project substation.

The Project will consist of lithium-ion (or other comparable) batteries, which will be installed in racks within prefabricated outdoor enclosures; inverters; medium-voltage transformers and a main power transformer; switchgear; a collector substation; and other associated equipment. The Project will include the following components, which are described in more detail following the bulleted list:

- **Battery Energy Storage Facility:** An energy storage facility and appurtenances to provide dedicated energy storage capacity and dispatch to the electric grid.
- **Power Inverters and Transformers:** Power inverters to convert between alternating current (AC) and direct current (DC) will be included, along with transformers to step the voltage up and down.
- **Telecommunication Facilities:** Essential telecommunication equipment, including underground and overhead fiber optics and supervisory control and data acquisition (SCADA) systems to facilitate real-time monitoring and remote management.
- **Site Access and Security:** An on-site access driveway, perimeter security fencing, and motion-activated lighting for safety and security that meets all applicable code requirements.
- **Gen-Tie Line:** A 60-kilovolt gen-tie line, less than 0.25 miles in length, to transfer power between the PG&E Valley Springs Substation and the Project.

The facilities will be designed and are intended to operate year-round, and will be available to receive or deliver energy 24 hours a day, 365 days a year.

Battery Energy Storage System Facility

The Project consists of the installation and operation of a utility-scale BESS facility consisting of approximately 240 prefabricated battery enclosures and approximately 60 inverter skids containing the following (see Appendix A, Representative Photos of the Project Site):

- Internal racks and system control modules
- Fire suppression systems
- Thermal management/heating, ventilation, and air conditioning systems
- Communication systems
- Medium-voltage transformers
- Inverters

The battery modules will be delivered to the Project site preassembled and moved into place by forklifts or cranes and connected in parallel to aggregate the required energy capacity.

Generation Transmission Line

A 60-kilovolt gen-tie line will be constructed to transfer power to and from the Project and the PG&E Valley Springs Substation.

Outdoor Electrical Equipment

Medium-voltage transformers, inverters, switchgear, electronic switchboards, and additional electrical equipment will be installed outside the BESS enclosures. Underground wires and cabling will run from the battery enclosures to housings for the inverters and medium-voltage transformers on concrete pads. All electrical equipment will be housed in appropriate National Electrical Manufacturers Association–rated enclosures. All outside electrical cabling will be run underground, including from the medium-voltage transformers to the collector substation. The collector substation will consist of one or more main power transformers, a control house, and switchgear.

Inverters

The Applicant will use only industry-standard, nationally (and internationally) recognized equipment. The inverters will be stand-alone units that operate in all weather conditions. They will operate in both a charge mode and a discharge mode and will be Underwriters Laboratory (UL) listed for bi-directional use along with remote control and monitoring. There will be on-site disconnects in the case of an emergency or unscheduled maintenance. The inverters will be robust in their design and are anticipated to last more than 30 years with proper preventive maintenance, scheduled maintenance, and occasional major overhauls.

Telecommunication Facilities

The Project will also require telecommunication facilities to meet the communication requirements for interconnecting and communicating with the PG&E facilities and supporting remote Project operations monitoring.

To provide for communication with PG&E facilities, a fiber-optic cable will be used to connect the Project site with the PG&E point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable will also be installed within the Project footprint.

The Project will use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project will connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers.

The SCADA system is critical to the PG&E utility interconnection and for proper operation and maintenance of the Project. A SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication, such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing labor and site diagnostic activity. The SCADA system will also control the Project substation, allowing for fully centralized operation of the Project to meet all utility interconnection requirements.

Site Access and Security

The Project site will be accessed via a dedicated driveway off Double Springs Road, with access constructed to meet County standards, including fire safety requirements, as outlined in Title 15 of the County Code. All fence installation requirements will be evaluated, and the best-fit scenario will be incorporated into the final Project design, subject to any input from the County. A fence will be installed around the perimeter of the Project site for safety and security purposes and will remain for the life of the Project. Limiting access to the Project site will be necessary to ensure the safety of the public and protect the equipment from potential theft and vandalism.

In accordance with Calaveras County Zoning Code Section 17.50.050 lighting regulations, permanent security lighting will be installed to illuminate key areas, such as the plant substation and entrance/exit points. Lighting will be designed to minimize off-site glare, using fully shielded fixtures directed downward to prevent light spillover onto adjacent properties. Security lighting will not exceed a maximum color temperature of 5,000 Kelvin to maintain visual comfort and safety standards. These measures align with the County's objectives to minimize light pollution, reduce unnecessary light intensity, and protect nighttime views of the sky. It is anticipated that the Project site will be monitored continuously via security cameras, with footage accessible 24/7 to off-site security personnel. Any unusual activity will trigger an immediate alert to on-call security and/or maintenance personnel to ensure a prompt response.

1.2 Project Location and Access

The Project site consists of three separate parcels comprising approximately 15.17 acres of undeveloped and partially vegetated land in unincorporated Calaveras County (see Figure 2, Project Vicinity Map). The Project site is approximately 4 miles northeast of Valley Springs, California, near the intersection of State Highways 12 and 26. Private lands border the Project site on the north and west; to the east is the PG&E Double Springs Substation, and to the south is Double Springs Road with private lands to the road's south.

Access to the Project site is from a future road that will connect the Project to Double Springs Road. Double Springs Road is a paved, two-lane road approximately 20 feet wide that generally lacks shoulders in the Project area.

The Project site and the surrounding area are within a California Department of Forestry and Fire Protection (CAL FIRE) designated FHSZ (CAL FIRE 2025) (see Figure 3, CAL FIRE Fire Hazard Severity Zone Map). The Project site is not within a California Public Utilities Commission designated High Fire Threat District. The Project site is close to a Tier 2 High Fire Threat District, which is on the east side of Highway 26 and on the south side of Highway 12, and is, at its closest, approximately 1,500 feet from the Project entrance (see Figure 4, CPUC High Fire Threat District Map (CPUC 2018).

1.3 Topography and Vegetation

The Project site is at the beginning of the western slopes of the Sierra Nevada. Being part of the western Sierra Nevada foothills, there is a generally western aspect, with the land rising to the east for the next 50 miles, continuously becoming more mountainous and higher in elevation, with an apex in the High Sierras at the Pacific Crest. The flat California Central Valley is 10 miles to the west. The Project site is sandwiched between New Hogan Lake (1.5 miles south), a reservoir for the Calaveras River, and Pardee Reservoir (3 to 5 miles north), a reservoir for the Mokelumne River.

The Project site is generally defined as rolling foothills at an elevation of 1,000 feet above mean sea level. Although the site generally has a western aspect, it rolls south to north, causing northern and southern aspects as well. A small drainage bisects the southern-middle part of the Project site, running east to west, from the transmission substation directly east to the pond to the west of the site. The Project site slope is variable, ranging from 0% to 10%, with an estimated average of 4%.

The Project site and the surrounding area are covered with vegetation typical of the Sierra Nevada foothills, containing a mix of California annual grassland and valley oak woodland. The site is dominated by invasive grasses, with a single oak tree in the middle. The grass is horizontally continuous, with variable heights ranging from 0 to 3 feet; 3 foot-high grass is only found in sparse patches, with an estimated average grass height of 1 foot.

1.4 Weather

Based on historical Red Flag Warnings, the fire season in Calaveras County runs from May through November. May and November open and close the fire season, each with an average of 0.5 Red Flag Warnings. June has an average of 1.6 Red Flag Warnings, July has an average of 0.8 warnings, and August has an average of 1.7 warnings. Fire season peaks in September and October, with each month having an average of 1.9 Red Flag Warnings (IEM 2024).

Total precipitation during the 7-month fire season is 5 inches, with almost all precipitation occurring in October and November. The monthly average temperature for May is 64˚F, June is 74˚F, July is 78˚F, August is 76˚F, September is 72˚, October is 64˚F, and November is 53˚F. The monthly average low temperature for May is 40˚F, June is 44˚F, July is 50˚F, August is 51˚F, September is 44˚F, October is 38˚F, and November is 31˚F. The monthly average high temperature for May is 97˚F, June is 106˚F, July is 106˚F, August is 106˚F, September is 105˚F, October is 93˚F, and November is 80˚F.

Monthly average relative humidity for May is 57%, June is 45%, July is 42%, August is 45%, September is 46%, October is 50%, and November is 69%. The monthly average low relative humidity for May is 14%, June is 9%, July is 9%, August is 11%, September is 10%, October is 10%, and November is 22%. The monthly average wind speed across all months during fire season is 3 miles per hour (mph). The monthly average high wind speed for May is 15 mph, June is 11 mph, July is 12 mph, August is 15 mph, September is 11 mph, October is 16 mph, and

November is 16 mph. The monthly high gust speed for May is 34 mph, June is 26 mph, July is 29 mph, August is 35 mph, September is 27 mph, October is 35 mph, and November is 36 mph. Day and night prevailing wind direction is predictable, with daytime winds coming from the west and nighttime winds coming from the east (FEMS 2025).

1.5 Fire History

According to historical fire perimeter records from CAL FIRE, there have been 28 recorded wildfires within 5 miles of the Project site. Eight of these fires reached over 1,000 acres, including the 2015 Butte fire, which was contained at 70,847 acres. Two fires—the 2004 Double Fire and the 2003 Highway Fire—spread to within 1,000 feet of the Project site (CAL FIRE FRAP 2024). Figure 5, Historical Fire Perimeters Map for the Project Area, shows the recorded wildfires that have occurred within 5 miles of the Project site.

According to wildfire records from the California Public Utilities Commission, there has been one utility-ignited wildfire recorded within 5 miles of the Project site. This ignition occurred in June 2018 on a PG&E overhead distribution wire near Paloma Road, north of the Project site. No utility-ignited wildfires have been recorded for the existing PG&E substation or transmission lines in the Project area (CPUC 2023).

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2 Emergency Response Service

The following sections analyze the Project in terms of the current San Andreas Fire Protection District's (SAFPD) and responding fire departments' service capabilities and resources to provide fire protection and emergency services. The analysis examines the ability of the existing nearby fire stations to adequately serve the proposed Project. Response times were evaluated using Project build-out conditions. It was assumed that the shortest access route to the Project BESS facility would be used.

2.1 Emergency Response Fire Facilities

The Project site is in an unincorporated area of Calaveras County, a designated High FHSZ in the State Responsibility Area and the SAFPD's jurisdictional area (CAL FIRE 2024). CAL FIRE, various city and rural districts, and volunteer fire departments typically provide fire protection services within Calaveras County. The Project would be under SAFPD jurisdiction. However, the SAFPD is a volunteer fire department, and there is a Calaveras County Consolidated Fire Department station closer to the Project site that is staffed full-time. Further, there is a CAL FIRE station in San Andreas, California, near the Project site that would also respond to wildfire incidents at the Project site or in the general Project area (CALCO 2014). The proximity of the proposed Project to these various jurisdictions means that, in the event of an emergency, resources from multiple different jurisdictions may respond.

Table 1 presents a summary of the location, maximum travel distance, and estimated travel time from the nearest fire stations to the proposed Project. Travel distances were derived from Google Road data. Travel times were calculated using response speeds of 35 mph, consistent with nationally recognized National Fire Protection Association (NFPA) 1710 and the Verisk Public Protection Classification Program's Response Time Standard formula (Time=0.65 + 1.7[Distance]). The Verisk response travel time formula discounts speed for intersections, vehicle deceleration, and acceleration, and does not include dispatch or turnout time (NFPA 2020).

Table 1. Summary of the Nearest Emergency Responders to the Project Site

Station No.	Location	Travel Distance (miles)[1]	Travel Time[2]
Calaveras County Consolidated Fire Department Company[2]	129 E. Highway 12, Valley Springs, California 95252	3.7	8 minutes, 42 seconds
San Andreas Fire Department	37 Church Hill Road, San Andreas, California 95249	5.9	13 minutes, 42 seconds
CAL FIRE Tuolumne Calaveras Unit Headquarters	785 Mountain Ranch Road, San Andreas, California 95249	6.7	15 minutes, 45 seconds

Source: SAFPD, pers. comm., 2024

1 Distance measured to the entrance on Double Springs Road using Google maps.

2 Assumes travel at 35 mph and does not include donning turnout gear and fire dispatch time. Actual travel speeds are likely to be closer to 25 mph within urban areas and 55 mph on state highways.

2.1.1 Emergency Response Travel Time Coverage

Based on the Project site location in relation to nearby fire stations, travel time to the entrance of the Project site for the first responding engine coming from the nearest fire station is not expected to exceed 9 minutes. Travel time from SAFPD's fire station would not exceed 14 minutes. Neither SAFPD nor the County have established levels of service for fire protection services that includes a response time standard. Although not officially adopted by the local emergency management agencies, NFPA standard 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, provides a level of service guidance for fire departments. NFPA 1720 includes response time standards. For rural areas such as the Project site, the NFPA 1720 response time standard is 14 minutes (NFPA 2020). Because the currently configured response times from the nearest fire stations are approximately 8 minutes and 42 seconds and 13 minutes and 42 seconds, the Project would meet the response times in NFPA 1720.

3 Project Specific Risk Summary

3.1 Fire Risk

The Project will have different fire risks during the three Project phases. The highest fire risk will be during the construction and decommissioning phases, which pose the highest risk because they include the most exposure to ignition sources.

The Project's fire risks during construction and decommissioning would be associated with the following:

- **Earth-moving equipment.** Equipment can create sparks from machinery or moving rocks. Machinery creates heat sources and leaks fuel and oils.
- **Vehicles.** Vehicles have heated exhausts/catalytic converters, which, when in contact with vegetation, may cause ignition.
- **Welders.** Welding creates an open heat source that may cause metallic sparks to contact vegetation.
- **Tractors with discers or mower attachments.** Tractors have flammable fuels and hydraulic fluid that may overheat and spray onto vegetation if a hose fails. Spinning mower blades may strike rocks or metal embedded in the ground, creating sparks that can ignite dry vegetation.
- **Temporary vegetation piles.** Large vegetation piles that are allowed to dry and left on site may result in combustion and the potential for embers to land in adjacent vegetation.
- **Grinders.** Sparks from grinding metal components may land on a receptive fuel bed.
- **Torches.** A heat source, open flame, and the resulting heated metal shards may contact vegetation.
- **Dynamite/blasting.** Blasting may cause vegetation ignition from an open flame, excessive heat, or contact of heated material on dry vegetation.
- **Other human-caused accidental ignitions.** Other sources include ignitions related to discarded cigarettes, matches, temporary electrical connections, inappropriately placed generators, poor equipment maintenance, arson, and others.

Ignition risks are anticipated to drop considerably following the Project's active construction phase. The operation and maintenance phases will have significantly reduced human activity relative to the construction phase, which will significantly reduce the exposure to ignitions. Operation and maintenance activities also occur within a defined Project footprint where the adjacent vegetation fuels have been removed or converted to fuel modification-consistent vegetation.

The Project's fire risks during the operation and maintenance phase would be associated with the following:

- **Electrical equipment (conversion).** Equipment may fail or overheat due to damage, contamination, or abnormal voltages. Electrical equipment failure may result in sparks or hot materials being sent out in any direction. Electrical equipment failure may result in arcing between energized equipment and nearby conductive materials. Equipment failure in oil-filled transformers may result in a fire or explosion of the transformer.

- **Electrical equipment (transmission).** Energized lines may fail, overheat, or arc due to contamination, damage, foreign object contact, or line to line contact. Non-energized equipment (e.g., poles) supporting energized equipment may fail, damaging or causing energized equipment to fail.
- **BESS.** The BESS may experience abnormal conditions as a result of accident, damage, failure of the battery management system, improper maintenance, manufacturer defect, or overheating. Abnormal conditions may result in overheating of the battery cells, which can cause fire or, if ventilation systems fail, an explosion that sends hot material in any direction.
- **Vehicles.** Heated exhausts in contact with vegetation may result in ignition. Vehicle accidents with energized equipment may result in energized equipment failure or electrical equipment fire.
- **Maintenance.** Improper maintenance or accidents during maintenance may damage electrical equipment, resulting in electrical equipment failure. Hand tools, either gas or electric powered, used for maintenance may cause sparks, flames, or excessive heat, which may ignite vegetation.
- **Weather.** Electrical storms may cause lighting to strike on the site, causing a fire.
- **Wildfire.** Wildfires on adjacent properties may cause fire on site from direct flames, spot fires from embers, or convective heating, especially if vegetation management is neglected.

3.2 Double Springs Project Risk Rating

The estimated risk associated with the Project site will be low to moderate during commissioning and decommissioning and low during operation. The commissioning phase, which includes construction and start-up of the Project facility, has a higher risk due to the equipment and activities that occur during this phase. This includes "hot work" such as welding or cutting that can create sparks or flames, which could ignite dry vegetation, as well as the storage of combustible building materials on site that could ignite due to accident or misuse. In addition, heavy equipment use, such as grading and site preparation, can create sparks that ignite nearby dry vegetation. During the operational phase, the fire risks associated with construction generally will not occur or will occur infrequently and for a limited period. Fire risk will be low during the operational phase. Ignition sources are much more limited during this phase than the commissioning phase, and ignition sources, such as electrical equipment, are isolated from surrounding dry vegetation by non-combustible equipment pads, roads, and areas of maintained vegetation.

Although equipment fires and wildfires could occur, the risk is considered manageable, as indicated by the low historical incident occurrences in existing BESS facilities and the absence of a recorded instance of a fire in a BESS facility igniting a wildfire (EUCI 2024).

4 Risk Reduction Measures

To reduce the risk of ignitions, the following measures should be employed, as appropriate, during each phase of the Project (construction, operation, maintenance, and decommissioning). These measures will be enforced through the Site Safety Director (SSD) and ongoing worker safety training.

- Fire prevention rules will be posted on the Project bulletin board at the contractor's field office. This will include all contractors and subcontractors, if there is more than one.
- All internal combustion engines used at the Project site will be equipped with spark arrestors that are in good working order.
- Once initial roads have been cut and initial fencing completed, light trucks and cars will be used only on roads where the roadway is cleared of vegetation. Mufflers on all cars and light trucks will be maintained in good working order.
- During construction activities, the Project will be equipped with at least one and up to three water trucks, each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of ¼-inch fast-response hose with fog nozzles. Any hose size greater than 1½ inches will use National Hose (NH) couplings.
- All pickup trucks will be equipped with first aid kits, fire extinguishers, and shovels.
- Equipment parking areas and small stationary engine sites will be cleared of all extraneous flammable materials.
- The Applicant will make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives outside of Red Flag Warning periods. When the above tools are used, water trucks equipped with hoses, fire rakes, and axes will be easily accessible to personnel.
- A fire watch (person responsible for monitoring for ignitions) will be provided during hot work. The watch will occur at the site for up to 1 hour following completion of hot work activities.
- Smoking will be prohibited in wildland areas and within 50 feet of combustible materials storage and will be limited to paved areas or designated areas cleared of all vegetation.
- The construction site will be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- All construction workers and maintenance workers visiting the Project site to perform maintenance activities will receive training on the proper use of firefighting equipment and procedures to be followed in the event of a fire.
- All on-site employees will participate in annual fire prevention and response training exercises with the SAFPD, if required and provided locally by SAFPD staff.
- During construction, an SSD will patrol the site daily during Red Flag Warnings and be equipped with a portable fire extinguisher and communications equipment. The Applicant will notify the SAFPD of the current SSD's name and contact information in the event of any change.
- Remote monitoring of all major electrical equipment (transformers and inverters) will occur to screen for unusual operating conditions. Higher than normal temperatures, for example, can be compared with other operational factors to indicate the potential for overheating, which, under certain conditions, could precipitate a fire.
- Fires ignited on site will be immediately reported to the SAFPD.

- The engineering, procurement, and construction contracts for the Project will clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this FPP.
- Vegetation on site will be maintained in a low-fuel, ignition-resistant condition. It will be trimmed/mowed as needed or controlled via herbicide acceptable to the County.

4.1 Battery Energy Storage System Risk Reduction

Potential hazards associated with BESS systems are primarily associated with the possibility of thermal runaway (similar to overheating) occurring from a malfunctioning or damaged battery. Newer battery technologies have minimized the occurrence of thermal runaway through a system of protections, including internal cell monitoring and partitioning, use of nonflammable chemicals, container design and features, ventilation and air conditioning systems, and inert gas fire suppression systems.

The Project will include self-contained BESS container units situated in a parallel configuration, measuring approximately 20 feet long by 8 feet wide by 9.5 feet high (these dimensions can vary by manufacturer). Foundational pads for the 240 BESS containers and the 60 inverter skids will include structural materials such as crushed aggregate, concrete, and/or steel. All the BESS containers and the PCS equipment will be within the BESS facility enclosure and encircled by or immediately adjacent to the Project's fire department access road.

The Project will use pre-engineered BESS equipped with integrated battery management systems, fire, smoke, and toxic gas detection systems, fire suppression systems, thermal management systems, and explosion prevention systems. The current version of the California Fire Code (CFC) contains safety standards for the system's construction (e.g., frame and enclosure, including mounting, supporting materials, barriers, and more); the insulation, wiring, switches, transformers, spacing, and grounding; safety standards for performance, such as tests for temperature, volatility, impact, overload of switches, and an impact drop test; and standards for manufacturing, ratings, markings, and instruction manuals. In addition to the many individual standards referenced, a failure mode and effects analysis must be performed for each system, which requires a test to ensure the safe compatibility of the system's parts.

The proposed batteries and containers will also include the following monitoring and safety components:

- Modular battery racks designed for ease of maintenance
- Integrated heat and fire detection and suppression system
- Integrated air conditioning system
- Integrated battery management system

The heat and fire detection system will be linked to an automatic inert gas suppression system within each container. In addition to the internal fire protection features, the BESS modules will be arranged so there is adequate space between containers to meet CFC separation requirements and provide room for excess heat generated to be released without overheating adjacent units during abnormal BESS module conditions. Protective devices, such as bollards, will be installed between the modules and the access roads to minimize the risk of damage to a BESS module due to vehicle impact.

All stationary battery storage facilities in California are required to comply with CFC Chapter 12, Energy Systems, and particularly Section 1207, Electrical Energy Storage Systems. The CFC has adopted the internationally and

federally accepted NFPA 855 standard for the design, construction, installation, commissioning, operation, and maintenance of stationary energy storage systems. In addition to compliance with the current version of the CFC, the Project will also comply with all other local, state, and federal safety standards and regulations, including those of the Calaveras Consolidated County Fire Department and the San Andreas Fire Protection District.

The proposed Project will use BESS modules that comply with CFC Section 1207, including the specific criteria for outdoor installations found in Section 1207.8, and meet the criteria for explosion and fire prevention described in the NFPA 855 standard. The BESS containers selected will have passed the UL 9540A test for fire safety hazards associated with propagating thermal runaway within battery systems and will be certified under the UL 9540 standard. These codes and standards include the requirement for each BESS container to have a battery management system, fire detection and suppression system, thermal management system, and explosion prevention system (see Appendix B, Referenced Codes and Standards). This system of protective devices continuously monitors each BESS container. The BESS containers' battery management system must transmit an alarm signal if potentially hazardous temperatures or other conditions, such as short circuits, over-voltage, or under-voltage, are detected. This system is capable of controlling and isolating individual cells from the rest of the system, both remotely and manually.

The Project will be remotely monitored on a continuous basis. Remote access to battery status, meters, schedules, and other telemetry data will be available to off-site personnel. In the event an operational anomaly should occur (e.g., unexpected temperature variation), the monitoring system will immediately alert local contracted operations and maintenance personnel, who can then expeditiously act on the issue. In addition, multiple fail-safes are embedded in the facility's hardware and software to ensure safe and efficient operations and, if necessary, to automatically trigger a temporary shutdown of the facility until the issue is diagnosed and resolved.

Under normal operations, BESS facilities do not contain, store, or generate hazardous materials in quantities that represent a risk to off-site receptors. In addition, the Project's preventive measures and fire and safety systems make accident conditions very rare. Nevertheless, because BESS facilities do store energy, a battery thermal runaway can occur if a cell or area within a cell reaches elevated temperatures due to thermal failure, mechanical failure, or internal/external short-circuiting.

4.2 Fire Prevention Measures

Project staff will employ fire prevention practices throughout the commissioning, operation, and decommissioning of the BESS facility, including the measures described below.

4.2.1 General Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors will take the following precautions:

- When personnel are present, fire safety will be a component of pre-work meetings. The crew leader will remind employees of fire safety, prevention, and emergency protocols daily.
- No smoking will be allowed on site except in designated safe smoking areas, which include cleared areas with no combustible vegetation or materials and approved butt receptacles (noncombustible containment of cigarette butts). Smoking inside closed vehicles at the site may be allowed in designated areas away from vegetation at the discretion of the SSD.

- Combustible materials will be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSD will be informed of the situation.
- All evacuation routes will be maintained free of obstructions. Secondary routes will be identified and made available when unavoidable evacuation route blockages occur.
- Combustible waste will be disposed of in accordance with all applicable laws and regulations.
- Flammable materials will be used and stored in areas away from ignition sources.
- All chemicals will be properly stored such that incompatible (i.e., chemically reactive) substances are separated appropriately.

4.2.2 Fire Prevention/Protection System Maintenance

The SSD (or trained specialist, when necessary) will ensure that fire suppression and related equipment are maintained according to manufacturer specifications. NFPA guidelines will be implemented for specific equipment.

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- Portable fire extinguishers
- Fire alarm systems

The pre-engineered fire protection systems within the BESS modules will also be maintained and tested according to the relevant NFPA standard (e.g., fire suppression systems would use NFPA 2001).

4.2.3 Electrical Equipment Inspection and Maintenance

The SSD (or trained specialist, when necessary) will ensure that the Project's PCS and energy transmission equipment are maintained according to manufacturer specifications, National Electrical Code standards, and Public Utilities Code requirements. This will include inspections according to the schedules listed in Public Utilities Code General Order 165.

4.2.4 Hot Work

Hot work requirements are primarily from CFC Chapter 35, Welding and Other Hot Work, and NFPA 51-B, Fire Prevention During Welding, Cutting and Other Hot Work. Hot work is defined in the CFC as operations involving cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, or other similar operations. Hot work areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat because of the hot work.

The SSD will require all hot work to be performed per the requirements in NFPA 51-B and the CFC Chapter 35.

Hot work will only be done in fire safe areas designated by the SSD and will comply with the following:

- All personnel involved in hot work will be trained in the safe operation of the equipment by the SSD. This will include providing training at tailgate safety meetings. Personnel will also be made aware of the risks involved and emergency procedures, such as how to notify the SSD of an issue and who is responsible for calling 911.

- Signage indicating “Caution: Hot Work in Progress; Stay Clear” is required in areas where workers may enter.
- Hot work will not be done on any containers containing or having contained flammable liquids, gases, or solids until they have been thoroughly cleaned, purged, or inerted.
- A fire extinguisher with a minimum rating of 3-A-40 BC, a 5-gallon backpack pump fire extinguisher, and a 46-inch round point shovel will be readily accessible within 25 feet of any hot work area.
- The SSD will inspect the hot work area daily.
- Gas welding and cutting will comply with 2022 CFC Section 3505.
- Electric arc hot work will comply with CFC 3505.
- Piping manifolds and hose systems for fuel gases and oxygen will comply with CFC Section 3509.
- Cylinder use and storage will comply with CFC Chapter 53, Compressed Gases.
- Personal protective equipment will be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- As considered necessary by the Site Safety Coordinator, post-work fire monitoring may be required for up to 1 hour.
- Small ignitions that can be safely approached will be immediately extinguished by site personnel, and the SAFPD will be notified of the incident.

The Site Safety Coordinator will be responsible for ensuring safe hot work operations and will have the authority to modify hot work activities associated with construction and maintenance activities and to exceed the requirements in NFPA 51-B and the CFC to the degree necessary to prevent fire ignition. Workers must be trained on the hot work information and criteria in this FPP.

4.2.5 Red Flag Warning Protocol

The National Weather Service issues Red Flag Warnings and indicates that conditions are such that wildfire ignitions and spread may occur (e.g., low humidity, high winds). During Red Flag Warning or Watch periods, no hot work will be performed unless consultation with the Calaveras County Consolidated Fire Department and SAFPD has occurred to discuss the type of hot work activity and what precautions will be provided. Other construction, operation and maintenance, and decommissioning activities may proceed during these periods under heightened awareness conditions. The SSD will determine what activities are appropriate and which should not be conducted until the Red Flag Warning has been lifted.

To ensure compliance with Red Flag Warning restrictions, the National Weather Service website will be monitored daily during normal conditions or 2 to 3 times a day during Red Flag Warnings at the Project site during construction and decommissioning (National Weather Service 2024).

4.2.6 Construction Fire Safety Briefings, Inspections and Training

4.2.6.1 Briefings and Inspections

The SSD will conduct routine inspections during the construction of the Project facilities and develop an inspection checklist to document these inspections.

Prior to Project construction, Project personnel will receive a presentation on the contents of this FPP, along with additional fire safety and fire prevention information provided by an informed SSD (or their designee) as part of OSHA [Occupational Safety and Health Administration] training. Supervisors/crew leaders will be responsible for sharing FPP content with transient Project personnel throughout Project construction. Each daily safety tailgate session will include an assessment of the day's fire-related risks and hazards, as well as the mitigation for each.

Compliance with this FPP is mandatory, and monitoring compliance with this FPP is everybody's responsibility. All levels of Project management have the authority to shut down any operation that presents an inappropriate amount of fire risk or hazard until it can be adequately mitigated.

Violations of any of the requirements of this FPP will be addressed immediately. Appropriate consequences for repeated or serious negligence regarding this FPP will be dealt with accordingly. All Project-related vegetation fires, regardless of size, will be promptly reported to the California Public Utility Commission and Bureau of Land Management to determine if appropriate mitigation measures are being taken.

4.2.6.2 Training Requirements

Basic Fire Safety Training

The SSD and/or site supervisors/crew leaders will present basic fire prevention training to all site personnel during their Project onboarding. They will maintain documentation of the training, which includes the following:

- This FPP, including how it can be accessed
- Fire Management: Wildfire Prevention regulations found in the Code of Federal Regulations (43 CFR 9212 et seq.)
- Proper response and notification in the event of a fire
- Instruction on the use of portable fire extinguishers (as determined in the Emergency Response Plan)
- Recognition of potential fire hazards

In addition, all construction and decommissioning personnel will be trained about the fire hazards associated with the specific materials and processes they are exposed to. The SSD will maintain training documentation. Operational site employees will receive the training during the following times:

- Upon first entering the facility
- Annually, during a pre-planned meeting
- When changes in work processes necessitate additional training

Supervisor/Crew Leader Fire Safety Training

Prior to Project construction and/or decommissioning, all Project supervisors will receive a minimum of 1 hour of training on wildland fire prevention and safety. The SSD or their qualified designee will provide this training, which will then be shared with all construction and decommissioning personnel.

Each supervisor/crew leader will be trained to understand the following:

- Fire Reporting
- Extinguishing small fires to prevent them from growing into more serious threats
- Fire Prevention
- Initial-attack firefighting
- Identifying work activities that may result in a fire hazard

4.3 Vegetation Management

The risk of a wildfire igniting on the Project site or spreading onto the Project site from an adjacent property can be minimized by maintaining the on-site vegetation in a condition that is unlikely to support a fast-moving or intense wildfire. The combination of the approximately 50' crushed gravel fire mitigation buffer for the Project equipment, and the non-combustible access roads and management of the vegetation on the Project site will minimize the risk that an ignition event, such as the failure of energized equipment, will result in a new wildfire. This section describes the vegetation management practices that would be employed at the Project site during the commissioning, operations, and decommissioning of the BESS facility.

4.3.1 Fire Barriers

Two non-combustible fire barriers are within 100 feet of the Project's BESS components (BESS containers, inverter skids, substation, etc.).

The first is the security wall located along the outer edge of the access road around the BESS components. This seven-foot-tall wall is composed of a non-combustible block wall around the entire perimeter except for the southeast corner adjacent to the on-site substation.

The second is a gravel fire break located outside of the security wall, around the outer edge of the enclosure containing the BESS containers, PCS equipment, and substation. The fire break is approximately 50 feet wide and composed entirely of non-combustible material. It would be kept free of flammable vegetation through annual maintenance, including the removal of any vegetation growing in the fire break.

4.3.2 Vegetation Management Standards

The Project site is covered entirely by California annual grasslands. To minimize wildfire risk for this vegetation type, the grasslands require maintenance at least once per year after the vegetation has cured. The County of Calaveras and SAFPD do not have a weed abatement or defensible space standard, and there is no specific requirement in the Calaveras County Code that describes vegetation management. However, the Calaveras County Code does state that unmanaged vegetation on properties within a "Hazardous Fire Area" has the potential to be a menace to life

and property (County of Calaveras 2024). In the absence of local regulations that specify vegetation management standards, this FPP uses the guidance provided by CAL FIRE in its defensible space program (CAL FIRE 2024). Annual grasslands within the Project site will be maintained to a height of 4 inches or less. This maintenance will begin as soon as the grasslands have fully cured and continue until the end of the fire season or the grasslands have undergone green-up. Vegetation management will not be required while vegetation on the property is green because annual grasslands cannot sustain wildfire when the grass is green, and the vegetation would rapidly grow back, requiring frequent treatment.

Vegetation management will be performed within 100 feet of the Project facilities, including any BESS modules, PCS, and substation equipment. This 100-foot area will include the equipment pad, the crushed stone fire mitigation buffer, and the access road around the facility. There are several locations where it will not be possible to maintain the entire 100-foot width. This includes the north side of the BESS enclosure, where the property line is approximately 50 feet from the nearest BESS module, and the south side of the BESS enclosure, where there is a delineated stream near the outer edge of the 100-foot-wide area. Wildfire risk to the BESS facility from these two areas, where there is less than 100 feet of vegetation management area, is not anticipated to expose the Project facility to increased wildfire risk. Flame lengths in the grasslands on the Project site are not expected to exceed 10 feet in height (USDA 2024), and the available vegetation management area plus the access road provide a more than adequate separation between the Project equipment and a wildfire in unmanaged grasslands to prevent direct flame contact with Project equipment or facilities.

5 Minimum Project Fire Safety Standards

This FPP provides recommendations for minimizing the risk of a wildfire originating at the Project site or a destructive wildfire impacting Project facilities. The Project will reduce wildfire risk by implementing the following fire prevention measures and practices:

1. **Fire Apparatus Access Roads.** Fire access roads will be provided according to CFC requirements, which typically include an all-weather surface and the ability to support the imposed loads of fire apparatus. Fire access roads will extend around the perimeter of the BESS equipment and facilities and within 150 feet of any on-site BESS containers or electrical equipment. These roads will be no less than 20 feet wide and graded to not exceed 15%.
2. **Gates.** The gates will comply with CFC requirements. The facility will be completely enclosed with a security wall. Access through the security fence will be through a locked gate across the access road. The gate will be at least 12 feet wide to facilitate the use of firefighting apparatus. A key box (Knox Box) will be provided on the outside of the security fence near the entrance to allow the fire department access.
3. **Security Fence** With the exception of the southeast corner, the BESS facility (BESS containers, inverter skids, and substation) will be separated from adjacent vegetation and ignition sources by a seven-foot-tall non-combustible block wall.
4. **Identification.** Identification of roads and structures will comply with CFC requirements. Below-surface pipelines, electrical lines, and communications lines will be "signed" at an interval appropriate to alert fire engine operations and firefighters of depth and location. Main and equipment electrical disconnects will be identified with signage that complies with CFC requirements.
5. **Water.** Water for firefighting purposes, as well as for preventive watering of surrounding vegetation, will be provided by an on-site water tank. The on-site water tank will comply with NFPA 22, Standard for Private Fire Protection Water Tanks. The water capacity of the tank and fire flow capacity of the attached fire pump will meet the minimums described in NFPA 1142 and be compliant with CFC requirements. The proposed tank has a 30,000-gallon capacity.
6. **Ignition-Resistant Construction.** Exterior surfaces of the on-site equipment and facilities will be constructed primarily of non-combustible materials, including metal and ceramics. Electrical equipment and conductors will incorporate safety features, including the following:
    a. Wiring, harnesses, and junction boxes are designed not to ignite and arc or spark, thereby causing a potential ignition source for vegetation.
    b. Electrical wiring to be rated for outdoors/exterior and be fire retardant.
    c. Insulation materials (sealants) on panels to be noncombustible.
    d. Electrical motors are to be of a type that is sealed and does not emit sparks.
    e. Equipment that provides arc-flash protection.
    f. Exposed electrical wiring composed of proper weather-resistant conduit to help resist fire exposure, arcing, and sparking.
    g. Waterproof electrical enclosures.
    h. Equipment that incorporates standard protective components, such as circuit breakers, reclosers, and fuses, that automatically shut off the power in the event of a disturbance.

7. **Fire Protection Systems.** Project equipment and facilities will incorporate Battery Management Systems (BMS), fire detection, fire suppression, and explosion-prevention systems. Each BESS container will contain its own BMS, fire detection, fire suppression system, and explosion-prevention system that can operate automatically. BMS and fire protection features will be monitored remotely for abnormal conditions and alarms 24 hours a day, 7 days a week.
8. **Remote Monitoring.** Remote monitoring of the facility and its system features will be incorporated into the facility design. For example, the SCADA system used by the Project will provide notification to technical staff of system faults or potential issues.
9. **Vegetation Management.** Vegetation on the Project site will be maintained in a condition that meets CAL FIRE Defensible Space Standards[1] and would not exacerbate fire spread on site during the fire season (May to October).
10. **Gravel Fire Break-** The Project components will be separated from adjacent vegetation by a 50 foot wide gravel buffer. This gravel buffer is wide enough to protect the Project components from direct flame contact from an adjacent wildfire and provides additional space for emergency responders to safely engage a fire.
11. **Technical Staff Contact.** Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this FPP will be submitted to SAFPD.

By implementing these fire protection measures and practices, the Project will comply with CFC requirements and minimize the wildfire risk to the Project and surrounding lands.

[1] Annual grass and herbaceous vegetation will be cut to a height of four inches or less.(CAL FIRE 2006)

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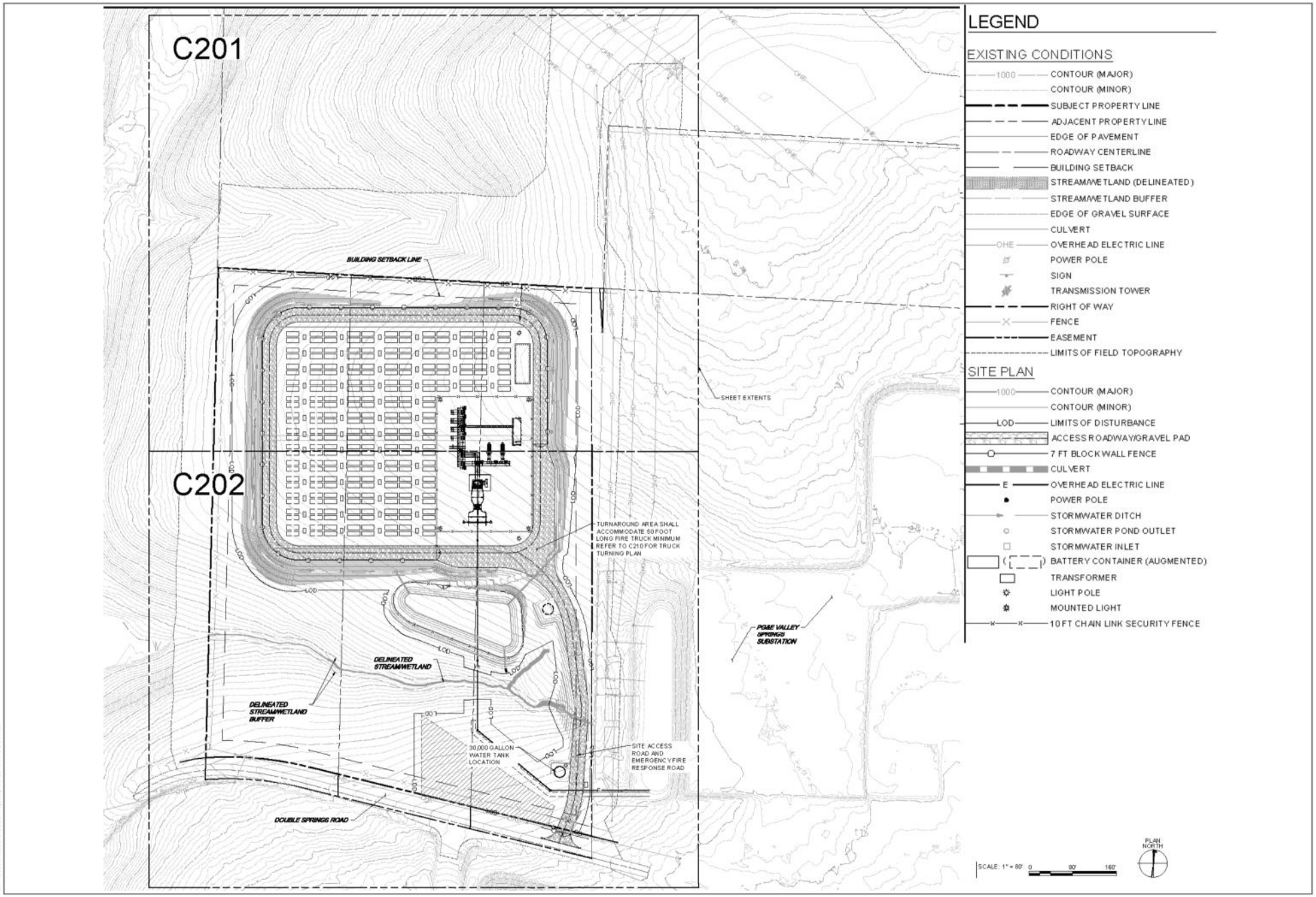


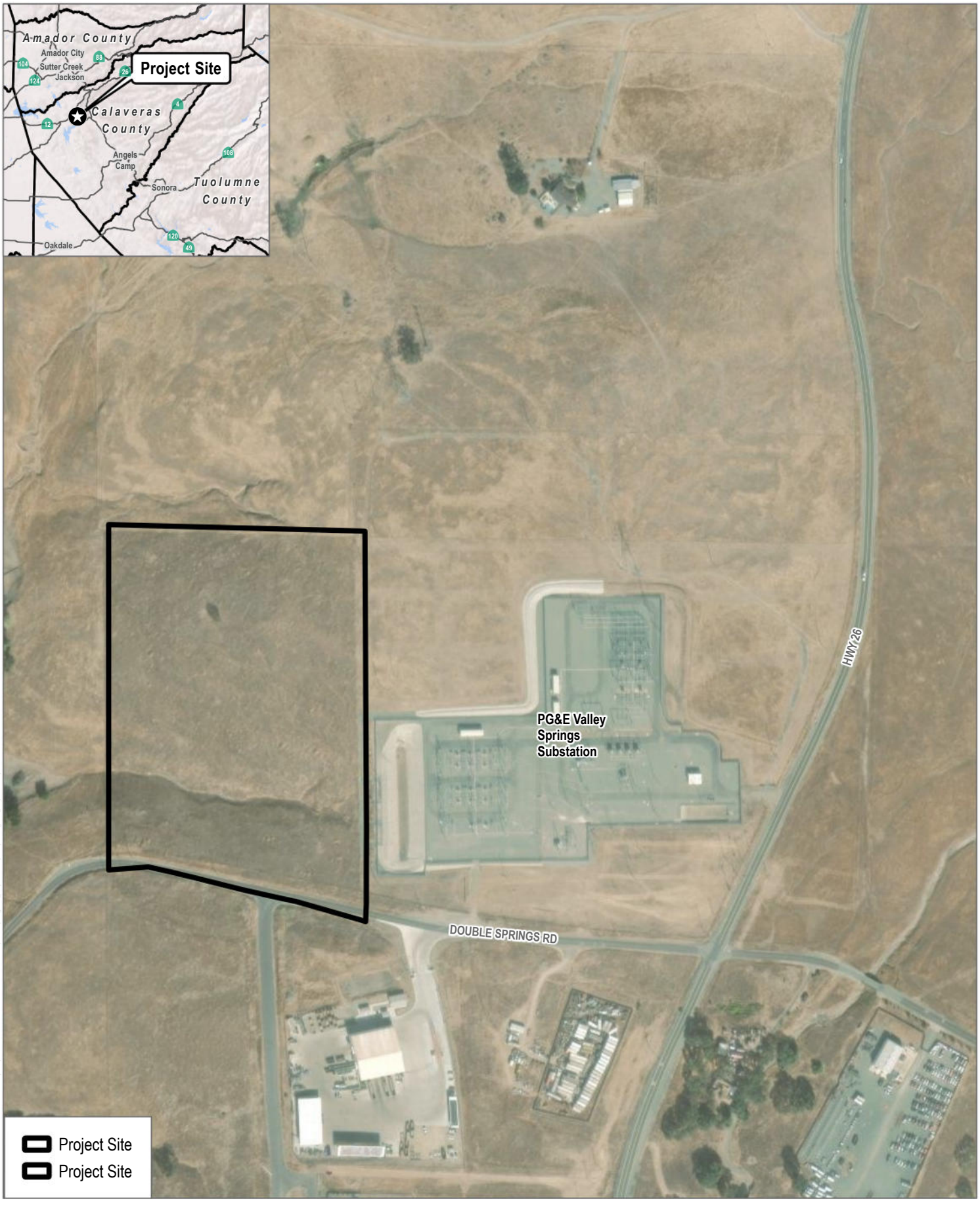
SOURCE: TetraTech, 2024

FIGURE 1

Project Site Plan

Double Springs BESS Project

DUDEK



SOURCE: Esri World Imagery Basemap; Calaveras County 2024

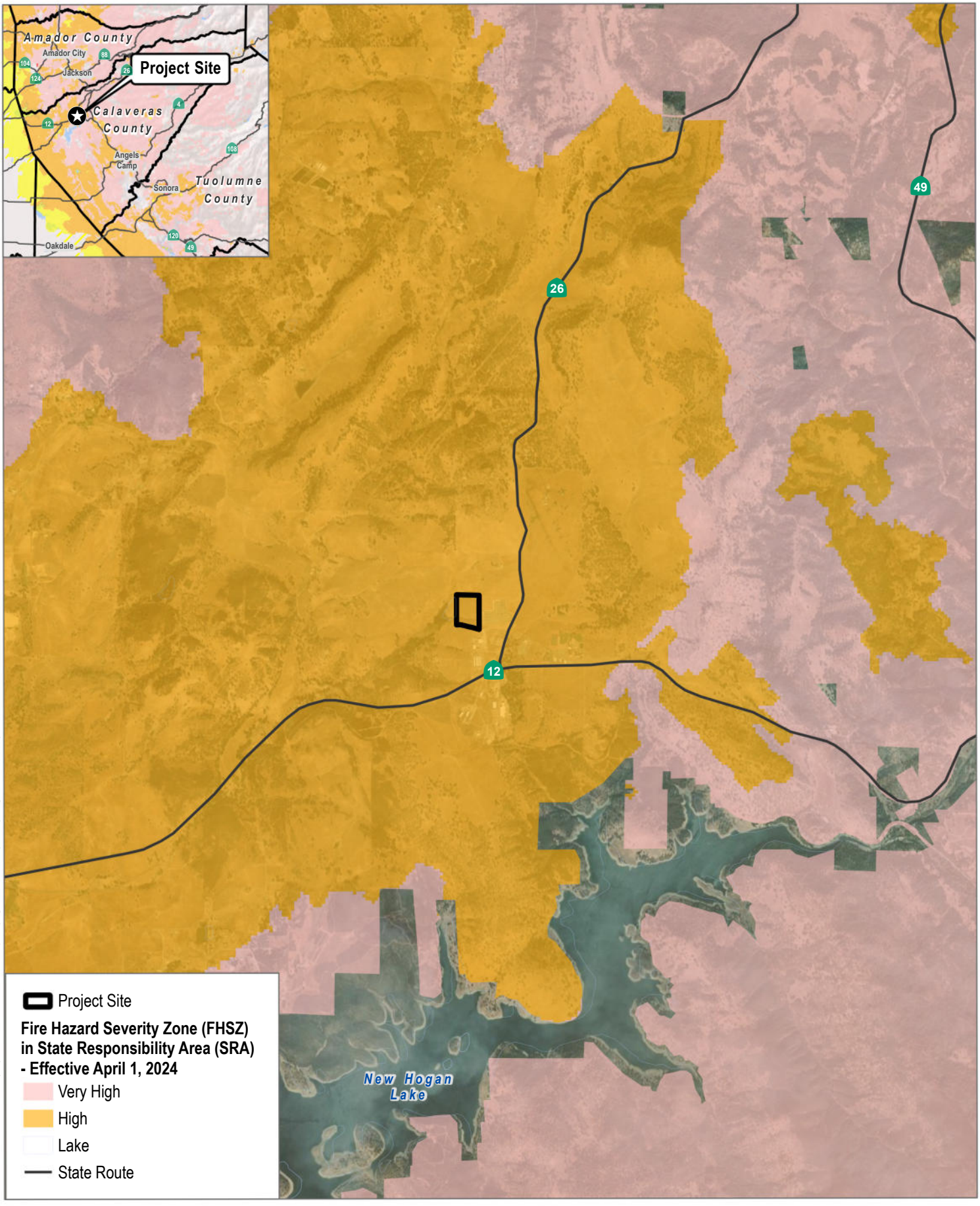
DUDEK

0 175 350 Feet

FIGURE 2

Project Site

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024; CALFIRE 2025

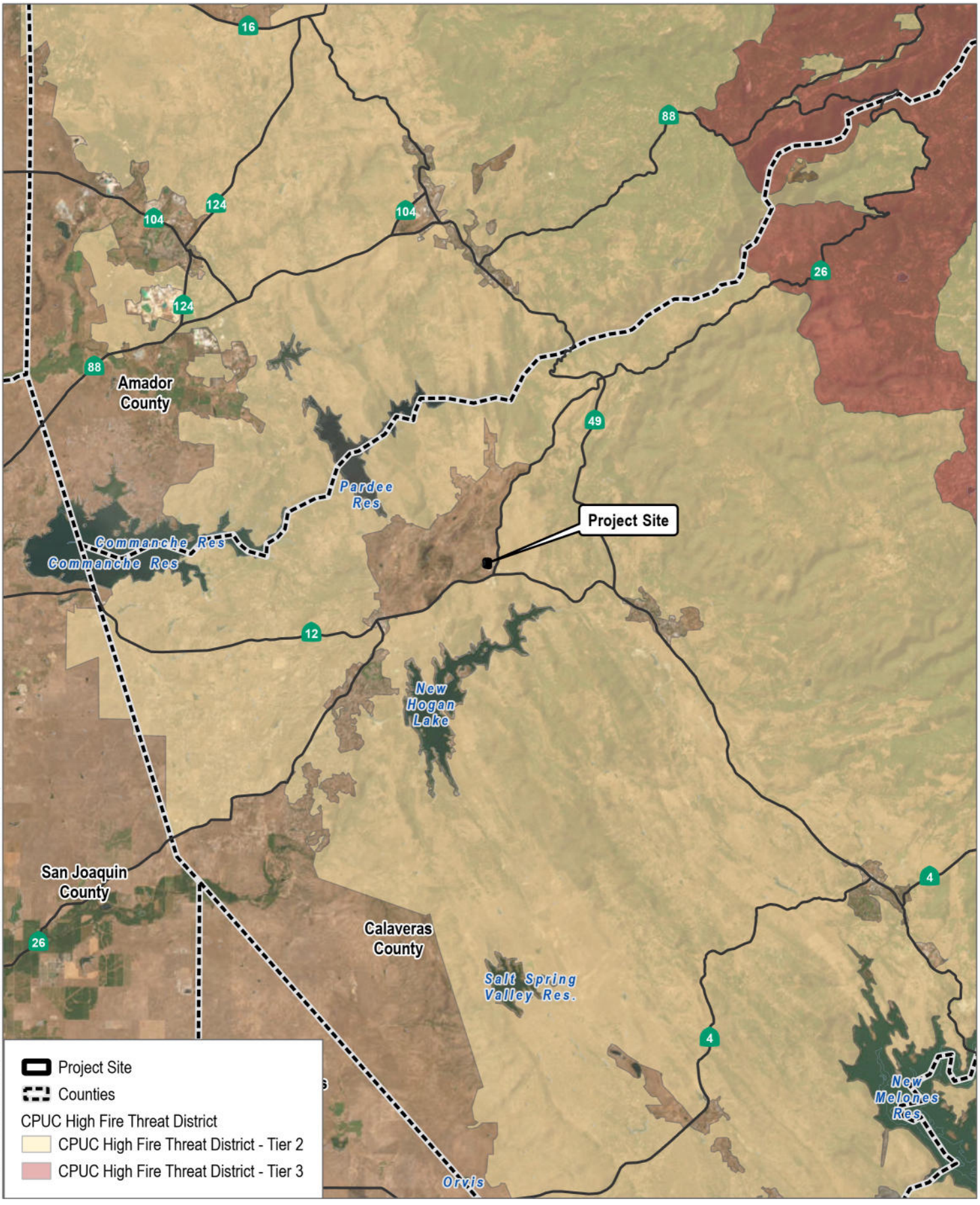
DUDEK

0 1,500 3,000 Feet

FIGURE 3

Fire Hazard Severity Zone Map

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024; CALFIRE 2025

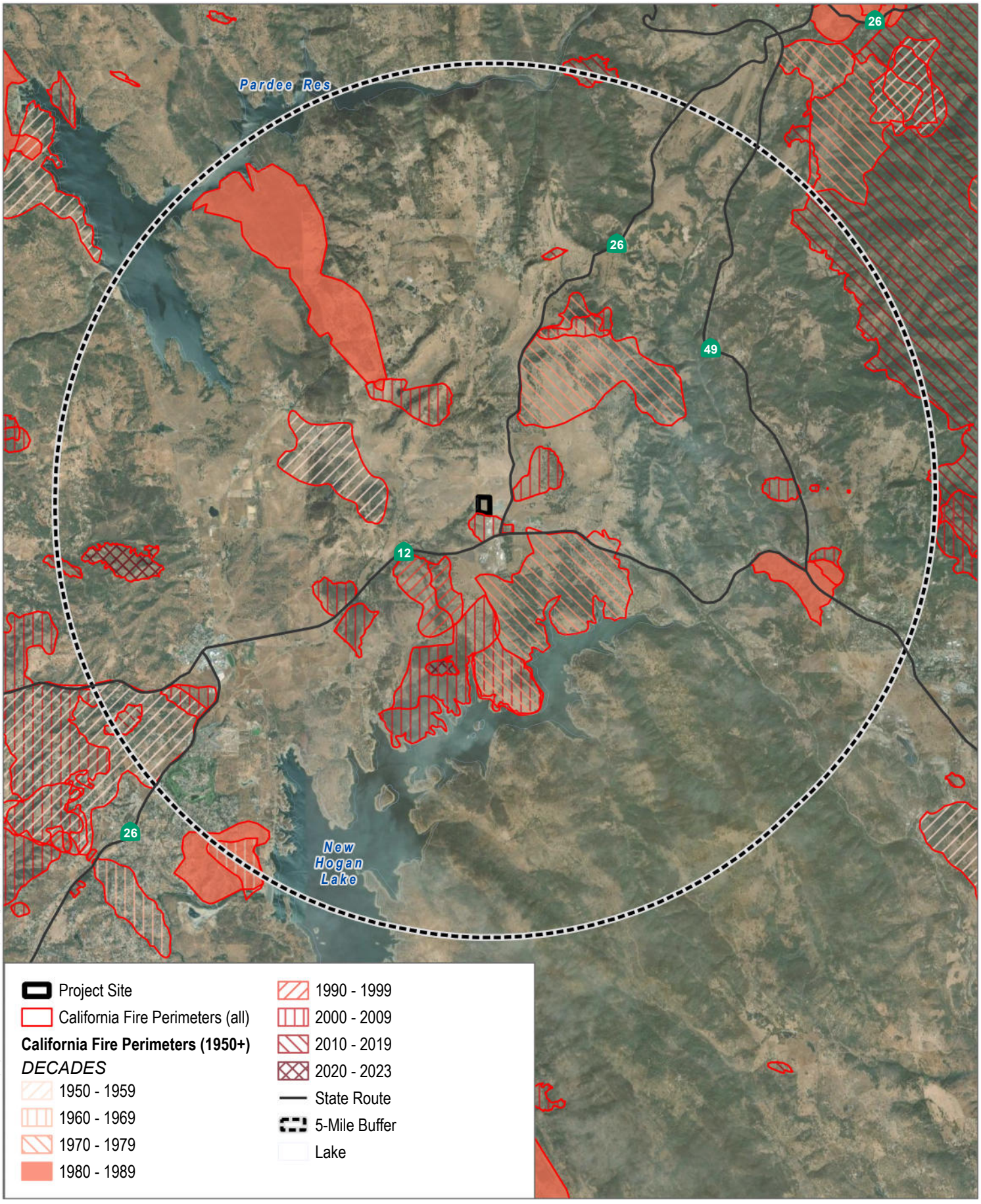
DUDEK

0 2.5 5 Miles

FIGURE 4

CPUC High Fire Threat District (HFTD) Area

Double Springs BESS Project



SOURCE: Esri World Imagery Basemap; Calaveras County 2024; CALFIRE 2025

DUDEK

0 1 2 Miles

FIGURE 5

Fire History Map

Double Springs BESS Project

Appendix A

Photos of the Double Springs BESS Project Site



Photo Number 1. Southern end of site looking north. Fuels on site.



Photo Number 2. Southwest corner of site looking north.



Photo Number 3. Southwest corner of site looking east.



Photo Number 4. Looking west along Double Springs Road.

Appendix B
Referenced Codes and Standards

The Project is subject to national, state, and local regulations regarding new development in an Fire Hazard Severity Zone, wildfire risk mitigation, and the construction of electrical infrastructure.

National Codes/Regulations

- North American Electric Reliability Corporation
- NERC Standard FAC-003, Transmission Vegetation Management
- Institute of Electrical and Electronics Engineers Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines)
- National Electrical Safety Code Section 23 Clearances

National Standards

- National Fire Protection Association (NFPA)
  - NFPA 855 Standard for the Installation of Stationary Energy Storage Systems
  - NFPA 1142 Standard On Water Supplies for Suburban and Rural Firefighting
  - NFPA 1720 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments
- Underwriters Laboratory (UL)
  - UL 9540 Energy Storage System (ESS) Requirements
    - UL 9540A Test MethodTesting the fire safety hazards associated with propagating thermal runaway within battery systems.

State Codes/Regulations

- California Building Code
- California Electrical Code
- California Fire Code
  - Chapter 5 Fire Service Features
  - Chapter 9 Fire Protection and Life Safety Systems
  - Chapter 12 Energy Systems
  - Chapter 33 Fire Safety During Construction and Demolition
  - Chapter 49 Requirements for Wildland-Urban Interface Areas
- California Public Utilities Commission General Orders and Rules
  - General Order No. 131-D
  - General Order No. 95
  - General Order No. 166
  - General Order Rule R.08-11-005
- California Public Utilities Code

  - PUC 8386
  - PUC 761.3
- California Public Resources Code
  - Section 4291
  - Section 4292 and 4293
  - Section 4201 to 4204

County Codes/Regulations

- Calaveras County Local Hazard Mitigation Plan
- Calaveras County Emergency Operations Plan
- County Ordinance 8.08 Hazardous Fire Areas